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# Wise Traditions

IN FOOD, FARMING AND THE HEALING ARTS

A PUBLICATION OF THE WESTON A. PRICE FOUNDATION®

*Education ♦ Research ♦ Activism*[www.westonaprice.org](http://www.westonaprice.org)

Volume 19 Number 4

Winter 2018

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Volume 19 Number 4

Winter 2018

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# THE WESTON A. PRICE FOUNDATION®


*Education ♦ Research ♦ Activism*

The Weston A. Price Foundation is a nonprofit, tax-exempt charity founded in 1999 to disseminate the research of nutrition pioneer Weston A. Price, DDS, whose studies of isolated nonindustrialized peoples established the parameters of human health and determined the optimum characteristics of human diets. Dr. Price's research demonstrated that men and women achieve perfect physical form and perfect health, generation after generation, only when they consume nutrient-dense whole foods and the vital fat-soluble activators found exclusively in animal fats.

The Foundation is dedicated to restoring nutrient-dense foods to the American diet through education, research and activism and supports a number of movements that contribute to this objective, including accurate nutrition instruction, organic and biodynamic farming, pasture-feeding of livestock, community-supported farms, honest and informative labeling, prepared parenting and nurturing therapies. Specific goals include establishment of universal access to clean, certified raw milk and a ban on the use of soy-based infant formula.

The Foundation seeks to establish a laboratory to test nutrient content of foods, particularly butter produced under various conditions; to conduct research into the "X" Factor, discovered by Dr. Price; and to determine the effects of traditional preparation methods on nutrient content and availability in whole foods.

The board and membership of the Weston A. Price Foundation stand united in the belief that modern technology should be harnessed as a servant to the wise and nurturing traditions of our ancestors rather than used as a force destructive to the environment and human health; and that science and knowledge can validate those traditions.

The Weston A. Price Foundation is supported by membership dues and private donations and receives no funding from the meat or dairy industries. 



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# President's Message

Living well in today's toxic world requires constant vigilance; we must learn to avoid toxins like GMOs, glyphosate and sun screen, all discussed in feature articles in this issue, among many others. At the same time, we need to consume a clean diet rich in protective factors.

There's a lot of talk about those protective factors—antioxidants and vitamin C in vegetables, for example—but almost no mention of what I call Nutrient X, the most protective of them all!

And just what is that nutrient? Most of you will not be surprised when I say animal fats! Yes, the one nutrient that conventional nutrition tells us to avoid at all costs, is the nutrient that offers the most protection in this toxic world!

Animal fats contain vitamin A, absolutely the most important nutrient in our arsenal against poisons; they uniquely provide vitamin D and are the best source of vitamin K<sub>2</sub>, both of which have cancer-fighting properties. We get CLA, another cancer-fighting nutrient, from the fats of grass-fed animals. Animal fats provide arachidonic acid, critical for a healthy, nonporous gut and skin; and they are our best source of saturated fat, the fat that supports the balanced production of hormones and detoxifying enzymes. For our cells to work right, to keep out what doesn't belong and to allow what does into the cells, at least half of the fatty acids in the cell membrane should be saturated fatty acids. I was struck by Dr. Litman's description of what happens to the mitochondria in someone with cancer—their method of producing energy is messed up. Well, just like the cell membranes, the membranes of the mitochondria are composed of a double layer of fatty acids and at least half of them must be saturated for these energy-producing structures to work properly.

There were lots of saturated fats on display at Wise Traditions 2018, our 19th annual conference—piles of butter, of course, but also meat fats, coconut oil and foods cooked in lard. Where else can you eat such delicious, healthy food as at the Wise Traditions conference? Everyone noticed the buzz, the great atmosphere this year—must be all that happy-making food! More than anything, the Wise Traditions conference is a reunion of old friends and an opportunity to make many new friends. And we learned so much from the talks, seminars and panel discussions.

A huge thank you to all our exhibitors, speakers, food donors, volunteers and photographers Sandrine Perez and Lisa Bianco-Davis.

We are in the process of making plans for Wise Traditions 2019 November 8-10 and will let you know the place just as soon as it is set so that you can put the event on your calendars. Meanwhile, we wish everyone the very best for the holidays and a new year filled with happiness and good health!





# Letters



## THE WISE MINORITY

We rarely run into or hear of a large group of wise people, that is, the wise are rarely in the majority. This is a problem in a democracy, a problem which the founders of our country discussed and tried to protect against.

Majorities go awry at times, perhaps often, and then how important it is to have a few voices in the minority to speak up.

On a number of important issues, the Weston A. Price Foundation is in the minority and seems to be the only voice speaking up. I thank you for it. I also thank you for your quarterly journal, which is printed on paper, and can be held in one's hand.

As Wall Street genius Jack Dreyfus once said, "Every now and then a little common sense ought to be permitted." Let us try to provide a little common sense.

David Ellis  
Portsmouth, Rhode Island

## 5G ROLLOUT

In this brave new world, capitalism-at-any-cost continues to drive Father Technology with a vengeance, with no real consideration for Mother Nature—the opposite of what the Weston A. Price Foundation has been trying to communicate for the last twenty years. The new 5G towers have recently been rolled out in Chicago, Los Angeles, Dallas, Atlanta, Washington DC, Houston, Indianapolis, San Francisco, Sacramento and Las Vegas. The former FCC chairman, Tom Wheeler, and other industry leaders are eschewing any safety concerns from the resulting higher radiation levels in order to

position the U.S. as the front-runner in this emerging technology, and to benefit from the billions of dollars that can be made.

Fortunately, even people outside our holistic community are speaking up. Firefighters in California have filed to have the 5G towers outside their stations removed after reporting an epidemic of disturbing neurological symptoms (confusion, memory loss, headaches, insomnia). Furthermore, some cities, like Santa Rosa, California, are not allowing 5G towers to be installed until further research on the health repercussions from this powerful radiation are addressed. And although the CDC and EPA continue to report that 5G is safe, over two hundred forty scientists and doctors from forty-one nations have appealed to the United Nations to institute a moratorium on this 5G rollout due to the serious human and environmental health risks linked with this dangerous ionizing radiation.

Louisa Williams  
Austin, Texas

## VACCINATION HORROR

A few cases of measles or chickenpox—benign infections in healthy children that last a week or so, confer lifetime immunity, prime and develop the immune system when contracted via natural means during childhood, enable females to then pass on immunity to their babies during the vulnerable time of infancy and which we are learning protect against cancer both in childhood and later in adulthood—trigger our pharma-backed mainstream media to scream *outbreak*, to manipulate the public to go into *panic mode*, and to de-

clare a state of *national emergency*, all of which are then used to generate more vaccine mandates for more people.

At the same time, over nine thousand children per month are being diagnosed with a severe, permanent, lifetime disorder of autism (based on the previously published rate of one in thirty-six), which is breaking the banks of families, school systems and our country, rendering the majority of its victims dependent for life, rather than independent, participating, productive, income-generating, self-sufficient citizens, and which robs its sufferers of proper development and, for most, of the ability to lead an independent life, including college, driving, working, marrying and having children. . . all of which is unbelievably and categorically *ignored, dismissed, denied, scoffed at, demeaned, belittled, lied about* and left to continue increasing and devastating lives with no plans to stop it.

Laura Hayes  
Granite Bay, California

*Read the full text of Laura's recent presentation in Utah, "Why Is This Legal?" at [www.ageofautism.com/2018/11/why-is-this-legal-presentation-on-vaccines-by-laura-hayes.html](http://www.ageofautism.com/2018/11/why-is-this-legal-presentation-on-vaccines-by-laura-hayes.html).*

## HEALING THROUGH WAPF

I am writing this to thank the Weston A. Price Foundation for everything you have done to change my life for the better. Six years ago, I found myself in an absolute health crisis as a young mother of three children under four, sick and weak with severe adrenal fatigue. I was quickly losing weight and unable to function. It took two years



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under the care of a brilliant WAPF chapter-leader naturopathic doctor, a change in my dietary habits, targeted Standard Process supplementation and lots of prayer, but I was completely healed and restored to a place so much healthier and stronger than I could ever have dreamed. The healing process through the use of traditional foods was astounding to watch and to experience, as each day brought with it a renewed hope.

Inspired and encouraged by how powerfully food and the healing arts affected my life, I completed the nutritional therapy consultant course through the Nutritional Therapy Association in 2014 in order to help others. I had been enjoying a very full life as a wife and mother, feeling wonderful, until some digestive issues flared up a few weeks ago out of the blue. To my chagrin, I found myself unable to eat anything at all without being in searing, agonizing pain for hours. The pain was comparable to childbirth and had me losing weight quickly again.

My trusted naturopathic doctor recommended three things: raw milk, rare beef and Gastrex from Standard Process. Raw milk is readily available at the health food store over the border in Connecticut from where I live in New York, and I have consumed gallons over the past few weeks. I have felt wonderful and have not once had a day where I was dizzy or weak. Raw milk has sustained me and I am able to consume it without any pain whatsoever. The addition of rare beef last night had me anxious, as anything solid I have tried has left me in agony for hours, but fortunately, it did not cause any pain. I am

looking forward to healing my digestive issues completely though a traditional diet and the WAPF guidelines. Thank you, thank you for all you do and the knowledge you have imparted to me over the years. My family and I are eternally grateful.

Vanessa Leahey  
South Salem, New York

## THE ROOT OF A THYROID PROBLEM

I am writing because I had a root canal-treated tooth removed at the end of July after spending eighteen months working with a thyroid specialist to get to the root of my Hashimoto's Disease. I've likely had Hashimoto's most of my life, however, I only received a diagnosis about two years ago when I abandoned our conventional health care system and had a full thyroid panel of tests done on my own. I tested high for thyroid antibodies, a test which all of my previous doctors failed to mention. The long and the short is that I went through all the conventional treatments for hypothyroidism, and none of them yielded any lasting improvement. I even did three rounds of something called the Wilson's Temperature Syndrome Protocol which did initially produce some symptom improvement but ultimately did not resolve my issues.

I was gearing up to start another cycle of this T3-only treatment, which is on the controversial end of the spectrum by conventional standards, when I came across some research by Dr. Weston Price. I had a post and crown in a root-canal-treated tooth since it was knocked out by a rock when I was ten years old. I was getting ready to replace

the crown anyway, and I thought that rather than invest in the new crown, I would hold off on any further thyroid treatment and see about having the tooth properly extracted instead.

One of my hypothyroid symptoms was always being cold, and I tracked my body temperature almost obsessively for over a year prior to the tooth extraction. I normally ran 96.5 to 97.5 degrees. Nine days after the tooth extraction, my body temperature went up, and I am over 98.0 every day now, hitting 98.6 most days. My first full menstrual cycle since the tooth extraction went from forty-two days to twenty-nine days, and my basal body temperature seems to have a more delineated follicular and luteal phase pattern, as it should.

Given several significant changes obviously related to shifts in my hormones, my doctor ordered blood work to determine whether my estrogen and progesterone had gone up. Consistent with my symptom improvement, my estrogen has doubled and my progesterone has increased over 1000 percent! For over two years, my progesterone has tested in the post-menopausal range. I am forty-two and every health care practitioner I have met with agrees that my symptoms are not perimenopausal in nature. My tooth is the only variable that changed in this period of time, and my doctors had exhausted all of their usual treatments for autoimmune hypothyroidism, including radical dietary and lifestyle changes.

This is still likely to be a long journey, but I feel like I am finally on the right path. I have asked my doctors for help for over twenty years only to be



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told that my problems were either in my head or that there was nothing wrong with me. It would seem they were correct about the issue being in my head, but I'm not sure they were considering the oral cavity in their assessments. Despite the well-established link between root canals and periodontal disease with heart disease and stroke, the problem is that it takes many years for those issues to develop and be empirically measured. What is remarkable about the female body is that we have things that are measurable and quantifiable when there is a changed variable, like the extraction of a root canal-treated tooth on a monthly or even daily basis. As such, I believe that women will be at the center of bringing this issue into the public eye. If WAPF has any members who are experts in endocrinology or integrative medicine, I would be very interested in connecting with them.

I am writing for a couple of reasons. First, my tooth is still preserved, and I was very much hoping to have it sent to someone to have a full pathology report done and a culture of whatever bacteria might be growing inside of it, but the professor who used to perform the dissections for my oral surgeon is no longer at the university where they previously sent specimens. I am wondering whether WAPF or any of its members have any resources for scientists who still perform such testing. If so, I would love to get in touch with them.

Secondly, this has been quite an emotional journey for me, and it has left me profoundly moved. I feel like I need to do something with it to help facilitate change—change in how this dental procedure is practiced and marketed,

change in our approach to health and dental care, change in how we demand access to clean, healthy foods.

I am in the preliminary stages of building a new website: [rootcanalsafety.org](http://rootcanalsafety.org) which came about after a few discussions with dentists and oral surgeons about the fact that there is no central database or organization to collect doctor and patient accounts of health improvements after the proper removal of root-canal-treated teeth. Such stories then end up being referenced as anecdotal. There is power in numbers and allowing patients to tell their stories in one central location may provide the weight needed to bring this issue into the public eye where it belongs. My intention is to build a database where doctors and patients can report those accounts and the data can be collected, analyzed and used for public-awareness purposes. It is not intended as a commercial website or blog, just a reporting site.

I started a crowdfunding campaign. If we can raise even a few thousand dollars—which I think I can manage just through the thyroid and autoimmune communities on social media—we can at least get the database programmed and worry about a promotional campaign to alert doctors and patients about the tool later. Right now, I am looking to make any meaningful connections with doctors, dentists, anthropologists, patients and whoever might have a passionate interest in participating in one form or another in creating public awareness about root canal safety.

I am shocked at how many dentists and physicians I have spoken to who have never even heard of focal infec-

tion theory as it relates to root canal-treated teeth. The Internet and social media really have leveled the playing field to a large extent when it comes to David-and-Goliath kinds of issues. I think there's a reason this happened to me, and I would be remiss not to do something bigger than myself with it.

If you know anyone who would be interested in contributing even ten dollars to the cause, the GoFundMe link for [rootcanalsafety.org](http://rootcanalsafety.org) is at [gofundme.com/root-canal-safety-website](http://gofundme.com/root-canal-safety-website).

Jennifer Mayo  
Stevensville, Michigan

## BIRTHRIGHT TO BE HEALTHY

I am a chapter leader in Australia and will start working with children next year after completing my studies. I have healed myself using Weston Price principles for the past eight years and find my health improving every year. This is in contrast to many older people I know. I am fifty-eight, and many of my age are experiencing multiple health issues and taking lots of medications.

I was speaking to a friend yesterday about placing my grandson on the GAPS diet to attempt to address some mild behavior and gut issues as I also find Dr. Natasha Campbell-McBride an inspiration. I told my friend something that I heard via a WAPF conference, which I downloaded one year. "It's our children's birthright to be healthy." My friend understood this and told me to keep spreading the word. So, firstly, thank you for your inspiration, and secondly, it made me wonder whether the Weston A. Price Foundation could organize a conference with a theme of healthy children. Not sure if this has



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been done already, but I would love to come!

Rhonda Baker, Chapter Leader  
Milton Ulladulla, Australia

*A few years ago the theme of Wise Traditions was healthy children; maybe it's time for our conference to focus on that again. We do have a special section of our website devoted to children's health: [westonaprice.org/childrens-health/](http://westonaprice.org/childrens-health/)*

## STILL ZAPPED?

People watching the documentary *Generation Zapped* favorably reviewed in the Fall 2018 edition of *Wise Traditions*, need to be aware that, while the documentary is very well done and informative, two safety recommendations that came at the end are not good advice.

Using wired earpieces to keep the phone from being pressed to the head while in use is not good advice since phone radiation can be conducted to the head via the wires. A better solution is that offered by electrical engineer

Jeromy Johnson at his website, [www.emfanalysis.com](http://www.emfanalysis.com). He recommends a vacuum airtube headset, which keeps any radiation from coming up to your head, which is what happens with a normal wired headset. It also provides excellent sound quality. This headset, along with utilizing a speaker phone and airplane mode, are the best ways to protect yourself from cell phone radiation.

Another particularly bad solution also offered at the end of the documentary was the Broadband Over Power Lines (BPL) home Internet system used by one of the interviewees who got sick from EMF. I watched the movie with Paul Harding of TotalEMFSolutions.com, and we both were astonished that this variant of the biotoxic PLC system was being presented as a healthy wired solution. No wonder the poor guy in the movie is still sick; he has not reduced his exposure to EMF by using BPL like he thinks he has.

Warren Woodward  
Sedona, Arizona

*Reply from Sabine El Gemayel, producer of Generation Zapped: Total hardwiring and not using a cell phone at all are the best practices indeed. However, not everyone can, wants or agrees to be totally disconnected and not use this technology. This film is made for the mainstream and for the skeptics. It advocates reducing exposure and being conscious of sources of exposure. It is not a film that discourages people to use their technology. The broadband option is the cheaper option to hardwiring for some people who cannot afford to rewire their homes. It depends where it's located. While it's not the best, it is the most accessible option for people who aren't sure or want to try out hardwiring before incurring the expense. Air tube headsets are the best and that's what our social media is advocating. Again, for someone who insists on putting their phone to their head, it's best to use some type of headset rather than sticking it to their head. So while your comments are true, they are extreme and by being extreme, advocates preach to the choir*



PROUD WINNERS OF THE 2018 ACTIVIST AWARD

Sally Fallon Morell, President with chapter leaders honored for their outstanding contributions to WAPF: Lisa Bianco-Davis, Barbara Geatches, Jack Moore, Karen Voelkening-Behegan, Joy De La Ferrar, Monica Corrado and Ana de Azcárte.

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*rather than to expanding awareness in the mainstream. Jaimie in the film has found the BPL solution helped him tremendously and truly felt a difference. It was recommended by a building biologist. I hope that helps to clarify.*

## HYPERINSULINEMIA

Thank you, thank you, for publishing Amy Berger's article "The Hidden Problem of Chronic Hyperinsulinemia" (Fall, 2018). I particularly appreciated the point she made: a diet that is healthy for traditional healthy people may not be appropriate for someone who is well along the path of metabolic disease. I had already figured this out for my own body. Despite eating a Wise Traditions diet for years, I still cannot tolerate carbohydrates. I get worse every time I try them (no matter how much fat I include). I believe that if I had not found a low-carb, high-fat, keto diet, I would have full-blown type 2 diabetes by now.

I have sometimes felt like I was not a "proper" WAPF member because if I include traditional sourdough bread, soaked whole grains, starchy tubers,

natural sweeteners or more than a tiny bit of fruit, my body reacts badly. My blood sugar, insulin and weight all go up and my energy plummets. I have headaches, forget words and become tired and spacey.

It was wonderful to see this condition recognized in the *Wise Traditions* journal, the acknowledgement that some of us cannot process even traditional properly prepared carbohydrates in a healthy manner. I believe it is important that we encourage insulin-resistant people to follow the Wise Traditions principles of nutrient-dense nutrition while also reducing carbs to address insulin resistance. Diabetics, prediabetics and people with metabolic syndrome need vitamin A and the full complement of fat-soluble vitamins, possibly even more urgently than those with healthier metabolisms.

In my role as chapter leader, I never recommend people avoid traditional sources of carbohydrates if they tolerate them well. But a diet of grass-fed meat, pastured eggs, raw cream, raw cheese, green leafy and other low-carb

vegetables, animal fats, organ meats, bone broth, fermented foods and crispy nuts and seeds is not a hardship. It is 100 percent compatible with the characteristics of traditional diets and the WAPF dietary guidelines.

Please keep supporting those of us whose bodies are no longer able to regulate insulin properly and who do best when limiting traditional sources of carbohydrates.

Lisa Bianco-Davis, Chapter Leader  
Eugene, Oregon

*The beauty of the Wise Traditions diet is that it does not dictate specific percentages of fats, carbohydrates or protein as the USDA Dietary Guidelines do. Everyone needs to adjust the amounts of these macronutrients to conform with the characteristics of his or her metabolism, while still following the basic principles of the diet.*

## DISINFORMATION CAMPAIGN

I am retired from the FDA. I did not realize it when I worked at FDA, but I now believe the FDA is a corrupt



Julia Ross (left)  
author of  
*The Craving Cure*  
and Tedd Koren, DC,  
(right) kept the Wise  
Traditions 2018  
audience interested  
and amused during  
all-day seminars.



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organization. The way the corruption works is that large pharmaceutical and processed food corporations control the members of congress who sit on the committees that oversee the FDA. Any member of Congress who does not play ball will not be reelected.

Regarding your Thumbs Down review of *Jaws: The Story of a Hidden Epidemic* (Fall, 2018), it's clear that malnutrition causes lack of physical development. To say otherwise is an absurdity. If you study the history of disinformation campaigns, you will notice that most disinformation campaigns have at their core one or more absurdities, such as the absurdity that chewing hard food is what prevents dental malformations. This helps you to know that it's a disinformation campaign.

If you look at the history of co-author Paul Ehrlich, he seems to be a part of a group that wants to make the population sicker and dumber. For decades, the government has been giving public health recommendations to make

the population sicker and dumber. A population that is sicker and dumber is a population that is easier to control.

One could argue that the authors of *Jaws* are too smart to be stupid enough to believe what the book says. You could make a case that the book appears to be an intentional disinformation campaign written by people who know exactly what they are doing. It appears to be a subtle attempt to distract the public from recognizing the lack of nutrition in adulterated processed foods, and toward a phony prescription to solve the problem.

Frank Russell  
Annandale, Virginia

## DUMPING GROUND

I read the article about using the elderly as a dumping ground for pharma drugs (Fall, 2018), and I found myself cheering out loud in every paragraph. I write books about natural health and healing, and I don't pull any punches when I explain to my readers how totally absurd modern diet and medicine

are today, and how dangerous they are to human health and longevity. I love the way the Weston A. Price Foundation exposes the fallacies in mainstream food and medicine and doesn't hesitate to point out how much harm they do to people.

Writing is a powerful weapon in the war between the true and the false, and ironic ridicule is often the best ammunition against the armor of lies and deceit the pharma and food industries use to conceal the truth from the public. It pierces the pseudo-scientific jibber-jabber they use to fool people into using their noxious products, while entertaining the reader with comic relief. For sure, the pen is mightier than the sword!

Daniel Reid  
Chiang Mai, Thailand

Gifts and bequests to the  
Weston A. Price Foundation  
will help ensure  
the gift of good health  
to future generations.



LEFT: Dr. Mel Litman travelled from Israel to speak at our 2018 Wise Traditions conference.

RIGHT: The Agarwals of Pure Indian Foods exhibited as well as presented a well-received talk called Cooking with Spices and Herbs.





# Caustic Commentary

Sally Fallon Morell takes on the Diet Dictocrats

## SWEETS AT THE OFFICE

Bosses are having a hard time curbing sugar consumption in the workplace. When Health IQ of Mountain View, California, banned candy bars, soda and other sugary concoctions in the office, employees took to social media to complain. Most don't want to give up the free doughnuts, cake and other confections they get at work. One employee was particularly annoyed—she breakfasts on Starbucks venti mocha with two pumps of toffee-nut syrup and lunches on four chocolate chip cookies. But some employees welcome rules like these, reporting that the amount of sugary treats in the office is overwhelming. “Every birthday is celebrated with a cake, and there are always left-over cookies and sugary snacks after client meetings. Refuse a cupcake and some coworkers give you a look like you're being dramatic.” Erin Wynn, head of a team of millennials at WeLocalize Inc. in New York City, told workers to keep the sweets they ate hidden.

Everywhere she looked were “bowls of candy, leftover cake and bagels, bagels, bagels,” which she found too tempting to refuse. It's obvious that addictive sugar consumption is rampant among younger workers. In June, the Centers for Disease Control and Prevention published a study looking at the food people get at work, finding that much of it was high in empty calories from “sugars and fats.” That would be industrial seed oil fats that office workers are eating, not healthy fats in butter, cheese and meat. What kind of future can we expect when young people haven't the faintest idea how to eat? U.S. taxpayers spent over six hundred dollars each in 2016 treating obesity-related illnesses covered by Medicare and Medicaid, and this will only get worse as long as government agencies continue to demonize the kind of nutritious foods that help control sugar cravings (*Wall Street Journal*, September 18, 2018).



## CHOLESTEROL DENIERS

Professor Louis Leavy, head of nutrition science at Public Health England, has launched an attack on what he calls “cholesterol deniers,” those who claim that sugar represents a greater threat to our hearts and arteries than saturated fat. “There is good evidence that a high intake of saturated fat increases your risk of heart disease,” he said. “We need to think about where the sources of saturated fat are and how we can reduce them. The largest contributions are dairy products, including butter, and meat and meat products.” (Dr. Levy seems unaware of the fact that our bodies can

easily make saturated fat out of sugar.) Levy touts the party line that too much saturated fat causes the liver to overproduce “bad” LDL-cholesterol, which is implicated in heart disease. Even worse, the cholesterol deniers recommend that patients get off statins, citing lack of evidence for any benefit and a host of debilitating side effects. Statin scares sell well but endanger

lives, say Levy and other representatives of the cholesterol cabal, citing a 2016 review in *The Lancet*, which claimed that lowering cholesterol over five years with a daily statin would prevent one thousand heart attacks, strokes and coronary artery bypasses among ten thousand people who had already had one. Yet because the cholesterol deniers won't be silenced, Rory Collins of Oxford University calls the statin critics “flat earthers” who act like “religious fundamentalists” and argues that they should not be given a platform for debate. In other words, just take your statins and don't ask questions ([theguardian.com](http://theguardian.com), October 30, 2018).

## LDL NOT THE CULPRIT

The main reason the cholesterol deniers won't be silenced is the flimsy evidence used to put a large portion of the population on dangerous cholesterol-lowering drugs. In a recent paper published in *Expert Reviews in Clinical Phar-*

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*macology* (September 10, 2018), statin critics Uffe Ravnskov and others analyze three large reviews that claim evidence for statin benefits. Their verdict: “. . . the conclusions of the authors of the three reviews are based on misleading statistics, exclusion of unsuccessful trials and by ignoring numerous contradictory observations.” They conclude that statin treatment, especially when used in primary prevention, is of doubtful benefit.

## MEET THE MEAT TAX

A new “study” from the World Health Organization International Agency for Research on Cancer has concluded that cured, smoked and other processed meats cause cancer, and that red meat “probably” causes cancer. This has led to calls for a tax on meat, similar to the U.K. tax on cigarettes, alcohol and sugary drinks, with incredible claims for benefits. A meat tax would prevent nearly six thousand deaths per year and save the National Health Service more than seven hundred million pounds; a global meat tax—which is the goal—would prevent over two hundred thousand deaths from cancer, heart disease, stroke and obesity, say proponents. Such a tax could also help the environment and reduce global warming, they claim. Of course, low- and middle-income groups would be affected the most, as the tax could increase the cost of meat by one-third and more than double the cost of processed meats like bacon ([independent.co.uk](http://independent.co.uk), November 6, 2018). But hey, why worry about increased food costs for struggling families when we can save lives, reduce costs, help the environment and fight global warming?

## MORE REASONS TO BE ANTI-VAX

Chilling news about the dangers of vaccinations keeps accumulating. First is a report published in *The Journal of Toxicology and Environmental Health*, which found a lowered probability of pregnancy in females in the U.S. aged 25-29 who received the human papillomavirus (HPV) vaccine injection (2018;81(14):661-674). Put another way, the HPV vaccine can make you sterile. Second, according to the Centers for Disease Control (CDC) cases of polio-like acute flaccid myelitis (AFM) are up, with sixty-two confirmed cases, almost twice the amount confirmed in 2017. CDC doesn’t know the cause and is not even looking at the possibility of vaccinations causing the paralysis, but it’s interesting to note that the cases seem to peak in Au-

gust and September, when children are getting their shots for school ([thevaccinereaction.org](http://thevaccinereaction.org), October 24, 2018). And third, a study from Spain found that lambs injected with aluminum-containing vaccines developed granulomas—cheese-like blobs that migrated to the sheep’s lymph nodes and persisted in their bodies for the fifteen-month duration of the experiment. Moreover, the sheep showed behavioral changes, aggressively biting the wool from other sheep, pacing restlessly and overeating (*Veterinary Pathology*, October 31, 2018). Sounds like the kind of autistic behavior we see in vaccinated children.

## CHILDREN RUN AMOK

Children in Scotland are some of the most heavily vaccinated in the world, with the flu and whooping cough vaccine given in pregnancy, a six-in-one (!) vaccine plus meningitis, pneumococcal and rotavirus (nine vaccines in all) given at two months, the six-in-one plus rotavirus given at three months, the six-in-one again at four months, plus meningitis and pneumococcal, and four vaccines given at one year. Flu vaccines throughout the growing years are strongly encouraged. So it is no surprise that children are melting down in school, where 26.6 percent of children have special needs, including dyslexia, ADHD, autism, and behavioral and emotional problems. Seamus Searson, general secretary of the Scottish Secondary Teachers’ Association, said that the increase in unacceptable behavior was “impacting on pupils’ education and hampering recruitment to the profession.” Bad behavior includes foul language to teachers, use of cell phones during lessons and running amok in corridors. Cases of autism are expected to be one in twenty-five by the year 2024. Suggestions include putting mental health counselors in every school and an increase in social services—anything but stop the root cause: horrendous, unnecessary, toxic vaccinations ([lossofbraintrust.com](http://lossofbraintrust.com)).

## MORE SOY FORMULA DANGERS

In Europe, parents need a prescription to obtain soy formula, and new research indicates that the same restrictions should apply in the U.S. A study published in *Human Reproduction* (Online 9 November 2018) found that African-American infant girls fed soy formula were more likely to experience severe menstrual pain as young adults. Lead author Keristen Upson, PhD, notes that previous laboratory animal studies

# Caustic Commentary

suggest that early-life exposure to genistein, a naturally occurring component in soy formula, interferes with the development of the reproductive system, including factors involved in menstrual pain. Earlier research links soy formula feeding to higher rates of endometriosis, heavy menstrual bleeding and larger fibroids among women with fibroids. Other studies have found that female infants fed soy formula had changes in the cells of the vagina, including differences in how specific genes are turned on and off. In 1998, the American Academy of Pediatrics (AAP) issued a general endorsement of soy formula, but then began hedging its bets. A policy statement issued in 2008 warned against use of soy formula for premature babies; for full term infants the AAP now “recommends soy formula in rare cases where the child’s body cannot break down the sugars in milk or if the family prefers a vegetarian diet.”

## UNHEALTHY AND UNPREPARED

A recent report published by the Council for a Strong America catalogs the woeful state of America’s teenagers and young adults. Nationwide, 71 percent of young people ages seventeen to twenty-four do not qualify for military service and obesity disqualifies 31 percent of youth from serving if they so choose. These ineligibility rates are a major reason the Army was not on track to meet its annual recruitment goals as of September 2018. And obesity among those who do serve in the military makes soldiers more vulnerable to stress fractures, serious sprains and similar injuries ([strongnation.org/articles/737-unhealthy-and-unprepared](http://strongnation.org/articles/737-unhealthy-and-unprepared)). Unfortunately, the authors of the report and the military in general haven’t a clue how to fix the problems. The best they can do is recommend that recruits eat more fruits and vegetables, when these vulnerable men and women need real, nutrient-dense food—organ meats, animal fats, raw dairy, pastured eggs, shellfish, cod liver oil, bone broth and butter, butter, butter.

## CLOGGED PLUMBING

Bacon is making a comeback and that has led to an epidemic not of clogged arteries but of clogged plumbing under the kitchen sink. Unaware that grease solidifies when it cools, many just pour hot bacon fat down the drain, resulting in plumbing clogs that require the services of a plumber. Even worse, the fat that gets through residential pipes makes its way to the city sewers where it accumulates to form massive

blockages. London officials had to excavate a one-hundred-thirty-ton “fatberg” from the Whitechapel sewer last year, and in Baltimore, officials had to scrape out a twenty-four-inch pipe in midtown where grease had congealed, clogging 85 percent of the pipe. An article in *The Wall Street Journal* (August 9, 2018) gives readers the following advice: pour the bacon grease into a foil-lined bowl, let it cool and throw it in the trash; mix it with bird seed and put it in a bird feeder; or give it to your dog. Of course what you should do with bacon fat is store it in a container and use it for cooking—but generations of anti-saturated-fat propaganda have made home cooks afraid to do such a sensible thing.

## COUNTERING CAFOs

Iowa CAFO owners are increasing the size of their hog herds in order to sell to Asia, where an outbreak of African swine virus is decimating pig populations. The sewage will be spread, smells and all, over the Iowa landscape, forcing many to abandon their homes. In North Carolina, families living near a hog farm in Bladen County fought back, not by suing the farmer but by targeting the farm’s owner, Smithfield Foods. A jury awarded the ten plaintiffs fifty million dollars in damages, agreeing that the impact of the farm’s operation was so intrusive that people couldn’t enjoy their rural homes. The case was the first in dozens of lawsuits filed by more than five hundred neighbors complaining about hog operations. Positive outcomes could do what years of lobbying and legislative initiatives have failed to do—eliminate CAFOs and bring back small, pasture-based operations. ☹☹

## FOR SCIENTISTS AND LAY READERS

Please note that the mission of the Weston A. Price Foundation is to provide important information about diet and health to both scientists and the lay public. For this reason, some of the articles in *Wise Traditions* are necessarily technical. It is very important for us to describe the science that supports the legitimacy of our dietary principles. In articles aimed at scientists and practitioners, we provide a summary of the main points and also put the most technical information in sidebars. These articles are balanced by others that provide practical advice to our lay readers.



# Glyphosate and Non-Hodgkin's Lymphoma

By Stephanie Seneff, PhD

**W**e have all long awaited the day when a trial against Monsanto, linking glyphosate—the main ingredient in the herbicide Roundup—to cancer, would result in a large settlement in favor of the plaintiff. That day has finally arrived. Those of us who have been asserting (against popular belief) that glyphosate is very harmful to humans are all rejoicing in the outcome, which represents the first time anyone has succeeded in a lawsuit claiming that glyphosate causes cancer.

Dewayne “Lee” Johnson, a California schoolyard groundskeeper who routinely used a glyphosate formulation to control weeds, was diagnosed with non-Hodgkin’s lymphoma a few years after being exposed topically to glyphosate due to a faulty sprayer. Prior to the diagnosis but after the accident, he developed a nasty skin rash all over his body. He tried to contact Monsanto personnel to ask them if he should be concerned about the glyphosate in connection with the rash, and also with respect to potential harm to the school children. He never heard back from the company.

The trial went on for over two weeks, documented in colorful detail by, among others, a woman who calls herself “Glyphosate Girl.”<sup>1</sup> Del Bigtree of HighWire<sup>2</sup> also did a wonderful interview with two of the key lawyers in the case, an interview showcased in an article published by Dr. Joseph Mercola.<sup>3</sup> The two lawyers are Robert F. Kennedy, Jr. and Brent Wisner, and both of them were clearly overjoyed with the outcome and very optimistic that a steady stream of lawsuits numbering in the thousands will follow.

Key information from secret emails among Monsanto employees, obtained by the counsel, revealed blatant schemes to get prominent experts in the field to put their names on papers ghostwritten by Monsanto—papers “showing” that glyphosate is safe—in exchange for a handsome monetary reward. There were also open admissions that Monsanto never was going to do the experiments that were suggested to the company by researchers who revealed potential issues with glyphosate needing to be validated through larger studies. At the same time, Donna

Farmer, a Monsanto executive, was quoted as saying, “You cannot say that Roundup is not a carcinogen.”

On August 10, 2018, the jury awarded Johnson two hundred and eighty-nine million dollars, with most of that amount (two hundred and fifty million) slated for punitive damages. This unexpectedly high award produced a number of important follow-on effects. First, the stock price of German conglomerate Bayer—the company that recently bought out Monsanto—plummeted, losing over ten billion euros in value in the week after the verdict.<sup>4</sup> Next, activist groups like the Environmental Working Group (EWG) made mainstream news headlines with reports of high levels of glyphosate in common breakfast cereals like Cheerios.<sup>5</sup> France engaged in a more aggressive debate about legislation to restrict glyphosate.<sup>6</sup> And, as predicted, thousands of new cases accusing glyphosate of causing non-Hodgkin’s lymphoma are being brought to the attention of lawyers around the country. Those of us who have long been warning of the dangers of glyphosate to human health are starting to feel that this might be the long-awaited “tipping point.”

## THE EVIDENCE

Despite the large win, one weakness of the trial was an inability to explain exactly how glyphosate could cause non-Hodgkin’s lymphoma. However, there is plenty of evidence, from both human and animal studies, that glyphosate causes oxidative damage and chromosomal aberrations—two well-known precursors to cancer.<sup>7-11</sup>

## ARTICLE SUMMARY

- A historic trial against Monsanto that linked glyphosate to non-Hodgkin’s lymphoma recently settled in favor of the plaintiff. Regulatory agencies are revisiting glyphosate as a potential carcinogen.
- Human and animal studies show that glyphosate causes oxidative damage and chromosomal aberrations, which are two well-known precursors to cancer.
- Thyroid cancer and liver cancer are both rising dramatically in the U.S. population, in lockstep with the rise in glyphosate usage on core crops. It is extremely unlikely that this could have occurred by chance.
- Autoimmune disease, including celiac disease, is on the rise and is a strong risk factor for non-Hodgkin’s lymphoma. Both celiac disease and the increased cancer risk could be directly due to glyphosate poisoning.
- Glyphosate sets up a perfect storm in the gut to induce autoimmune disease through its severe disruption of the gut microbiome. In the context of exposure to glyphosate, gut exposure to pathogens will lead to a poor immune response to infection and an increased likelihood of developing autoimmune disease.
- A protein called activation-induced deaminase (AID) plays an essential role in the development of B-cell lymphomas such as non-Hodgkin’s lymphoma. Glyphosate can affect AID and another protein called Nup98, triggering a number of “out-of-control” changes that include mutations in other proteins. Some of the affected cells begin endlessly cloning themselves and become tumor cells.
- Glyphosate induces excessive calcium uptake in multiple cell types, which can trigger runaway processes involving NF-kappa-B (a powerful signaling molecule) that also contribute to mutations and tumor cell proliferation.
- Glyphosate has a uniquely destructive ability to function as an amino acid analogue of glycine (an important protein building block). When glyphosate gets incorporated in place of glycine, it has enormous disruptive consequences on protein behavior.
- In addition to cancer, the runaway processes set into motion by glyphosate’s substitution for glycine could be responsible for increases in sudden death and heart failure in both the young and the old.
- The “willy-nilly” displacement of glycine with glyphosate, which occurs in a random and unpredictable fashion, will have complex and confusing consequences, which may explain the varied metabolic disruptions now being traced to glyphosate exposure.
- Glyphosate uptake in utero can lead to rare genetic mutations and rare birth defects in the next generation.

The alarming rise in the prevalence of celiac disease matches up very well with the rise in glyphosate usage on wheat crops.

Standardized tests that assess the DNA damage often associated with cancer cells can imply carcinogenic potential for a chemical. For example, one can examine exposed cells under a microscope looking for easy-to-spot features such as micronuclei and binucleated cells. During the normal process of cell division or mitosis, a “parent” cell splits to form two identical “daughter” cells, including duplication of its chromosomes. Micronuclei are small nuclei that form whenever a fragment of a chromosome is not properly incorporated into one of the daughter nuclei during cell division. This can be caused by DNA hypomethylation (i.e., altered DNA methylation affecting gene expression) or by unrepaired or incorrectly repaired DNA breaks. Binucleated cells are cells with a pair of conjoined nuclei. These are commonly seen in tumors, occurring when the normal process of cell division is arrested early, and a cell essentially becomes a set of Siamese twins.

An expert witness in the glyphosate trial discussed two scientific studies—one based in Ecuador<sup>7</sup> and one from Colombia<sup>8</sup>—both of which showed an association between increased exposure among human populations to glyphosate and increased numbers of micronuclei and binucleated cells in blood samples. One of the major sources of exposure in these studies was the widespread use of glyphosate to kill coca crops in the “war on drugs.”

Statistically, farmers have a higher rate of non-Hodgkin’s lymphoma than the general population, but it is not easy to tease out exposure to glyphosate as distinct from exposure to the many other toxic chemicals that farmers routinely use. It’s increasingly clear, however, that there is a glyphosate-related “smoking gun.” Although the powerful chemical industry lobby has made it difficult to sway regulators to change their policy regarding glyphosate, the World Health Organization’s International Agency for Research on Cancer (IARC) declared glyphosate to be a “probable carcinogen” in 2015.<sup>12</sup> This has caused many regulatory agencies to revisit glyphosate as a potential carcinogen.

#### AUTOIMMUNE DISEASE AND NON-HODGKIN’S LYMPHOMA

The success of Mr. Johnson’s lawsuit has

inspired me to try to figure out a mechanism by which glyphosate could cause non-Hodgkin’s lymphoma. One significant observation is that autoimmune disease, which is alarmingly on the rise in industrialized nations, is a strong risk factor for non-Hodgkin’s lymphoma.<sup>13</sup> In the series of six papers linking glyphosate to various diseases that Anthony Samsel and I have published, the second one focused on glyphosate and celiac disease.<sup>14</sup> In people with celiac disease, ingestion of gluten provokes an immune response that damages the small intestine. A growing practice among farmers involves spraying glyphosate on wheat just before harvest as a desiccant, and we argued in our paper that glyphosate contamination is what is making wheat so allergenic.

In the paper, we also pointed out that people with celiac disease generally have a shortened life span—and this is due mainly to an increased risk of cancer, particularly non-Hodgkin’s lymphoma. We referenced papers showing a link between non-Hodgkin’s lymphoma and glyphosate in population studies based in Canada,<sup>15</sup> the United States<sup>16</sup> and Sweden.<sup>17</sup> As reproduced here in Figure 1 (next page), the alarming rise in the prevalence of celiac disease matches up very well with the rise in glyphosate usage on wheat crops.

One characteristic feature of the dysfunctional immune response that typifies celiac disease is a massive overproduction of immunoglobulin A (IgA) autoantibodies by specialized B cells in the gut.<sup>18</sup> IgA is an antibody that plays a crucial role in the immune function of mucous membranes. In celiac disease, undigested gluten peptides cross the epithelial barrier and, following modification by the enzyme transglutaminase, are transported by dendritic cells to local lymphoid tissues, inducing a strong proinflammatory T-cell response, and a subsequent B-cell antibody response. These activated immune cells then infiltrate the gut lining and cause an inflammatory autoimmune attack against not only transglutaminase but also against actin, collagen and other proteins, inducing the intestinal discomfort associated with celiac disease.<sup>19</sup>

As celiac disease induces a state of chronic inflammation, this results in oxidative stress, which in turn causes DNA damage and an



increased risk of genetic mutations due to impaired repair mechanisms. Over time, these genetic mutations, along with alterations in DNA methylation status, can cause a cell to revert to an immortal stem-cell-like phenotype called a “cancer stem cell.” These cells become more mobile and are obsessed with cloning themselves endlessly, leading to tumor growth and metastasis.<sup>20</sup> Non-Hodgkin’s lymphoma tumor cells emerge out of an original population of B cells in the immune system.

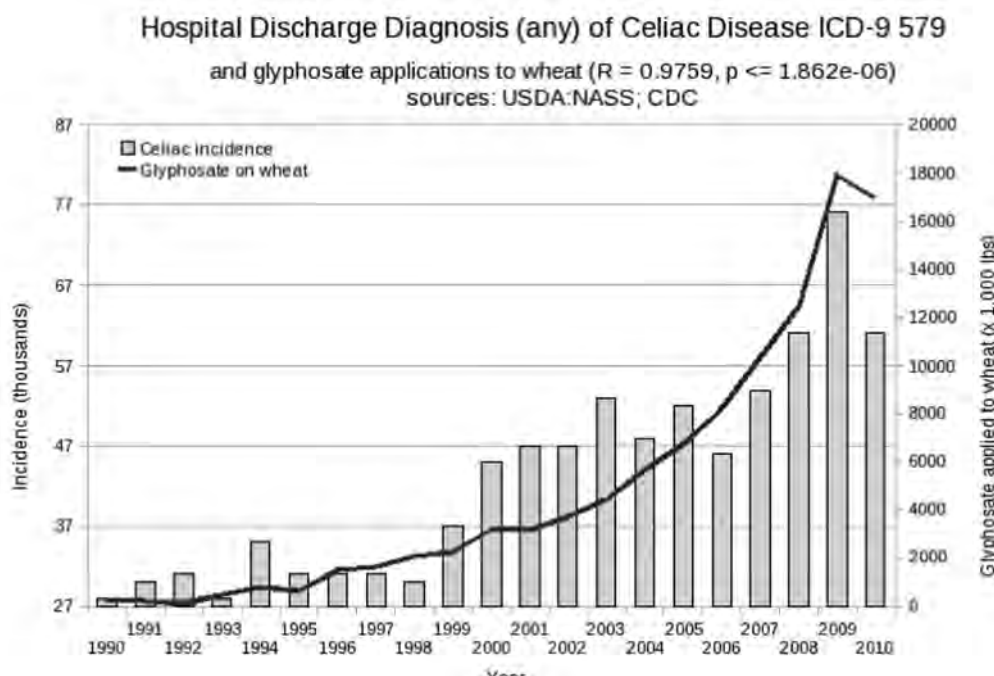
The increased risk of cancer that is the main factor leading to a statistically shortened life span for people with celiac disease is not limited to non-Hodgkin’s lymphoma but also includes adenocarcinoma of the small intestine and squamous cell carcinomas of the esophagus, mouth and pharynx, as well as melanoma.<sup>21</sup> It seems likely that both the celiac disease and the increased cancer risk could be directly due to glyphosate poisoning.

In the sixth paper in our series on glyphosate pathways to modern diseases, Anthony Samsel and I described how glyphosate could cause autoimmune disease through its severe disruption of the gut microbiome and the digestive system.<sup>22</sup> In that paper, we reported on high levels of glyphosate contamination

for porcine trypsin, pepsin and lipase (from the glyphosate-contaminated feed given to pigs). These digestive enzymes are produced by the pancreas and are essential for digesting proteins (trypsin and pepsin) and fats (lipase). Another enzyme that is essential for digesting gluten is called prolyl aminopeptidase, and it, too, is likely to be disrupted by glyphosate. As proposed in our paper (and in later sections of this article), we can expect glyphosate to suppress the activity of all of these enzymes, due to glyphosate’s insidious ability to get inserted into proteins by mistake in place of the coding amino acid glycine.<sup>22</sup>

Anthony and I proposed that glyphosate sets up a perfect storm in the gut to induce autoimmune disease. Glyphosate’s disruption of digestive enzymes leaves proteins undigested, and this induces a leaky gut,<sup>23</sup> which allows the foreign (undigested) proteins to enter the gut-associated lymphoid tissue (GALT) and induce an intense B-cell antibody response. A process called “molecular mimicry” can cause these antibodies to attack native proteins that have peptide sequences resembling those in the foreign proteins. This can lead to a long list of autoimmune diseases besides celiac disease, including Hashimoto’s thyroiditis, multiple scler-

**Glyphosate sets up a perfect storm in the gut to induce autoimmune disease.**



**FIGURE 1:** Correlations between the rise in celiac disease and the rise in glyphosate use on wheat over time in the United States.

Glyphosate's  
disruption  
of digestive  
enzymes  
leaves  
proteins  
undigested,  
and this  
induces a  
leaky gut.

rosis, Sjögren's syndrome, rheumatoid arthritis and systemic lupus erythematosus. Many of these conditions are also risk factors for non-Hodgkin's lymphoma.<sup>13</sup>

#### IMMUNE SYSTEM DYSFUNCTION AND LYMPHOMA

B cells are a type of white blood cell that originate from the bone marrow. The gut houses at least 80 percent of the body's B cells,<sup>24</sup> many of which are localized to the GALT and the regional lymph nodes. B cells become "mature" through a transformation process that takes place in the thymus during infancy. A process that involves massive mutations in the immunoglobulin proteins results in many different varieties of these proteins, which can then be empowered to recognize different specific foreign proteins, called antigens (with gluten being one example).

Later, when a foreign protein (antigen) is identified at a place in the body where it should not be found, T cells release signaling proteins that are detected by specific B cells whose immunoglobulin profile happens to be sufficiently well "matched" to the offending antigen. These unique B cells, localized to "germinal centers" within the lymph system, then become even more specialized, perfecting their match to the antigen via a second stage of gene modification of their immunoglobulins, resulting in so-called "high affinity antigen binding sites."<sup>25,26</sup>

Under normal circumstances, these now perfectly matched immunoglobulins will have become very specific antibodies that will stick around for a long time as "memory B cells" and will jump into action the next time the body encounters that same foreign protein, tagging the foreign antigen for clearance by macrophages (white blood cells that specialize in clearing cellular debris and foreign substances).

When all goes well, this system is amazing. It allows the immune system to immediately pounce on a viral infection when it sees it a second time, because the memory B cells recognize it immediately and mark the virus particles for clearance by patrolling macrophages. For example, if the foreign protein is the haemagglutinin protein synthesized by the measles virus, this is the elegant and sophisticated process by which a

measles infection leads to permanent immunity against the measles (and it is the reaction hoped for in response to a measles vaccine).

Both the development of immature B cells in the thymus and the maturation of B cells in the germinal centers, as well as their survival following maturation, all depend critically on a nuclear signaling protein called "nuclear factor kappa-light-chain-enhancer of activated B cells" (NF- $\kappa$ B).<sup>27,28</sup> In the absence of a matching infection, quiescent B cells have very little to do, and they mostly just wait around for a signal coming from a T cell that will cause them to jump into action. Upon a T-cell receptor response, a B cell launches what is called a phosphorylation cascade, initiated by NF- $\kappa$ B. NF- $\kappa$ B is normally kept sequestered in the cytoplasm by a specialized protein that tethers it in place. However, phosphorylation of the tether (in response to the T-cell signal) causes it to let go, and the liberated NF- $\kappa$ B can now get into the nucleus and start activating expression of a large number of proteins, many of which are kinases. Kinases are proteins that add phosphate ions to other proteins, changing their behaviors.

Two incredibly powerful proteins that are affected in interesting ways by phosphorylation are activation-induced deaminase (AID) and nucleoporin 98 (Nup98). AID is the master protein that initiates the genetic mutations in the immunoglobulins that will eventually lead to the creation of antibodies that perfectly match the offending antigen. This allows the B cell to then differentiate into one of those perfected memory cells. An infection induces migration of native B cells into germinal centers,<sup>29</sup> where they undergo upregulation of AID mediated by NF- $\kappa$ B.<sup>30</sup>

Like NF- $\kappa$ B, AID is usually held securely in the cytoplasm by a specialized tether protein that will also let go once it is phosphorylated, in response to signaling consequent to an infection or other stressor. Even when it is freed up, AID can't easily get into the nucleus, because the nucleus has a membrane around it that only allows small molecules to cross over. This membrane, however, is chock full of holes that are big enough for the large molecules, but the holes are then plugged with gelled water that is maintained in the gelled state by proteins

called nucleoporins, one of which is Nup98.<sup>31</sup> Importantly, when Nup98 gets heavily phosphorylated, it breaks apart from its partners in the pore and the gel disintegrates, leaving the pore wide open such that both AID and NF- $\kappa$ B can now freely enter the nucleus.<sup>32</sup>

In addition to the proteins that tether AID and NF- $\kappa$ B in the cytoplasm, there are also specialized escort proteins called importins that can bind to AID or NF- $\kappa$ B and hand-carry them across the gelled pores right into the nucleus. These proteins are only able to work under the special conditions that follow the signaling that alerted the B cell of the marauding viral attack. Other proteins hand-carry them back out of the nucleus once their job is done, because it's too dangerous to let them continue their nuclear activities over an extended period of time. However, if Nup98 is heavily phosphorylated, these escort proteins are no longer necessary because AID and NF- $\kappa$ B can now enter or leave the nucleus any time they want. In particular, they can get in the nucleus and then become bound to the nuclear DNA and continue their unchecked activities with abandon.

Studies have shown that AID plays an essential role in the development of B-cell lymphomas.<sup>33</sup> Non-Hodgkin's lymphoma cells are very peculiar.<sup>34</sup> First of all, they express AID at a very high level, and the AID tends to hang out in the nucleus rather than in the cytoplasm where it is normally sequestered. Secondly, their AID proteins are highly phosphorylated, and phosphorylation changes AID's behavior in shocking ways, such that it starts putting mutations into lots of other proteins besides the immunoglobulins. As a result, many so-called "oncogenes" (genes that can transform a cell into a tumor cell) are hypermutated in association with B-cell lymphomas.<sup>35</sup> AID also strips the cell's DNA of its methyl groups;<sup>36</sup> this is important because a cell with demethylated DNA will revert to a pluripotent stem-cell-like form where it refuses to differentiate and just keeps on cloning itself endlessly—that is, it becomes a tumor cell.<sup>37</sup> Non-Hodgkin's lymphoma cells also often have rogue versions of kinases that are "constitutively" expressed, meaning that they just keep on phosphorylating other proteins in an out-of-control fashion.<sup>38</sup>

In addition, lymphoma cells often have constitutively active versions of NF- $\kappa$ B, which helps to keep the phosphorylation cascade going in a runaway fashion. Both the AID and the NF- $\kappa$ B also stick around in the nucleus rather than getting escorted back out to the cytoplasm. NF- $\kappa$ B launches a runaway phosphorylation cascade that causes both rogue proteins to gain free access to the nucleus because of hyperphosphorylation of Nup98, and AID has a field day in the nucleus, mutating genes right and left and stripping off methyl groups until the cell turns into a pluripotent cancer stem cell (that is, a lymphoma cell).

#### EXCESSIVE PHOSPHORYLATION AND ALTERED DNA METHYLATION

How does a phosphorylation cascade get started? One common way is through excessive calcium uptake by the cell, which can trigger NF- $\kappa$ B expression and subsequent phosphorylation cascades, mutagenesis and tumorigenic proliferation. Calcium uptake is an early response of B cells following exposure to antigen.<sup>39</sup> Glyphosate has been found to induce excessive calcium uptake in both in vitro and in vivo experiments in multiple cell types: Sertoli cells in the testes,<sup>40</sup> neurons<sup>41</sup> and cardiac muscle cells.<sup>42</sup>

NF- $\kappa$ B is a powerful signaling molecule that induces expression of a large number of proteins associated with cell survival and proliferation, including many kinases. It is activated in response to tumor necrosis factor alpha (TNF- $\alpha$ ) signaling, which, in turn, is induced by multiple cellular stressors. As previously discussed, NF- $\kappa$ B is secured in the cytoplasm by inhibitor  $\kappa$ B (I $\kappa$ B), and its release is dependent on expression of a kinase that phosphorylates I $\kappa$ B.

The cytokines interleukin 1 beta (IL-1 $\beta$ ) and TNF- $\alpha$  are commonly expressed under stress conditions, and studies have shown that they are upregulated in tissues following glyphosate exposure.<sup>43,44</sup> A study on carp exposure to glyphosate showed increased expression of TNF- $\alpha$  in liver, kidneys and spleen.<sup>43</sup> TNF- $\alpha$ , IL-1 $\beta$  and NF- $\kappa$ B expression levels were all significantly increased in the livers of rats exposed to glyphosate at fifty mg/kg daily for thirty-five days.<sup>44</sup> Experiments have shown that these cytokines tend to stimulate calcium uptake by various cell types. TNF- $\alpha$  induces calcium uptake in vascular smooth muscle cells,<sup>45</sup> and it also induces NF- $\kappa$ B expression in neurons.<sup>46</sup> IL-1 $\beta$  has been shown to induce calcium uptake in pancreatic islets.<sup>47</sup>

Glyphosate causes excitotoxicity in neurons through excessive stimulation of the N-methyl-D-aspartate (NMDA) receptors in the hippocampus, leading to excessive calcium uptake.<sup>41</sup> It is well established that calcium uptake in hippocampal neurons induces expression of NF- $\kappa$ B.<sup>48</sup> Glyphosate activates voltage-dependent calcium channels, in part by acting as a glycine analogue at the receptor site for glycine,<sup>41</sup> and it also activates the serine-threonine kinase protein, calmodulin-dependent protein kinase II (CaMKII). This in turn launches a flurry of activities that ultimately result in hyperphosphorylation of a large number of proteins in the cell.

Glyphosate also has been shown to induce alterations in methylation patterns in the genome that are consistent with progression toward cancer.



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A 2018 study conducted in Poland showed that glyphosate exposure at a relatively low dose (0.25 millimolar, 40mg/L) induced significant modifications in the methylation pattern on the DNA of white blood cells.<sup>49</sup> DNA was globally *hypomethylated* (less than normally methylated) in the presence of glyphosate, and, as we've seen, this can lead to a transformation into a pluripotent tumor-like state. Glyphosate also caused *hypermethylation* of the promoter region of TP53, a well-known tumor suppressor gene. Such hypermethylation has the effect of suppressing expression of the gene—that is, enhancing the likelihood of cancer. A combination of global hypomethylation along with hypermethylation of the control elements of tumor suppressor genes is a pattern that is commonly observed in cancer cells.<sup>50</sup>

Methionine and folate are essential for DNA methylation. Glyphosate's adverse effects on gut microbes can be predicted to lead to deficiencies in both nutrients.<sup>51</sup> Human cells are unable to synthesize methionine from inorganic sulfur and so we rely on our gut microbes to provide this essential amino acid for us, but glyphosate suppresses the multiple enzymes needed by *E. coli* to synthesize methionine.<sup>52</sup> A study on carrot cells showed that both methionine and the aromatic amino acids become deficient following glyphosate exposure.<sup>53</sup>

#### GLYPHOSATE AS A GLYCINE ANALOGUE

The main effect by which glyphosate kills essentially all plants except those genetically engineered to resist it is through disruption of a key enzyme in the so-called “shikimate pathway.” This pathway is crucial in plants and in many microbes, but human cells do not have the pathway, and this is why—Monsanto argues—glyphosate is harmless to humans. What Monsanto overlooks is that our gut microbes depend on this pathway to produce the three essential aromatic amino acids: tryptophan, tyrosine and phenylalanine. These amino acids are “essential” precisely because our cells don't have this pathway. They are among the twenty-two “coding” amino acids that are the building blocks of proteins, and they are also precursors to many biologically critical molecules such as the neurotransmitters serotonin, melatonin,

dopamine and epinephrine; thyroid hormone; the B vitamin folate; and the skin tanning agent melanin. All of these can be expected to be deficient in the context of chronic glyphosate exposure to the gut microbiome.

Make no mistake about it: glyphosate is special. Researchers have examined over one thousand different “glyphosate analogues” that have much in common with glyphosate in terms of the general molecular shape, the charge distribution and the biophysical properties—yet none of them work nearly as well as glyphosate does to kill weeds via disruption of the shikimate pathway.<sup>54</sup> It appears that very minor perturbations in the structure result in dramatically reduced potency. What is it that sets glyphosate apart from all these other molecules?

I think the answer is obvious: only glyphosate is an amino acid analogue of glycine. Glycine is one of the twenty-two coding amino acids that are assembled as peptide sequences to produce proteins according to the famous DNA code. Glycine is in fact the simplest of the amino acids, having no side chains on its carbon atom. Glyphosate is a complete glycine molecule, and, like glycine, it has no carbon atom side chain. However, what distinguishes glyphosate from glycine is the methylphosphonyl group that is attached to its nitrogen atom. This bulky, negatively charged side chain attached to glyphosate's nitrogen atom does not prevent it from hooking up into the amino acid chain that forms a peptide sequence, but it does have enormous consequences in terms of disrupting the way a protein folds and the protein's activity level.

Glyphosate's main mechanism of toxicity is through suppression of the activity of the enzyme EPSP synthase, a critical enzyme in the shikimate pathway. It is astonishing to me that toxicology experts know that multiple species of microbes and multiple species of plants have “figured out” how to get around glyphosate's toxicity to the shikimate pathway by mutating the code for EPSP synthase, yet it does not seem to occur to any of them that this could mean that glyphosate can get mistakenly incorporated into protein synthesis in place of glycine. Specifically, there is a highly conserved glycine residue at the site where the substrate phosphoenolpyruvate (PEP) fits snugly. All

of these species have independently acquired immunity to glyphosate by changing the DNA code such that it codes for alanine instead of glycine. This is a very minor change, introducing one extra methyl group, but it makes all the difference in the world because glyphosate only substitutes for glycine, not alanine. Change the code, and you acquire complete immunity to glyphosate's effects on this protein.<sup>52</sup>

It's not as if researchers are not aware that this kind of thing happens in biology. There are probably over a thousand non-coding amino acids that are produced naturally by biological organisms, and a few of them are known to be able to substitute by mistake for specific coding amino acids, generally causing extremely debilitating disease as a consequence.<sup>55</sup> One of these is another herbicide, glufosinate, which works by substituting for glutamate during protein synthesis.<sup>56</sup> Glufosinate is naturally produced by certain bacteria. There is also a toxin produced by cyanobacteria, called  $\beta$ -methylamino-L-alanine (BMAA), that is an analogue of serine, and it causes a debilitating neurological disease similar to ALS and Parkinson's disease.<sup>57,58</sup>

Another toxin produced by sugar beets under stress conditions substitutes for proline and causes multiple sclerosis and swayback in lambs.<sup>59,60</sup> L-canavanine is an amino acid analogue of L-arginine, and it was probably responsible for the death of Christopher McCandless, the protagonist of the book *Into the Wild* by John Krakauer.<sup>61</sup> However, there is no naturally produced amino acid known to mankind that substitutes for glycine. Glyphosate, only present because it is synthesized in the chemistry lab, is unique in this ability, and this is what makes it so demonic.

In addition to inducing expression of kinases via calcium uptake, glyphosate can also be expected to cause them to become hyperactive, through substitution for glycine during protein synthesis. In our first paper on glyphosate acting as a glycine analogue (fifth paper in our series),<sup>62</sup> Anthony Samsel and I explained how glyphosate substitution for glycine at critical spots in kinases would be predicted to cause them to become overactive, and how glyphosate substitution in phosphatases (proteins that remove phosphates) would suppress them. For

example, protein kinase CK2 is able to phosphorylate more than one hundred and sixty substrates, and it is involved in the cell cycle and cell proliferation. It contains a glycine-rich loop (GXGXXG) (where "X" stands for a "wild-card," i.e., any amino acid), as do many other protein kinases. Experiments have shown that substitution of one of the glycines in this region, G48—which is conserved in 99 percent of protein kinases—with a negatively charged amino acid leads to increased activity.<sup>62-65</sup> Glyphosate is negatively charged.

Both AID and Nup98 can be expected to be susceptible to something called "pseudophosphorylation" if glyphosate were to substitute for one or more of their glycine residues by mistake. Strikingly, there is a novel version of AID synthesized by zebrafish that does not have the serine residue at location 38 that normally gets phosphorylated to convert AID into a dangerous protein that causes random genetic mutations. However, zebrafish AID has been shown to induce genetic mutations nonetheless. Researchers have proposed that the presence of a negatively charged amino acid nearby has caused the protein to behave as if it is permanently phosphorylated.<sup>66</sup> Substitution of glyphosate for a nearby glycine residue would very likely have a similar effect, with glyphosate's phosphonate ion being a close approximation to a phosphate ion negative at typical cellular pH.

A remarkable experiment with transgenic mice, where the mouse DNA was modified to include a constitutively expressed version of AID, demonstrated the destructive capabilities of AID if left unregulated.<sup>67</sup> The mice developed large numbers of point mutations in genes for a number of oncogenic proteins (proteins that induce cancer). They later developed multiple types of cancer, including lymphoma but also adenomas and carcinomas in the lungs.

Nup98 induces a collapse of the pore plug in response to excessive phosphorylation on multiple serine residues within a segment known as a "phenylalanine-glycine domain" (FG domain) because it contains many FG pairs (phenylalanine linked to glycine) within this segment.<sup>68</sup> Nup98 has eleven sites in this FG domain that can be phosphorylated. In an experiment where all of these sites were replaced with so-called

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“phosphomimetic” (i.e., negatively charged) amino acids, this modification caused Nup98 to act as if it were permanently phosphorylated.<sup>69</sup> Substitution of many of those glycines with negatively charged glyphosate in this FG domain can be expected to have a similar effect. A schematic layout of a sequence of phenylalanine-glycine pairs with glyphosate substituting for two of the glycines is illustrated in Figure 2, where the blue sections represent the benzene rings of phenylalanine and the grey sections are the glyphosate molecules. Note the negative charge on the phosphonate ions in the glyphosate molecules.

Either phosphorylation or pseudo-phosphorylation causes Nup98 to detach from the nuclear pore, and disintegration of the pore then launches the cell into mitosis, inducing cell division and proliferation. Of course, this also allows access to the nucleus for both NF-κB and AID, further promoting a phosphorylation cascade as well as an opportunity to strip off the methyl groups and mutate oncogenic genes, eventually inducing lymphoma in B cells. The process is schematized in Figure 3 (next page), which shows a breaching of the nuclear pores by NF-κB and AID as a consequence of pseudo-phosphorylation of Nup98 by glyphosate. AID, also activated through phosphorylation and pseudo-phosphorylation, then launches a chemical reaction cascade that leads directly to damage to the DNA in the nucleus and transforms the B cell into a cancer cell.

#### CALCIUM CHANNEL DYSREGULATION AND HYPERPHOSPHORYLATION IN HEART FAILURE

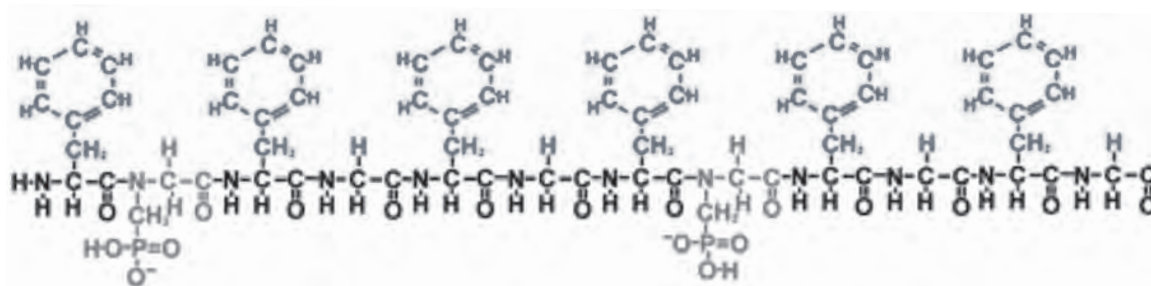
If glyphosate can substitute for glycine during protein synthesis, reactive oxygen species (ROS) and excessive calcium entry can cause a runaway phosphorylation cascade with devastating consequences in multiple cell types beyond the B cells of the immune system. Calcium uptake is normally carefully controlled in the heart through multiple signaling mechanisms that are likely to misbehave in the presence of glyphosate contamination. Disruptions due to glyphosate uptake into proteins could be responsible for the alarming increase we are seeing today in sudden infant death, sudden death among our youth and heart

failure among the elderly.

The fight-or-flight response can be deadly in the context of chronic glyphosate poisoning. As discussed in detail in a paper published in 2012,<sup>70</sup> dysregulation of the signaling molecule CaMKII can lead to cardiac arrhythmias, heart failure and sudden death. Catecholamines (adrenalin and dopamine), aldosterone and angiotensin II are all capable of upregulating CaMKII via a sympathetic nervous system response. Its activity is increased both through oxidation and phosphorylation. As we’ve seen already, glyphosate-based formulations induce oxidative stress and they also induce excess calcium uptake. This launches the phosphorylation cascade that causes increased activity of CaMKII and subsequently a large number of other proteins, eventually inducing calcium overload and arrhythmias such as tachycardia and atrial fibrillation. These in turn can cause heart failure and sudden cardiac arrest. We currently face an unexplained epidemic in heart failure and sudden death.

An overexuberant response of both the calcium channel and the phosphorylation cascade can be predicted in the context of glyphosate substituting for glycine during protein synthesis. The net effect is that once a phosphorylation cascade gets started, it is very difficult to shut it down if glyphosate is being actively incorporated into the proteins being synthesized.

Unfortunately, the situation is potentially even worse than this. The L-type calcium chan-



**FIGURE 2:** Schematic layout of a sequence of six phenylalanine-glycine (FG) pairs with glyphosate substituting for two of the glycine residues. The blue segments are the benzene rings of phenylalanine, and the grey sections are the glyphosate molecules. Note the negative charge on the phosphonate moieties in glyphosate, which effects a “pseudo-phosphorylation” of Nup98 and other nucleoporins. [Drawing provided by Dr. Martin Michener]



nel pumps calcium into cells, and it, too, is likely to be overactive in the presence of glyphosate. Calcium entry triggers the phosphorylation cascade. If the calcium channel refuses to shut down, it will pump an excessive amount of calcium into the cell, depolarizing it and throwing it into a state that easily induces arrhythmias, especially long QT syndrome (LQTS), further aggravated by the excessive phosphorylation that is happening simultaneously.

It is remarkable how devastating a genetic mutation involving a substitution for a single amino acid in a protein can be. Timothy syndrome, a rare type of LQTS first recognized in 1992, is a genetic disorder caused by a single DNA mutation at a site that normally codes for glycine in the calcium channel, which has profound effects on health. The unfortunate child born with this disorder suffers from hypoglycemia due to overexpression of insulin in the pancreas,<sup>71</sup> autism due to a failure in dendrite outgrowth in neurons in the brain and a very high risk of sudden death through arrhythmias due to cardiac failure.<sup>71,72</sup> All of these metabolic disruptions are due to an inability to stop the calcium channel from exuberantly pumping

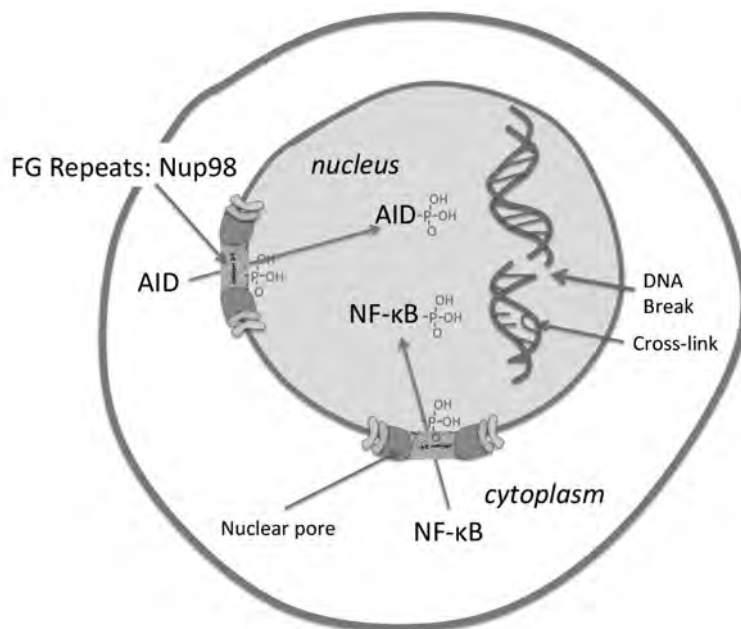
calcium into the cells.

The most common mutation leading to Timothy syndrome involves a substitution of arginine for the usual glycine residue at location 406 of the peptide sequence of exon 8A of the caveolin 1.2 L-type calcium channel gene.<sup>71</sup> This is a gain-of-function mutation, which results in a remarkably prolonged action potential in the heart, manifested as LQTS, because the mechanisms that normally shut off the influx of calcium following sympathetic stimulation are disrupted. Another glycine mutation to arginine at location 402 is also linked to Timothy syndrome.<sup>73</sup> Glyphosate poisoning in humans has been shown to induce life-threatening cardiac arrhythmias, including LQTS.<sup>74</sup>

Timothy syndrome represents an extreme case where every instance of the L-type calcium channel is defective due to a missing glycine residue. In the case of glyphosate, only some percentage of the calcium channel proteins would be defective, so the consequences would be a much milder version of a Timothy-like syndrome. Simultaneously, however, many other proteins would also have glyphosate residues displacing glycines willy-nilly in some random and unpredictable fashion. The consequences would be complex and confusing, which is probably part of the reason it has taken us so long to figure out what is going on in these metabolic disruptions caused by glyphosate insinuation into various proteins.

#### BEYOND NON-HODGKIN'S LYMPHOMA

Cancer is induced through genetic mutations in the cell line that eventually becomes a tumor. De novo mutations are changes in the DNA that are present in a child but not in its parents. That is to say, the germ



**FIGURE 3:** Simplified schematic of the reaction cascade following glyphosate infiltration into Nup98, AID and NF-kappa-B. Phosphorylation and pseudo-phosphorylation of Nup98 allow AID and NF-kappa-B to breach the nuclear barrier. Phosphorylation and pseudo-phosphorylation of AID turn it into a destructive protein that can induce DNA mutations and subsequent tumorigenesis in the cell.

## HOW TO PROTECT YOURSELF AND YOUR FAMILY

Glyphosate is pervasive in our environment. It's been found in the water supply and rain, in tampons and other cotton products, in vaccines and, especially, in the food supply. Glyphosate usage on core crops has been going up exponentially over the past two decades, and people use it routinely in their yards to control weeds. It's also in the air, especially if you live near agricultural fields where it is routinely applied. It may be released into the air on highways as well, since we now require 10 percent ethanol added to gasoline, and the ethanol is derived from either GMO Roundup-Ready corn or sugar cane sprayed with Roundup right before harvest as a ripener. It's likely present in cigarettes, since tobacco is a genetically engineered glyphosate-resistant crop. Glyphosate is stable even at high temperatures.

What this means is that it is impossible to avoid glyphosate completely. However, there are simple steps you can take to help reduce your body burden:

1. Stop using glyphosate/Roundup in your yard, and try to convince your neighbors to do the same. There are alternative methods to kill weeds, such as pulling them by hand or using a vinegar-soap-salt mixture.<sup>80</sup>
2. Buy organic cotton clothing, organic tampons and, if you are a smoker, organic cigarettes. I hope these options will become more widely available in the future.
3. Test your water supply for glyphosate contamination. If necessary, install a reverse osmosis filter to remove it.
4. Choose only certified organic foods when you shop at the grocery store. This is possibly the most important thing you can do. We are very fortunate that the certified organic label exists; one of its clear restrictions is that glyphosate cannot be used on organic crops. This can make a significant difference in your exposure level, because many foods are highly contaminated with glyphosate and ingesting it means a direct hit to your gut microbiome. You can become aware of exactly which foods are most problematic by reading Tony Mitra's book, *Poison Foods of North America*. Tony convinced the Canadian government to test over eight thousand food items for glyphosate, and his book provides detailed tables showing the amounts detected in various foods imported into or grown in Canada.<sup>81</sup> Some surprises were the very high levels found in non-organic lentils and chick peas, as well as significant contamination of oat- and wheat-based products, such as oatmeal and pasta. None of these crops are GMO, but all are often sprayed with glyphosate as a desiccant right before harvest. Mexican imports generally had significantly lower levels of glyphosate than foods grown in the U.S. or Canada. In fact, Mexico's levels were more comparable to those found in European produce. So choosing produce grown in Mexico is probably a good strategy if you can't find a certified organic source.
5. Regularly consume fermented foods, such as kimchi, apple cider vinegar, sauerkraut, kombucha and kefir. Although Monsanto claims that glyphosate passes through the body mostly unmodified, and that nearly all of it is excreted either through the kidneys or the feces, the company knows that a certain percentage goes into the tissues and accumulates there—as they have clearly shown in unpublished experiments where they used traceable radiolabelled glyphosate. There are only a few species of microbes that can fully metabolize glyphosate, and one of them is *Acetobacter*.<sup>82</sup> For this reason, I recommend consuming fermented foods, which typically contain *Acetobacter*.
6. Eat a lot of herbs, spices and colorful fruits and vegetables, which are rich in polyphenols and flavonoids. This is another strategy that should help to protect from glyphosate damage. Polyphenols in honey,<sup>83</sup> turmeric<sup>84</sup> and resveratrol (found in grapes, red wine, peanuts and mulberries)<sup>85</sup> have all been shown to inhibit NF-kappa-B expression, and this may be a key factor in their beneficial effects.
7. Make a conscious effort to consume mineral-rich foods such as organic eggs and seafood. Glyphosate's chelation of many minerals makes them less available to the body.
8. There are now several products on the market that claim to help treat glyphosate poisoning, and these are often based on probiotics, organic matter from the soil (humic acid and fulvic acid) and mineral supplements. A study done on cows exposed to glyphosate showed that a combination of sauerkraut juice, activated charcoal, humic acid and fulvic acid was beneficial for removing glyphosate and helping to ease disease symptoms.<sup>86</sup> Humic acid was also used successfully to treat glyphosate damage in chickens.<sup>87</sup>

Two studies have revealed that glyphosate can be broken down nonenzymatically by simple highly oxidizing molecules such as ozone, chlorine dioxide and hypochlorite.<sup>88,89</sup> Ozone therapy and Miracle Mineral Supplement (MMS) therapy may be successful therapeutic options in part because they help to reduce glyphosate burden in the body. However, these should be used with caution because their oxidation properties make them damaging to tissues as well.


cell that became the egg or sperm mutated. The new movie, “Genetically Modified Children,” proposes that glyphosate exposure in utero resulted in de novo DNA mutations that led to severe genetic diseases. The children featured in the film live in a farm community in northern Argentina where GMO Roundup-Ready tobacco is the core crop. The rates of cancer and congenital abnormalities are much higher than normal in this community.

A recently published paper exposed rats to low doses of glyphosate during pregnancy and lactation.<sup>75</sup> Although the rats and their direct offspring suffered little damage, the second-generation offspring had an exceptionally high rate of rare genetic diseases. The female fetus develops her ovaries and eggs very early in pregnancy. AID, the protein that drives genetic mutations when it is defective or phosphorylated, is highly expressed in germ cells in the developing ovaries. Thus, glyphosate uptake by germ cells in utero can lead to rare genetic mutations and rare birth defects in the next generation!

The TNF- $\alpha$ , NF- $\kappa$ B and AID activation sequence—launched in response to environmental stressors in B cells and leading over time to tumorigenesis and non-Hodgkin’s lymphoma—is not a process that is unique to B cells. Thyroid cancer and liver cancer are both rising dramatically in the U.S. population, in lockstep with the rise in glyphosate usage on core crops.<sup>76</sup> It is extremely unlikely that the match in the rise in glyphosate usage and the rise in the two cancers could have occurred by chance; the probability values or “p-values” for thyroid cancer ( $p < 0.000022$ ) and liver cancer ( $p < 0.000054$ ) are dramatically lower than the  $p=0.05$  level that represents statistical significance. A study conducted on a population in Buenos Aires, Argentina, found a significant recent increase in thyroid cancer, particularly among men, and suggested that an environmental factor, such as the heavy use of glyphosate in the surrounding GMO corn and soybean fields, could be a factor in the increase.<sup>77</sup>

NF- $\kappa$ B expression has been shown to play a critical role in autoimmune thyroid diseases such as Hashimoto’s as well as in thyroid cancer.<sup>78</sup> Stimulation by TNF- $\alpha$  in liver cells induces AID expression mediated through

NF- $\kappa$ B, leading to liver cancer.<sup>79</sup> I predict that it will turn out to be the case that *all* of the cancers that are being caused by glyphosate are occurring through aberrant expression of the TNF- $\alpha$ /NF- $\kappa$ B signaling pathways, leading to both hyperphosphorylation and pseudo-hyperphosphorylation of AID and Nup98.

Besides its important role in cancer development, AID also is essential for the maturation of the immune system. Disruption of the processes that take place in the thymus gland in the first year of life can be predicted to lead to a weakened immune system due to defective maturation of the B cells. Exposure to pathogens—especially in the gut—will lead, in the context of glyphosate exposure, to aberrant perfection of the antibody response to antigenic agents, causing both a poor immune response to the infection and an increased likelihood of developing autoimmune disease through molecular mimicry. Moreover, children’s responses to vaccination can be expected to be impaired, such that the vaccine fails to “take” and/or leads to autoimmune diseases such as thyroiditis, asthma, eczema and type 1 diabetes. Perhaps these disruptions caused by glyphosate are directly related to many of the immune deficiencies and autoimmune conditions so prevalent among U.S. children today. For sure, more research is needed to verify these ideas. 

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# Sunscreens:

## The Dark Side of Avoiding the Sun

By Elizabeth Plourde, PhD

**I**n 2012, I published my extensively researched book, *Sunscreens—Biohazard: Treat as Hazardous Waste*.<sup>1</sup> I am saddened that the book has made little impact on the worldwide production, proliferation and use of sunscreens. The widespread use of sunscreens has resulted not only in increased skin cancers but in contamination of the world's water sources.

I am also staggered by current research showing that there is even greater harm that people need to be aware of. I am writing a new book to bring the public up to date on these hazards and the damage inflicted on the earth's entire ecosystem. This article covers only the highlights—I will cover the complete details in *Sunscreens—Biohazard II: Proof of Toxicity Keeps Piling Up*.

## GOING IN THE WRONG DIRECTION

Sunscreens were introduced in the 1970s, yet here we are almost fifty years later with a shocking increase in the incidence of melanoma. In the United States in 1970, the incidence rate for melanoma was 5.7 per 100,000.<sup>2</sup> Between 1973 and 2011, the overall rate increased 200 percent,<sup>3</sup> and the rate for children and white female young adults increased 253 percent.<sup>4</sup> Figure 1 shows the increase in incidence since sunscreens came into widespread use.

If sunscreens actually worked, the lines in Figure 1 would be going in the opposite direction. To understand why they are not, we have to look at the basic premise of sunscreens and recognize that the entire concept of ultraviolet (UV) protection is wrong. Only 4 percent of the total solar radiation spectrum is UV radiation, which includes UVA and UVB. The first generation of sunscreens approved in 1978 by the Food and Drug Administration (FDA) blocked only the UVB portion of the UV wavelength. Figure 2 shows the level of penetration of the UVB rays in the skin. Although UVB rays are what cause the typical sunburn, and blocking UVB does stop the skin from turning red, the sunburn is the body's warning sign that it is time to get out of the sun because you have run out of your natural protective nutrients that prevent damage from the sun. Blocking the sunburn is just as dangerous as cutting the wire to the red warning light on the dash of your car.

When the incidence of melanoma continued to rise following the approval of UVB-blocking sunscreens, the FDA created new regulations in 1988 requiring that sunscreens also block UVA,

which penetrates slightly more deeply into the skin. Figure 3 shows how deeply the UVA rays enter the skin, compared to UVB. This second generation of sunscreens is referred to as "broad spectrum"—that is, sunscreens that block both UVB and UVA radiation.

Other than UV radiation, the rest of the solar radiation spectrum includes visible wavelengths (49 percent) and near infrared (NIR) wavelengths (47 percent). Near infrared are divided into infrared A (IRA), infrared B (IRB) and infrared C (IRC) radiation. Look at Figure 4 to see how much deeper these rays go. Nothing applied to the skin can stop these deeply penetrating NIR wavelengths. As they go deeper into our skin, they cause damage to structures inside the skin, including cancer.

Studies published in the 1990s admitted that sunshine had not been proven to cause melanoma or skin cancers. In 1994, researchers reported that sunscreens "failed to protect against UV radiation-induced increase in melanoma incidence."<sup>5</sup> Several investigators also found a higher incidence of basal cell carcinomas with sunscreen use and stated in 1990 that their findings did not support a role for sunscreens in preventing basal cell carcinoma.<sup>6</sup>

By 2012—almost forty years after the beginning of sunscreen promotion as essential skin cancer protection—researchers stated: "Evidently, use of sunscreens is effective in prevention of sunburns in various models. However, evidence for their protective effects against melanoma skin cancer is less conclusive."<sup>7</sup> For non-melanoma skin cancers, a 2015 Australian study reported that their incidence

Studies published in the 1990s admitted that sunshine had not been proven to cause melanoma or skin cancers.

### ARTICLE SUMMARY

- Research has not validated the claim that the sun is not safe because it causes melanoma.
- Sunscreen use actually promotes skin cancers.
- Sunscreen chemicals are toxic to all systems in the body and to all life on the planet.
- Sunscreen chemicals mimicking the shape of our hormones bind to the body's hormone receptors, disrupting estrogen, testosterone, progesterone and thyroid hormones.
- Sunshine provides many benefits for the whole body.
- Blocking UVB radiation leads to low vitamin D<sub>3</sub> levels due to the inability to produce this essential vitamin in the skin, which results in a multitude of health problems.
- Consumers should avoid products that have a SPF rating or foods or clothing that contain titanium dioxide.
- Eating, taking or using antioxidants on the skin are natural, safe ways to protect the skin from solar radiation. Feeding the skin antioxidants provides nature's best solar radiation protection.

Every chemical or mineral approved by FDA for a SPF rating is toxic to the body and all aquatic life.

had climbed to 2,448 per 100,000 person-years by 2011, up from 555 per 100,000 person-years in 1985.<sup>8</sup> By 2017, researchers were reporting that “the effects of repeated, long-term and low-dose exposures to single compounds and mixtures of various UV filters” in sunscreens were “poorly studied” and that more research was needed “to evaluate the realistic hazard of contemporary sunscreens.”<sup>9</sup>

#### UV FILTERS

The FDA has approved sixteen UV-filtering chemicals for use as sunscreen ingredients. Eight predominate in today’s formulations—six that block UVB (oxybenzone, octinoxate, octisalate, homosalate, octocrylene and titanium dioxide) and two also believed to filter UVA (avobenzone and zinc oxide).<sup>3,10</sup> We have been mindlessly using these chemicals without realizing that they were not subject to full research before the FDA approved them for use in sunscreens. In fact, every chemical or mineral approved by FDA for a SPF (solar protective factor) rating is toxic to the body and aquatic life.<sup>11</sup>

There are two types of UV filters: *chemical filters*, which absorb UV rays, and *physical*

*filters*, which scatter and reflect UV rays. Animal and human studies indicate that both types of agents impair hormonal and developmental pathways. Chemical filters include benzophenones such as benzophenone-3 (BP-3), cinnamates such as octyl methoxycinnamate (OMC) and camphors such as 3-benzylidene-camphor (3-BC) and 4-methylbenzylidene-camphor (4-MBC).

Chemical filters are well-documented endocrine (hormone) disruptors. Structurally mimicking the shape of our hormones, they bind to the body’s hormone receptors, blocking the ability of our hormones to sit in their receptors and thereby preventing them from performing their life-preserving functions. Many studies corroborate the hormone disruptions, showing that benzophenones disrupt estrogen, testosterone and nucleus receptors; cinnamates disrupt estrogen, thyroid and nucleus receptors; and camphors disrupt estrogen, testosterone and progesterone receptors.<sup>12</sup> Mammals, fish, birds, reptiles, amphibians and aquatic invertebrates all show endocrine disruptions from sunscreen chemicals.<sup>13</sup>

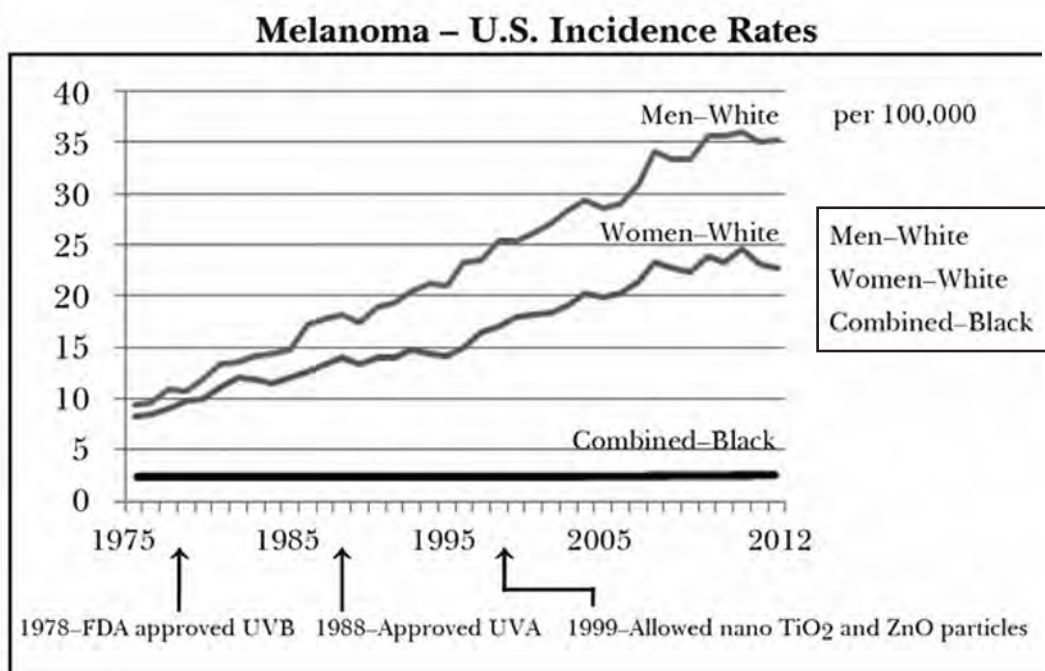


Figure 1: Source: Plourde E, Plourde M. *EMF Freedom: Solutions for the 21st Century Pollution* (2nd ed.). Irvine, CA: New Voice Publications; 2015.



## BODY PENETRATION

BP-3—a substance that “may be absorbed through the skin”—was brought to market as a chemical filter even though its Material Safety Data Sheet (MSDS) states that its toxicological properties have not been fully investigated and that no data are available regarding carcinogenicity, mutagenicity or teratogenicity [fetal developmental harm]. In “special remarks on chronic effects on humans,” the MSDS states that BP-3 “may cause adverse reproductive effects.”<sup>14</sup>

Multiple studies confirm substantial absorption and distribution of chemical filters such as BP-3, OMC and 4-MBC throughout the whole body.<sup>15</sup> After administration to the skin, BP-3 is detected in the blood of rats within five minutes, with metabolites of BP-3 found in all tissues examined. The liver absorbs the highest amount, followed by the kidney, spleen and testicles.<sup>16</sup> After repeated topical applications, BP-3 accumulates in the blood, liver and brain, creating toxicity to nerve cells (neurons) and astrocytes (cells in the brain that surround neurons to support and insulate them).<sup>17</sup>

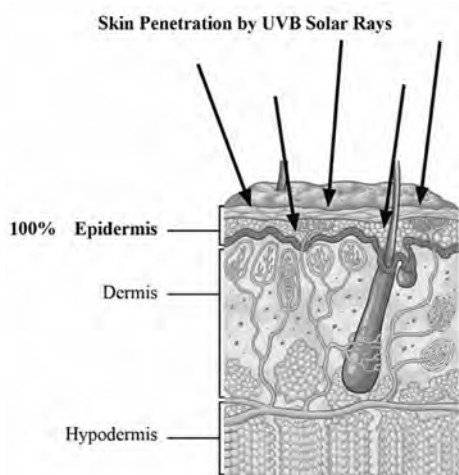
A study with human volunteers who applied BP-3, OMC and 4-MBC for two weeks detected all three sunscreen chemicals in blood and urine, along with alterations in reproductive hormone levels.<sup>15</sup> Observing the amount of these “estro-

genic” sunscreen compounds in the blood, the researchers expressed concern for children who have not reached puberty, because they are more sensitive to low levels of reproductive hormones. Young children are also less able to eliminate drugs and have a larger surface area per body weight than adults, which can result in greater absorption and build-up within their bodies. The researchers concluded that sunscreens “might have adverse effects in children.”<sup>15</sup>

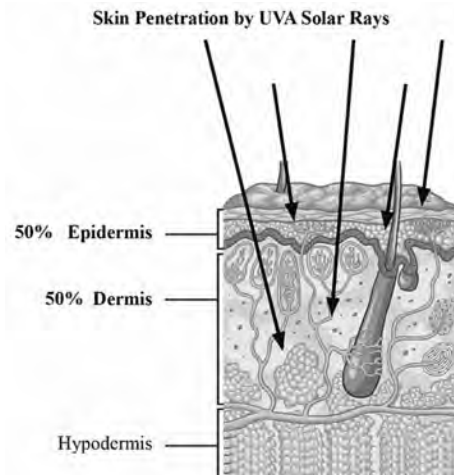
In 2012, another group of researchers made similar observations about the risks that sunscreen ingredients pose to children: “Few human studies have investigated potential side effects of UV-filters, although human exposure is high as UV-filters in sunscreens are rapidly absorbed from the skin. One of the UV-filters, BP-3, has been found in 96 percent of urine samples in the U.S. and several UV-filters in 85 percent of Swiss breast milk samples. It seems pertinent to evaluate whether exposure to UV-filters contribute to possible adverse effects on the developing organs of [fetuses] and children.”<sup>17</sup> This situation is all the more tragic because chemical filters are fat-soluble (meaning that they can combine with or dissolve into fat); this allows them to cross the blood-brain barrier readily, impairing nerve transmission and producing toxic effects to the nerves.<sup>18</sup>

Chemical filters are fat-soluble; this allows them to cross the blood-brain barrier readily, impairing nerve transmission and producing toxic effects to nerves.

**FIGURE 2: Skin Penetration by Ultraviolet B (UVB) Solar Rays**



**FIGURE 3: Skin Penetration by Ultraviolet A (UVA) Solar Rays**



Source: Plourde E. *Sunscreens—Biohazard: Treat as Hazardous Waste*. Irvine, CA: New Voice Publications; 2011.

## NEW RISKS

As if the endocrine-disrupting chemicals (EDCs) were not bad enough, sunscreen manufacturers are now advertising sunscreen formulations as “Kid Safe” if they contain physical filters rather than EDCs. This is a total misrepresentation of the truth. The two physical filters found in sunscreens—zinc oxide (ZnO) and titanium dioxide (TiO<sub>2</sub>)—are both extremely toxic in their own way.

Many individuals are probably familiar with the whitening qualities of zinc oxide and titanium dioxide in their bulk white paste form. In the past, regulators believed that these larger size parent materials were safe. Based on this assumption, in 1999, the FDA approved—without evidence of safety—the use of nanosize and micronized zinc oxide and titanium dioxide particles in sunscreens and other consumer products. Manufacturers developed these vastly smaller particles to trick the eye and get around the cosmetically unappealing residue left by the bulk white paste. However, subsequent research has showed that both the bulk paste and smaller particles are harmful. A 2015 study that compared titanium dioxide in nanoparticle form to its bulk form found that both created cell membrane damage after just twenty-four hours of application.<sup>19</sup>

The definition of “nano” refers to particles less than one hundred nanometers in size (with one nanometer being approximately half the size of a strand of DNA). The term “micro” applies to particles greater than one hundred nanometers. The diameter of a human hair—approximately seventy-five thousand nanometers—is about five thousand times larger than a fifteen-nanometer-in-diameter nanoparticle. Numerous modern products—including paints, papers, foods, toothpaste, makeup and chewing gum in addition to sunscreens—now contain titanium dioxide and zinc oxide nanoparticles, with skyrocketing exposure over the two decades since the FDA’s approval.

The FDA does not require manufacturers to list the size of the particles present in a given product. Thus, most consumers remain unaware of the presence and potential dangers of the nanoparticles and micronized particles in the sunscreen formulations and other products

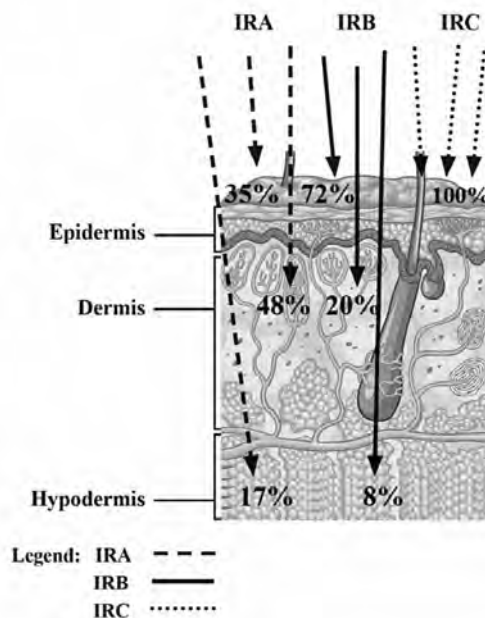
they are buying, nor are they aware that the tremendous reduction in size makes these particles behave quite differently from larger particles.

In the pictures of a rat’s skin cell in Figure 5, the arrows point to dark spots (titanium dioxide nanoparticles) that have penetrated into the cell and into its nucleus, where they are capable of disrupting DNA cell division. Ironically, given the purpose of sunscreens, the nanoparticles penetrate even more when exposed to UV light.<sup>20</sup> The interaction of nanoparticles with UV radiation leads to the generation of free radicals, which are highly damaging molecules on the nanoparticles’ surface, with unpaired electrons that damage cells and DNA.<sup>21</sup> A study that examined “normal conditions of sunscreen use”—which exposed humans with healthy skin to sunscreen products containing zinc oxide nanoparticles for five days “under outdoor conditions”—found that this short period of use resulted in measurable levels of zinc ions in participants’ blood and urine, with blood levels that continued to increase even after discontinuing sunscreen use, and higher levels in the blood and urine of women compared to men.<sup>22</sup> In addition, when the skin is already damaged (whether from prior sunburn or other physical damage), skin absorption of nanoparticles increases, and nanoparticles also remain in wounded skin.<sup>23</sup>

## FALSE ADVERTISING

Manufacturers and even some medical experts trusted by the public claim that some sunscreen formulations use micronized rather than nanosize particles and are, therefore, safe “natural mineral” preparations. Likewise, advertising targeted at health-conscious parents heralds “non-nano” as being safe for kids. Nothing could be further from the truth. It is completely misleading to promote any sunscreen as “non-nano” be-

FIGURE 4: Skin Penetration by Infrared (IR) Solar Rays



Source: Plourde E. *Sunscreens—Biohazard: Treat as Hazardous Waste*. Irvine, CA: New Voice Publications; 2011.

cause the powders used to formulate sunscreens contain both nanosize and micronized particles. Approximately 70 percent of titanium dioxide powder is nanosized, as is about 33 percent of zinc oxide powder. This means that all sunscreen formulations contain nanosize particles. There is no technology that can sort these tiny particles to ensure that only a certain size ends up in any product.<sup>24</sup>

Moreover, when you get down to one five-thousandth the diameter of a human hair, the difference between “nano” (at sixty nanometers) and “micro” (at one hundred and sixty nanometers) is meaningless. Studies show that they both cause cellular damage.<sup>25</sup> In one study, researchers gave mice either micronized titanium dioxide (one hundred and sixty nanometers) or nanosize titanium dioxide (thirty-three nanometers) and found identical damage, which included increased cell division in the esophagus and colon, increased sperm with two nuclei and increased testicular cell death.<sup>26</sup> Both sizes of particles caused DNA damage in bone marrow cells; the micronized particles also caused abnormal cell division in bone marrow cells, and the nanosize particles caused liver cell DNA damage. Determining that the DNA toxicity was

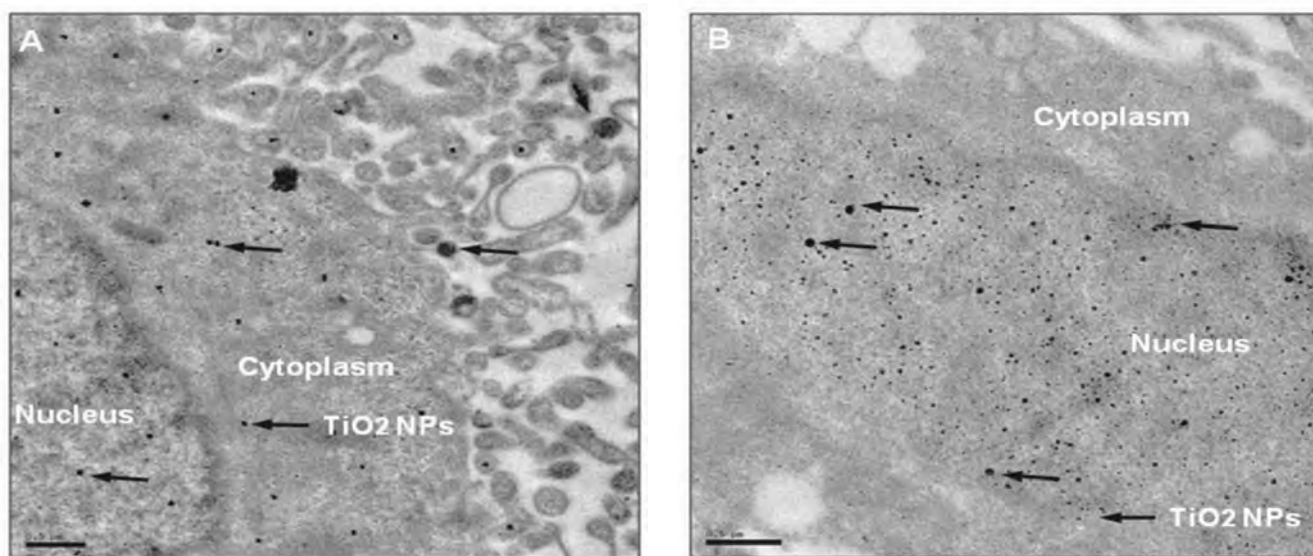
due to nanoparticle-induced inflammation and/or oxidative stress, the researchers concluded: “Given the increasing use of TiO(2) nanoparticles, these findings indicate a potential health hazard associated with exposure to TiO(2) particles.”<sup>26</sup>

#### GROWING EVIDENCE OF HARM

Another study in mice examined three types of metallic nanoparticles (titanium dioxide, zinc oxide and aluminum oxide), administering oral doses of each for twenty-one consecutive days.<sup>27</sup> The researchers observed that this resulted in toxicity to brain nerve cells, with nanoparticles found inside the cells and nucleus, oxidative stress in red blood cells and the liver and disrupted antioxidant enzymes. The zinc oxide nanoparticles were the most toxic, followed by aluminum oxide and titanium dioxide.<sup>27</sup> In another study involving hairless mice, application of titanium dioxide nanoparticles over sixty days caused pathological lesions (injury) in the skin, liver and brain and also reduced collagen in the skin, creating skin aging. The researchers concluded: “Altogether, the present study indicates that nanosize TiO(2) may pose a health risk to human [sic] after dermal exposure over a

It is completely misleading to promote any sunscreen as “non-nano.” All sunscreen formulations contain nanosize particles.

**FIGURE 5: Penetration of Titanium Dioxide Nanoparticles into Rat Skin Cell and Nucleus**



Source: Shukla RK, Sharma V, Pandey AK, Singh S, Sultana S, Dhawan A. ROS-mediated genotoxicity induced by titanium dioxide nanoparticles in human epidermal cells. *Toxicol in Vitro* 2011;25(1):231-41. [Reprinted with permission.]



Sunscreens in spray bottles can be even more harmful. The olfactory nerves can directly transport the nanoparticles into the brain.

relative [sic] long time period.”<sup>28</sup> This proof of long-term damage goes against the claims made by manufacturers that long-term sunscreen use will decrease skin aging.

#### SPRAY SUNSCREENS

Sunscreens in spray bottles, promoted as convenient, can be even more harmful, particularly because the products affect innocent bystanders. Inhalation is associated with increased exposure of the brain to zinc nanoparticles because the olfactory nerves (nose) can directly transport the nanoparticles into the brain.<sup>29</sup> Inhaled nanoparticles also cause lung damage, which allows the nanoparticles to travel through the blood to all tissues and organs,<sup>30</sup> creating oxidation damage in the brain, lungs, blood, lymph nodes, liver, kidney and spleen.<sup>31</sup> Those who wish to protect themselves should avoid using any spray sunscreens and should stay away from anyone spraying themselves, as it is carried by the wind and can contaminate everyone in the area.

#### REPRODUCTIVE EFFECTS

Many published studies have shown that sunscreen chemicals alter and interfere with reproduction. As long ago as 1992, the U.S. government published research that identified body-wide toxicity from the sunscreen chemical HMB (2-hydroxy-4-methoxybenzophenone). Exposing rats and mice to HMB created similar effects whether it was administered topically or orally. The alterations included cellular death, weight gain and damage to both liver and kidney.<sup>32</sup> This report on HMB also found that the chemical caused reproductive toxicity, with a lengthened menstrual cycle and decreased sperm count.<sup>32</sup>

At least nine studies of titanium dioxide nanoparticles in mice and rats show reproductive harm, including problems that could result in impaired fertility.<sup>33-41</sup> The wide-ranging reproductive effects identified in these studies include increased cell death, premature and inhibited egg development, death of ovary cells, deformed follicle growth, cellular and DNA toxicity, cellular changes in testicular tissue, decreased testicular weight, decreased testosterone, reduced sperm quality, placenta toxicity and neurotoxicity to neonatal as well as to adult brains.

The fact that titanium dioxide nanoparticles do not leave the body makes their reproductive effects particularly troubling. Females should guard against using products that contain titanium dioxide or other products that potentially contain other nanosize materials such as zinc oxide. Unfortunately, almost all makeup today contains titanium dioxide nanoparticles. If a makeup or other product has an SPF ranking, it automatically contains one or more of the harmful materials described in this article. In fact, the FDA will not even allow products to be tested for a SPF value ranking unless they contain one of their approved sunscreen chemicals. Women should take care to use only cosmetics that do not have any SPF rating.

#### FETAL DEVELOPMENT

There is no doubt that sunscreen chemicals are absorbed. It is imperative to study the extent to which they transfer to the fetus and whether and how they interfere with the child's development. Although the placenta has specialized cells to prevent toxins from entering the fetus while it is developing, this protective barrier does not block passage of nanoparticles.

#### INGESTABLE NANOPARTICLES

Consumers should be on the lookout for food-grade titanium dioxide nanoparticles in foods—something else the FDA has seen fit to approve. The food industry uses food-grade nanosize titanium dioxide as a food additive because it enhances the color of white foods like puddings. Discussing the presence of titanium dioxide particles in white-colored seafood and fish products, researchers have warned of toxicity to the gastrointestinal tract:

Together, these results show relatively high concentrations of TiO<sub>2</sub> particles in some seafood and surimi (fish paste) products available in the market, and our findings therefore call for attention on TiO<sub>2</sub> particle exposure and uptake through daily foods.<sup>55</sup>



A mouse study found that gestational exposure to titanium dioxide nanoparticles significantly impaired placental growth and development.<sup>42</sup> Another study showed that when pregnant rats were treated with titanium dioxide nanoparticles, the nanoparticles concentrated in the hippocampus of the brains of the rats' one-day-old pups. Moreover, as the pups aged, they demonstrated significant impairment in learning and memory (critical functions that the hippocampus performs).<sup>36</sup> Researchers also have reported that the pups of pregnant mice

treated with titanium dioxide developed alterations in their cerebral cortex and olfactory bulb.<sup>38</sup> The alterations to the cerebral cortex suggest that titanium dioxide exposure should be considered as a risk factor for autism, as autistic brains show abnormal cellular arrangements in the cerebral cortex.<sup>43</sup>

Ordinarily, the body is able to counter the oxidation reactions that occur continually throughout the whole body, preventing inflammation in the tissues so that it does not disrupt normal functioning. However, research indicates that titanium dioxide exposure during pregnancy may impair the development of the brain and central nervous system of the offspring, disrupting antioxidation reactions within the brain and altering neurotransmitter functions; this in turn may result in altered neurobehav-

### WIDE-RANGING HEALTH EFFECTS

There is substantial evidence that sunscreen chemicals have an impact on the entire body.<sup>56</sup> The changes these chemicals create are now rampant in society, linked to illnesses affecting numerous body systems.

**ADULT NEUROLOGICAL DISORDERS:** Adult (and especially older adult) mice exposed to zinc oxide nanoparticles have inflammatory responses in the blood and brain, increased oxidative stress levels, impaired learning, impaired memory and pathological changes in the hippocampus. Studies also show that titanium dioxide nanoparticles accumulate in critical parts in the brain, including the hippocampus, which could induce neurodegenerative diseases such as Alzheimer's.<sup>57,58</sup> The hippocampus is especially important as it regulates emotions and is the primary area of memory and learning, consolidating our short-term to long-term memory.<sup>59</sup> It is time to look at sunscreen use as one reason for the difficulty with memory that is afflicting a growing proportion of the population.

**HEART-RELATED EFFECTS:** Titanium dioxide-containing sunscreens also cause harm to the heart, including heartbeat irregularities.<sup>60</sup> Titanium dioxide is also in many other consumer products. Those experiencing heart palpitations (including young girls who are starting to use makeup) should check all products to see whether they contain titanium dioxide.

**DIABETES:** Sunscreen use is linked to diabetes in several ways. Type 1 diabetes is connected to lower exposure to sunshine leading to less vitamin D<sub>3</sub>.<sup>61</sup> Zinc oxide nanoparticles can alter blood sugar regulation,<sup>62</sup> and titanium dioxide nanoparticles have been found by the billions in the pancreas of those with type 2 diabetes, compared with nondiabetic individuals.<sup>63</sup>

**BREAST CANCER:** The estrogenic effects of the endocrine-disrupting chemicals in sunscreen can contribute to breast cancer cells multiplying and metastasizing.<sup>64</sup> Stopping use of chemicals that promote the growth and spread of breast cancer cells would be a great place to focus breast cancer prevention campaigns.

**LIVER, THYROID AND IMMUNE FUNCTION:** Titanium dioxide has been implicated in problems with the liver, thyroid (low T3 and T4) and immune function.<sup>62,65</sup>

**LEAKY GUT:** Many people are suffering from leaky-gut-related conditions, including individuals on the autism spectrum. Inhaled zinc oxide nanoparticles have been shown to disrupt the normal bacterial flora in the gut and create permeability in the intestinal lining, which leads to leaky gut.<sup>66</sup> This is one of the key factors that makes these particles so harmful. It is false to state that zinc oxide sprays are safe for children.

**MITOCHONDRIAL DYSFUNCTION:** Over the last several decades, there has been a tremendous increase in diseases that exhibit mitochondrial dysfunction. Zinc oxide has been shown to alter the ability of the mitochondrial membrane to create the energy the body requires to maintain health.<sup>62</sup>

**DEPRESSION:** Titanium dioxide nanoparticles entering the brain can trigger mental health effects. One group of researchers concluded that "Exposure to [titanium dioxide nanoparticles] in fetal life induces changes that could lead to depressive-like behaviors in adulthood."<sup>44</sup>

**DNA DAMAGE:** Zinc oxide nanoparticles have been associated with DNA damage to hundreds of genes, including breaks, deletions, rearrangements, additions and disruption of the body's natural ability to repair damaged DNA.<sup>67,68</sup>

**IMPAIRED DETOXIFICATION:** Nanoparticles disrupt the MTHFR gene, leading to changes in DNA methylation that reduce the body's ability to detoxify chemicals.<sup>69</sup> Many individuals diagnosed with MTHFR alterations are having difficulty maintaining their health.

ioral performance and conditions diagnosed as psychiatric.<sup>44,45</sup> Studies also show that titanium dioxide disrupts the body's ability to perform its continual DNA repair, which is essential to maintain good health. All these alterations of chemicals within the brain cannot help but lead to alterations in behavior.<sup>46</sup>

A Japanese mouse study of maternal exposure to titanium dioxide nanoparticles found significant alterations in one thousand eight hundred and eighty-seven genes in the brains of offspring within the first twenty-one days of development.<sup>35</sup> The altered genes were associated with brain development, cell death, response to oxidative stress, brain mitochondria, inflammation and neurotransmitters. The study's results suggest that exposure to nanoparticles in pregnancy "can alter gene expression in the neonatal period and might cause the onset of psychiatric disorders even in adulthood," particularly since the genes in question are involved in disorders including autism, anxiety disorders, Alzheimer's disease, attention deficit hyperactivity disorder (ADHD), blood-brain barrier alterations, epilepsy, mitochondrial disease, Parkinson's disease and schizophrenia.<sup>35</sup>

Sunscreens with endocrine-disrupting chemical filters also have developmental and long-term implications. A study that analyzed maternal blood, amniotic fluid, cord blood and fetal blood detected several benzophenones (BP-1, BP-3, and 4-MBP) in the amniotic fluid, cord blood and fetal blood,<sup>47</sup> showing that EDCs "get through" to the developing fetus. Moreover, the benzophenones being incorporated into our bodies are creating multigenerational health effects. Researchers who looked at levels of

BP-3 in maternal urinary samples found that more BP-3 in the pregnant mother's urine correlated with increased overall weight and head circumference of male babies.<sup>48</sup>

The endocrine-disrupting chemicals found in sunscreens alter both hormonal and non-hormonal pathways and their metabolism. Being fat-soluble, they are easily deposited in tissues, where they create a situation of prolonged accumulation and release, even when there is no more exposure. Disturbingly, when benzophenones get through to the developing fetus, they disrupt key stages of maturation and formation of the reproductive system's regulatory mechanisms.<sup>49</sup> Cinnamates such as OMC and camphors such as 4-MBC, as well as the sunscreen preservative propyl paraben, all show estrogenic activity in fish. Male fish show estrogenic markers and are no longer completely male or completely female, which has led researchers to call them "intersex" fish.<sup>50</sup>

Many young people today are stating that they are confused as to their sexual orientation. It is no wonder! The use of estrogenic and anti-testosterone sunscreen chemicals for the last forty years could be one reason that males and females are experiencing gender identity confusion in ever greater numbers. It is known that testosterone secreted by fetal testicles plays a key role in the permanent organization of the developing central nervous system toward masculine patterns.<sup>51</sup> This means that males exposed to these chemicals in utero are subject to disruption of the development of normal masculine character traits. And not only are fetuses exposed to strong chemicals capable of altering natural sexual patterning, but the exposure to these estrogenic and anti-testosterone chemicals then continues throughout their lives.

#### AVOIDANCE IS THE BEST SOLUTION

Sunscreen chemicals create many life-altering changes. The bottom line is that, following decades of using sunscreens with substances that were never safe to begin with, we now have sunscreens that have been made even more unsafe with the inclusion of tiny particles that more easily penetrate the skin and tissues, making them even more biologically reactive. Brought to market without proper testing for safety, the minute size of nanoparticles also makes it difficult to measure them and document the damage. A study published in 2013 stated that notwithstanding their "wide scale" of use "in the world consumer market," the "potential haz-

#### THE MULTIPLE HEALTH BENEFITS OF VITAMIN D

The sun makes your skin produce your own very beneficial vitamin D<sub>3</sub>, which performs many functions. When D<sub>3</sub> levels are low, it can result in bone loss, hair loss, bone and back pain, muscle pain, impaired wound healing, obesity, frequent infections, depression and fatigue. Researchers have also observed that the benefits of sun exposure go beyond production of vitamin D and include "other physiological responses to sunlight, still inadequately explored, including release of nitric oxide, production of beta-endorphin, and regulation of circadian rhythms—all important components of life-long vibrant health and well-being."<sup>70</sup>

Another critical function that sunshine on our skin performs is to catalyze the formation of cholesterol sulfate. Among the many important roles of cholesterol sulfate are the stabilization of red blood cells and the reduction of plaque formation in the arteries. Dr. Stephanie Seneff's book *Cindy and Erica's Obsession to Solve Today's Health Care Crisis* provides detailed descriptions of the many ways cholesterol sulfate supports health.<sup>71</sup>

ards on humans [of zinc oxide nanoparticles] remain largely unknown.”<sup>52</sup> This has left many unanswered questions regarding nanoparticle safety. Manufacturers have taken advantage of this perceived uncertainty to continue promoting their products as “safe.” The reality is that there is plenty of proof of harm—including experimental evidence of damage to cells and animal model evidence of damage to lab animals—indicating that reduced-size titanium dioxide and zinc oxide should be banned.

Although articles have described hormone disruptions from endocrine-disrupting chemicals for decades—and new studies keep revealing the same harm—they have not attracted adequate attention. By ignoring this evidence, we have created whole generations that feel uncertain regarding their maleness or femaleness. Fortunately, information about the risks of endocrine-disrupting sunscreen chemicals is finally starting to encourage the public to stay away from sunscreens with chemical filters. To date, the public is less aware of the vast amount of research showing that sunscreens containing titanium dioxide and zinc oxide nanoparticles can be just as detrimental as those containing endocrine-disrupting chemicals.<sup>53</sup> Some investigators are starting to recommend that women avoid products containing titanium dioxide nanoparticles during pregnancy,<sup>42</sup> but because the nanoparticles are difficult to remove from the body, it would be far better to avoid any exposure at all.

Many studies prove that antioxidant foods and supplements prevent and reverse the oxidation damage that solar radiation can create. A 2018 article is even titled, “Natural antioxidants: multiple mechanisms to protect skin from solar radiation.”<sup>54</sup> The solar radiation protection that antioxidants provide is also proven by the testimonies of people who go into the sun after taking in high amounts of antioxidants and report their skin does not even turn color—even those who have extremely white skin. Chapter 17 (“Antioxidants: Mother Nature’s Protective Sunscreens”) in my first book<sup>1</sup> goes into more detail about antioxidant foods, how they interact and their degree of potency.

My new book, *Sunscreens—Biohazard II: Proof of Toxicity Keeps Piling Up*, will describe numerous ways in which sunscreens are affecting

all life on the planet. Topics include ecological harm; swimming pools as toxic chemical dumps; synergistic toxicity of sunscreen chemicals and other chemicals; sunscreen chemicals’ generational toxicity (comparable to that of DDT); sunscreen chemicals in the fish we eat; sunscreens’ ability to breach the body’s protective barriers; and the role of sunscreen chemicals in the obesity epidemic. ☯☯

*Elizabeth Plourde, CLS, NCMP, PhD, is a clinical laboratory scientist and NAMS certified menopause practitioner. Her education has been augmented by invaluable experience working with cutting-edge medical research laboratories. Applying this knowledge and background, her research is devoted to hormone interactions and toxins that interfere with their balance and, most recently, to the cellular disruptions of electromagnetic fields (EMFs) and sunscreens that affect the body’s immune and eco systems. This expertise has led to books on sunscreens, cell phone radiation, bioidentical hormones and women’s reproductive surgeries. Dr. Plourde spoke and exhibited at the 2018 Wise Traditions conference (New Voice for Health/energyDOTs). For more information about Dr. Plourde’s work on sunscreens, go to [sunscreensbiohazard.com](http://sunscreensbiohazard.com).*



## A Message to Grandparents

Sharing special meals and treats is a wonderful way to spend time together and create memories. But whether they help or hurt your grandchildren’s health depends on which foods you choose.

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# A Metabolic View of Cancer

By Mel Litman, MD

**T**he theory of cancer has been shifting in recent years. According to the conventional theory, referred to as the “somatic mutation theory,” cancer results from DNA damage. After a sequence of mutations, the cells develop “oncogenes” (genetic material that carries the ability to induce cancer), which then lead to the typical behavior of cancer. This theory has gone largely unquestioned in mainstream circles for many years.

In 2006, the U.S. launched The Cancer Genome Atlas (TCGA) as part of the sixteen-nation International Cancer Genome Consortium.<sup>1</sup> Funded to the tune of three hundred and seventy-five million dollars in the U.S., the endeavor mapped out all the genes in thousands of cancer cells to determine which mutations were connected to which cancers. The final goal was to develop targeted therapies to address specific mutations.

There was tremendous enthusiasm at the start of TCGA that it would finally lead to “the answer” to cancer treatment. Unfortunately, the results primarily created more confusion. As summarized in 2015 in the journal *Nature*, “most mutations formed a bewildering hodgepodge of genetic oddities, with little commonality between tumours.”<sup>1</sup> Moreover, the *Nature* reporter observed, “cancers are often quick to become resistant, typically by activating different genes to bypass whatever cellular process is blocked by the treatment.”<sup>1</sup> In other words, not only were there no consistent mutations connected to different types of cancer, but even when specific “targets” were found and drugs developed to block them, the cancer cells would often just bypass that process. This has led to the failure of many of the very expensive biologic or targeted therapies that have been developed.

With the genome project results having left the conventional somatic mutation theory in disarray, some people have concluded that cancer is “just too complicated” to figure out. Others, however, have been quietly elaborating other compelling theories of cancer, which offer hope of dispelling the confusion and leading to meaningful therapeutic alternatives.

## THE WARBURG EFFECT

Otto Warburg’s work has been the focus of revived interest for some time. Starting in the 1930s, Warburg discovered one quality of cancer cells that seemed to be consistent across every cancer cell type that he examined. Detailed by Warburg in a 1956 paper published in *Science*<sup>2</sup> and paraphrased more recently by Thomas Seyfried (author of *Cancer as a Metabolic Disease*<sup>3</sup>), the Warburg theory of cancer has four basic tenets: “Cancer arises from damage to cellular respiration; energy through fermentation gradually compensates for insufficient respiration; cancer cells continue to ferment lactate in the presence of oxygen; [and] enhanced fermentation is the signature metabolic malady of all cancer cells.”<sup>4</sup> Although the conventional oncology world came to accept this property of cancer (now known as the “Warburg Effect”), it mainly saw it as an interesting quirk of most cancers—just something that cancer cells do as a result of the mutations. Warburg differed in mak-

ing the radical statement that “damaged cellular respiration” and “energy through fermentation” defined cancer cells and how they originate.

Modern support for Warburg’s theory came out of some laboratory studies done at a couple of American universities in the late 1980s, which looked at cancer from a different, but related, perspective.<sup>5,6</sup> Improved technologies allowed experiments to be carried out that Warburg could not do in his time. One experiment involved taking the nucleus from a cancer cell (containing the presumed cancer mutations) and transferring it to the cytoplasm of a healthy cell. This generally resulted in extinguishing the “tumorigenic phenotype,” meaning that the new cell behaved as a non-cancerous cell.<sup>7</sup> The researchers then carried out the reverse, transferring the nucleus of a normal cell (with no mutations) to the cytoplasm of a cancer cell. This usually resulted in the cell behaving as a cancer cell. Thus, it seemed that whatever was going on in the cell nucleus had little bearing on the malignancy of the cell. So what was the deciding factor?

Further work done with the help of electron microscopy made it possible to look at the internal structures of cells. Researchers found that cancer cells had fewer mitochondria, and the mitochondria had abnormal internal architecture.<sup>8,9,10</sup> This observation structurally supported Warburg’s theory. Because the mitochondria are the location of the primary metabolic (energy-producing) activity of a cell, the impaired and malfunctioning mitochondria reflected the damaged cellular respiration on a biochemical level that Warburg had discovered years before.

## MITOCHONDRIAL DAMAGE AND CANCER

How does mitochondrial damage lead to cancer? A paper published in 2005 in the journal *Medical Hypotheses* (before the cancer genome project had even begun) concluded that signaling pathways from dysfunctional mitochondria to the nucleus could affect cellular metabolism, proliferation, tumor progression, metastasis and resistance to apoptosis (programmed cell death).<sup>11</sup> Thomas Seyfried, PhD, contributed much to dissecting and understanding these mechanisms. In a 2010 paper in the journal *Nutrition and Metabolism*, Seyfried and his co-

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author concluded: “Emerging evidence indicates that impaired cellular energy metabolism is the defining characteristic of nearly all cancers regardless of cellular or tissue origin.”<sup>12</sup> The general hypothesis that Seyfried put forth in the paper was that “genomic instability and essentially all hallmarks of cancer, including aerobic glycolysis (Warburg effect), can be linked to impaired mitochondrial function and energy metabolism.”<sup>12</sup>

As far back as 1986, *The New England Journal of Medicine* published a paper that described another piece of the cancer puzzle. Titled “Tumors: wounds that do not heal,”<sup>13</sup> the paper argued that cancer behaves much like a healing wound, activating many of the same cellular mechanisms such as inflammation, growth factors, enzymes and angiogenic (formation of new blood vessels) factors. In contrast to a normal wound, however, cancer “healing” is never completed, and the process just continues autonomously.

If we try to assemble all this information into one picture, we can see a process of initial damage to mitochondria, which can result from any of the known cancer risk factors such as oxidative stress, hypoxia, radiation and certain infectious agents. The mitochondria then give out signals to the nucleus to activate genes in an attempt to repair the damage. (This process of mitochondrial signaling, known as “retrograde regulation,” is broadly defined as “cellular responses to alterations in [the] functional state of mitochondria.”<sup>11</sup>)

Next, a concurrent shift in metabolism takes place—where the normal oxidative phosphorylation (the process in which ATP [energy] is formed) occurring in the mitochondria is primarily replaced by glycolysis (generation of energy from glucose) in the cytoplasm—accomplishing at least two goals. The first is to have an alternative energy source to replace the damaged metabolism. However, glycolysis is a much less efficient method of energy production than oxidative phosphorylation; only a fraction of the ATP that is normally generated by the mitochondria per molecule of glucose is produced from glycolysis. Thus, a much larger supply of glucose is needed to meet the energy requirements. Secondly, this enhanced glycoly-

sis provides material for production of nucleic acids needed for increased cell division (through something called the “pentose phosphate shunt”).

Mitochondria are, in addition, responsible for regulating apoptosis. When a cell is sufficiently damaged, signals from the mitochondria will normally direct them to self-destruct. With further damage, however, the mitochondria will eventually lose or skip this role, in effect creating “immortal” cells—another defining quality of cancer.

In the end, in an attempt to save itself, the cell turns on emergency responses to reestablish healthy functioning. Ordinarily, the emergency response should only be temporary, but the cancer cell becomes autonomous and, instead of contributing to the well-being of the body, is only concerned with its own survival at the body’s expense.

Another developing theory of cancer is the cancer stem cell (CSC) theory. This theory states that in cancer, some cells are unable to initiate new tumors, while other cells (CSCs) are capable of initiating, promoting and spreading neoplastic growth. The latter are hard to kill, are generally not eliminated by conventional cytotoxic therapies and are responsible for cancer relapses. Cancer stem cells also tend to be more poorly differentiated, or primitive, in their functioning, which includes relying on the more primitive form of metabolism (glycolysis).<sup>14</sup> So we may just be looking at another view of the results of disruption of the normal, more developed mitochondrial respiration and regression to a more primitive, single-cell type of survival.

## DIETARY INTERVENTION

How can these theories lead to new approaches in managing cancer? Because we have a consistent difference between the functions of

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healthy and cancer cells in this metabolic shift, there is the possibility of targeting this quality—what has been called cancer’s Achilles heel.

One direction is through diet. Given that cancer is dependent on a large supply of glucose, it is logical to try to reduce the supply. What has become popularly known as the “ketogenic diet for cancer” is an attempt to do just that, with encouraging initial results. The ketogenic diet is a diet low in carbohydrates and high in fats with moderate proteins. With the significant reduction in carbohydrates, the body will break down fats into ketones as a replacement energy source. However, because ketones are metabolized in the mitochondria, cancer cells—with their defective mitochondria—are not able to make use of this option to a significant degree. It also appears that increased ketones, in and of themselves and even without reduced glucose levels, have some inhibitory effect on cancer growth.

In laboratory and preclinical animal studies as well as case reports and small clinical trials, we are seeing improved outcomes, mainly when the ketogenic diet is used in combination with standard therapies. There are benefits in terms of reduced toxicity to healthy tissues from cytotoxic treatments and also in terms of improved tumor responses. This approach has been promising enough to warrant a number of clinical trials that combine the ketogenic diet with conventional treatments.

## OTHER INTERVENTIONS

In addition to dietary modification, it is possible to target the amplified glycolysis pathways in cancer cells. A number of substances have been found to inhibit various enzymes in cancer metabolism and weaken or even kill cancer cells. A few have progressed through basic research, animal studies and small clinical trials. One of these substances is dichloroacetate (DCA), which is actually an old drug used for treating a rare metabolic disease in children. A review paper published in 2014 summarized the research, suggesting that DCA may induce “two fundamental changes in tumor metabolism.”<sup>15</sup> First, the review noted an “anti-proliferative” effect whereby DCA “reverses” the Warburg effect by “redirect[ing] glucose metabolism from glycolysis to oxidation.” Second, the review

described a “pro-apoptotic” effect, with DCA reestablishing apoptotic function of the mitochondria. Citing preclinical and small clinical trials, the authors suggest that DCA has “additive or synergistic effects when used in combination with standard agents.”<sup>15</sup>

The enzyme hexokinase-2 (HK2) is a key enzyme in glycolysis and is significantly overexpressed in cancer cells exhibiting the Warburg effect. Another substance recently attracting attention—3-bromopyruvate (3BP)—is a powerful blocker of this enzyme (and some others).<sup>16</sup> Very positive initial results have been seen in animal studies and a couple of case reports.<sup>17</sup> The main challenge at this point is how to most effectively get 3BP into the cancer cells. (The other challenge is getting the research funding to develop this treatment further.)

Methylglyoxal is an interesting molecule that has been looked at a number of times in the past half century or more. It is naturally produced in cells as a byproduct of metabolism. It also appears to be the main ingredient responsible for antibacterial effects in the popular Manuka honey. With regard to cancer, a review paper in 2008 indicated that methylglyoxal was an inhibitor, in cancer cells, of glyceraldehyde-3-phosphate dehydrogenase (a key enzyme in glycolysis) and mitochondrial complex I (one of the four complexes needed for mitochondrial energy production).<sup>18</sup> Interestingly, methylglyoxal did not seem to inhibit mitochondrial complex I in healthy cells—another indicator of the altered function in cancer metabolism. Further, a three-phase study with eighty-six cancer patients showed benefits to most patients, including many complete remissions, and there was symptomatic improvement (“palliation”) even in the non-responders with progressive disease.<sup>18</sup> Although some prior in vitro studies showed possible glycation-type toxicity, the 2008 paper reported an absence of harmful side effects in animal and human studies.<sup>18</sup>

Melatonin has shown many anticancer mechanisms in the past, with positive effects in a number of clinical trials.<sup>19</sup> In addition to the mechanisms already identified, a recent paper described the use of melatonin in preclinical research for leiomyosarcoma (LMS), a highly malignant, soft tissue sarcoma.<sup>20</sup> Summarizing their findings, the researchers stated, “These results demonstrate that nocturnal melatonin directly inhibited tumour growth and invasion of human LMS via suppression of the Warburg effect, LA [lactic acid] uptake and other related signalling mechanisms.”<sup>20</sup> It may turn out that many other natural substances shown to be helpful in cancer management are, like melatonin, at least partly operating on the metabolism of the cancer cells.

An interesting clinical trial published in 2014 specifically addressed cancer metabolism.<sup>21</sup> In prior work, the research team assessed a library of twenty-seven compounds known to affect glucose metabolism. Following in vitro testing, they narrowed the list down to seven combinations and tested the pairs to find the most effective combination, which they determined to be alpha-lipoic acid ( $\alpha$ -LA) and hydroxycitrate (also known as garcinia).<sup>22</sup>

At this point, the researchers started a clinical trial with forty advanced cancer patients with a life expectancy of two to six months.<sup>21</sup> A combination of the two identified compounds ( $\alpha$ -LA and hydroxycitrate) were given along with low-dose naltrexone. One group received only

the metabolic therapy and a second group additionally received chemotherapy. The one-year survival was approximately the same (68 to 70 percent) in both groups. This study supported the potential of metabolic therapy, which hopefully can be further enhanced by combinations with other promising substances.

## LOOKING AHEAD

Even though I think that a metabolic approach is improving quality of life and even length of life in many cancer patients (including some long-term survivors in complete remission), life is never that simple. We are still not close to where we want to be in terms of dealing with this disease, particularly for the majority of more advanced cancers. In addition, dietary carbohydrates are not the only way for cancer cells to get energy. The amino acid glutamine can be an alternate source through the analogous pathway of glutaminolysis. Glucose can also be produced through gluconeogenesis in the liver, a process “encouraged” by many cancers. So the challenge continues to find ways to cut off the methods that cancer cells can employ to bypass our interventions. This will likely require multipronged use of synergistic combinations while preempting anticipated escape pathways.

Of course, cancer prevention is the ideal. At this level, we need to rely on the well-established dietary principles of nutrient-dense and “clean” foods with low toxicity. The basics of dealing with oxidative stress, inflammation and immune balance can go a long way in protecting our precious mitochondria and preventing the consequences of neglecting them, including cancers. If the damage is already done, then we still need to employ the same basic dietary precautions. In addition, we can use metabolic-targeted approaches to assist in damage control, support elimination of irreparably dysfunctional cells and even, in certain circumstances, rehabilitate these wayward cells. ☯

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## FURTHER READING

The Fall 2017 issue of *Wise Traditions* includes more articles and book reviews focusing on cancer ([westonaprice.org/journal-fall-2017-cancer-issue/](http://westonaprice.org/journal-fall-2017-cancer-issue/)), including book reviews of Thomas Seyfried’s *Cancer as a Metabolic Disease*<sup>3</sup> and *The Metabolic Approach to Cancer: Integrating Deep Nutrition, the Ketogenic Diet, and Nontoxic Bio-Individualized Therapies* by Nasha Winters and Jess Higgins Kelley.<sup>23</sup>

# **Chronic Disease: A Study of Vaccinated and Unvaccinated Children**

By Natalie Campbell, PT, MS, NTP with David Brownstein, MD

**C**hronic health conditions occur in more than half of American schoolchildren,<sup>1</sup> with rising rates of allergies, asthma, ear infections, learning and behavioral issues and autism spectrum disorder, among others. The cause of these increasing health problems in our children is not clear. Vaccination has been both blamed and exonerated in this debate.<sup>2</sup>

To determine whether the burgeoning vaccine schedule has any association with the increase in chronic childhood disabilities, we undertook a preliminary fact-finding mission to assess the difference in health status between vaccinated and unvaccinated children. Further studies are planned.

Over two-thirds (68 percent) of the vaccinated children fell into the “vaccinated-sick” group and were reported as having at least one chronic health condition diagnosed in childhood.

## THE STUDY

The study sought to include families in which some of the children were fully or partially vaccinated, while other children in the same household were completely unvaccinated. We identified the families through flyers left in doctors’ offices and emails to homeschool groups. We included any family that met the criteria and was willing to participate.

Most of the participating families lived in Michigan, but there were also families from three other states (Virginia, Colorado and Indiana). The research team carried out conversations with the parents by telephone or in person, recording each child’s birth year and sex. In addition, the interviews gathered the following information for each child: whether the child was vaccinated according to the Centers for Disease Control and Prevention’s (CDC’s) vaccine recommendations for children born in that year; whether the family had modified the vaccine schedule in any way; and what chronic health conditions, if any, had arisen before age eighteen (see example in Table 1). We did not verify reported medical conditions from medical records.

We included participants with birth years spanning four decades (1970–2017) because we wanted to consider the impact on children’s health of the changes in the CDC vaccine schedule over time. Except those born in the 1970s and early 1980s when the number of required vaccines was fewer, very few participants were fully vaccinated, and no one had elected

to receive the human papillomavirus (HPV) vaccine.<sup>3</sup>

## OVERVIEW OF RESULTS

Thirty-five families—totaling two hundred children—participated in the project. One hundred and twenty-four children (62 percent) were fully or partially vaccinated, while the remaining seventy-six children (38 percent) were completely unvaccinated. A common trend within families was to vaccinate the first child or children and then vaccinate less and less, until finally abandoning vaccines altogether.

We considered four subgroups: “vaccinated-sick,” “vaccinated-healthy,” unvaccinated-sick” and “unvaccinated-healthy.” Over two-thirds (68 percent) of the vaccinated children fell into the “vaccinated-sick” group and were reported as having at least one chronic health condition diagnosed in childhood, compared to 20 percent of the unvaccinated children (Table 2). Fourteen of the eighty-four vaccinated children with health issues (17 percent) were fully vaccinated; seven of these were born before 1983, when fewer vaccines were on the CDC vaccine schedule. Forty vaccinated children had no chronic health complaints; most of these (90 percent) were partially rather than fully vaccinated.

Among the seventy-six unvaccinated children, the vast majority (80 percent) were healthy (Table 2), including some described as “super healthy kids.” In a few families, the parents reported that the unvaccinated children caught

**TABLE 1: Interview results for a family with four vaccinated children and one unvaccinated child**

	Sex	Birth Year	Adherence to Vaccine Schedule	Childhood Chronic Health Conditions
Child #1	M	1970	Received all	Allergies Ear infections
Child #2	M	1974	Received all	Allergies Ear infections
Child #3	F	1976	Received all	Allergies Ear infections
Child #4	M	1986	Stopped after MMR	Allergies
Child #5	F	1991	Unvaccinated	None



acute illnesses easily but always recovered completely. One-fifth of the unvaccinated children had some type of chronic health condition.

MANY CHRONIC CONDITIONS

Most of the children (both vaccinated and unvaccinated) who suffered from a chronic health condition had more than one chronic complaint but were living relatively “normal” lives, with the exception of the most severely autistic children. Allergies or food intolerances were the most common chronic complaints for vaccinated and unvaccinated children alike (Table 3). The parents of two vaccinated children described severe reactions to peanuts and tree nuts. There were many reports of difficulties tolerating gluten and dairy products among both the vaccinated and the unvaccinated. Several families of both vaccinated and unvaccinated children described what sounded like phenol intolerances, which are not uncommon in children with behavioral and attention problems and children on the autism spectrum. Some parents also reported allergies to inhalants such as pollens and petrochemicals. Allergies and intolerances of all kinds are associated with many other conditions, including attention deficit hyperactivity disorder (ADHD), asthma, otitis media (ear infections), digestive issues, autism and others.<sup>4-7</sup>

It can be difficult to distinguish between children with “behavioral disorders” and mildly affected children on the autism spectrum. For the purposes of our study, we used the diagnosis reported by the parent, even in cases where there may have been some diagnostic ambiguity. Based on these parental reports, behavioral, attention, and learning problems—including

ADHD and dyslexia—comprised the second most common chronic category affecting vaccinated (16 percent) but not unvaccinated (1 percent) children. Most of the children with learning and behavioral issues had not been professionally evaluated.

Autism spectrum disorders, reported for fifteen children in all, were potentially the most disabling condition of any reported. However, six of the children reported to be on the autism spectrum had relatively mild symptoms corresponding to Asperger’s syndrome rather than severe autism. As with the behavioral disorders, autism affected a larger proportion of vaccinated (10 percent) than unvaccinated (3 percent) children. (However, one vaccinated autistic child received his autism diagnosis before his delayed vaccinations.) Three families had more than one child on the autism spectrum. Among the children with autism, twelve of fifteen were boys, and six were the eldest child in the family.

The parents of autistic children described two distinct patterns of autism onset. In the first, the parent noticed a problem from birth or early on. For example, the parents of one vaccinated child noticed problems before any vaccination, having chosen to postpone the hepatitis B vaccine ordinarily administered at birth as per the CDC’s 1991 recommendation.<sup>8</sup> Six more vaccinated children had abnormal behavior that parents noticed early in life following the hepatitis B vaccine. (One affected child was adopted, and the relevant information about when symptoms first occurred was not available.)

In the second pattern, reported for five children, a normally developing child regressed in speech and development, often between the ages of one and two, following vaccination. Four

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TABLE 2: Health status according to vaccination status

Vaccination status	Health status	
	One or more health issues (number and percent)	No health issues (number and percent)
Vaccinated (n=124)	84 (68%)*	40 (32%)**
Unvaccinated (n=76)	15 (20%)	61 (80%)

\*17 percent of vaccinated children with health issues (14/84) were fully vaccinated  
\*\*10 percent of vaccinated children with no health issues (4/40) were fully vaccinated

of the children who regressed into autism did so after receiving their measles-mumps-rubella (MMR) vaccine, and one regressed after his first set of vaccines at three months of age.

Parents of unvaccinated children reported varied but mostly minor conditions such as mild asthma, less severe migraines or allergies. Among the more serious conditions reported for unvaccinated children, one child had Down's syndrome, another had contracted salmonella in infancy and two were on the autism spectrum—one with significant Asperger's symptoms and another with a sensory processing disorder but

otherwise high-functioning.

In one case, an unvaccinated child with a vaccinated autistic sibling had developed autistic mannerisms and regressed in speech after receiving an oral antibiotic; however, after his mother discontinued the medication, he returned to normal and was counted as a healthy unvaccinated child in this study.

#### SUSCEPTIBILITY TO VACCINE INJURY

We observed different patterns of vaccine response among the families in our sample. In ten families, each vaccinated child had a chronic health issue ("vaccinated-sick"), while each unvaccinated child was healthy ("unvaccinated-healthy"). However, several of the seemingly healthy children from these families experienced subsequent health

**TABLE 3: Chronic health conditions reported in 200 children, by decreasing frequency (one or more per child)**

Chronic condition	Vaccinated (n=124)	Unvaccinated (n=76)
Allergies	24 (19.4%)	8 (10.5%)
Learning/behavioral problems	20 (16.1%)	1 (1.3%)
Asthma	14 (11.3%)	1 (1.3%)
Autism spectrum disorder*	13 (10.5%)	2 (2.6%)
Chronic ear infections	12 (9.7%)	1 (1.3%)
Digestive issues	11 (8.9%)	—
Mood disorders (anxiety/depression)	11 (8.9%)	—
Migraines	8 (6.5%)	1 (1.3%)
Eczema	5 (4.0%)	—
Delayed speech and motor development	4 (3.2%)	—
Anemia	3 (2.4%)	1 (1.3%)
Chronic fatigue	3 (2.4%)	1 (1.3%)
Hypothyroid/Hashimoto's	3 (2.4%)	2 (2.6%)
Bladder reflux	2 (1.6%)	—
Blood sugar issues	2 (1.6%)	—
Chronic cough	2 (1.6%)	—
Insomnia	2 (1.6%)	—
Joint pain	2 (1.6%)	—
"Never well"	2 (1.6%)	—
Seizures	2 (1.6%)	—
Dieulafoy lesion	1 (0.8%)	—
Crohn's disease	1 (0.8%)	—
Failure to thrive	—	1 (1.3%)
Kawasaki syndrome	1 (0.8%)	—
Other	1 (0.8%)	—

\*Includes Asperger's syndrome, sensory processing disorder and regression in speech (attributed by the parent to an MMR vaccine).

challenges as adults after receiving vaccines required for travel or education. These families could be described as “vaccine-susceptible.” Individuals from such families would do well to approach future vaccines with caution.

Another group might be called “vaccine-tolerant.” In these families, one or more of the vaccinated children were healthy (“vaccinated-healthy”), and those with chronic conditions had milder complaints such as allergies, rather than more severe conditions such as an autoimmune disease or autism. Seven families met these criteria.

Another group comprised families—twelve in all—with unvaccinated children who nevertheless had health problems (“unvaccinated-sick”). A number of the parents in this group happened to mention that they had significant health problems of their own. While some parents reported good health, others suffered from cancer, autoimmune diseases, celiac or inflammatory bowel disease or Asperger’s disorder—or they reported past histories of alcoholism and eating disorders such as anorexia or bulimia. Five of the nine families with children on the autism spectrum were in this group, while the other four were in the “vaccine-susceptible” group.

#### THE VACCINE SCHEDULE

In 1983, the CDC recommended twenty-three doses of seven vaccines for school and

daycare attendance. In 1986, Congress passed the National Childhood Vaccine Injury Act, which virtually eliminated vaccine manufacturers’ liability for vaccine injuries<sup>9</sup> and opened the floodgates for the addition of many more vaccines to the schedule,<sup>10</sup> particularly around the year 1991. By 2017, many states were mandating sixty-nine doses of sixteen vaccines by age eighteen as per the CDC’s expanded recommendations.<sup>11</sup>

For comparison purposes, our study divided the participating families into three groups: eight families of forty-one children in which all of the vaccinated children were born before 1991; twenty-two families with one hundred and eight children in which all of the vaccinated children were born after 1991; and five families with fifty-one children born both before and after 1991 (not shown). This analysis indicated that while the percentage of children with chronic illness was similar across birth year groups, the frequency of specific conditions varied. In this small study, all but one of the children on the autism spectrum were born after 1991, as were the children with previously uncommon autoimmune conditions such as Crohn’s disease and Kawasaki syndrome.

#### PRO-SAFETY

It is important to state that none of the parents who participated in our study were initially opposed to vaccination. Nearly all of them began by following their pediatrician’s recommendations. Although a few refused the hepatitis B vaccine at birth or followed a delayed vaccination schedule, most observed the standard schedule. When asked why they had stopped vaccinating their children, parents’ most common answer was that they had begun to educate themselves about vaccine components and safety. Some described a case of autism in a family known to them, which that family had ascribed to a vaccine. Some had moral objections to using vaccines containing aborted fetal tissue. Finally, some reported severe and frightening reactions to vaccines in their older vaccinated children, even if the reactions turned out to be temporary.

In this small study, vaccines were associated with chronic health

#### CONSIDERATIONS FOR PARENTS WHO CHOOSE NOT TO FULLY VACCINATE THEIR CHILD

1. Parents should be aware that many doctors do not expect to encounter diseases for which there are vaccines and may not, therefore, be able to make a correct diagnosis.
2. Pertussis risks for infants should be taken seriously. Several of the participating families whose children had experienced pertussis mentioned that they had followed Dr. Suzanne Humphries’ recommendations for using various forms of vitamin C.<sup>13</sup>
3. Parents should resurrect the lost art and skill of nursing a sick child at home. Too often, a child is simply given an antibiotic and sent back to school. Sick children need care and rest.
4. Parents should let acute illnesses run their course and not suppress symptoms such as fever unless dangerously high.<sup>14</sup>
5. Parents need to acquire some basic medical knowledge. For example, one of the rationales given by health care providers to justify the rotavirus vaccine is that parents are not able to recognize and deal with dehydration, which may accompany the diarrhea characteristic of rotavirus.
6. Picky eating is very common but does not serve children’s health. Many children have an inadequate diet. Parents should encourage gradual changes toward a diet that will support the immune system.

conditions, but it was also apparent that different children react differently to the same vaccines. More and larger studies comparing vaccinated and unvaccinated children are needed. In today's legal climate, this is easier said than done. With fewer exemptions available in many states and more concerns about being harassed for not vaccinating, it is difficult to find parents willing to volunteer for and consent to participate in a study, particularly if it involves analysis of their children's medical records.

Some additional needed measures include research that would enable prediction of which children are most likely to react unfavorably to vaccination; these children, at a minimum, should have the option of modifying the vaccine schedule, delaying or spacing vaccines and/or being exempt from vaccination altogether.<sup>12</sup> [Editor's note: For a different perspective on what is needed, see Kendall Nelson's article on vaccines and autism in this issue.] We must notice and take very seriously the trend of increasing ill health in American children, and thoroughly and objectively investigate any possible contributing factor—including vaccines. ☯☯

*The authors wish to thank the parents who agreed to participate in and be interviewed for this project.*

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From top left, clockwise:  
Paul and Ellen Connett  
taught us about flouride;

Chef Christian Gallice  
happily stirs the  
vat of broth;

one of our many  
delicious dishes:  
bone marrow custard;



Sally Norton spoke  
on oxalates.





# The Dietary Wisdom of the Crowd

Presented at the Wise Traditions 2018 Awards Banquet

By Tom Naughton

The project that got me started on my journey was my documentary, *Fat Head*.<sup>1</sup> It's because of *Fat Head* that I will always have this warm place in my heart for the Weston A. Price Foundation. Ten years ago, I was a first-time filmmaker, I barely knew what I was doing, nobody had ever heard of me, and yet Sally Fallon Morell and Dr. Mary Enig—God rest her soul—were very generous with their time and expertise. It's fair to say that what I learned from them and some other great people changed the direction of the film. It became less about why “this one guy is a big fat liar” and more about why “these people are big fat liars.”

In fact, what I learned while making *Fat Head* not only changed the direction of the film, it changed the direction of my life. We were living in Los Angeles at the time, and my wife and I started thinking about what it really means to have a healthy lifestyle. I started asking myself things like, “Do I want my kids to become L.A. kids?” “Do I want my children addressing me as Dude?” Eventually we decided that it would be better for them if we at least moved outside the Los Angeles area—say, about two thousand miles away.

The question is, how did such flawed logic end up replacing what our grandparents, great-grandparents and hundreds of generations before them understood about what makes for a healthy diet?

So now we live on a little hobby farm just south of Nashville, Tennessee, and it's great. I had no idea how much I would come to enjoy doing farm work on the weekends. Unfortunately, when I'm working on the farm, I have a tendency to do things like get stung by insects that give me a cellulitis infection. . . or knock myself unconscious with a sixteen-pound T-post hammer. . . or get beat all to hell and flipped in the air by a couple of three-hundred-pound hogs who decided they really didn't want to go on a scenic drive to the processing plant. . . or continue to do manual labor on the farm while ignoring that little pain in my shoulder that turns out to be a bone spur that severs my bicep tendon. Other than that, it's a great life!

#### THOSE ARTERY-CLOGGING FOODS

The only downside of farming is that we're raising more of our own food now; I've been eating stuff like sausage, pork chops, fresh eggs and other foods that are going to kill me. In fact, I eat so much of this stuff that, by some estimates, I've been dead for at least three years already. I know these foods are going to kill me because, for many years, I've been seeing warnings from the experts that saturated fats will clog my kitchen sink—and my coronary arteries.

This got me wondering what other foods were lurking in my kitchen, just waiting to clog my kitchen sink and, thus, my coronary arteries. So I hired a couple of young lab assistants (my children), and we set out to conduct a series of experiments. Over the course of our research, we discovered that bread will clog your coronary arteries. . . apples and bananas will clog

your coronary arteries. . . and Brussels sprouts will clog your coronary arteries—although that probably wouldn't happen if you freakin' cooked them first. (We learned that from a consultant we brought in to repair the lab equipment.) Eventually, we learned that the only food that will *not* clog your coronary arteries is chocolate ice cream because you can wash that down with some hot liquid and—presto!—your arteries are clear. So coffee and ice cream for everyone.

Now, perhaps you might say that my experiments were not based

on solid science, but the point is, neither is the comparison of clogged sinks with clogged arteries. The question is, how did that flawed logic end up replacing what our grandparents, great-grandparents and hundreds of generations before them understood about what makes for a healthy diet? In other words, what the *bleep* happened?

#### CROWDS VERSUS EXPERTS

To understand what happened and why—and also to consider where I think we're going now and why—I want to talk about a few of my favorite books. Even though

they weren't written about diet and health, they tell us an awful lot about how we make decisions as individuals and societies.

We'll start with a wonderful book called *The Wisdom of Crowds* by James Surowiecki.<sup>2</sup> I've heard people who never read this book say things like, "The wisdom of crowds, are you insane? Every moron in the world has an opinion, and they're all on Twitter." Yes, I know, but the wisdom of crowds does not mean taking advice from people who don't know what they're talk-



ABOVE: Lab assistants in the great Naughton plumbing clogging studies. BELOW: Outside consultant called in to repair lab equipment.

ing about. The wisdom of crowds simply means that knowledge is diffuse. You can name almost any subject, and thousands (if not millions) of people out there in the crowd know something about it. If those people have a way of sharing and comparing what they know, they often come up with better answers than the supposed “experts.” Little groups of experts—no matter how educated they are—almost never have as much combined knowledge as we find out there in the crowd.

The wisdom of crowds is based largely on experience. This is the kind of knowledge that people gain from actually doing things and then seeing what the results are. The wisdom of crowds is also unplanned. Nobody’s in charge of it, and nobody makes the final decision because it’s based on spontaneous interactions, and it is through these interactions that the answers and the solutions that work bubble up to the top. Finally, the wisdom of crowds develops over a period of time.

Now, doesn’t that sound familiar? Of course it does, because for most of human history, this is how we knew which foods were good for us. This was the knowledge of the village and the tribe; it was the knowledge that was passed down over the generations.

## PROTECTIVE FOODS

Not that long ago, it was still the kind of knowledge we relied on, even in countries like the United States. Here’s a perfect example: A poster put out by the U.S. government in the 1940s called meat, eggs, butter and whole milk “protective foods”—with no margarine and no Cheerios in sight. What if you were diabetic?

A hundred years ago, a popular cookbook for diabetics told them to eat foods like meat, eggs, fish, butter and cheese—and it told them not to eat foods like sugar, bread, pasta and cereal.

What if you needed to lose a few pounds? When I was in high school in the mid-1970s, our health teacher also happened to be the wrestling coach. He told us that if we wanted to lose weight, we should base our diet on meat, eggs and vegetables; he told us to stop drinking sodas, and he told us not to eat foods like cereals, breads, pasta and French fries. He never

said anything about going on a lowfat diet. How did he know this would work? By reading studies put out by Harvard? No, he knew what would work from experience, because part of his job was to help high school athletes get down to their competition weight—which he did.

Here’s another example of what people believed back then. In 1976, a funny movie was released called *Silver Streak*. Two of the minor characters were fat guys trying to lose weight, and their diet dinner consisted of...a hamburger patty, tomato slices and full-fat cottage cheese—not a lowfat diet. (Some of

you may remember when restaurants used to serve that meal, and it was called “the waist trimmer.”)

This was the kind of knowledge we inherited from people in previous generations. And what did people in those generations look like? You’ve seen it in your grandma’s photo albums. Nobody was talking about an obesity epidemic back then, and rates of diabetes weren’t going up and up and up like some kind of bad bitcoin bubble.

When I was in high school in the mid-1970s, our health teacher told us that if we wanted to lose weight, we should base our diet on meat, eggs and vegetables.



A 1940s government poster includes milk, fatty meat, eggs and butter in the list of “protective foods.”

Taleb reminds us to respect the fact that things that have been around for a long, long time have survived for a reason. They've proven their value over time.

## THE ANOINTED

Why did we abandon the wisdom of crowds? How did we end up believing that food created by Mother Nature will kill us and that the key to staying lean and healthy is to live on foods that only exist because of modern industry? How did that happen?

To understand what happened, I want to look at another book, *The Vision of the Anointed*, written by one of my favorite authors, a professor of economics named Dr. Thomas Sowell.<sup>3</sup> What Sowell describes in *The Vision of the Anointed* is almost the polar opposite of the wisdom of crowds. Whereas the wisdom of crowds assumes that knowledge is diffuse, the Anointed tend to assume that knowledge and expertise are concentrated (concentrated among the Anointed, of course). While the wisdom of crowds is based

on experience, the expertise of the Anointed is mostly academic or theoretical. Where the wisdom of crowds is unplanned, the vision of the Anointed is not only planned, it is often imposed. Finally, whereas the wisdom of crowds tends to develop over time—then getting passed down through the generations—the Anointed tend to fall in love with ideas solely because they are bold, new, exciting or just exquisitely expressed.

Here's how Dr. Sowell describes the Anointed in action. Keep in mind that although he was not writing about nutrition policy, these people all operate pretty much the same way, no matter what the issue. It's good to be aware of the pattern.

- STEP ONE: The Anointed identify a problem. This problem is now *The Bad*.



The Anointed: often wrong but never in doubt.

- STEP TWO: To fix the problem, the Anointed propose a Grand Plan—preferably something bold, new and exciting. Interestingly, the Grand Plan almost always involves spending more of other people's money, or restricting more of other people's freedom or both. In other words, it puts the Anointed in charge of the rest of us.
- STEP THREE: Because the Anointed are so supremely confident in their own

ideas, they don't believe the Grand Plan should be subjected to little annoyances (like proof that it will actually work). Instead, they simply assume that because their intentions are good, the plan is good. And because *The Bad* is so very, very bad—and “we must act now, before *The Bad* becomes even worse”—they will

happily dismiss any evidence that the theory behind the Grand Plan is wrong.

- STEP FOUR: The Anointed assume that no good, intelligent person could possibly oppose the Grand Plan. (Remember, the Grand Plan is *The Good*.) So people who oppose the Grand Plan aren't just opposing a plan, they are opposing *The Good* itself. They could only do that for one of two reasons: One, the opponents are stupid, or two, they're evil. (They are *so* evil; they actually want *The Bad* to continue!) So the Anointed have no problem trying to silence or even destroy the people who disagree with them.
- STEP FIVE: Because the Anointed are so supremely confident that the Grand Plan will bring about *The Good*, they will—if they can—impose it on other people (for



their own good, of course) because those people are probably stupid and would not adopt the Grand Plan voluntarily on their own.

- STEP SIX: Now, here's where it gets fun. It often turns out that the Grand Plan does not actually bring about The Good. In fact, it sometimes turns *The Bad* into *The Worst*. When that happens, the Anointed will *never, ever, ever, ever* admit that the Grand Plan was a bad idea. As Dr. Sowell says, they are often wrong but never in doubt.

In short, if the Grand Plan fails, there can only be three explanations, according to the Anointed:

1. The plan was good, but people didn't follow it correctly (because they're stupid).
2. The plan was good, but it was undermined by people (because they're evil).
3. The plan didn't go far enough. (In other words, we need to do the same thing again, only *bigger*.)

#### ANTIFRAGILE

I want to mention a third book, *Antifragile*, that covers some of the same territory as the other two, written by a brilliant author, trader, mathematician and philosopher named Nassim Nicholas Taleb.<sup>4</sup> *Antifragile* explains why some systems are fragile—meaning they tend to break or completely blow up under pressure—while other systems are “antifragile,” meaning they survive or even get stronger under pressure. For example, the human body is antifragile. If you are exposed to germs, and they don't kill you, your immune system gets stronger. If you stress your body through exercise, you get stronger.

Much of the book explains why the Anointed end up creating systems that are fragile. (Taleb doesn't call them “the Anointed” because that would be rude. He prefers the term, the Intellectual Yet Idiot.) He describes them as people who feel qualified to tell us what to do, what to eat, what to think and so forth, when their only skill is passing exams written by people like them.

One of the reasons the Intellectual Yet Idiot create fragile systems is due to what Taleb calls “neomania”—once again, falling in love with things or ideas or theories simply because they're new. Taleb is not opposed to things that are new, but he reminds us to respect the fact that things that have been around for a long, long time have survived for a reason. They're antifragile, and they've proven their value over time.

If we apply this to food—which Taleb does—which foods are the most likely to be good for us? The foods we've been consuming for the longest time! In fact, Taleb says, “My rule is drink no liquid that is not at least a thousand years old—so its fitness has been tested. I drink just wine, water and coffee. No soft drinks.”

Another reason that the Intellectual Yet Idiot types tend to create fragile systems is that they place too much value on academic theories and not enough value on practical experience. That's because they think knowledge works like this: “Ivy League researchers discover Scientific Principles, and then those principles are put into practical use.” (In other words, Harvard professors discover and publish the laws of aerodynamics, and then birds begin to fly!)

Of course, that's not what happens. In the real world, human beings figure out what works through experience, and eventually, university researchers may come along and explain why it works. But we don't have to know why something works to know that it works. As Taleb writes, theories come and go, but experience stays.

Finally, the Intellectual Yet Idiot types create fragile systems because they want decisions to be turned over to a central authority. Here's why that's a bad idea. When we make our own decisions—whether as individuals or as states within a country—we learn from each other's successes and failures. If you try something and it works, I learn from you. If I try something and it fails, you learn from me, and you are not harmed in the process. As a group, we become smarter and stronger—we become antifragile. When a central authority makes the decisions, the capacity to learn from each other goes away, and then one bad decision will affect everyone—which makes the system fragile. To quote from the book, top-down is usually irreversible

A school in Chicago told parents, “We're not even going to let you pack your kids' lunches at home anymore, because you're not following the Dietary Guidelines.”

According to a recent survey, only 23 percent of Americans still believe that the diet recommended by the USDA is a healthy diet.

(that is, mistakes tend to stick), whereas bottom-up is gradual and incremental, with creation and instruction along the way.

#### THE FLAWED GRAND PLAN

Let's take a brief look at what happened with our U.S. Dietary Guidelines. If you keep Sowell and Taleb in mind, I think you'll see that things played out in an entirely predictable way.

First, we had a problem. By the 1950s, too many Americans were dying of heart disease. Along came a bold, new, exciting idea on how to fix it, but this idea was theoretical, and it was not based on experience. In fact, it was a bad idea and probably would have died out. . . except the Anointed fell in love with the idea, and we ended up with a Grand Plan.

Specifically, the McGovern Commission decided in the 1970s, "We must convince Americans to cut back on saturated fat and cholesterol and get more of their calories from grains." Neomania kicked in with the idea that the key to becoming healthy was to eat more foods created by modern science. Chemists assumed that they could produce a fat replacement that was superior to lard or butter. However, as described in *Antifragile*, what Mother Nature does should be viewed as rigorous until proven otherwise, and what humans and science do should be seen as flawed until proven otherwise. Overriding Mother Nature requires some very convincing justification on our part—the non-natural needs to prove its benefits, not the other way around.

Was there evidence that the theory behind the Grand Plan was wrong? Of course there was! As Dr. Weston A. Price documented, there were people all over the world who lived on diets that were high in animal fats, and those people were healthy. They had low rates of heart disease. There were also numerous clinical studies showing that switching from animal fats to vegetable fats did not reduce heart disease. In some studies, switching actually *raised* the rates of heart disease.

Of course, none of that mattered once the Anointed fell in love with their bold, new, exciting idea. In a news clip I used in *Fat Head*, George McGovern said, "We must act now, we don't have the luxury of waiting for the evidence to come in."

As we've seen, the Anointed always assume that no good, intelligent person could oppose the Grand Plan. So, as Gary Taubes has described in his book, *Good Calories, Bad Calories*,<sup>5</sup> and Nina Teicholz discusses in her book, *The Big Fat Surprise*,<sup>6</sup> a lot of scientists found out the hard way that disagreeing with this particular Grand Plan was a great way to kill their career.

Finally, the Anointed decided we should turn our decisions about which foods are good for us over to a central authority, and the central authority imposed the Grand Plan wherever it could. Schools, prisons, hospitals, military bases, other government facilities—they are all required to follow the Dietary Guidelines. We've even had cases where parents who packed their kids' lunches at home were told they had to follow the Dietary Guidelines. A school in Chicago told parents, "You know what, we're not even going to let you pack your kids' lunches at home anymore, because you're not following the guidelines. We're going to make your kids eat healthy lunches" (like the ones prepared in the school cafeteria).

#### FATTER AND SICKER

That's how we got where we are. And as Dr. Phil would say, "How's that working out for you?" You know how it's working out for us, so I'm not going to quote all the statistics, but I want to share a few headlines: "Baby boomers are fatter and sicker than their parents were at the same age." "Children are developing type II diabetes and fatty liver disease at a record rate." "Some ten-year-old kids are so overweight, now they need hip replacements." And a staggering number of our troops are fat and tired, which is a far cry from how they looked going into World War II.

We can sum up the effects of the Dietary Guidelines by quoting the always quotable Yogi Berra: "We made the wrong mistakes." Except the Anointed don't make mistakes. The problem can't be them—it has to be us.

An official from Public Health England recently wrote an essay explaining why Britain has an obesity problem. Here is the official's explanation: It's because people aren't following well-founded government advice! And why aren't people following the well-founded gov-

ernment advice? The official's answer: Because they're easily confused! In other words, "The plan was good, but people didn't follow it correctly because they're stupid."

In the United States, we got this explanation for why the Food Pyramid didn't make us all lean and healthy: "The Food Pyramid has been described by many as difficult to understand and as the obesity rates would suggest, has gone largely unheeded by many." Once again, people didn't follow it correctly—because they're stupid. (Apparently, Americans were trying to form their meals into actual pyramids, and when that fell down, they just gave up.)

The next step for the Anointed was to say, "So, what we need to do is take this hugely complicated triangle and reformat it into a nice, simple circle," which became the USDA's MyPlate in 2010. And when the circle doesn't work (which it won't), we'll probably end up with the Food Square, or the Food Parallelogram or whatever other shape they come up with.

To be fair to the USDA, they didn't repack-age exactly the same advice. In the revised 2010 Guidelines, they admitted that people had gotten fatter, and they admitted that rates of diabetes had gone up. . . and so: "We need to cut back on saturated fat *even more*." In other words, "We need to do the same thing again—only bigger."

## THE GOOD NEWS

Let's move on to the good news. Ever since I made *Fat Head*, people have been asking me, "What can we do to get the USDA to change this lousy advice?" And I've always given the same answer: "That's not my goal." We don't need national Dietary Guidelines any more than we need national Haircutting Guidelines.

My goal is not to change the USDA. I don't think that's possible. My goal is to convince people to stop listening to them—and I'm happy to say that is already happening. According to a recent survey, only 23 percent of Americans still believe that the diet recommended by the USDA is a healthy diet. Sales of full-fat dairy products are going up, sales of butter are going up, sales of lowfat dairy products are going down and people are eating more red meat. Which means, the wisdom of crowds is finally striking back!

So why now? Why didn't this happen thirty-

five years ago? Well, a little more than thirty-five years ago, I got my degree in journalism, and one of the things we learned about was the extraordinary influence of the information gatekeepers. Information flowed from the top, through a relatively small number of gatekeepers, and then down to the rest of us, and that's where it stopped.

At the time, I saw that up close and personal. When I left college, I got a job as a writer with a small health magazine, and guess what? I was one of the people writing articles telling you to cut back on saturated fat and cholesterol. I didn't know any better. Researching an article used a process that I call "the usual suspects." Let's say you were writing an article on what causes heart disease. You would talk to the American Heart Association, but for background, you'd first read several magazine and newspaper articles written by other reporters...who had talked to the American Heart Association. Then for quotes, you would interview a doctor...who got his information from the American Heart Association.

Unfortunately, not only did I write articles telling other people to cut back on the bacon and eggs and start eating healthy cereals, margarine and skim milk for breakfast, I followed that advice myself. In retrospect, I wish that the negative effects had just kicked me in the ass, really hard, all at once—because then, maybe I would have figured it out. But that didn't happen. Instead, I just kept getting a little fatter and a little sicker each year. I started getting things like asthma, sinus infections, arthritis, digestive problems and psoriasis on the back of my head. At the time, I told myself, "Well, this is what happens when you get older." (I was in my thirties.) The point is, millions of people were having bad results from following this advice, but we didn't know that because the flow of information was top-down.

Nowadays, however, if people are frustrated with diet and health advice that doesn't work, they do what any intelligent person would do—they go out on the Internet and complain to several thousand perfect strangers. And that's good! Because the wisdom of crowds is based on sharing our knowledge and experiences, and when people go online, they are finding count-

When you are dealing with a problem, it is much better to get a hundred answers from a hundred different people than to get one answer from some supposed expert who happens to be wrong.

Now the  
Anointed  
are hearing  
back from  
the rest of us.  
Oh boy, they  
don't like it.  
We're not  
"respecting  
the experts"  
anymore.

less experiences like these:

It makes me so upset when I think of how I used to feed my daughter on the advice of her pediatrician and the government. Skim milk, cereal, pasta, bananas, orange juice. . . I was so frustrated because I couldn't figure out why she was so heavy.

I was sent to a diabetes seminar by my doctor. I followed the diet, but my sugar was never under 170-180. When I went back and told the nurse, she said I didn't follow the diet correctly.

Doesn't that sound like, "The plan was good, but people didn't follow it because they're stupid"?

When people go online and realize just how many people have been following this advice and getting the same lousy results, they come to the logical conclusion: "I'm not fat and sick because I have a genetic condition, and I'm not fat and sick because I'm stupid—I'm fat and sick because this advice sucks." Then, because of the Internet, they take the next logical step, which is to look for advice that actually works for them. And they're finding it. Surveys are showing this over and over: More and more people these days are getting their advice from bloggers, podcasters, filmmakers, doctors and researchers they never would have heard of before—as well as organizations like the Weston A. Price Foundation. They're finding answers on YouTube and through people they follow on Twitter, not to mention from the thousands and thousands of people out there who happen to know something.

Do these people all agree with each other? No. There are debates going on out there about low-carb diets, ketogenic diets, paleo diets, high-fat diets, lowfat diets, the all-meat diet, the all-potato diet, et cetera—and that's good. Because the diet that works for you might not be the diet that works for me, and the diet that works for me when I'm thirty might not be the diet that works for me when I'm sixty.

By the way, I had all those health problems in my thirties "because I was getting older." Well, I just turned sixty, and I don't have those

health problems anymore. I went out into that big, messy, unregulated crowd, looking for ideas. I did a lot of experimenting, and I found something that works for me. If the information still only flowed top-down, I'm not sure I would have found those answers. I know I would not have heard of the Weston A. Price Foundation.

#### TALKING BACK

The Internet reignited the wisdom of crowds, with information now flowing from bottom to top. That's how it should be, because when you are dealing with a problem, it is much better to get a hundred answers from a hundred different people than to get one answer from some supposed expert who happens to be wrong. That's why it drives me nuts when I see something like this: "The 2010 Dietary Guidelines for Americans will help policy makers, educators, clinicians and others speak with one voice on nutrition and health." Really? We need "one voice" so that one bad decision can affect everyone?

No, we need thousands of voices. The correct answers and solutions—the ones that actually work—will rise to the top. That's why organizations like the Weston A. Price Foundation are so important, and that's why people like you are so important. Even if all you do is go online and share your experiences eating a traditional diet, and even if you are not a blogger, podcaster or filmmaker, you are contributing to the wisdom of crowds. That makes a difference.

It makes me happy when I get emails like this one: "I wanted you to know, now I've lost nearly eighty pounds since *Fat Head* made me rethink everything I had ever learned about food and nutrition." This was from a woman who used to live on a lowfat vegetarian diet. Now she eats meat and eggs and other foods full of saturated fats (that are going to kill her someday and clog her sink). When people go online and see an experience like that, it inspires them to try something new and find something that works.

Here's another fun part: Now the Anointed are hearing back from the rest of us. Oh boy, they don't like it. We're not "respecting the experts" anymore, but I know they're listening. Some years ago, I wrote a post making fun of this stupid study showing that eggs raise your



risk of diabetes. Among other things, I pointed out that if eggs actually were causing diabetes, it was difficult to explain why diabetes was shooting up when egg consumption was going down. The researcher who produced that study actually felt compelled to show up on my blog and respond. The response basically boiled down to this: “You’re not qualified to question me, because I’m a PhD, and you’re not.” (Yes, but I have the right to make fun of you, because I’m a comedian, and you’re not!)

I don’t have anything against PhDs. There are PhDs doing awesome research, and we encounter many of them at Weston A. Price Foundation conferences. In fact, I have evidence that some of them begin life as normal people. I’m pretty sure some of them would agree that sitting in a classroom is not the only way to acquire knowledge that is useful.

Let me give you another example of people talking back to the Anointed. A certified diabetes instructor wrote an article explaining that diabetics should be on a lowfat, high-carbohydrate diet. Why? “Because the USDA says so.” The site that published that article got hammered with comments like these: “As a physician with prediabetes, I am appalled that a high-carbohydrate diet continues to be promoted. So you recommend that diabetics like me eat higher carb diets and then take as much medication as needed to keep blood sugar under control? How can that possibly make sense? This column is not helpful to diabetics and is probably dangerous. I am going on six years of eating thirty to thirty-five calories of carbs per day. My A1c has been in the ‘non-diabetic’ range ever since I went this route, and I feel better than I have in years.” A lot of other people told me that they also tried to post comments, but the comments never showed up. (The website later explained that they were having “technical difficulties.” As in, “Technically, we didn’t expect our expert to get slammed like this.”)

That happens all the time now. Last year, the American Heart Association came out with their presidential advisory study, where they carefully examined the research and then concluded, “Wouldn’t you know it, researchers have been right all along: saturated fat will kill you.” Within two days, this thing was getting

ripped to shreds all over the Internet.

Of course, the Anointed would like us to shut up and have figured out how to deal with some of this backtalk. Remember, because no good, intelligent person could possibly disagree with them, they have no problem trying to silence or destroy the people who do. Thus, dieticians in New Jersey are trying to make it illegal to give dietary advice without a state-issued license.

Some of you are probably familiar with the blogger named Steve Cooksey (the “diabetes warrior”). He’s a diabetic who got his diabetes under control through nutrition. He was coaching other diabetics on how to do the same thing. A group of registered dietitians tried to bring him up on charges because “he was giving health advice and he didn’t have credentials.” Fortunately, he eventually won his case.

In Australia, a surgeon named Dr. Gary Fettke was appalled by the number of amputations he was performing on diabetics. He did some research and started advocating low-carb, high-fat diets. After the dietitians complained, the agency that regulates doctors told Dr. Fettke that he could not give dietary advice anymore because “he wasn’t qualified.” Fortunately, he eventually got that decision reversed.

I’m sure you’ve probably also heard about what happened to Dr. Tim Noakes in South Africa. A woman on Twitter asked him a question about feeding her toddler, and he replied. Because he recommends a high-fat diet, a dietitian complained, and he was brought up on charges before the group that regulates doctors. It turned into a long, expensive trial. After he won, the Anointed (the dietitians) decided, “You know, we should try the same thing again, only bigger,” and they filed an appeal. They put Dr. Noakes through a second trial, which again resulted in victory for Dr. Noakes.

Of course, these trials were never really about Tim Noakes; they were about the Anointed trying to silence and intimidate anyone who disagrees with them. They think they’re going to take us back to the good old days where they hand down the advice, and we just follow it. But that’s not going to happen because if I switch to a diet of meat, vegetables, eggs, cream and butter, and I lose weight and my health improves, I’m not going to change my mind because the Anointed tell me to. I’m not going to go back to a diet that doesn’t work just because the American Heart Association puts out one more bogus study. The wisdom of crowds is going to keep getting stronger and stronger because we’re not going to stop sharing our knowledge and experiences with each other. We’re not going to shut up.


#### NO MORE BAD BETS

I’ll give you one more example of why I won’t shut up. A woman who posted in the *Fat Head* Facebook group had been trying to follow a lowfat diet her entire life and had struggled with her weight for years. There are millions of people like her out there. This woman wrote:

I started searching online for ideas. At that point, a perfect storm of ‘coincidences’ happened. We were led to ‘The Oiling of America,’<sup>7</sup> which led to tons of documentaries on health and nutrition, which

led to *Fat Head*. My searches had already started me on watching my carbs, but *Fat Head* put it all in place. . . that light-bulb moment. In this past year I have now lost almost sixty-five pounds. This Thanksgiving, I am thankful for all the people—scientists, doctors, bloggers, everyday people—who never gave up on getting the message out to people like me who were utterly despondent and desperate. If it weren't for this information, I would be a fat, unhealthy, unhappy mess.

I'll explain why the wisdom of crowds is here to stay by telling you an old joke. A couple of drunks are sitting in a bar watching the six o'clock news when they see a guy standing on the edge of the building. The first drunk says, "I'll bet you twenty bucks he jumps." The second drunk says, "Alright, I got twenty bucks says he doesn't." Sure enough, the guy jumps. The second drunk says, "Well, I'm an honest man, here's your twenty." The first drunk says, "Naaaww, I can't take your money. I've been sitting here drinking all day, I saw him jump on the four o'clock news, and I saw him jump on the five o'clock news." The second drunk says, "Well, so did I, but I didn't think he'd do it again."

The reason people are now returning to the wisdom of crowds is that for forty years, they've been told to make the same bad bet with their diet—over and over and over—and they're tired of losing. They are not going to do it again. 

*Tom Naughton has worked as a freelance writer, a touring standup comedian, a filmmaker and a software programmer. Fat Head, his humorous documentary about the lousy health advice handed down from official sources, has been seen on Netflix, Hulu and Amazon Prime, as well as*



*on television networks in several countries. Tom is the author of Fat Head Kids: Stuff About Diet and Health I Wish I Knew When I Was Your Age, which includes more than two hundred cartoons drawn by his talented wife, Charreva. Fat Head Kids will also be released as an animated film in December 2018. Tom lives on a small hobby farm in Tennessee with one wife, two daughters, two dogs, one cat and dozens of chickens.*

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Norm and Kathy LeMoine of Radiant Life.  
Booth of White Oak Pastures, generous contributor to the conference meals.

# Reading Between the Lines

By Merinda Teller

## Cuppa Joe or Cuppa Jolt? Why You Should Avoid Coffee

Coffee plays a prominent role in the culinary and cultural landscape of the United States and many other nations. Whether imbibed in the form of endless watery refills at greasy-spoon breakfast joints, or as a custom latte grabbed on the way to work, or as a concentrated espresso to cap a four-star dining experience, coffee has retained or even enhanced its status as “the most popular beverage after water.”<sup>1</sup>

In its most unprocessed form, coffee is a red (when ripe) cherry-like fruit, with the coffee bean found at the center. Precursors to modern coffee included a beverage made around 1000 AD with the whole fruit—both beans and hull—and a “wine-like concoction” made with the fermented pulp.<sup>2</sup> Roasting of coffee beans began in the thirteenth century, setting the stage for today’s ubiquitous caffeinated beverage.

Coffee is an economic mover and shaker, second only to crude oil in its dominance of the global commodities market.<sup>3</sup> Coffee exports, currently valued at over twenty billion dollars annually, are at record levels, although the surplus production has contributed to a two-year downward trend in prices that has squeezed the incomes of smaller producers.<sup>4</sup> In the U.S., coffee shops are the fastest growing “niche” in the restaurant business, and Starbucks is the country’s third largest restaurant chain<sup>3</sup> (without even counting the more than twenty-four thousand coffee shops operated by Starbucks International).<sup>5</sup> As a leading purveyor of value-added coffee products, Starbucks’ net earnings (estimated at almost twenty-five billion dollars in 2018)<sup>6</sup> have surpassed the monetary value of global coffee bean exports.

Per capita consumption of coffee is highest in countries such as Finland and Brazil, but Americans lead the world in total consumption, downing one hundred and forty-six *billion* cups of coffee per year.<sup>7</sup> Roughly two-thirds

of Americans (64 percent) drink at least one cup of coffee per day.<sup>8</sup> Interestingly, employed adults consume more caffeinated beverages (including coffee) than unemployed adults.<sup>9</sup> National studies looking broadly at dietary caffeine intake have showed that two-thirds of daily caffeine comes from coffee (with tea in second place), and—perhaps explaining Starbucks’ astronomical revenues—over half comes from “store-bought coffee.”<sup>9</sup>

### A FALSE FRIEND

Coffee contains more than eight hundred volatile compounds, including caffeine and chlorogenic acid (coffee’s primary polyphenolic compound).<sup>10</sup> Caffeine is toxic to some insects and animals, notably herbivores.<sup>1</sup> In humans, caffeine is a psychoactive substance and a central nervous system stimulant.<sup>11</sup> In an upbeat video about coffee on the Smithsonian website,<sup>12</sup> Sir Hans Kornberg (biochemistry professor at Boston University) explains the caffeine molecule’s stimulant effects as follows: ordinarily, something called “cyclic AMP” (a derivative of ATP, the primary molecule required for cellular energy) tells a cell’s machinery to “get moving,” when enough cyclic AMP has been made, “natural mechanisms” come along and call a halt to cyclic AMP production. Caffeine, however, overrides these natural mechanisms, removing the brake and allowing uninterrupted production of cyclic AMP.<sup>12</sup> This “amped-up” production of cyclic AMP has been a known biological action of caffeine for decades.<sup>13</sup> In lay terms, it means that coffee and caffeine “will cause the body to ‘forget’ that it is tired.”<sup>14</sup>

Many coffee drinkers celebrate the “alertness, elevated mood, wakefulness, increased speech and motor activity and decrease[d] appetite” that are the temporary hallmarks of their beverage of choice (and indeed, of all stimulants,

Coffee and caffeine “will cause the body to ‘forget’ that it is tired.”

Coffee's ability to keep drowsiness at bay "provides a short-term solution that creates a long-term problem."

whether natural or synthetic).<sup>15</sup> The French author, Honoré de Balzac, is reputed to have been a major coffee habitué, consuming up to fifty cups a day when in the throes of writing his literary masterpieces.<sup>1</sup> As Balzac's coffee habit implies, caffeine's ability to stimulate "pleasure and reward" centers in the brain makes it highly addictive; over time, an individual will need to take in ever more caffeine to achieve the same effects.<sup>16</sup>

Despite Balzac's example, the founder of a modern company that trains Fortune 500 companies on emotional intelligence claimed in *Forbes* in 2012 that coffee is actually a "silent killer of success."<sup>17</sup> To explain this assertion, the *Forbes* author described a variety of undesirable caffeine-induced effects, including hyper-arousal; irritability, anxiety and other forms of emotional hijacking of behavior; rapid shallow breathing that "deprives the brain of the oxygen needed to keep your thinking calm and rational"; and decreased quality of sleep. With regard to the latter, he also noted that "caffeine has a six-hour half-life, which means it takes a full twenty-four hours to work its way out of your system." A blogger writing *for* coffee fans concurs, admitting that coffee's ability to keep drowsiness at bay "provides a short-term solution that creates a long-term problem."<sup>14</sup>

## EFFECTS ON BODY AND BRAIN

Dr. Louisa Williams (author of *Radical Medicine*) characterizes caffeinated coffee as a "potent pharmacological agent" that can cause numerous harms (see Table 1).<sup>18</sup> Williams encourages coffee drinkers to "gradually detoxify this drug from their bodies and lifestyle," transitioning first to organic decaffeinated coffee, then switching to organic black or green tea and, finally, drinking herbal teas, beverages made from roasted chicory or simply warm water and lemon juice. (Note that decaffeinated coffee is not a desirable endpoint; it is neither entirely caffeine-free nor free of the other phytochemicals in coffee that can produce strong physiological effects.<sup>19</sup>)

After ingestion, caffeine is widely distributed throughout the body, "promptly" getting into all the body tissues and crossing the blood-brain, blood-placenta and blood-testis barriers.<sup>1</sup> Williams observes that caffeine is a methylxanthine—a type of molecular compound that functions simultaneously as a stimulant "that can increase heart rate and blood flow" and as a relaxant "that can open blood vessels and loosen muscular tissues."<sup>20</sup> The stimulant property of methylxanthines is "one of the main reasons people often feel their hearts racing after consuming a lot of caffeinated foods or drinks."<sup>20</sup>

**TABLE 1: Selected effects of regular consumption of caffeinated coffee**

Depletes adrenals
Depletes epinephrine and norepinephrine neurotransmitters
Spikes and then lowers blood sugar
Increases heart rate and increases (or lowers) blood pressure
Exhausts gastric juices
Decreases thymus gland size and circulating antibodies
Promotes fibrocystic breast changes
Depletes minerals
Interferes with the calcium-phosphorus ratio
Induces vitamin B1 deficiency
Crosses the placenta and breastmilk to the fetus and infant

Source: Williams LL. *Radical Medicine: Profound Intervention in a Profoundly Toxic Age*. San Francisco, CA: International Medical Arts Publishing; 2007-2008, p. 247.



## Coffee has extremely negative effects on the intricately balanced adrenal system.

Depletion of the adrenal glands and compromised nutrition and digestion are some of the many harmful effects of caffeine outlined by Williams.<sup>18</sup> The adrenal glands govern the production of key hormones—including sex hormones, stress hormones such as cortisol and the neurotransmitters epinephrine, norepinephrine and dopamine. Williams and other holistically oriented medical practitioners note that coffee has extremely negative effects on this intricately balanced system. Coffee’s artificial stimulation of the adrenal glands and especially cortisol “means that every time you drink coffee, you’re activating the body’s fight-or-flight response,”<sup>21</sup> putting your nervous system “on constant red alert” whether or not there is any actual stress.<sup>22</sup> Normally, cortisol levels are high in the morning to help an individual “rise and shine for the day,” but when routine coffee consumption drives up cortisol artificially, it changes the pattern.<sup>21</sup> Cortisol ends up being low in the morning instead of high—prompting the person to reach for a morning cup of coffee and perpetuating the topsy-turvy cycle until, finally, more severe adrenal fatigue sets in.<sup>23</sup>

Research has shown that coffee and caffeine affect utilization and absorption of key nutrients, for example, depleting magnesium and reducing absorption of iron.<sup>24</sup> As a diuretic, caffeinated coffee also contributes to calcium excretion to such an extent that it “can add up to significant bone thinning.”<sup>25</sup> Although some researchers rate this bone loss effect as “controversial,” one study found that elderly postmenopausal women who consumed about eighteen ounces of brewed coffee a day experienced “significantly higher rates of bone loss at the spine” compared to women with a lower daily intake.<sup>26</sup> These effects on bone density prompted Colorado researchers in 2009 to recommend that premenopausal women limit their caffeine consumption to avoid osteoporosis.<sup>27</sup>

A couple of years ago, reflecting the current trendiness of anything to do with the microbiome, coffee lovers greeted a study published in *Science*<sup>28</sup> with considerable fanfare. Although the study covered an extremely wide range of “intrinsic, environmental, dietary and medication parameters,” coffee enthusiasts pounced on the one sentence linking coffee, tea and wine

to “a healthier and more diverse community of microbes living in the gut.”<sup>29</sup> The researchers attributed this association to the three beverages’ high polyphenol content.<sup>28</sup> Others, however, have suggested that coffee’s impact on the gut may not actually be beneficial. Dr. Edward Group of the Global Healing Center describes numerous undesirable effects on gut health, including a reduction in the stomach acid needed for digestion when morning coffee is consumed on an empty stomach (true for both caffeinated and decaffeinated coffee); a weakening of the stomach’s protective mucosal layer; acid reflux and esophageal changes resulting from coffee’s relaxation of the esophageal sphincter; aggravation of bowel disorders or an overactive bowel; and premature release of partially digested food into the small intestine, which can damage the intestinal wall and facilitate dysbiosis.<sup>24</sup>

Coffee drinkers who are interested in the microbiome might also want to bear in mind the results of a novel study of “coffee machine-associated bacteria” published in *Scientific Reports*<sup>30</sup> and summarized in *Scientific American*, which found that nine in ten top-of-the-line espresso machines harbored “a whole menagerie of bacteria—including some pathogenic species more commonly associated with the toilet.”<sup>31</sup> (About 30 percent of the world’s Michelin-starred restaurants feature the brand of espresso machine examined in the study.<sup>32</sup>) Given the discovery of bacteria with pathogenic properties “and the fast recovery of the [bacterial] communities after rinsing the capsule container,” the study’s authors advised “frequent maintenance” and preventing contact “of the coffee leach with other parts of the machine to avoid unintended contamination of the beverage.”<sup>30</sup>

### VULNERABLE POPULATIONS

Many researchers acknowledge the association of caffeine intake with “reversible and transient physiological effects broadly and cardiovascular effects specifically,” but surprisingly few are willing to pin any blame for more serious chronic health issues on coffee or caffeine.<sup>33</sup> At the same time, some experts have called attention to caffeine’s potentially adverse effects on sleep or cardiovascular and other functions in “special” or “vulnerable”

Studies have linked coffee consumption during pregnancy to an increased risk of pregnancy loss, preterm delivery and other adverse birth outcomes.

populations—broadly defined as “pregnant and lactating women, children and adolescents, young adults, and people with underlying heart or other health conditions, such as mental illness.”<sup>34</sup>

Studies and meta-analyses (studies of studies) in humans have linked coffee consumption during pregnancy (including both caffeinated and decaffeinated brews in some studies) to an increased risk of pregnancy loss,<sup>35</sup> preterm delivery<sup>36</sup> and other adverse birth outcomes.<sup>37</sup> A just-published long-term study of Irish mother-child pairs that looked at the effects of maternal consumption of both coffee and tea found “robust” and statistically significant associations of maternal caffeine intake with lower birth weight, shorter birth length, smaller head circumference and shorter gestational age.<sup>38</sup> Of note, “similar higher risks of adverse birth outcomes were observed for the highest caffeine intake categories from coffee and tea compared with the lowest intake categories.”<sup>38</sup>

Studies in rodent models suggest that caution about coffee consumption during pregnancy (and lactation) is also warranted due to potential long-term effects on offspring that are irreversible, including adrenal abnormalities.<sup>39</sup> A study by investigators in Turkey—famous for its “robust Turkish coffee and strong black tea”<sup>40</sup> and where approximately 60 percent of pregnant

women consume caffeine—found that administration of both low and high doses of caffeine to pregnant rats affected sex steroid levels in the fetus and neonate, leading the authors to speculate about likely effects on “behavioral and neuroendocrine functions at some point in adult life.”<sup>41</sup>

Chinese researchers, also using a rat model, found that prenatal caffeine exposure induced “high susceptibility to metabolic syndrome” in the female adult offspring.<sup>42</sup> Metabolic syndrome is the name given to a group of risk factors for heart disease, stroke and diabetes. (The risk factors include apple-shaped obesity, high blood pressure, high blood sugar, a high triglyceride level and low HDL-cholesterol.) Somewhat confusingly, some researchers have reported that regular coffee consumption is protective for metabolic syndrome.<sup>43</sup> However, a recent study from Finland (the country with the world’s highest per capita coffee consumption) reported that in individuals who are already type 1 diabetics, both “moderate” (three to five cups a day) and “high” (greater than five cups a day) coffee consumption was associated with increased odds of metabolic syndrome, and any level of consumption increased the risk of high blood pressure.<sup>44</sup>

A 2012 rat study out of Iran examined caffeine as a potential risk factor for male infertile

## COFFEE AND THE ENVIRONMENT

When considering what coffee does to humans, we should not overlook what coffee production is capable of doing to the environment. Traditionally, coffee was shade-grown under a diverse canopy of native trees that allowed for a “rich web of plant and animal life,” providing corridors for migrating birds, support for pollinators and “ecosystem services” that stabilized and replenished soil.<sup>60</sup> These practices were especially important given that coffee-growing regions are home to some of the planet’s most delicate ecosystems.<sup>61</sup> In the 1970s, industry-favorable agricultural policies and coffee’s popularity prompted a shift toward sun-grown coffee produced in plantations with no canopy—this has resulted in massive deforestation, loss of biodiversity, widespread use of toxic chemical fertilizers and soil depletion.<sup>60</sup>

Intensive agrochemical coffee production relies on an assortment of chemicals with unpronounceable names (such as ametryne, cyproconazole, diuron, epoxiconazole, flutriafol, triadimenol and triazophos), which contaminate both surface water and groundwater<sup>62</sup> and create both acute and long-term health risks for farmworkers.<sup>63</sup> Residues from these chemicals also pose risks to the end consumer, with “large variations in the stability of pesticide residues” depending on the processing method used.<sup>64</sup>

Although organically grown, shade-grown and fairtrade coffees have increased in popularity in the U.S., now accounting for 37 percent of American coffee sales by volume, these “specialty coffees” are still swimming against the tide in the global marketplace.<sup>60</sup> In fact, a 2014 study reported a worldwide shift toward *more* intensive coffee farming over the past two decades.<sup>65</sup> Although total global production of shade-grown coffee increased over the time period in question, “the area of land used for non shade coffee...increased at a much faster rate, resulting in shade grown coffee falling from 43 percent of total cultivated area to 24 percent”—despite “two decades of growth in public awareness of where coffee comes from and the different ways to manage it for biodiversity.”<sup>60</sup>

ity, considering both in utero and lactational exposures.<sup>45</sup> The researchers identified a number of significant long-term and dose-related effects on the “reproductive efficiency of male offspring rats,” including a decline in sperm density, decreased fetal viability and reductions in testosterone levels. A recent survey of “lifestyle causes of male infertility” cites numerous studies linking coffee and caffeine to poor semen quality, sperm DNA damage and prolonged time to pregnancy, although it is unclear whether these effects accrue solely from prior in utero exposure or also from adult caffeine consumption.<sup>46</sup>

An international childhood cancer consortium also just reported an increased risk of childhood leukemia in the children of regular coffee drinkers.<sup>47</sup> The coffee consumption threshold beyond which the researchers detected cancer effects was two-plus cups of coffee a day.

#### COFFEE DRINKERS FOR LIFE?

Market reports indicate that adolescents “are drinking more coffee every year *and* continually starting at a younger age”—setting the stage for a life-long coffee-drinking habit.<sup>48</sup> Teens and young adults are responding in part to clever marketing that portrays coffee drinking as “classy and sophisticated.”<sup>49</sup> This marketing strategy appears to be paying off, because young workers between the ages of eighteen and thirty-four spend an estimated twenty-four to seventy-four dollars per *week* on coffee.<sup>8</sup> The narrator of the Smithsonian’s fluff video on coffee credits entities such as Starbucks for “talking about *terroir* [and] making the geography of coffee available to people” and also waxes poetic about the current wave of coffee “connoisseurship”

and “refinement”; the short video also features a young college student sniffing and tasting a special brew in the manner of a fine wine.<sup>12</sup>

According to the advisory committee for the 2015 Dietary Guidelines for Americans, there is a lack of consensus regarding safe levels of coffee and caffeine intake among children and adolescents.<sup>9</sup> This may be due to the “dearth of caffeine research among younger consumers.”<sup>50</sup> A research team in Iceland is particularly concerned about the implications of teenage caffeine consumption for long-term cardiovascular health, having found that “early exposure to caffeine may lead to persistent increases in vascular resistance, which in turn is an acknowledged risk factor for the development of hypertension.”<sup>50</sup> Headaches are another common vascular symptom associated with coffee drinking. A study that looked at menstruation-related headaches—reported by one in four teenage girls—found that daily coffee (and cola) consumption was associated with more frequent headaches.<sup>51</sup>

Researchers have raised concerns about increased vulnerability to anxiety disorders resulting from caffeine consumption during the developmentally sensitive adolescent years. A study in rats identified “dysregulation of the neuroendocrine stress response system” following adolescent caffeine exposure, leading to “enhanced anxiety-related behavior” in adulthood.<sup>11</sup> Disturbingly, the effects persisted into adulthood “even after removal of caffeine.”

#### RISKS OUTWEIGH BENEFITS

A number of studies and meta-analyses have reported inverse (protective) associations of coffee with a variety of diseases.<sup>37</sup> (The lead

Market reports indicate that adolescents “are drinking more coffee every year *and* continually starting at a younger age.”

#### WHAT’S IN THAT COFFEE DRINK?

Consumers who make a habit of drinking the fancy coffee concoctions on offer in places like Starbucks would do well to become familiar with some of the unhealthy ingredients used by these establishments. Joan Salge Blake of Boston University says, “So much is added to [coffee]—the cream, the sugar, the flavoring—that now what people are drinking is almost like a sweetened, creamy beverage with a coffee flavoring to it.”<sup>12</sup>

According to the Food Babe (a blogger “hot on the trail to investigate what’s really in your food!”), Starbucks uses “Monsanto Milk” (non-organic milk “from farms where the cows are almost always fed a diet that consists primarily of GMO feed. . . that is laden with pesticides”) or dairy-free “milks” that are full of dubious additives such as carrageenan and guar gum.<sup>66</sup> The Food Babe also reports that even “taking the milk out of the equation, most of the drinks at Starbucks are still filled with a ton of sugar [including high fructose corn syrup], natural flavors, preservatives, thickeners, emulsifiers and other artificial additives.”

researcher of one of the more influential meta-analyses smilingly poses with a cup of coffee on his university webpage.<sup>52</sup>) The coffee lobby and even public health and medical professionals have not hesitated to use these studies to shore up their claim that “coffee is good for you.”<sup>53</sup> (Remember when tobacco companies built relationships with academic institutions and funded scientific studies to tout the benefits of another stimulant, called nicotine? Ironically, the companies’ public relations campaigns “often [minimized] nicotine’s health risks by comparing it to caffeine or coffee”!<sup>54</sup>)

Much of the coffee-is-beneficial research is actually of a mixed-message nature. For example, one study describes coffee as a risk factor for type 1 diabetes and rheumatoid arthritis but suggests that it is protective for multiple sclerosis and autoimmune liver disease.<sup>55</sup> Another study links coffee to an increased risk of breast cancer (among premenopausal and normal-weight women) but a reduced risk of endometrial cancer.<sup>56</sup> A study looking at kidney cancer found that decaffeinated coffee consumption was associated with an increased risk of “aggressive” kidney cancer, while caffeinated coffee intake apparently reduced the risk<sup>57</sup>—even though other work has pointed to caffeine as a kidney toxin.<sup>58</sup> And some investigators deny any coffee-associated cardiovascular disease risk at all,<sup>10</sup> while others point to likely interactions with genetics, suggesting that some individuals may be genetically “predisposed” toward coffee-induced high blood pressure.<sup>59</sup> (Does this portend a genetic test for would-be coffee drinkers?)

Is it worth running the risk of losing a pregnancy, damaging one’s adrenal system or impairing nutrient availability to obtain coffee’s purported mixed benefits? A Wise Traditions lifestyle that emphasizes a properly prepared nutrient-dense diet, adequate sunlight, time in nature, protection from cell phones and cell towers, and avoidance of toxic pharmaceutical products will go much further toward supporting good health than gambling a ride on the coffee roller coaster. ☯

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## SUBSTITUTES FOR COFFEE

**HOT MOLASSES DRINK:** 1 tablespoon molasses, 1 tablespoon coconut oil, 1/4 teaspoon powdered ginger in a mug with enough hot water to fill the mug.

**CHICKEN BROTH WITH COCONUT MILK:** 1 quart homemade chicken broth, 1 can full-fat coconut milk, juice of 1-2 limes, pinch of red pepper flakes.

**WARM FLAVORED MILK:** 2 cups whole raw milk, 1 teaspoon vanilla extract, 1/2 teaspoon chocolate extract, 1 tablespoon carob powder, 2-3 teaspoons maple sugar. Use a whisk to blend all ingredients in a glass pyrex measuring pitcher. Set in simmering water until warm to the touch.

# The Wise Traditions Pantry

## NOURISHING THE NEW MOTHER: THE LOST ART OF POSTPARTUM CARE

By Jennifer Grafiada

If no one is looking after the new mother, adequate rest and nutrition can fall by the wayside in what could otherwise be a magical time of mother-baby bonding.

Imagine that after giving birth, you are allowed simply to rest and cuddle your newborn for a month or longer. Loved ones do the cooking and cleaning and help you bathe and care for your infant. Hot teas accompany steaming baths—both filled with healing herbs meant to soothe and rejuvenate. Kind and knowledgeable women share their motherly wisdom and are on hand to help with breastfeeding and any new baby “hiccups.” You, the new mother, are treated with tenderness and respect. Your space is kept still and peaceful. After a few weeks, you are ready to share your little one with the world and to emerge from the secure confines of your home with confidence and strength.

### FORTY DAYS

Believe it or not, the practice of setting aside thirty, forty or more days for postpartum recovery is a common one worldwide and dates back thousands of years. An Ayurvedic text dating back to 400 BCE dictates that “A new mother should be treated with massage, warm baths, a specific diet and herbal drinks that prevent infection, promote vitality and alleviate *vata*” (an energetic force in the body).<sup>1</sup>

In her book *The First Forty Days: The Essential Art of Nourishing the New Mother* by Heng Ou, Ou tells of her experience with *zuo yuezi*, the Chinese tradition of honoring and caring for the mother in the month after giving birth.<sup>1</sup> This practice has been honored in Chinese homes for over four thousand years and is still alive and well today. Comparable traditions and rituals are found across the world, from Malaysia to India to Latin America.

In this time period, family members, friends, doulas and midwives are tasked with bathing mother and baby (often with herbs instead of harsh soaps); massaging them with special oils and infusions; and cooking and serving special foods. While these foods vary by region and culture, they share certain things

in common: they are warming, healing, full of vitamins and minerals and easy to digest. Many are specifically selected for their nutrient content and their ability to heal organs and boost lactation.

### “MODERN” TIMES

In contrast, in what we might term “modern” times, many women in the Westernized world are given the impression that giving birth is something that one should immediately “bounce back” from, physically and otherwise. Employers are sometimes reluctant to give paid maternity leave, or the mother may simply be unable to take off much time from work. Extended family members may not live nearby or may not be in a position to help. Even spouses and otherwise loving partners sometimes do not understand the significant physical and emotional shifts that the new mother has just undergone by bringing forth new life.

As a result, mothers may feel overwhelmed and distraught. While their baby is rightfully being showered with attention, the mother is left to deal with all the lifestyle changes—and lack of sleep—that motherhood inevitably brings. Exhaustion in the first few weeks is commonplace and even expected. Sadly, if no one is looking after the new mother, adequate rest and nutrition can fall by the wayside in what could otherwise be a magical time of mother-baby bonding.

### THE NEED FOR DEEP NUTRITION

What are the consequences of neglecting the mother in this delicate time period? Some cultures believe that neglect during the immediate postpartum period can have detrimental effects lasting into the woman’s menopausal years and beyond. Whether or not that is the case, it is clear that postpartum health is an often-overlooked aspect of women’s health in the United States and other countries.

It is worth noting that with the hormonal

fluctuations and reconfigurations of familial dynamics that result after the birth of a new baby, some emotional changes are to be expected. Mood swings and moments of sadness may be quite normal, especially if the birth was a traumatic one. Some women, however, experience longer lasting issues such as severe depression and anxiety, extreme fatigue, difficulty remembering and more. The National Institute of Mental Health (NIMH) estimates that postpartum depression affects 15 percent of women after childbirth.<sup>2</sup> Many scientists (and savvy Weston A. Price Foundation members) believe that the severe nutritional deficiencies that are commonplace among women today are one root cause of postpartum depression.

It is no secret that raising a child requires a massive amount of “building block material,” which is why traditional cultures practiced child spacing of at least three years between each child. This practice allows women to rebuild their nutritional stores. The average American woman, however, is often nutritionally depleted before conception even takes place, and her diet during pregnancy may be full of sugar and processed foods. In these cases, the body will rob the mother of nutrients to nourish the growing fetus, taking calcium from the bones and teeth, and reducing the stores of critical omega-3 fatty acids needed by the mother for emotional balance.

Nutrients that may be depleted include iron, folate, calcium, potassium, vitamin D, vitamin A and carotenoids, magnesium, iodine, omega-3, phosphorus, zinc, DHA and other essential fatty acids, B<sub>12</sub> and selenium.<sup>3</sup> Scarily enough, this can cause permanent changes to the mother’s brain and body. The new mother may have trouble remembering or learning new things, or may suffer from anxiety and depression. Decreased vitamin A stores can result in noticeable changes in vision. Before-and-after pictures sometimes show such changes as thinned lips and a curved spine.

Many women falsely believe that taking a prenatal pill before, during and after pregnancy will be enough to cover any deficiencies. So why not just take a pill? While some high-quality supplements can certainly be helpful, they are not close to being a panacea. Synthetic tablets

do not contain the hundreds of isomers and related molecules that exist in nature so the body does not recognize and absorb them as easily. Moreover, the synthesis of these molecules in a lab creates unnatural byproducts that may in fact be harmful.

A study that looked at prenatal vitamin use in American women found that the women still developed deficits of niacin, thiamin and vitamins A, B<sub>6</sub> and B<sub>12</sub> that lasted into the third trimester (and presumably beyond).<sup>4</sup> Prenatal vitamins also do not adequately address pregnant women’s needs for vitamin D, long-chain essential fatty acids or choline. Choline is not part of any prenatal vitamin commonly found in the United States. In short, while certain high-quality prenatal formulations can be helpful, the answer, first and foremost, has to be on our dinner plate.

#### WARM AND NOURISHING FOODS

The Weston A. Price Foundation has been a pioneer in this respect, helping many a new mother as well as mothers-to-be with dietary recommendations that are based on ancient traditional wisdom (and validated by modern science). I have the Foundation’s magnet listing the “Diet for Pregnant and Nursing Mothers” “on my refrigerator, and I think this should be given as a gift at every baby shower (along with a copy of *Nourishing Traditions*<sup>5</sup> and *The Nourishing Traditions Book of Baby & Childcare*<sup>6</sup>). The diet has bullet points listing good foods to consume and foods to avoid.<sup>7</sup>

The list will be familiar to those who live a Wise Traditions lifestyle. The list includes organ meats and pastured meats from local sources (filled with iron, selenium and the B vitamins); eggs rich in choline, fatty acids and vitamin D; wild-caught seafood containing iodine and zinc; grass-fed butter with the famous X factor (vitamin K<sub>2</sub>); natural cod liver oil for vitamin A; cultured dairy and raw milk (with many immune-boosting molecules and friendly gut bacteria); and warm and fragrant bone broths, soups and stews that can be easily consumed throughout the day.<sup>7</sup>

Sally Fallon Morrell’s *Nourishing Traditions*<sup>5</sup> and *Nourishing Broth: An Old-Fashioned Remedy for the Modern World*<sup>8</sup> contain many

The severe nutritional deficiencies that are commonplace among women today are one root cause of postpartum depression.

Breastfeeding mothers require more calories than the average woman and should take care to eat plenty of warming, nourishing foods.

delicious recipes, as does the [westonaprice.org](http://westonaprice.org) website. Meals can be made beforehand and frozen before the baby's due date, or you may request that your family set up a "meal train" for yourself or someone else who is expecting. Don't forget to ask for help in other ways as well: arranging for house-cleaning, laundry, grocery store errands or a warm rub with essential oils or herbal infusions can all go a long way to restore a new mother's zen.

#### FOODS THAT BOOST BREASTMILK

Chapter Seven of *The Nourishing Traditions Book of Baby & Childcare*<sup>6</sup> contains many pages of advice for breastfeeding mothers. Breastfeeding mothers require more calories than the average woman and should take care to eat plenty of warming, nourishing foods. They should also drink generous amounts of fresh, clean water (or herbal teas). The book recommends raw milk, bone broths, soaked oatmeal and lacto-fermented beverages such as kombucha for boosting breastmilk supply.

Interestingly, these were all foods that my body naturally craved in the first couple of months of the postpartum period, when I felt like I was nursing around the clock. I remember when the lady who brings my raw milk stopped by. I couldn't seem to get enough of the rich cream, and I was so grateful to have it delivered. She mentioned that her mother always told her that "Milk makes milk!" This is the sort of traditional wisdom that would benefit so many who have sadly been brainwashed by the "Diet Dictocrats" and suffer needlessly for it.

#### SHOULD I EAT MY PLACENTA?

What about placenta eating? This has recently become a common practice among some naturally-minded mothers, and many claim that it significantly boosts mood and energy levels. One Weston A. Price member recounts, "I was definitely on an emotional rollercoaster for a few months after the birth of my first child. Both my children were born at home, and with my second, I had a long conversation with the

#### POSTPARTUM RECOVERY SOUP

Sarah Ruiz, a Weston A. Price Foundation chapter leader from North Carolina and a certified integrative nutrition health coach, shared this recipe for a postpartum recovery soup on [westonaprice.org](http://westonaprice.org/postpartum-recovery-soup/) (see the full post at [westonaprice.org/postpartum-recovery-soup/](http://westonaprice.org/postpartum-recovery-soup/)).

The soup features pig's feet, Chinese black vinegar, coconut sugar and fresh ginger. If pig's feet are hard to find in your area, a simple chicken noodle soup or beef bone broth will support postpartum recovery just as well.

##### INGREDIENTS

2 pasture-raised pig trotters

2 1/2 cups Chinese black vinegar (available at Asian markets) or balsamic vinegar (if you can't find the black vinegar)

1/4 cup + 2 tablespoons coconut sugar (helps to balance the vinegar in the recipe)

1/2 cup coconut aminos or naturally fermented organic soy sauce

Filtered water

2-inch piece of organic ginger, sliced

Pastured eggs (at least two per bowl of soup)

Organic zoodles (spiralized organic zucchini), brown rice noodles or soaked/cooked brown rice (optional)

##### INSTRUCTIONS

1. Get your butcher to cut the pig trotters into one-inch pieces (optional, but extracts the minerals better).
2. Cover the trotters with filtered water in a large pot, cover with a lid and bring to a boil for ten minutes.
3. Drain the water and rinse with cold filtered water.
4. Fill the pot containing the trotters halfway full with filtered water. Add the black vinegar, coconut sugar, coconut aminos and ginger. If the trotters are not covered, add more water until they are covered.
5. Cover with a lid and bring to a boil. Once it reaches a boil, simmer for 45 minutes.
6. Toward the end of the simmering time, boil eggs to have ready for the soup.
7. Add boiled pastured eggs to a bowl and cover with soup. You can add organic zoodles (spiralized organic zucchini), brown rice noodles or soaked/cooked brown rice to the bowl to make this a more complete meal, but it is completely optional. Be sure to drink this daily for the first six weeks postpartum. Enjoy!



midwife about what to do with the placenta. In the end I decided to eat it! The midwife chopped it and divided it into five portions, which we froze. I put one portion into a smoothie for five days (it didn't have much of a flavor, they just tasted like ordinary smoothies). I felt so strong and emotionally stable, it was like night and day compared to my first pregnancy. It just seemed to work to really bring my whole system back to a stable, functioning state. I know it's not an option that many women will go for, but I would do it again in a heartbeat."

For those who do not want to go that route, eating a diet rich in organ meats like liver will also help replenish iron levels and thereby improve mood and vitality. Another member shares this: "After I had my daughter, I struggled to balance all my responsibilities as a mom of two. I had been pregnant or breastfeeding for three years, and my body was feeling the effects of years of giving to other humans. My threshold for stress was so much lower, and I found myself frustrated or full-on angry at unreasonable things. Then I would feel guilty and depressed because of the way I was reacting. It took two years after my daughter was born for my body to go back to normal and my hormones to finally level out. Taking cod liver oil and dessicated liver tablets definitely helped."

## POSTPARTUM THYROIDITIS


New mothers who are feeling particularly fatigued for extended periods may consider having their thyroid gland checked. Symptoms of hypothyroidism can include mental fog, dry skin, weight gain, intolerance to cold, constipation and hair loss. This can be diagnosed as Hashimoto's thyroiditis or postpartum thyroiditis. Dr. Kelly Brogan writes, "In postpartum thyroiditis, this presentation is typically preceded by a period of hyperthyroidism where women can feel over-energized, suffer from insomnia, diarrhea, anxiety and precipitous weight-loss—these are the women who 'bounce back' quickly after the baby only to be peeling themselves off the ground nine months later." She states that about 10 percent of women develop this condition, and it frequently goes undiagnosed or misdiagnosed.<sup>9</sup>

There are now home testing kits for compre-

hensive thyroid testing. In addition, home test kits can test for key nutrients before conception or after giving birth, including omega-3 fatty acids, B vitamins (including folic acid) and vitamin D. Some companies also offer a breastmilk test that shows how much DHA is in your breastmilk.

## NURTURING NEW MOMS

If you or someone you love is expecting a little one, be sure to plan for a special month or two after giving birth. While the newborn certainly deserves to be showered in love, attention and those cute little booties and headbands, the new mother also needs to be soothed, caressed, cared for and listened to. Heng Ou includes in her book this quote from a Chumash medicine woman from Ensenada, Mexico: "When any mother has a problem, the first thing I say to her is, 'You need to be petted! Put your feet up, your body needs to be boosted with touch and stimulated if you want to get through this time.'"<sup>1</sup>

Although it may take some planning and foresight in our fast-paced society—and some explanatory discussions with family members and friends—bringing back the lost art of nurturing and nourishing the new mother will likely do wonders not only for her but for the whole family, with dividends that pay off for decades and generations to come. 

*Jennifer Grafiada is a nutritional therapy practitioner and Weston A. Price Foundation chapter leader based in southern Oregon. Contact Jennifer at [jennifer@jennifergrafiada.com](mailto:jennifer@jennifergrafiada.com) for a discount code for Everlywell.com home testing, or visit the resources at [ThrivingAfterBaby.com](http://ThrivingAfterBaby.com).*

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# Homeopathy Journal

THE FLAMES ARE EXTINGUISHED, BUT THERE'S MORE TO DO

By Joette Calabrese

The moment  
any injury  
or shocking  
event occurs,  
*Aconitum  
napellus*  
should come  
to mind as  
Step One.

I was fifteen when the younger sister of a friend of mine sustained third-degree burns after her nightgown caught on fire as she made breakfast before school. Years later, my friend told me she could still hear her little sister's shrieks as she ran in flames through the kitchen.

The suffering my friend's sister endured from burns over nearly her entire body lasted for years. The pain stemmed not only from the initial burn but from the subsequent onslaughts of repetitive skin grafting surgery, infections, anxiety, depression—and even from the long-term effects of the treatments she received.

This happened in Buffalo, New York, where until about twenty years before, there had been three noteworthy homeopathic hospitals a mere five miles from where my friend's sister was burned. But alas homeopathy suffered an intentional demise perpetrated by its competition: conventional medicine. So homeopathy was no longer available to my friend and her family. (I could have written this article on that subject alone, and it would most certainly fascinate you. But, it wouldn't leave enough room to write about burns.)

Turning to today's resurgence of homeopathy—not in American hospitals but in educated homes—we can speculate on the treatment of a burn victim. What might have been done for my friend's sister had there still been a homeopathy hospital operating in Buffalo? Let's pretend such a place still exists and call it by its name from bygone days: Buffalo Homeopathy Hospital.<sup>1</sup>

## WRITE IT DOWN

The first homeopathic remedy administered in the emergency room would have been *Aconitum napellus* 200. In fact, the moment any injury or shocking event occurs, *Aconitum napellus* should come to mind as Step One. This is a writer-downer, folks. Don't be without this

medicine in your home or even your purse. It ought to be repeated every few minutes within the first several hours to reduce shock and angst and help minimize the potential for infection.

The less severe the trauma, the less frequently the *Aconitum napellus* remedy is given, and the more one can reduce the length of time it is needed. Hence, a small burn from a hot splatter wouldn't be the time for this medicine. However, for a more severe burn or a broken arm or head injury, it should be used. William Boericke, MD, in his *Pocket Manual of Homeopathic Materia Medica*, says this about *Aconitum*: "Sudden and violent invasion, with fever call for it" and "A state of fear, anxiety; anguish of mind and body."<sup>2</sup>

With Step One underway and *Aconitum napellus* consistently administered every fifteen minutes or so, Step Two would commence. Referring to Dr. Robin Murphy's *Homeopathic Clinical Repertory*,<sup>3</sup> which categorizes the most important medicines to consider for burns, and looking under the rubric, "to prevent blisters from arising," *Cantharis* is the most highlighted medicine. Under the rubric of "burns; painful," there are only two medicines listed, with *Cantharis* again noted as most significant. *Cantharis* is specifically used for severe pain and the blistering that accompanies third-degree burns. (However, it can be used for first- and second-degree burns, including painful sunburns, as well. Homeopathic *Urtica urens* and *Arnica* can also be good choices for sunburn.)

Although *Cantharis* isn't the only medicine to consider, in our imaginary homeopathic hospital, *Cantharis*—alternating with *Aconitum napellus* 200—would give the sufferer a good start at protection from potential infection, soothe extreme pain, calm nerves and set the sufferer on his or her way toward a rapid recovery.

## OTHER MEASURES

Upon entering the emergency room of the homeopathic hospital, our friend would be whisked away by attending MDs and hooked up to an IV of saline. No antibiotics would be administered. Instead, *Pyrogenium* 30 would be administered orally to protect the patient from sepsis. Meanwhile, homeopathic nurses would be tending to the cleaning and protection of the wounds, including gently pouring diluted tincture of *Urtica urens*.

At the turn of the last century, the topical use of *Urtica urens* was also familiar to Dr. Dorothy Shepherd, a homeopathic physician in London, England. Shepherd declared “For burns, however extreme they are, I should use *Urtica urens*, mother tincture, for an external application.” (A “mother tincture” is a botanical extract in a specific amount of alcohol.) Shepherd also verified her use of homeopathic *Causticum*, which she recommended in a 6 potency: “Give *Causticum* 6 internally, every 15-30 minutes at first for the pain and shock accompanying a burn.”

She said, “I never had such rapidly healing wounds in the old days when I used antiseptic dressings. It needs some courage at first to strike out for yourself and to do things contrary to the accepted teaching; but it is well worthwhile when you see the results.”

Summarizing, this is what our patient would be taking presently and for some time to come:

1. *Aconitum* 200: Every fifteen minutes during the first day or so for shock, angst.
2. *Cantharis* 6 or 200: Every three hours for burn, prevention of blisters, pain.
3. *Causticum* 6: Every fifteen to thirty minutes.
4. *Urtica urens*: Mother tincture applied to the wound and added to dressings.
5. *Pyrogenium* 30: In the event of infection.

Adjustments to each of the medicines would be made as the patient’s needs dictated. Previous remedies would no longer be needed, and new ones would be required. Most importantly, the

practitioner would adjust the frequency of the medicines according to the symptoms.

## WEAK LINKS

During such traumatic events, it’s not uncommon for the person’s weakest link to become evident at this most unfortunate time. For example, if my friend’s sister had a history of urinary tract infections, it’s likely one might occur while under such stressful conditions. (It’s also common for this condition to appear after sustaining a burn.) Oddly enough, that situation would also call for *Cantharis*. This medicine is—not coincidentally—called for in these two main conditions: both for second- or third-degree burns as well as for urinary tract infections. Why? The searing, burning pain of a urinary tract infection bears a resemblance to the pain of a burn.

It is not unusual in the world of homeopathy that one medicine has many applications, and they are concomitant. What may seem like a coincidence is the body’s tidy way of calling for the medicine most needed. (For a reference as to how *Cantharis* is used in urinary tract infections, refer to my article in the Spring 2012 edition of *Wise Traditions*.<sup>4</sup>)

Adding these medicines would not be an impediment to the already committed schedule of medicines used for the burn trauma. In fact, they should and could seamlessly be integrated into the overall schedule. Each one would be used for as long as necessary for the symptoms to abate. (Indeed, this is most often how we know when to halt the use of the medicines: when symptoms abate.)

Not unlike allopathic medicine, homeopathy relies on tests, symptoms and keen observation. It certainly would be useful to have a urinalysis done frequently to keep an eye on infections. Meanwhile, if an infection were detected through either testing or observation, the medicines specifically designed for such occasions would be administered more frequently—as often as every hour during a crisis and less frequently as the infection cleared.

## WHY HOMEOPATHY?

As we imagine my friend’s family having a choice—either to head to the emergency

Dorothy Shepherd, a homeopathic physician at the turn of the last century, said, “It needs some courage at first to strike out for yourself and to do things contrary to the accepted teaching; but it is well worthwhile when you see the results.”



room of the allopathic hospital or veer in the other direction toward the homeopathic one—you might ask, “Why would they choose the homeopathic hospital? Why not just use intravenous antibiotics, steroids and antibiotic ointments?”

The argument in favor of the homeopathic route is simple. World-renowned homeopath and medical doctor Dr. Pratip Banerji of the Prasanta Banerji Homeopathic Research Foundation has repeatedly remarked when asked this question, “Our medicines will not do harm. Theirs often do.” If homeopathy has the ability to treat a traumatic condition with at least as much efficacy as conventional medicine, then it’s a simple choice!

Indeed, antibiotics and steroids have been known to save lives—but not without a price. Of course, most in the field of modern medicine would posit that if you don’t use antibiotics and steroids, you’re doing nothing—and doing nothing is dangerous. Who would disagree? Indeed, doing nothing would be neglectful. That is why we use homeopathy! Homeopathy does not mean “doing nothing” but rather doing “something” that in certain circumstances is superior.

I’m not often in touch with my friend these days. Years back, I learned that her sister had become a holistic practitioner. This can be noted time and again: holistic practitioners such as homeopaths and chiropractors are frequently called to their profession precisely because of their own unsolvable health problems or past experiences with health conditions. Admittedly, I’m only speculating as to why my friend’s sister followed such a professional path. Nonetheless, there is something to be learned after sustaining an injury of such proportions, as well as experiencing repercussions from treatments. Perhaps she subsequently learned of the treatment method she missed by living in a city that no longer offered professional homeopathy. ☺☺

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LEFT: Margo Maier of Buchi Kombucha donated gallons of kombucha to the conference.

RIGHT: You’re never too young to enjoy a Wise Traditions conference!



# Technology as Servant

COOKWARE KEEPS GETTING SAFER, BUT IT'S STILL *CAVEAT EMPTOR!*

By John Moody

When I was in college, I remember going to look at pants at my local JC Penney's. The labels were emblazoned with the words, "stain-resistant." As I looked at the pants, I couldn't help but wonder, "What on earth are they putting on the pants to make them stain-resistant?" To many consumers, "stain-resistant" undoubtedly sounded cool, but it left alarm bells ringing in my head.

At the same time, nonstick cookware (such as Teflon) was sweeping kitchens across the nation. I watched family after family replace old cast iron or other cookware sets with fancy new nonstick versions, while raving about the convenience and "health benefits" of needing less fat or oil to cook effectively.

These nonstick coatings didn't just take root in cookware and clothing. Microwave popcorn bags and other food liners, dental floss, cosmetics, carpets, household furniture and hundreds of other products are coated with or contain them.

When the Environmental Working Group (EWG) looked at cosmetics, for example, it found many troubling results. As reported by TreeHugger, EWG found Teflon "in 66 different products from 15 brands.... In total they identified 13 different PFAS chemicals [a family of per- and polyfluoroalkyl substances] in nearly 200 products from 28 brands. Teflon was found in foundation, moisturizer, eyeshadow, bronzers and highlighters, facial powder, sunscreen, makeup, mascara, anti-aging, moisturizer, around-eye cream, blush, men's shaving cream, brow liner, and other eye makeup."<sup>1</sup>

Teflon is just one of the brand names that these perfluorochemicals (substances with numerous fluoride atoms) go by. Stainmaster, Scotchgard, Silverstone and many more brands clue you in to their presence. In fact, almost any product that proudly calls itself stain-resistant

or nonstick may be that way because of Teflon-like chemicals.

In 2015, the government forced manufacturers to phase out one of the worst chemicals used in the manufacturing of Teflon and similar nonstick or stain-resistant products. However, this does not mean that Teflon and other nonstick substances are now safe. And unfortunately, they are still very popular, especially when it comes to cooking. Up to 70 percent of skillets and over half of all cookware sold in the U.S. are nonstick.<sup>2</sup> Moreover, even with the phase-out of one chemical, the damage is already done. Studies show that people across America—almost one third of the entire nation—are already exposed on a daily basis to these chemicals.<sup>3</sup>

It seems that manufacturers are getting the message that consumers want new types of coatings and materials to consider in their cookware and kitchen appliances. Below, I discuss two options that are probably best to avoid, and two that show great promise in the kitchen.

## STAY AWAY FROM ANODIZED ALUMINUM AND SILICONE

One of the first alternatives to Teflon-type nonstick products to come to market was aluminum-based. Aluminum is light and transfers heat rapidly, but it also cooks off right into your food!<sup>4</sup> Although the amount of aluminum released from anodized cookware is small, the cumulative amount over many years is enough to warrant extreme caution. In addition, many anodized cookware products are also treated with additional nonstick agents, making for a possible double whammy. Perhaps there are safe brands out there that suffer from minimal leaching, but it doesn't strike me as worth the risk of finding out the hard way that the one you purchased wasn't a safe option. Thus, I cannot recommend any kind of aluminum cookware

**Aluminum is light and transfers heat rapidly, but it also cooks off right into your food!**

Many health-conscious consumers have moved to cast iron for an almost nonstick cooking experience, sans dangerous chemical additives.

products, even if their light weight and quick cooking time make them “convenient”.

Silicone is another cookware option that has become popular. As *Scientific American* reports, “Silicone, a synthetic rubber made of bonded silicon (a natural element abundant in sand and rock) and oxygen, is increasingly filling [the] niche” of “cookware that’s easy-to-clean and doesn’t pose health concerns.”<sup>5</sup> *Scientific American* states that “The flexible yet strong material, which has proven popular in muffin pans, cupcake liners, spatulas and other utensils, can go from freezer to oven (up to 428 degrees Fahrenheit), is non-stick and stain-resistant, and unlike conventional cookware, comes in a range of bright and cheery colors.”<sup>5</sup> Unfortunately, silicone cookware isn’t any safer for cooking than Teflon. Those “bright” and “cheery” colors and the other chemicals that get added to that base of oxygen and silicon make for a suspect final product.

As with the anodized aluminum cookware, a number of studies show that the additives in

silicone cookware end up in our food,<sup>6</sup> no matter what the manufacturers may claim. Moreover, this has been known since at least 2005. Researchers wrote at that time, “Even though silicone elastomers demonstrate a high degree of thermal stability and excellent resistance to aging, high temperatures lead to depolymerization of the elastomer, with subsequent volatilization and migration [into food] of certain substances. The few publications concerning the suitability of silicones as food contact materials have indeed shown that a certain quantity of substances migrates from silicone-based articles.”<sup>7</sup> (I have discussed silicone cookware more thoroughly elsewhere, including where and when silicone items are best and safest to use.<sup>8</sup>)

#### MODERN VERSUS TRADITIONAL POLISHED CAST IRON

Many health-conscious consumers have moved to cast iron for an almost nonstick cooking experience, sans dangerous chemical additives. However, even if you find cast iron to your

#### WEIGHING IN ON MODERN CAST IRON BRANDS AND CARE

**LODGE:** We have many pieces of Lodge cast iron. They are the standard, go-to cast iron cookware, offering especially good quality for the price. They are sometimes a bit difficult to cook with and very heavy (a ten-inch skillet weighs about five pounds).

**BAREBONES:** Barebones is a newer, modern cast iron company. I haven’t been able to get my hands on their items yet, but the website says a ten-inch skillet weighs in at a whopping seven pounds! Hopefully, this is just the shipping weight, and the actual skillet comes in at a similar weight to Lodge’s. Although Barebones items appear to be very similar to Lodge, they have one advantage—they are seasoned using organic oils.

**FIELD:** Field is a new entrant into the world of cast iron, trying to bring back polished cast iron at an affordable price. Their #8 (equivalent to a ten-inch skillet) weighs just a bit over four pounds, similar to traditional or antique cast iron. It handles and cooks even better than our antique piece and, as the company promises, the weight reduction in no way reduces the performance we expect from cast iron. We have found that eggs of all kinds are a breeze to make, leaving no residue, and the skillet cleans up with exceptional ease. Visually, it is absolutely gorgeous. If you can afford it, Field’s pieces are well worth the additional price.

**TRADITIONAL AND ANTIQUE PIECES:** We happen to have a classic, many-decades-old cast iron skillet that a friend gave us (brand unknown). Even though it is quite old, its surface still shows the care that went into making cast iron in the early 1900s. It is somewhat lighter than our ten-inch Lodge skillet, weighing in at four pounds. It takes less time to heat up and is easier to keep clean. Such pieces are a reminder that if you care for your cast iron, one day your children’s children may well enjoy using the same pieces that went into preparing meals for their mom or dad!

**PROPER CARE:** For those who struggle with cast iron, here are a few care tips. First, start warming up cast iron skillets a few minutes before cooking under medium-low heat. The bigger or heavier the skillet, the longer this process can take. Second, get a chain link cast iron scrubber. These make clean-up so much easier. Also remember that cast iron is best cleaned with warm water and abrasion, rather than hot water and soap. Try to avoid using hot water and soap on your cast iron, as it reduces or removes the protective coating. Third, keep it properly seasoned—lard is best for this.

liking, it covers only a limited range of kitchen needs. What about waffle irons and other such gadgets? Other limitations and drawbacks of cast iron include the need to preheat skillets properly to ensure that food doesn't stick, and the importance of protecting and maintaining the cured finish to maintain the somewhat non-stick surface. Also, cast iron is awfully heavy, and older people or those with injuries may have a hard time handling it.

Most people associate cast iron with a rough, uneven surface. This "roughness" is what makes cast iron more complicated to cook with—foods tend to stick unless the pan is properly seasoned, preheated and then managed well while cooking. However, if you have ever found an old cast iron skillet that had a surface somewhat smooth like glass, you may have stumbled upon a traditional polished piece of cast iron! Traditional cast iron (brands like Wagner and Griswold) didn't require nearly as much cooking care, because the rough surface was smoothed out through careful sanding and polishing.

Why did this process go away? Cost. As labor and other costs skyrocketed in the mid-1900s, manufacturers moved to less costly production models to keep cast iron affordable and competitive with other cookware options. Manufacturers replaced all the labor-intensive finishing work with additional seasoning (usually with oils from the booming edible oil industry). However, it turned out to be a lose-lose solution because cast iron became less consumer-friendly and quickly fell out of favor.

Thankfully, polished cast iron is making a comeback. It is not only easier to cook with but also is lighter and requires less maintenance. Polished cast iron is probably the best thing to happen to cast iron and also possibly your

kitchen. Although polished cast iron still needs some of the same care as rough—it still requires seasoning and doesn't respond well to hot, soapy water—it is far friendlier and more nonstick than typical cast iron. In addition, the pieces are often quite beautiful, as the polishing process creates a finish that is more than appropriate to go straight from stovetop to supper table. Unlike stainless steel and ceramic options, polished cast iron will last many lifetimes under good care.

At the moment, the biggest drawback of polished cast iron is the price. Polished pieces go for a pretty penny, about three to eight times the cost of their standard cast iron counterparts. For the ambitious among us, you can polish your own—just realize that it is a time-intensive endeavor. You can find a number of guides and tutorials online if you feel inclined to try. Make sure you follow all the safety precautions; proper eye and breathing protection is a must!

Other companies are starting to jump into the cast iron market, often trying to distinguish themselves through lighter cast iron cookware. Yet the weight of cast iron is integral to why it cooks so well, so it is important to realize that lighter pieces will cook more like standard stainless steel or other cookware and won't have the heat retention that makes cast iron the clear go-to for so many applications in the kitchen. If you are looking for a brand that has found the sweet spot between weight and performance, Field has garnered good reviews and has done extensive testing to ensure that their pieces perform well, even with a much lower weight.

## NONSTICK CERAMICS

When I needed dental implants, at first I thought my only choice was metal-based implants, but then my dental surgeon pointed me in the direction of zirconium oxide—a ceramic. Ceramics are an interesting class of material. They are nonreactive, incredibly durable and highly versatile.

Many foodies already have experience cooking with ceramics, using enamel-coated cast iron such as Le Creuset and Lodge. Enamel-coated cast iron is lovely, having many of the advantages of regular cast iron without some of the drawbacks. Except weight—enamel-coated cast iron is as heavy or heavier than regular cast iron! In our experience, it is also prone to chipping, especially in a large family with lots of kids involved with the process of making meals and cleaning up.

However, it seems that the idea of coating a base material with a nonstick ceramic is taking off as a cookware option. Ceramic cookware is one of the fastest growing segments of the cookware industry. Because it is still very new, quality, durability and purity are considerations and concerns. Similar to enamel-coated cast iron, you should stick with

## BETTER COOKING SPRAYS ARE ON THE WAY

Cans of cooking spray have been a staple for many modern cooks seeking to keep their cooking forays stick-free. For years, the only option was low-quality (in)edible oils like corn, canola and other processed oil mixtures. Usually, these also came with a heaping dose of sketchy propellants and other chemicals such as dimethyl silicone or "butter flavoring."

A number of companies (such as Chosen Foods) now offer olive, avocado and similar organic, traditional fat and oil blends for when you need a cooking spray option. Best of all, many of these new sprays use no propellants at all. Plain old air pressure and improvements in design have made propellant-free applicators possible. So if you need a cooking oil spray on occasion, go with one of these great new options now on the market.

wooden utensils and wash the cookware by hand to preserve and protect the ceramic coating (unless the set you purchase clearly states that you can treat it otherwise).

Different companies have their own proprietary formulations and production methods, so you cannot assume that all ceramics are created equal or are equally safe.<sup>9</sup> For almost four decades, in fact, researchers have shown that impurities in ceramic cookware can make it into the food cooked in them, especially if the food is acidic.<sup>10</sup> Heavy metals such as lead and cadmium are the potential impurities of greatest concern. In this regard, country of origin may matter. One researcher purchased a large amount of ceramic cookware from his local Chinatown and found troubling results after testing the pieces for heavy metal leaching, with 25 percent returning positive results for lead.<sup>11</sup> The researchers noted that “three plates and two spoons were found to be leaching lead in quantities that significantly exceeded the levels permitted by FDA [U.S. Food and Drug Administration]. Specifically, one of the ceramic plates tested leached lead at 145 parts per million, a rate far beyond the limit of 2 parts per million imposed by FDA.”<sup>11</sup>


Products coming from Asia or Latin America are more likely to suffer from heavy metal contamination than American or European options. Stick with reputable companies that publish the results of independent testing of their products. Don’t purchase off-brand or other unknown cookware—it may be low-cost initially, but you could end up paying a high price in the long run.

## WAFFLE-MAKERS, GRILLS AND MORE

Last winter, we decided to try to find a waffle iron made from safe materials. Lo and behold, there are now ceramic options. After almost a year of use, we are still very impressed with our ceramic waffle iron’s performance. Several companies also offer cast iron waffle makers, but I currently can’t recommend them; a number of our friends have tried them and report generally poor results.

In the summer, outdoor cooking has many advantages. My wife especially likes the fact that it results in the boys and me taking care of

even more of the cooking than normal! Unfortunately, grill grates are one of the most commonly Teflon-coated cooking surfaces. Thankfully, many mid-range grills now offer cast iron cooking grates instead, and some ceramic options are becoming available as well. Expect to pay an extra fifty to one hundred dollars—but given that a properly cared-for grill can last a decade, the small up-front difference in cost is more than worth the many benefits of a better grilling surface. (If you want your grill to last, make sure to also purchase a grill cover of some kind, and properly store your grill when not in use.)

Ultimately, consumers can take heart from the fact that so many alternatives to nonstick and other low-quality coatings and finishes are now available. 

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## SHOPPING GUIDE UPDATE

New phone number for Lucini Italia olive oil: (855) 972-0555



# Wise Traditions Podcast Interviews

## INTERVIEW WITH ZEN HONEYCUTT

HILDA LABRADA GORE: Zen Honeycutt is a speaker, writer and founder of Moms Across America, a national coalition of unstoppable moms. She created it to raise awareness of GMOs, pesticides and toxins that assail our world and the most vulnerable among us—our children. You are going to learn about the most common toxins that we are exposed to, what they do to us and how to protect ourselves against them. She will inspire you with stories of her own family's fight for health and with her call to action for a better future for all of us. Zen, please tell the story about how your son's health was compromised and how this led you down the path of concern over the toxic burden that we are putting on our children.

ZEN HONEYCUTT: Thank you so much for having me on your show. I appreciate having the opportunity to connect with other mothers, parents and citizens around the world about what is happening with our food supply. It is an urgent issue. I have three boys, ages thirteen, twelve and eight. Several years ago, I was sitting with my son at Thanksgiving along with lots of other people. He was five years old. All of a sudden, he looked very sick. And I thought, "Oh my, not now in the middle of Thanksgiving dinner." I sent him to the back room to lie down and hoped it would go away, but it didn't. In a few minutes, he was crying out to us, and my husband and I ran back to him. His body had swelled up like a raspberry. He had red bumps all over his body, face, neck and chest. We were horrified and realized that someone had put pecans in the stuffing. It didn't even occur to us to check. Thank goodness I had an EpiPen, which we administered. We had suspected a nut allergy before, when he had a mild rash, but nut allergies get worse over time. In the car on the way to the hospital, his eyes were rolling back in his head, and we thought we were going to lose him. It was horrifying. When we were at the

hospital, he was hooked up to tubes and looked at me with a desperate look as though asking me to do something. I felt so helpless—I could do nothing but pray.

Thank God, we did not lose him. After that, I felt like there was nothing I could do. For years, all we did was just avoid the food, which is what many people do. I was resigned that it could not be any different. When my son was about nine, he had a series of rashes that he developed around his mouth. We later discovered that he had a wheat allergy but at the time we didn't know what was going on. For months, his lips would swell up, and he would get a red line around his mouth. It looked like he had sucked on a vacuum cleaner. It was very painful and embarrassing-looking. He said that he wished all his allergies would go away. I thought that was never going to happen, and he would have to accept it.

I was resigned to the situation and doubtful about this improving. But what if there was a way he could get better? A friend didn't eat wheat for a year, and after a year she was able to consume a little bit of wheat occasionally and not react. I said to Ben, "What if you could get better? Would you like, in a year from now, to be able to eat a slice of pizza or have a birthday cake at someone's party?" And of course, he said, "Yes!" I asked if he would be my partner in his health. "Would you go to alternative doctors with me? Would you do whatever it takes to make that happen?" He said yes. I promised he would get better.

That was a big deal for me because I didn't know how to do this. I made that promise because I knew that I would take different actions by putting my word on the line, and I knew that my son would be in partnership with me because he trusts me. We did take different actions. We learned all about GMOs and glyphosate. He watched movies with me. We went to alternative doctors. We discovered that the allergic



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If you have  
little holes in  
your stomach  
from  
glyphosate,  
you have a lot  
of problems.

reaction he was having was from carrageenan, a seaweed food thickener. It took an iridologist, an alternative naturopathic and herbal doctor to tell us this. This allergen can be a big problem for some. People can develop stomach cancer from it. There are twelve-year-old kids who have stomach cancer from this allergen. We learned all about food. I learned about GMOs, and we went GMO-free. In four months, his allergy was dramatically reduced. He had a very faint reaction to it that only lasted two days instead of two weeks. A year or two later, after going more organic, his nut allergens dropped from a nineteen to a two.

HG: That's fantastic. I imagine there are many parents of children with allergies who are resigned to always avoiding shellfish or peanuts or whatever it is. But you are saying that there is a chance that people can turn things around?

ZH: Absolutely. I'm not saying to go out and eat the allergen. You still have to be careful. But if you heal your gut, if you restore the integrity of your gut, you can eventually tolerate lots of things you couldn't tolerate before. What we realized is that by getting the toxins out of his body and stopping the exposure to toxins, his gut restored itself. We added green drinks. The doctor at the time recommended MSM [a sulfur-containing compound often used for leaky gut] from the company MRM. That's a product that coats the lining of the stomach so that it is able to restore itself.

There are new things developed in the last few years which I would recommend more now, like Restore. We have had so many amazing testimonials about Restore that we finally gave

in and started selling it on our site as a fundraiser. I'm not talking about this in order to sell it, because that isn't what we do. We offer it as a solution. It helps the integrity of the gut lining to remain intact.

Glyphosate is the number-one herbicide in the world. It is sprayed on our food, and it doesn't wash off. We ingest it. My son was eating it. For nine years, I fed him GMOs sprayed with glyphosate. I fed him non-organic food. Glyphosate is a chemical that has been shown, in testing, to break apart the integrity of the gut lining. When that happens, little holes form in the gut lining, and food can enter into the bloodstream. And then the body responds to that food like a foreign invader because it isn't digested properly. Then you develop inflammation. The gut lining is affected, and then the gut bacteria that are normally there can't do their thing. There are good bacteria that contribute to your immune system. They keep out mercury and create serotonin and melatonin for you. They balance all kinds of things in your body aside from breaking down food.

If you have little holes in your intestine from glyphosate, you have a lot of problems. Restore goes in there and zips the gut lining back up. It is from the Earth, from fifteen-million-year-old soil. When you reintroduce glyphosate, nothing happens. It can support your gut to do what it is supposed to do because the integrity of the gut lining is restored.

HG: I've had a lot of guests on our podcast talk about the dangers of GMOs and glyphosate, which is a weed killer that negatively affects your health. But what can we say to the person who is skeptical? They've been eating glypho-

#### THE WISE TRADITIONS PODCAST CELEBRATES A MILESTONE (OR TWO)!

The Wise Traditions podcast hit the nice round number of *one million* downloads in January 2018, right around the two-year mark of the show's launch! We are thrilled that more and more listeners are checking out the podcast.

The second milestone we hit just recently is that the Wise Traditions podcast is ranked as number thirty among all podcasts in the "alternative health" category in Apple Podcasts. In fact, the Wise Traditions podcast is ranked ahead of the People's Pharmacy podcast. There are hundreds if not thousands of alternative health shows. Apple lists only the top two hundred and we are number thirty! Not one but two great reasons to start listening.

Join the thousands who are benefiting from the Wise Traditions podcast. You can listen to these episodes directly from our website, [westonaprice.org](http://westonaprice.org). We hope you will use these episodes to impart information to friends and loved ones. Just send them the information by cutting and pasting the link to the show from the podcast page of our website.

Do you want to listen on the go? Every episode can be accessed pretty much wherever you get your podcasts: on YouTube, Spotify, Google Play, tunein, Overcast, Stitcher, Apple Podcasts and iHeart Radio.

sate-sprayed wheat for decades, and nothing has ever happened to them.

ZH: Maybe nothing *visible* is happening to them, but I think we can all agree that pesticides kill things. When you understand that this one, in particular, doesn't wash off, I'd hope they'd consider at least reducing their exposure to it. You can't see inflammation in your stomach. You are only going to see it when you start getting a histamine type of reaction with a rash on your body, eczema, psoriasis, lupus or some other kind of autoimmune disease. Or you may see it in your children or your grandchildren. One out of two children in America now has a chronic illness. It may be autism, allergies, autoimmune issues, asthma, diabetes or obe-

sity, but I guarantee you that you have a family member affected by this. If you aren't going to do it for yourself, I'd at least encourage you to have organic food available for your loved ones because we have to start reducing the toxic burden on ourselves and our family. It is imperative.

HG: I think that the toxic burden is greater now than it was before, which may be why older people have been doing okay. Glyphosate wasn't sprayed on their food when they were young and growing. Children are more sensitive now; they have more allergies and issues than older people.

ZH: Yes. The older people weren't eating foods sprayed with toxins when they had reproductive organs forming. Their brains weren't develop-

One out of two children in America now has a chronic illness.

#### THE WISE TRADITIONS PODCAST HITS NEW HEIGHTS!

The Wise Traditions podcast launched in January 2016 and it reached the one million download mark after just two years on the air. What does this mean? It's a hit! More and more people are becoming familiar with the Wise Traditions principles of healthy living in food, farming and the healing arts. And this means more and more people are turning their health around!

The Wise Traditions podcast by the numbers

- Over 150 episodes
- Over 1.6 million downloads to date
- Over 100 guests, including Professor Tim Noakes, Amy Berger, Nina Teicholz, Kiran Krishnan, Dr. Zach Bush, Tom Cowan, Zoe Harcombe, and more
- Over 50,000 listens per month
- Consistently ranked in the top 50 of alternative health podcasts on iTunes

Recent episodes include:

- #151 Is raw milk safe? – Mark McAfee of Organic Pastures Dairy
- #142 How to have the healthiest babies – Sally Fallon Morell, head of WAPF
- #155 The “Isaac Newton of Nutrition” – Chris Masterjohn on Dr. Weston A. Price
- #149 The Vaccine Tradeoff – Tom Cowan

Listeners say:

Unparalleled! “I thoroughly enjoy this podcast. Every episode is unique and interesting. I love the 30-minute format which helps to keep presentations concise. This is a great complement to the journal that I receive through my WAPF membership. Thank you for all that you do!” ~HellomynamaisIngoMontoya on iTunes

Uplifting and informative! “Wise Traditions brightens my commute to school. Hilda addresses sensitive and important topics in such a positive and encouraging way. I have shared episodes with family and friends numerous times and I always look forward to new content. I especially appreciated the episode in Spanish, and I hope to hear more of them! Thanks for all you're doing to help listeners reach into the past to improve our present and future.” ~ShellyQuin on iTunes

What are you waiting for? Check out the show! You can listen directly from our website's podcast page, on YouTube, or through your favorite podcast app. It also only takes a click or two to share. You can copy and paste links on Facebook, send them through emails, or share podcast quotes from the Weston A. Price Instagram or Twitter accounts.

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ing, their hearts, livers and kidneys weren't forming with that kind of toxic exposure. Children now are being exposed to a serious amount of toxins that adults were not exposed to as children. There is no doubt about that. There are all kinds of new toxins, like atrazine or chlorpyrifos—which just got taken off the list of being banned—glyphosate, dicamba and 2,4-D, half of which is Agent Orange. These chemicals are being sprayed on our food every day by the millions of pounds, and we ingest them. That is a fact. There are going to be repercussions. What we see in the animal studies is endocrine disruption, which can harm the development of a fetus. That means sex hormone changes. You have to wonder what it is doing to our children. These chemicals are found in our water and in our food. Glyphosate is a known carcinogen now. It is recognized as such by the California Environmental Protection Agency (CalEPA) and the International Agency for Research on Cancer (IARC), which is part of the World Health Organization. It is neurotoxic. There are all kinds of health issues to be concerned about.

HG: Absolutely. Tell us more about that. I think you said there is some proposition in California?

ZH: Yes. This is very important for the rest of the world, not just California. California tends to lead the way in a lot of different environ-

mental issues. Proposition 65 is a law that was passed in 1986 requiring California to publish a list of chemicals shown to be carcinogenic or to cause birth defects or other reproductive harm.<sup>1</sup> Glyphosate is going to be placed on that list. They also have to provide a “safe harbor” level—a certain amount that someone could consume safely or a certain amount you can be exposed to in a product. For glyphosate, we want the list to state that “zero” would be the acceptable level in food. Glyphosate bioaccumulates, and we have scientific studies that show that 0.1 parts per *trillion* can stimulate the growth of breast cancer cells and 0.1 parts per *billion* destroy gut bacteria. As soon as you consume any small amount—even smaller than that—it is going to start bioaccumulating in your bone marrow and in your blood. That will then collect in breast milk, urine and throughout the body. We can't have that. There should be *zero* glyphosate in our food, water, air and soil.



**ANNOUNCING THE RELEASE OF**  
**Sally Fallon Morell's First-Ever Cooking Video**  
**MASTER COOKING CLASS OF WISE TRADITIONS COOKING**

<b>\$25 for DVD or USB</b>	<b>Roast Chicken with Arrowroot-Thickened Sauce</b> <b>Steamed Green Beans with Butter-Onion Garnish</b> <b>Brown Rice</b>
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<b>Radicchio Orange Salad with Balsamic Dressing</b>	<b>Coconut Custard Pie</b>
<b>Cranberry Pear Pie</b>	



HG: I've heard that glyphosate even makes it to some organic foods, is that right?

ZH: Yes, unfortunately, organic food is being contaminated. There are a few reasons for that. The main reason, I suspect, is from fraudulent organic labeling. There has been evidence to show that food coming from Turkey has been fraudulently labeled organic. We import a huge amount of organic food. I don't have exact figures, but there are millions and millions of bushels of imported soy. The majority of the soy in the U.S. is GMO, and we export it. However, 80 percent of the soy that is used in organic food is imported. Does that make any sense at all? No. And it is the same thing with corn. The majority of the corn we grow is exported. We are providing other countries with these grains to feed their animals. But we in America who want organic food have to get that food imported. The safety standards of those imported foods are questionable.

The other reason organic food may be getting contaminated is that glyphosate has been found in rain, in irrigation water, in soil and in manure. It is not easy for an organic farmer to avoid it. We have a huge problem. The solution is simply to have farmers stop using glyphosate-based herbicides and all toxic chemicals and have the EPA eventually ban glyphosate. I know that it is a very tall order but that doesn't mean you can't demand it. We must demand it. It is the only thing to do.

HG: I was thinking that not only politicians but Monsanto and other groups like them have a lot of money in the game. They aren't going to just bow to our demands or interests. I'm glad that your group, Moms Across America, is stepping up to get parents aware of this toxic overload and what to do about it.

Please tell us about Azure Farms in Oregon, an organic food provider that was being pressured to use herbicides to eliminate weeds on their farm. Pesticides would have compromised the integrity of their organic farm. Did you say that some farmer is not allowed to grow his organic food and is being forced to use glyphosate? Tell us about that story.

ZH: A story broke about Azure Farms, one of the largest organic food producers in the country. They received a notification that they must eradicate or completely eliminate certain weeds on their farm. My understanding is that other farmers in the area were concerned that because an organic farm allows for some weeds to grow, they might somehow spread and affect their farms. Most organic farmers don't completely eliminate a weed. That is extremely difficult to do. They simply manage weeds, and there are many ways to do that with permaculture, mulch or cover cropping. If the weeds aren't invading their crops, why would they use toxic measures to spray? They obviously don't want to do that if they have an organic farm. You cannot eradicate all weeds. The case went to court, and luckily the county decided to work with Azure on a weed management plan that does not include toxic chemicals.

HG: It seems outrageous that they tried to force them to use toxic chemicals, and I am so relieved that they did not succeed in that!

ZH: Yes, it was completely outrageous. I believe their intent is to destroy the integrity of organic farming. They know that organic product purchases are growing at anywhere from 13 percent to 30 percent per year. They know that we are winning, frankly. When Cargill, one of the biggest agriculture conglomerates and food manufacturers on the planet, starts to certify some of their food as non-GMO and to listen to consumers, the GMO proponents get nervous. They don't like what is happening, and they are trying to fight back. One of the ways to fight back is to destroy what your opponents need in order to keep going, which is organic food. If they are able to contaminate our organic food, it won't be good for us. We absolutely have to protect all organic farmers—and all farmers. We don't want conventional farmers spraying toxic chemicals and giving themselves cancer, depression or birth defects in their children. We don't want any farmer spraying these toxic chemicals. We need this to stop.

HG: You are trying to ease the toxic burden on everyone. I see what you are saying—the companies that produce conventional food are on the run because they are losing market share. They either need to change what they do by going organic and non-GMO, or they need to try to stop their competitors.

ZH: Yes, that's the tactic. If you are interested in being part of this cause, I recommend you read Sun Tzu's *The Art of War* because the tactics that are being used are absolutely straight out of that book. We need to be aware of what the proponents of GMOs are doing. They are out to divide and conquer us and destroy the integrity of the leaders who are leading our cause. They are out to turn everything around and use our talking points against us. They are brilliant strategists, but they are on the wrong side of history. This chemical era is going to end, and their business plan has to change. It just isn't viable.

HG: With determined people like you, I'm certain it will. What about the person who says GMOs are actually an answer? "They help us get

greater crop yields so we can feed the world and eliminate starvation.” Don't you want to do that, Zen?


ZH: I'd love to answer that question. The first thing I would do would be to direct them to a video we posted on Mothers Across the World and Moms Across America, about Alice from Uganda.<sup>2</sup> She's a woman I met in Australia while I was on a speaking tour. She is from Uganda, and her family is in Uganda. Her father died on his farm when he was growing GMO crops sprayed with glyphosate, with Roundup. Her sister and her mom have diabetes. She had nine miscarriages before she figured out she had to avoid the toxins in her food. Now she has three healthy children. She had her first healthy child when she was forty. In the video, she dispels every argument that Monsanto has. She talks about how the soil was depleted once they started growing these crops, which had to be sprayed with Roundup. For the first year, you may have a greater yield because you are getting rid of all of the weeds, and there isn't a resistance that is being built up, and the soil is still what it used to be. But after one, two or three years of spraying the chemical on the soil—which essentially kills off the microbes and the good fungi in the soil, which is what holds in all the good bacteria, nutrients and more—the soil becomes depleted, and nothing else will grow. She explains that they used to grow cowpeas and legumes and all kinds of crops. Now, the only thing that grows in the soil is GMO corn. The village is essentially beginning to starve because they are running out of biodiverse foods. They are getting diabetes. They are dying. Their soil is depleted. They are getting sick with depression and tumors. It is a nightmare.

Anyone who says that greater yields are the main reason we need GMOs should investigate. It sounds like a good idea, but is it actually happening? Over a twelve-year period, are you actually seeing a greater yield every year? And what is the cost? What is happening to the farmer who is spraying the chemicals? What's happening to the soil? To the water downstream? Look at what is happening in America today, with one out of two males and one out of three females expected to get cancer. You have to look at the fact that we are spraying a carcinogen on our food, and we are eating it every day. There has to be a connection to that rise in cancer and eating carcinogens. That's just simply not a risk I'm willing to take, so I avoid it as much as possible by buying organic.

HG: Absolutely. It is funny that we started this conversation discussing a simple nut allergy that your son has. We are ending with a powerful discussion about glyphosate and GMOs, but it is all related, isn't it, Zen?

ZH: Yes, absolutely, and I appreciate you bringing that all together—allergies, autoimmune and autism symptoms, which my other son had at eight years old. The issue is that the chemical companies have done excellent marketing and have convinced our senators, city officials and farmers that they should be spraying it everywhere—on our streets, sidewalks, playgrounds, food and animal feed crops. It is essential that we shift this thinking to regenerative, organic agriculture, permaculture and safe and healthy ways of growing food and taking care of the planet.

HG: If readers would only do one thing to improve their health, what would you recommend they do?

ZH: Absolutely eat organic as much as possible. Right now, I would start with oatmeal and wheat because those are the two most highly sprayed with glyphosate. They spray them with glyphosate as a drying agent. I would also like you to avoid GMOs, which are corn, soy and sugar. Those are the highest numbers. Cottonseed oil, canola oil and dairy can harbor a lot of toxic chemicals because of the fat. If you can go with organic milk and cheeses, just take one step at a time and do anything that you can to go organic. Put reverse osmosis on your water filter, if you can afford it, or just get really good water filters. Also, forgive yourself for what has happened in the past. There is no way we could have known, and we are doing the best we can. Every day we are making a choice to protect our children and take care of ourselves. 

*Zen Honeycutt is the founding executive director of Moms Across America, a non-profit coalition that empowers and amplifies the voice of moms locally and nationally to create healthy communities by raising awareness about GMOs and related pesticides in our food. Zen has been featured on major mainstream news stations and in documentaries, is an international speaker and is the author of Unstoppable: Transforming Sickness and Struggle into Triumph, Empowerment and a Celebration of Community.*

*Thanks to Amy Mattias for transcribing our podcasts.*

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# All Thumbs Book Reviews

## ***GMO Myths and Truths* (3rd edition)**

**By Claire Robinson, Michael Antoniou  
and John Fagan**  
**Earth Open Source**

Over the past few decades, industrial agriculture has taken a number of big hits, but the techno-ag approach continues to chug along. It is not just continuing down the same broken path of dependence on petro-energy, agricultural chemicals and genetically modified (GM) technology, but doubling down, even as larger and larger segments of the public begin to question the safety and necessity of growing food via constant war with nature. The remaining bastions of support—government, universities and the like—continue to toe the party line, largely because of the hundreds of billions of dollars at stake, along with the positions of prestige and power that they occupy and share.

In *GMO Myths and Truths* (now in its third edition), the authors hope to equip average citizens with sufficient understanding and information to take a persuasive stand against genetically modified organisms (GMOs) and the lies that continue to prop them up in the public square. And lies they are—over the past few decades, numerous investigative reporters have shown that biotech and industrial ag companies engage in all sorts of nefarious and duplicitous behavior, from courting and buying off bloggers and other writers, to openly influencing and controlling major government agencies and institutions, to buying science and scientists and spending millions to discredit anyone daring enough to speak out against them.

The lies are multifaceted and manyfold: “GMOs reduce pesticide use”; “GMOs increase yields and are necessary to feed the world”; “GMOs are safe and studies affirm their safety”; “GMOs are no different than many other approaches to plant breeding”; and so on. As the *Portland Gazette* stated back in 1820, “For falsehood will fly from Maine to Georgia while truth is pulling her boots on.” Fortunately, Robinson

and coauthors work through these myths—section by section and chapter by chapter—providing a wealth of primary sources, along with excellent research and analysis of the various pro-GMO claims. Using research from the U.S. Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA) and even the industry’s own slanted and biased work, they show that reality is far different from the fairy tales told about GM technology. The book is heavily footnoted—some chapters have almost two hundred citations—so that anyone wanting to see whether the authors are playing fair with their claims and the supporting research can easily find their sources.

One of the most fascinating sections of the book discusses the impact of GM technologies on plant safety and allergenicity. Although many may think that GM tech is a tightly controlled, targeted process, the reality is that “the genetic changes introduced into various crops are neither predictable *nor easily tracked*.” (Or, as the *Jurassic Park* movies put it, “Life finds a way.”) Unfortunately, this means that the impact of these changes on the safety of GM crops is hard to study and understand. So instead of actual safety studies and assays, we get rubber stamps and regulatory negligence, which allow novel and unknown proteins and other substances into the food supply. Only after the clearest and most egregious examples of damage has biotech stepped back—as when animals have suffered clear and massive harm that can’t be easily ignored or explained away. In general, however, most of these incidents never make it to the public’s eyes and ears.

GM technology is primarily a way to create plants that can tolerate pesticides—especially glyphosate (with more and worse already in use or on the way)—but glyphosate and other pesticides persist far longer than manufacturers claim. As the authors explain, studies show that glyphosate “is taken up readily by all tissues of the body. Second, 99 percent of the glyphosate that is taken up is excreted within seven days,



Instead of actual safety studies and assays, we get rubber stamps and regulatory negligence.

# All Thumbs Book Reviews

Most places where GM research takes place are pro-GM bastions.

with the remaining 1 percent being mostly concentrated in the bones.” You can see why choosing good quality bones for making broth and stock is of the utmost importance!

The industry makes it very, very difficult for researchers to study GM crops. The authors note that “researchers are often denied access to [GM] seeds,” and “even if permission to carry out research is given, GM companies typically retain the right to block publication.” They also quote an editorial in *Scientific American* that reported, “Only studies that the seed companies have approved ever see the light of a peer-reviewed journal. In a number of cases, experiments that had the implicit go-ahead from the seed company were later blocked from publication because the results were not flattering.”

*GMO Myths and Truths* reveals the close ties and funding that drive so much of the pro-GM research and publicity and undermine independent studies and research that question GM safety and success. At the same time, the book

points out that most places where GM research takes place are pro-GM bastions: research colleges and universities that receive industry and government funding. Imagine Coca-Cola and other soft drink and junk food companies funding dieticians (okay, they already do...) and imagine how that may skew their research conclusions and recommendations. So it is with biotech—the vast majority of researchers depend on industry or government money (and other incentives) for their livelihoods and career advancement.

*GMO Myths and Truths* is a large and comprehensive book. You will find information on the latest GM technologies—CRISPR and similar gene editing tools. Whether you want an overview or just want to better understand a particular issue or topic related to GMOs, this book will serve you well. I wish I had had a copy many years ago, before my GMO debate! Two thumbs up.

Review by John Moody

## BOOK REVIEWS IN **Wise Traditions**

The Weston A. Price Foundation receives two or three books *per week*, all of course seeking a Thumbs Up review. What are the criteria we use for choosing a book to review, and for giving a Thumbs Up?

- First and foremost, we are looking for books that add to the WAPF message. Dietary advice should incorporate the WAPF guidelines while adding new insights, new discoveries and/or new therapies.
- We are especially interested in books on the fat-soluble vitamins, traditional food preparation methods and healing protocols based on the WAPF dietary principles.
- We look for consistency. If you talk about toxins in vaccines in one part of your book but say you are not against vaccines in another part of your book, or praise fat in your text but include recipes featuring lean meat, we are unlikely to review it.
- We do not like to give Thumbs Down reviews. If we do not agree with the major tenets expounded in a book sent to us, we will just not review it. However, we feel that we have an obligation to point out the problems in influential or bestselling books that peddle misinformation, and for these we will give a negative review. We also will give a negative review to any book that misrepresents the findings of Weston A. Price.
- If you want us to review your book, please do not send it as an email attachment. Have the courtesy to send us a hard copy book or a printout of your ebook or manuscript in a coil binding.



# All Thumbs Book Reviews

***Fighting the Migraine Epidemic—  
Complete Guide: How to Treat &  
Prevent Migraines Without Medications***  
**By Angela A. Stanton, PhD**  
**CreateSpace Independent Publishing  
Platform**

Very few people could read this book and not learn amazing things and valuable information about migraines. The author herself has a lot of firsthand experience with migraines and has developed a protocol that works consistently for her and thousands of others. As always, it is critical to understand what the real problem is.

One thing to understand is that those prone to migraines have brains that are structurally different than those of everyone else. Migraines are not due to mental illness or psychological problems. They are not all in your head. Stanton does not see migraines as an illness so much as a different kind of brain that requires different support. In fact, those prone to migraines have special abilities that are quite surprising. These include the ability to hear a whisper in a distant room; distinguish by smell the difference between bacterial and viral infections; smell type 2 diabetes; taste chemicals in broccoli, spinach, and other foods that could be toxic in larger amounts; have highly sensitive peripheral vision; and so on.

Another fundamental thing to know is the role of voltage in the brain. When voltage gets too low, bad things start to happen. The migraine-prone brain uses more voltage than other brains. This can lead to weird problems like zapping computer keyboards, cell phones, digital watches or your pet cat. So what causes voltage to get too low?

One of the main things is a high-carb diet. Carbohydrates interfere with electrolyte levels that are critical to proper voltage control. How does one fix this? There is no drug, herb or

pill that addresses the core problem. Balanced electrolytes are essential. One of the first recommendations is chicken soup. Chicken broth is the perfect electrolyte. Salt is very important. Migraine sufferers need much more salt than other people because of the higher voltage requirements of their brains. Contrary to popular opinion, Stanton warns that Himalayan salt is not a good option. It contains lead and mercury and maybe other things you don't want.

Stanton also points out that calcium and other minerals are an important factor in electrolytes, and calcium is fat-soluble. That means that calcium alone won't do you any good. It needs to come with fat. She recommends cheese or whole milk (that's *whole* milk, not white water lowfat milk), and she even recommends adding extra cream. Because carbohydrates are a major problem, she recommends a high-fat diet in general—milk, cheese, meat, eggs and so on. It is all very consistent with a Wise Traditions diet. She emphasizes that salt and cholesterol are your friends, not poisons to be feared.

Stanton also has interesting things to say about some of the popular diet fads. She has not been able to find any two people who agree on what exactly a paleo diet is, so that is of no use. Vegan and vegetarian diets are too low in certain essential nutrients, and she has no help to offer anyone who must adhere to those diets. Low FODMAP diets are also no good. Between the nutritional advice and the exceptional insight into the true nature of migraines, this book is an easy thumbs UP.

Review by Tim Boyd



Those prone to migraines have brains that are structurally different than everyone else.

# All Thumbs Book Reviews



Homeo-  
prophlaxis  
is an  
alternative  
way of  
educating  
the immune  
system to  
deal with  
pathogens.

## ***The Solution—Homeoprophylaxis: The Vaccine Alternative***

**By Kate Birch, RSHom(NA), CCH, CMT and  
Cilla Whatcott HD (RHom), CCH  
CreateSpace Independent Publishing  
Platform**

Vaccines are a very volatile topic these days. While there has been debate on vaccines for over a hundred years, it seems hotter now than ever. One side believes the survival of the human race depends on vaccines. The other side recalls that somehow the human race survived throughout most of its history without vaccines. The World Health Organization (WHO) says infectious disease is most directly related to nutrition, water purity and poverty. Not vaccination. Both sides believe the opposing side is trying to kill us all. Many on both sides think there are only two options—vaccination or nothing.

*The Solution* describes another option called homeoprophylaxis. That is a little hard to spell and say, so it is often replaced by the acronym HP. As you may gather from the name, HP is based on homeopathic principles. HP is an alternative way of educating the immune system to deal with pathogens. It is much safer than vaccines, with fewer or no side effects.

There are two common arguments I hear

against homeopathy. One is that there is no science behind homeopathy. This book exposes that lie with studies and evidence from around the world. The other argument is that homeopathy uses pathogens diluted until none of the pathogen is left. Because nothing is left, the doubters say, it can't possibly work. While it is true that none of the pathogen is left, that completely misses the point. Homeopathy is not about chemistry or physical elements; it is about energy. The final homeopathic solution works on an energetic frequency level, not a chemical level.

What do vaccines do? If they do anything, they trigger the creation of antibodies. Unfortunately, antibodies do not guarantee immunity. Very young children do not make antibodies, so jamming them full of vaccines before they are a year old is at best useless and at worst deadly. As for the science of vaccines, there have been no double-blind studies proving efficacy. Pharmaceutical companies have done double-blind safety studies only with single vaccines without adjuvants, preservatives and so forth. Multiple vaccines, complete with adjuvants and preservatives, have not been tested for safety, yet we are told that is the scientifically responsible option. This book disagrees and my irresponsible thumb is UP for this book.

Review by Tim Boyd

## **THE COLLAGEN DIET by Pamela Schoenfeld, MS, RD, LDN**

WAPF board member and registered dietitian Pam Schoenfeld has many clients who are new to the subject of nutrition, and often she needs to proceed slowly. Schoenfeld's book, *The Collagen Diet*, provides the perfect introduction to the benefits of dietary collagen, starting with gelatinous bone broth but also using collagen supplements, for a myriad of conditions including digestive problems, arthritis and stiff joints, weight loss and blood sugar control. Most interesting are studies she describes using collagen for reduction of wrinkles and age spots—something sure to get a lot of her female clients on board with a collagen-rich diet.

Unlike most books of this type, Schoenfeld stresses the “supporting cast” for collagen protein, including vitamin D, vitamin C, iron, copper and silicon, ideally obtained from food. Most interesting is her discussion of vitamin A and zinc, which are required by the cells that synthesize collagen precursors. Vitamin A is key to healing, and without vitamin A, even superficial wounds can take a long time to heal; the skin becomes “keratinized” with small hard lumps, and glands producing sweat and moisturizing oils shrink. Zinc supports vitamin A in its healing functions. Yet another enticement for getting those new to the idea of nutrition on board for health and attractiveness.

A big Thumbs Up for *The Collagen Diet*.

Review by Sally Fallon Morell

# All Thumbs Book Reviews

## *The Frugal Homesteader*

By John Moody

New Society Publishers

More and more Americans are becoming dissatisfied with the routine of working a meaningless job just to collect a paycheck and watch TV, play video games or try to fool everyone on Facebook into thinking you have an interesting life.

Homesteading is certainly a different kind of life that has an appeal to many people. If you are thinking about making a change to that kind of life, this is a good book to put at the top of your reading list. Should everyone drop everything and start homesteading?

No. Don't get me wrong. It would be a great move for some people, just not everybody. It is hard work and requires a somewhat broader skill set than zapping space aliens from the comfort of your living room. Not all twenty-first-century Americans are up to the challenge.

This book covers all the basics to help you understand what you are getting into and make an informed decision. What kind of land or property should you look for? What tools do you need? What should you grow? What animals do you want? Do you want to collect rainwater or drill a well or neither? How do you do that? Do you want a greenhouse? What are your options there?

Do you want to be completely self-sufficient? This book will explain why that is impossible on this planet and why you don't want to do it, even if it is possible. Moody explains the value of a solid, close-knit community.

You don't need to jump into the deep end of homesteading all at once either. You can start small. Try a small garden first and see how that goes. If that works out well, take another step. Expand the garden, collect rainwater or generate your own energy—whatever you think is most interesting and that you can handle.

If you can't afford everything you need, what is the best way to deal with that? Many might say work harder and make more money. There is another answer I like even better. Find ways to live well with less money. This is one of the ways *The Frugal Homesteader* excels.

Not only is this book a great resource, full of information from an experienced homesteader about the nuts and bolts of homesteading, but it is a rich compendium of ideas on how to acquire what you need at bargain prices. You don't need to buy everything at full retail at the store. You don't need every tool that has been invented.

Even if you are not interested in homesteading, this resource is full of wisdom on how to make the most of what your creator has given you. The thumb is UP.

Review by Tim Boyd



You don't need to jump into the deep end of homesteading all at once. You can start small.

## DOSA KITCHEN by Nash Patel and Leda Scheintaub

A lot of cookbooks come across my desk for review, most of them very good, but not many make me want to jump up and down and shout for joy. *Dosa Kitchen* is such a book, providing something really new to the culinary scene. Authors Patel and Scheintaub are owners of Dosa Kitchen, a little blue food truck in Brattleboro, Vermont. There they offer the tangy gluten-free dosa pancake, made of fermented lentils and rice, along with many original fillings—sort of like spicy Indian tacos.

*Dosa Kitchen* begins by describing all the spices and other ingredients used in the making of these flavorful delicacies, including healthy fats like ghee and coconut oil. The authors carefully describe how to make the dosa pancake (including how to make it crispy) and then launch into some of the most original recipes I have seen in a long time, including ginger chile beef fry dosa, pork vindaloo dosa, pulled pork with tamarind barbecue chutney dosa wrap, coconut and tomato shrimp fry dosa, cream cheese, lox and caper dosa, cheese dosa pancake, and pineapple upside down dosas, many with beautiful photos. Delicious beverages and chutneys are a bonus. Time to get into the kitchen and try these wonderful recipes! Thumbs Up.

Review by Sally Fallon Morell

# All Thumbs Book Reviews



## ***How Not to Die: Discover the Foods Scientifically Proven to Prevent and Reverse Disease***

**By Michael Greger, MD, FACLM  
FlatIron Books**

This *New York Times* bestseller follows a popular formula for persuasion. First, you need a title that gets people's attention. Next, it helps to have an author with a good chunk of the alphabet after his name. Letters like MD and PhD are especially good. That means you are looking at the name of an expert, and experts are never wrong. Finally, you need lots of references. This book has all that covered—seven letters after the author's name and over a hundred pages of references. This formula doesn't guarantee success, but it can work and obviously did this time.

Greger presents us with chapter after chapter of advice on how not to die from all the chronic ailments that plague modern civilization. Each chapter is riddled with references, yet in the first chapter (which tells us how not to die from heart disease), Greger makes the claim that statin drug benefits outweigh the risks for those with high risk—without any references.

The key point in each chapter is that a plant-based diet is the secret to survival. I would never argue with an expert who has so many studies backing him up, would I? Well, I've developed this nasty habit of noncompliance with the popular mentality, so yes I would. How could I do that? Who do I think I am?

I don't have to be anybody but someone who pays attention. I have seen many experts claim many different, incompatible things. They can't all be right, some of them must be wrong. Being an expert carries no guarantee of correctness. Having lots of references doesn't guarantee anything either.


One big name the author refers to more than once is Pritikin, who came up with a diet to prevent or even cure heart disease. That sounds great, but what Greger neglects to mention is

that this diet did not help Pritikin himself with leukemia. You have to look at the whole picture, not just the convenient part of it.

Many of the studies referred to take place in a lab, in a test tube or petri dish. While some interesting information might come of such a study, a test tube or dish is not a good simulator of the human body. When isolated proteins or other nutrients are exposed to isolated human or animal tissue, I don't care what happens. Nothing has been proven about what is good nutrition and what is not. Studies on actual human beings, not test tubes, are better, but even a study lasting several years is short term. And studies comparing McDonald's high-fat meals to McDonald's lowfat meals should be dropped in the trash where they belong.

Studies done on factory food may do a very good job of proving factory food is not good for you, but that is not really news and proves nothing about properly produced organic food. There is at least one reference to information from the American Dietetic Association, which is funded by industry, including the likes of Coca-Cola. Studies funded by the factory food industry are not science, they are marketing.

In an apparent attempt to scare us all away from chicken, we are told that the number one food source of arsenic for preschool children is chicken. That may be true as far as it goes, but it leaves out an important detail. Why is chicken so high in arsenic? Because at least until recently, the industry deliberately added arsenic to chicken feed as a preservative.

Any studies—whether lab studies or short-term studies—done outside of the context of what has worked to keep different cultures around the world healthy for generations (like the research done by Weston A. Price) add up to one big nothing-burger. Thumbs DOWN. 

Review by Tim Boyd

Studies done on factory food may do a very good job of proving factory food is not good for you, but that is not really news and proves nothing about properly produced organic food.



# Tim's DVD Reviews

## ***Secret Ingredients***

**Directed by Amy Hart and Jeffrey Smith  
Butterflies & Bees Productions**

There are many families trying to do everything right—they “eat healthy,” exercise and stay away from smoking or excessive alcohol—but they are still not healthy. Kathleen's family is one example we see in this movie. Every family member had serious chronic conditions ranging from tumors to autism to chronic paralyzing pain. Their doctors couldn't tell them why this was happening, but Kathleen noticed when she looked around the waiting room that it was happening to a lot of people.

So Kathleen and her family had to figure out what was going on for themselves. And they did. Now, they are all healthy and have had no chronic issues for a couple of years. How did they do it? Is there some new wonder drug we all need to know about? A new herb or other supplement? A new alternative medical procedure? Did they do a juice fast? No, no, no and no. It's not so much what they did do as what they did not do. They stopped eating dangerous, highly toxic substances that are commonly sold as food. More specifically, they stopped consuming genetically modified (GMO) foods.

Unfortunately for many other Americans, the dangers of Frankenfoods are still below the radar. Many who have heard of GMO foods believe the industry's claims that they are safe or “substantially equivalent” to natural foods. The film tells us about Michael Taylor, who created the policy of “substantial equivalence,” which has helped GMO manufacturers dodge much of the safety testing that would otherwise be required. Taylor has been through the revolving door between high levels of the Food and Drug Administration (FDA) and Monsanto a few times. High-level people from GMO producers like Monsanto would never lie to us, would they?

This movie follows a common-sense path to make the following point: About 80 percent

of GMO crops are Roundup-Ready. This means that most Frankenfoods are sprayed with Monsanto's most popular herbicide to kill weeds. Even wheat—not (yet) a GMO crop—is often sprayed with Roundup. The active ingredient in Roundup is glyphosate, which the World Health Organization has classified as a probable carcinogen. The Roundup-Ready plants have been engineered to survive this poison, but have we? Have the bacteria in our gut that are critical to good health and digestion been engineered to survive this poison?

In the film, we get some great information from Anthony Samsel, who obtained the “Monsanto secret documents” from the EPA that show the adverse health effects of glyphosate; Jeffrey Smith, anti-GMO consumer advocate, author of *Seeds of Deception* and past speaker at Wise Traditions conferences; Dr. David Perlmutter, *New York Times* best-selling author of *Grain Brain*; Dr. Michelle Perro, renowned pediatrician and author of *What's Making Our Children Sick?*; and Dr. Marcia Schaefer, who successfully works with couples who previously couldn't get pregnant or carry to term.

An important point is that this information is not just hysteria from some tinfoil hat on the web or a movie with an agenda. Monsanto knows this information. Monsanto has studied the health effects of glyphosate—and its studies showed that glyphosate is potentially deadly—but it has been trying to cover up this information ever since those studies were done. This has been confirmed in a recent court case that Monsanto lost. The thumb is UP for this movie.

## ***Pet Fooled***

**Directed by Kohl Harrington  
Myla Films**

You may have noticed that dogs and cats are suffering from many of the same health issues as their human owners. Diseases like diabetes, obesity, arthritis and cancer are now common.

Monsanto has studied the health effects of glyphosate, but it has been trying to cover up this information ever since those studies were done.

## Tim's DVD Reviews

If you are as old as I am, you remember when that wasn't true. Veterinarians Karen Shaw Becker and Barbara Royal, among others, point the finger at diet. In other words, we are doing to our pets the same thing we do to ourselves.

The pet food industry is dominated by five corporations, including the likes of Mars and Nestle (trusted names in good nutrition everywhere). A quick look at the main ingredients of any major pet food brand shows us that they are all playing the same game. Wheat, soy, corn and even corn syrup are prominent ingredients, followed by a long list of chemicals I can't spell or pronounce. The industry tries to confuse the issue by claiming that dogs are omnivores. Becker and Royal are emphatically clear that your dogs and cats are carnivores and feeding them grain and vegetable products is slowly killing them.

The industry uses these ingredients because they are cheap. The chemicals make for a shelf life of up to twenty-five years. Even organic pet foods use inappropriate ingredients for dogs and cats. As scrutiny has intensified, pet food companies have become reluctant to talk about ingredients in detail. The irony reached hilarious levels when Purina sued Blue Buffalo for lack of transparency over ingredients. The pot-kettle-black factor was off the scale.

Becker and Royal recommend a raw meat diet as much as possible for dogs and cats. In response to the claims that raw food is dangerous, they point out that the pH of a cat's stomach acid is around one, which is very acid. Bacteria don't survive that. They also say that though there is very little research on what is optimal for dogs and cats, there is no doubt that kibble is not ideal. There is also no doubt my thumb is UP.

### *Quest for Real Immunity*

Cilla Whatcott

Available on Vimeo

When discussing or dealing with health issues, one of the most common reactions is fear.

We declared war on cancer in the early 1970s, but clearly, we haven't beaten it, and we still fear it. We also fear more benign diseases that used to be shrugged off as a normal part of growing up. Many believe we must have vaccines for childhood diseases like chickenpox, measles and mumps. There are new diseases that didn't exist fifty years ago, and they bring more fear.

As a people, we are under the thumb of the health care industry more intensively than ever before. Television, magazines and the Internet bombard us with health advice. Spending on health care is skyrocketing. Government is bankrupting the country trying to provide health care to everyone. We are cranking out new vaccines at an increasingly frantic pace. Yet even after all of the health care "advances" of the last hundred years, we face just as many or more health challenges, and we are not healthy. Why not?

"The science is settled" is the common mantra of a closed mind. We are assured in all these different ways that scientific (allopathic) medicine has the answer—or will soon. But does health or immunity come from a needle, knife or pill? The evidence overwhelmingly suggests that the answer is "no," and people are starting to notice.

In *Quest for Real Immunity*, a number of thoughtful experts—including Cilla Whatcott, Andrew Wakefield, Dr. Tom Cowan and Jeanne Ohm—explain that the popular (allopathic) paradigm has failed miserably. There are better ideas. We are not made up of just a wide variety of human cells but also of microbes, viruses, fungi and parasites that are necessary for health. Attacking, cutting, poisoning or killing any part of the overall organism is reckless at best and often deadly.

This film explains—in one simple sentence—why there is so much fear. Where there is no understanding, there is fear. People fear germs because they do not understand them. People fear cancer because even most experts

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# Tim's DVD Reviews

don't understand it or know how to deal with it. People fear chickenpox because they do not understand the relationship between childhood illness and adult immunity. Interestingly, when I was young in the 1960s, we did not fear chickenpox, measles or mumps. Maybe we understood them better? Maybe we are getting dumber? My thumb is UP. Don't be afraid.

## ***InPower Episode #1:***

### ***A Mass Action of Liability***

#### **InPower Movement**

**<https://www.youtube.com/watch?v=NtYFCjUTSo>**

Most people who still have some cognitive function understand that microwave radiation exposure is not good if you are hoping for a bright, healthy future. However, the powers-that-be have decided that we need to have a microwave emitter (also called a “smart meter”) on every house and building in the world. There are a number of strategies floating around out there about how to stop power companies from putting a meter on your house. This video explains one of the more intriguing strategies.

The most important thing to understand is how the system really works. If you have tried to argue with your power company about your concerns about smart-meter-associated health issues, there is a good chance you have already found out that they really don't care. If you argue that smart meters violate your privacy, they don't care. Why not?


The video goes into some detail explaining the different levels of regulations and laws we operate under. The average person has no understanding of this. Utilities are operating under contract law. The service you receive from a utility company is subject to contractual terms to which you have agreed. The original contract included a meter to monitor electrical use to determine what your bill is each month.

Now, the power company wants to change the contract. They want to change older analog

meters (or older digital meters) to digital “smart” meters. The first thing they must do is put that change in writing to the customer, who then has a set period of time to respond. They cannot change the contract until they do that. Here is where it starts to get interesting. If the customer does not respond, the company can take that as agreement and proceed with the change. For them, it is not about property rights, privacy or health concerns. It is about a contractual agreement and, of course, money.

So if you respond with concerns about privacy or health you may stumble onto some individuals who actually care, but the company as a corporate entity absolutely does not care. If you really want to get their attention, speak their language. What this video recommends is a response like this: OK, I will allow you to put a meter on my house, but due to liability concerns, I will have to charge you ten thousand dollars per day, starting the day that meter shows up on my house.

Now you are playing their game, and they can't ignore that. They may not like it. They may try to say you can't do that (oh yes you can). They certainly won't agree to those terms, so don't get any ideas that you are going to make a lot of money. I'm no legal expert, but in most cases, I would bet they will just opt you out and hope not too many people try this. But if they try to ignore you and install the meter anyway without coming to a contractual agreement, they will legally owe you a lot of money.

One of the things I find most interesting is that this strategy could be used in a broad range of dealings with big corporations. It is my personal opinion that large corporations are one of the greatest enemies of the individual. This could level the field a bit. Thumbs UP. 

The service you receive from a utility company is subject to contractual terms to which you have agreed. Now the power company wants to change the contract.

# Vaccination Updates

## VACCINES AND AUTISM: A VERY REAL CONNECTION

By Kendall Nelson, Director, *The Greater Good*

Autism is typically defined as a “mental condition.”

A more accurate definition would describe autism as a neurological and developmental disorder that is the result of brain damage.

I began my journey into the vaccine-awareness community twelve years ago. Unlike so many of my colleagues in this fight, I am a filmmaker turned activist, not the mother of a vaccine-injured child. As such, I write this article with one caveat. Because I do not have a child with autism or any other vaccine injuries that I know of, it will not be possible for me to describe what life is like day in and day out for those who do. Instead, I can share with you only what I learned by featuring an autistic child in our film *The Greater Good*—a documentary that explored the vaccine controversy—and what I have learned about vaccines after having done thousands of hours of research on the subject. I have been fortunate to work side by side with many doctors, scientists and parents who share the same goal I do—to expose the truth about the vaccine program and to end what many are now calling the Vaccine Holocaust.

### AUTISM THEN AND NOW

Parents who follow the current Centers for Disease Control and Prevention’s (CDC’s) recommended schedule give their children seventy doses of sixteen vaccines by age eighteen (An estimated 90% of parents comply fully). Fifty-one doses (fourteen vaccines) are given by the age of six, with the first vaccine administered just hours after birth.<sup>1</sup> When I was a child, sixteen doses of four vaccines were recommended. I just turned fifty, and to the best of my knowledge, I grew up never having encountered anyone with autism. Today, the autism rate in American is an astounding one in thirty-six children between the ages of three and seventeen.<sup>2</sup> When I graduated from high school, the rate was four to five per ten thousand.<sup>3</sup>

Unbelievably, there are still those who say we do not have an epidemic of autism, including many officials responsible for public health. These individuals claim that autism has always

been with us at the same rate, putting forth three main arguments to deny an increase in autism. First, they state that diagnostic practices have improved.<sup>4</sup> Second, they argue that in the past people with autism went uncounted because they were hidden away in mental institutions.<sup>5</sup> Finally, they note the expansion of the definition of autism to include Asperger’s syndrome<sup>6</sup>—encompassing individuals with higher-than-average intellectual ability coupled with impaired social skills and restrictive, repetitive patterns of interest and activities.

To be fair, these explanations may account for a small fraction of the increase. They do not, however, explain a 30,000 percent increase since the early 1980s—during which time we have nearly quadrupled the number of vaccines given to children. It is preposterous to assume that doctors were too inept to recognize autism fifty years ago or that all parents institutionalized their autistic children. If the latter were the case, there would be millions of adults with autism, and there are not. Finally, adding Asperger’s syndrome to the list of autism spectrum disorders (ASDs) did not happen until 1994, and experts estimate that this accounts for less than 10 percent of all diagnoses.<sup>7</sup>

### A NEUROLOGICAL DISORDER

Autism is typically defined as “a mental condition, present from early childhood, characterized by difficulty in communicating and forming relationships with other people and in using language and abstract concepts.” A more accurate definition would describe autism as a neurological and developmental disorder that is the result of brain damage.

Many of the children being diagnosed with autism are severely impaired. According to the California Department of Education, more than 50 percent of children with an autism diagnosis are nonverbal, and up to 80 percent are intellec-



tually challenged.<sup>8</sup> Additionally, studies show that 28 to 50 percent of children with autism exhibit self-injurious behavior.<sup>9</sup> Many of these same children do not make eye contact, and they do not hug their parents. They walk on their toes and flap their hands. They rock back and forth, repeating movements and words (those who can speak) over and over. Many autistic children find minor changes in their environment or routine upsetting and have a high level of sensory awareness, to the point of being painfully sensitive to sounds, smells, tastes, textures, lights and colors.

A large and growing segment of the autism population also live with chronic and often debilitating illnesses. These comorbid medical conditions include (but are not limited to) gastrointestinal issues, food allergies, ear infections, obesity, eczema, epilepsy and sleep disorders.<sup>10-12</sup> Autistic children are also at high risk of drowning<sup>13</sup> and sexual abuse.<sup>14</sup>

#### NOT GENETIC AND NOT NORMAL

Hundreds of millions of dollars have been spent on autism-related genetics research, and yet not one study has identified an “autism gene.” Asserting that autism is a genetic condition is nonsense, as there is no such thing as a “genetic epidemic.” According to geneticist Dr. James Lyons-Weiler, “Studies of genetics have revealed 850 genes associated with autism, but no single gene explains more than 1 percent of ASD.”<sup>15</sup> Autism has not been with us for millennia and passed from parent to child.

Those facts have not stopped journalists like Steve Silberman, author of the 2015 *New York Times* best-selling book *NeuroTribes: The Legacy of Autism and the Future of Neurodiversity*, from steadfastly describing the autism-is-genetic theory as fact.<sup>16</sup> According to Silberman, environmental factors like vaccines do not cause autism, and autism “is not a unique product of modern civilization.” Rather, says Silberman, autism is “something that has been passed down through millions of years of evolution.” Taking Silberman at face value, he’s implying that evolution favors genes that make people dependent for life—including wearing diapers, being unable to communicate, suffering with physical issues and learning disabilities

and so forth. This theory is not scientifically based or viable.

The “neurodiversity” tribe is not only famous for portraying autism as genetic but also for romanticizing autism. The concept of neurodiversity embraces, celebrates and respects differences between and among people with autism and other functional but atypical variations in thinking and behavior.<sup>17</sup> In support of this way of thinking, Silberman writes that autism is a “naturally occurring form of cognitive difference akin to certain forms of genius.”<sup>16</sup>

However, autism is not a “gift” or a “blessing.” It is not something to be “celebrated” with blue lights or the ringing of the bell at the New York Stock Exchange, nor even by giving it its own special month. Autism is not “normal,” and those who choose to normalize the debilitating condition are perpetuating rather than helping to end this new epidemic of childhood. Instead of screaming from the rooftop that we have a national disaster on our hands, entities like Hollywood capitalize by creating television shows like *The Good Doctor*, where the main character not only functions well with autism but also has extraordinary powers to heal.

The harsh reality is that most children with autism are not geniuses. Most will never have a job, let alone a career. Most will not be able to contribute to society in any meaningful way or even contribute to their own communities. Getting married and having children is off the table for most. Many people with autism will need constant care for their entire lives, which is currently “underestimated” to cost 2.4 million dollars over a lifetime.<sup>18</sup>

Beyond the stress of individually caring for an autistic child or young adult comes a tremendous burden to society. According to Dr. Stephanie Seneff, a senior research scientist at MIT, half of all children will be autistic by the year 2025 if current trends continue.<sup>19</sup> Who will care for these children, especially once they leave school? What will happen to health care? Another pressing concern is the fact that special education needs are already financially crippling our schools, in addition to having a substantial impact on the quality of education. (See my article on “The twenty-first century classroom” for more information on this topic.<sup>20</sup>)

A large and growing segment of the autism population also lives with chronic and often debilitating illnesses.

## AUTISM AND VACCINE COURT

Denying the increase in autism hurts our children—and so does denying the most probable cause. Tens of thousands of parents report that their previously healthy children regressed into autism after vaccination, yet our government, the medical community, pharmaceutical companies and the mainstream media continue to do everything in their power to conceal the truth that vaccines can cause autism. It does not appear that their efforts are working. In 2014, a Harris poll found that one in three parents linked vaccines and autism. In fact, our government knows it, too. The U.S. Supreme Court has ruled that vaccines are “unavoidably unsafe,”<sup>21</sup> and the U.S. government has paid out approximately four billion dollars for vaccine injury claims, including millions of dollars to vaccine-injured autistic children.<sup>22</sup>

It’s important to know that parents cannot sue vaccine manufacturers for their children’s vaccine-related injuries. Instead, they must petition a specially created administrative mechanism of the U.S. government. This became the case when the National Childhood Vaccine Injury Act of 1986 established the Vaccine Adverse Events Reporting System (VAERS) and the National Vaccine Injury Compensation Program (VICP). The VICP is a federal “no-fault” system designed to compensate individuals or families of individuals who have been injured by childhood vaccines, whether administered in the private or public sectors.<sup>23</sup> Vaccines covered under the VICP include combination diphtheria-tetanus-pertussis vaccines (DTP, DTaP, DT, TT or Td); the combination measles-mumps-rubella (MMR) vaccine or any of its components; oral poliovirus (OPV) or inactivated poliovirus (IPV) vaccines; pneumococcal conjugate vaccine (PCV); and the vaccines for hepatitis B, *Haemophilus influenzae* type b (Hib), varicella (chickenpox), and rotavirus. Compensation is made possible by a seventy-five-cent excise tax levied on every dose of vaccine administered in the U.S., essentially making VICP a taxpayer-funded program.

As required by the VICP, all vaccine-injury cases must petition what has come to be known as the “vaccine court.” Though originally established under the guise of ensuring vaccine

safety and providing rapid and easy compensation to the families of those injured and killed by vaccines, the “vaccine court” has become nothing more than a device for protecting the vaccine program and those who profit from it. There is no jury, there is no discovery, and due process is nonexistent. Instead, a “special master” decides whether financial compensation will be awarded, and awards to the estate in a vaccine-related death are capped at two hundred and fifty thousand dollars. Civil litigation is not an option.

For a variety of reasons—including the fact that doctors are not trained to recognize vaccine reactions—it is estimated that less than 1 percent of all vaccine injuries are ever reported.<sup>24</sup> Among those reported, only a fraction of cases make it to vaccine court, and the VICP then turns away three out of four claimants. The court also does everything in its power to deny claims of vaccine-induced autism, despite having awarded damages to a known eighty-three families whose children experienced regressive autism after vaccination.<sup>25</sup> Sadly, everyone on the inside knows that if you want to win in vaccine court, you had better call your child’s injury something like “brain inflammation” (encephalitis). Call it autism, and you will lose.

From the vaccine manufacturers’ standpoint, the removal of liability for vaccine injury provided by the 1986 Act and VICP were a dream come true. After the manufacturers became indemnified, the number of vaccines recommended for children skyrocketed. As a result, market researchers project that the global vaccine market will be worth seventy-seven billion dollars by 2024.<sup>26</sup>

## THE SCIENCE

When you hear vaccine proponents say that “the science is settled,” you are hearing a lie. For decades, vaccine manufacturers and the U.S. government have claimed that research proves there is no correlation between vaccines and autism. What they do not disclose, however, is that only one vaccine (MMR) and one vaccine ingredient (mercury-containing thimerosal) have ever been studied in regard to autism. Investigative journalist David Kirby wrote about this in his book *Evidence of Harm*:

To begin with, it is unscientific and perilously misleading for anyone to assert that ‘vaccines and autism’ have been studied and that no link has been found. That’s because the sixteen or so studies constantly cited by critics of the hypothesis have examined just one vaccine and one vaccine ingredient. . . . It is illogical to exonerate all vaccines, all vaccine ingredients, and the total U.S. vaccine program as a whole, based solely on a handful of epidemiological studies of just one vaccine and one vaccine ingredient.<sup>27</sup>

Our government recommends vaccines, and states mandate them despite the fact that the U.S. Food and Drug Administration (FDA) does not require rigorous vaccine testing. This is evidenced by the fact that the FDA allows vaccine manufacturers to use another vaccine or a vaccine ingredient such as aluminum in lieu of a legitimate placebo control that is inert. Nor are vaccine manufacturers required to track adverse

reactions for long periods of time or study what happens when a vaccine is given in conjunction with another vaccine. Shouldn't manufacturers and regulators be concerned about potential synergistic effects?

Sadly, we cannot rely on the CDC to keep us safe either. According to senior CDC research scientist turned whistleblower Dr. William Thompson, in the early 2000s his CDC research team found a strong association between vaccines and autism; however, they changed the parameters of the study to get rid of the association so that they would not have to report it to the public, publishing the sanitized version of the data in 2004. In 2014, Dr. Thompson went public, admitting his part in manipulating the data and destroying the evidence in what can only be called scientific fraud. To date, despite incredible efforts by Congressman Bill Posey, Congress has not subpoenaed Dr. Thompson to testify, nor have legislators held hearings to investigate his claims of research fraud.<sup>28</sup>

The good news is that many unbiased scientists who are not beholden to government or vaccine manufacturers have studied the adverse effects of vaccination. Thanks to these brave souls, we have a large body of peer-reviewed, published, credible science proving that vaccines can cause many types of damage, including autism. Dr. Carlos Pardo-Villamizar (also referred to as Dr. Carlos Pardo) of Johns Hopkins University was the first to study the brains of autistic people and made an important discovery in 2004, published in 2005 with the title, "Neuroglial activation and neuroinflammation in the brain of patients with autism."<sup>29</sup> Pardo and his research team found that cytokines (small secreted proteins released by cells) are significantly increased in ASD patients. In layman's terms, the immune system in the brains of autistic people is permanently inflamed. This finding was repeated in a study titled "Elevated immune response in the brain of autistic patients" published in 2009.<sup>30</sup>

Next came findings by Dr. Paul H. Patterson at the California Institute of Technology. Dr. Patterson was the first to demonstrate that immune activation events in the brain at critical times of development can lead to autism. He is well known for his work on what he termed

"maternal immune activation" (MIA), finding that the mother's immune system could alter the growth of cells in the fetal brain and lead to an increased risk of autism in the offspring. While it had been widely accepted that when a pregnant woman becomes sick with a bacterial or viral infection that activates the immune system it can affect the neurodevelopment of the fetus, Dr. Patterson was responsible for detecting similar effects through maternal vaccination. In his 2006 paper titled "Pregnancy, immunity, schizophrenia, and autism," Dr. Patterson suggested that "universal vaccination of pregnant women could get us into a whole new set of problems."<sup>31</sup> Both Dr. Pardo's research and Dr. Patterson's findings were significant because they showed that the very purpose of vaccines—to trigger immune activation events—is the same thing that can cause autism.

### THE ALUMINUM-AUTISM CONNECTION

In 2009, Dr. Chris Shaw of the University of British Columbia was the first person to test the aluminum used in vaccines. As Dr. Shaw explained in our film, *The Greater Good*, "We did the really simple experiment of taking the same stuff out of the vaccines, the aluminum hydroxide, and injecting it into mice, into the muscles, to see what would happen if we tried to mimic the vaccine schedule."

And what were Dr. Shaw's conclusions? "We were quite surprised to see how rapidly the behavioral symptoms emerged. They showed not only behavioral deficits of motor neuron function, but they ultimately showed cognitive deficits as well. Once we sacrificed the animals and started looking inside their brains and spinal cords, we found massive damage to motor neurons."

This is significant because many of the vaccines that are recommended and mandated for children contain aluminum. These include the hepatitis A, hepatitis B, DTaP or Tdap, Hib, PCV and human papillomavirus (HPV) vaccines. Today's fully vaccinated baby will receive almost five thousand micrograms of aluminum by eighteen months of age,<sup>32</sup> whereas a fully vaccinated child in the mid-1980s would have received just over one thousand. And what does aluminum do? It provokes an immune response. Its sole purpose is to hyperstimulate the immune system, which as we have learned can trigger immune activation events in the brain.

In 2013, French scientists Drs. Romain Gherardi and Josette Cadusseau from the University Paris-Est discovered that aluminum in vaccines could be carried to the brain by macrophages (immune system cells that are formed in response to infection). They reported this finding in a 2013 study describing "slow...translocation of biopersistent particles from muscle to brain."<sup>33</sup> In 2015, these scientists further elaborated on how the aluminum adjuvants in vaccines biopersist, making their way to and slowly accumulating in the brain.<sup>34</sup> Another study published by Dr. Gherardi and colleagues in 2017 reported that low, consistent doses of aluminum adjuvant were more neurotoxic than a single large dose.<sup>35</sup> This is alarming given that children receive aluminum in vaccines in seemingly "low" and constant doses.

In 2017, Dr. Christopher Exley of Keele University in England found

Recent science suggests that the MMR vaccine is helping to collect aluminum in the body from previous vaccines and deliver it to the brain.

aluminum in the brains of autistic people at some of the highest levels ever recorded.<sup>36</sup> He confirmed what the French scientists had discovered, namely that macrophages escort injected aluminum to the brain. (See my previous article on aluminum in vaccines for more on this subject.<sup>37</sup>)

With so much science pointing to aluminum as a main culprit, why do so many parents blame the MMR vaccine for their children's autism? After all, MMR does not contain aluminum. Recent science suggests that the MMR vaccine—which is typically given between fifteen and eighteen months of age (around the same time many children begin to regress into autism)—is helping to collect aluminum in the body from previous vaccines and deliver it to the brain. Because the MMR vaccine contains live viruses, which provoke a strong immune response, scientists reason that MMR is summoning macrophages, which in turn transport aluminum to the brain.<sup>38</sup>

#### A STRONG CONNECTION

There can be no denying that recent science proves a strong connection between vaccines and autism. Therefore, it is time for journalists to stop lying to the public by repeating the tired and inaccurate mantra, “the science is settled.” Instead, journalists should investigate before they report and stop pandering to their advertisers.

It is also time for the U.S. government to protect our children instead of protecting the interests of wealthy pharmaceutical company shareholders. Because vaccines are recommended and sold without proper safety testing, nothing short of a complete moratorium on vaccines is warranted at this time. With this vaccine mandates need to come an end. Moreover, Congress needs to overturn the 1986 National Childhood Vaccine Injury Act that indemnifies vaccine manufacturers, and instead make companies legally liable and financially responsible when vaccines injure and kill. These are the things that mainstream media and our government must do if we are to end the autism epidemic.

There are also things that need to be done within the vaccine-awareness community. We

must not be afraid of being called as “anti-vaccine.” In fact, we should wear this slur like a badge of honor because when the cards fall, we will be standing on the right side of history. Next, we must fight for complete protection of our children and vow not to settle for half measures in our attempt to end the autism epidemic. As my colleague Laura Hayes from *Age of Autism* says, “There are some things we cannot be moderate about, and the poisoning and subsequent destruction of our children, and ultimately, our nation is one of them.”

We cannot afford to waste time calling for things like “greening” our vaccines, limiting the number of vaccines given to children, spacing out vaccines, prescreening for susceptibility and asking for more studies. There are many reasons Band-Aids like these will not fix the autism epidemic. First of all, there is no such thing as a “green” vaccine. Vaccines have toxic ingredients in them for a reason. Manufacturers use mercury as a preservative and aluminum to stimulate an immune response. They also manufacture vaccines using a whole host of other revolting ingredients, including live versions of the diseases you do not want, polysorbate 80, formaldehyde, sorbitol, 2-phenoxyethanol, MSG, cells from aborted fetuses, monkey kidney cells, mouse brain cells, bovine cow serum and much more—some of which manufacturers are not obliged to disclose. There is not a single ingredient used in vaccines that anyone would drink, so why do people consider these substances magically health-promoting when they are injected into the body and labeled “vaccine”? We are wasting our breath asking vaccine manufacturers to remove all of these toxic substances and create something new.

Second, simply reducing the number of vaccines given to children helps only to reduce the chance of injury. Because all vaccines carry the potential to cause grave harm and premature death, it is not safe to administer even one vaccine. It is also wise to remember that the whole reason we have the National Childhood Vaccine Injury Act is because the vaccine schedule of the late 1970s and early 1980s was already unsafe. Vaccines catastrophically injured many children, and when their parents sued the vaccine makers (who were still liable for vaccine injuries




at the time), companies had to pay out millions to the families. The vaccine makers begged Congress for protection, and they got it. Going back to those days might reduce vaccine injury, but it clearly wouldn't end it.

Third, spacing out vaccines does not make sense either. The notion that there is a spread out or delayed or “friendly” schedule that is “safe” for children to receive is nothing other than personal opinion. Vaccines can harm any person, at any age.

Fourth, all vaccines carry risk, as evidenced by the package inserts, and no one knows in advance who will be harmed. While it may be true that some children could be identified as having a mitochondrial disorder or something else that would put them at greater risk, there really is no such thing as prescreening all children for vaccine injury. However, wouldn't the medical establishment love it if there were? They could then charge parents to have their children tested. It is crazy to think that it is acceptable to vaccinate healthy individuals with the health-and-development-destroying ingredients in vaccines. Injecting mercury, aluminum, formaldehyde and so on is *never* safe or health-promoting. No one can prove that every vaccine does zero damage in every recipient, so why would we want to prevent only the most susceptible children from being vaccinated?

Finally, the notion that more studies are needed is not an answer. As Hayes so brilliantly

puts it, “News flash...the needed studies needed to be done *before* any vaccine was ever approved or recommended. We have time to wait for more vaccine ‘safety studies’ like those on the Titanic had time to wait for more rescue boats to be built.”

*Kendall Nelson, producer/director/activist, is a documentary filmmaker who is actively engaged in directing, producing and distributing media that matters. With over twenty years of experience in television and film, Nelson has made a lifelong commitment to bringing about awareness through her work. In addition to making movies, she is an advocate for the causes she cares most about, including health freedom, simple living and the real food movement. She is also a proud member and board member of the International Women's Forum (IWF) which works to build better leadership locally and globally.*

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## NEW BENEFIT FOR MEMBERS!

We appreciate the support of our members. We are 12,000—a small but dedicated group united to change the way the world eats. We do a lot with a little. And what do you get in return?

- The quarterly journal with its mix of popular and scholarly articles;
- The annual Shopping Guide—the result of much research;
- Our exclusive members-only Facebook group: [facebook.com/groups/westonapricefoundation](https://facebook.com/groups/westonapricefoundation)
- NEW: Each quarter, watch one of our best conference talks for free. Log in by going to [westonaprice.org](http://westonaprice.org); select the tab MEMBERSHIP and click LOG IN. Logging in takes you to the Member Dashboard with a link that says: ‘View Conference Talk’.

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## SOY ALERT! UPDATE

While the wheels of justice move slowly, we are making gradual progress in our efforts to reduce the consumption of soy, even to remove it from the market completely. A big thanks to several generous donors who have supported these efforts.

**SOY PRISON LAWSUIT:** Our Illinois soy prison lawsuit resulted in a small settlement for the plaintiffs, but we were not successful in getting an injunction against serving soy in the prison diets. Nevertheless, the inmates report that the amount of soy in prison food has been reduced and that the Illinois Department of Corrections did not renew its contract with Archer Daniel Midlands. Prisoners have been told that once supplies of soy protein and other soy ingredients are used up, the prison meals will feature mostly meat. We did learn recently that the soy-laden diets were given to the women prisoners only for several months. The meals caused their menstrual cycles to stop and also resulted in weight gain. After a hunger strike by the female prisoners, soy was removed from their diets—but not from the diets of the men.

**OUR DAY IN COURT:** Our petition to remove the heart health claim from foods containing soy protein will finally get its day in court. The judge in the case did not dismiss the motion, as was requested by the FDA, but has scheduled a hearing for March 5, 2019 at 10 AM. We will keep our members posted and hope that many of you will join us in the courtroom to hear the proceedings.

**WINNING IN THE COURT OF PUBLIC OPINION:** Ten years ago, the Natural Products Expo was dominated by soy products—soy milk, soy bars, soy supplements. The most recent Expo did not have a single soy product on exhibit, but many products listed as "soy-free." The big displays of soy milk and end-of aisle shelves of soy bars have disappeared from grocery stores and health food stores. More and more consumers have learned about the toxicity of soy and want to avoid its goitrogenic and endocrine-disruption effects.

# Farm and Ranch

## THE CHICKEN REVOLUTION: TRANSITIONING TO REGENERATIVE AGRICULTURE

By Reginaldo Haslett-Marroquin

As a child growing up in Guatemala in a family of thirteen kids, one of my daily chores was collecting eggs from the chickens my mother kept. We had moved when I was four as part of an internal migration that was “settling” the northern rainforest region. The first thing every migrant household did after arrival was clear the old-growth forest, burn it and plant mainly beans, corn and squash. We were no exception. Every few years, the land would stop producing, and we would leave some of it fallow. In a couple of years, we would clear it again, burn the debris and plant our crops again. This way of treating nature left us permanently hungry as well as overworked, barefoot, dirt-poor and frustrated.

Chickens and eggs, however, were like gold. They were our only regular source of protein and were a critical way women participated in food production. I’ve yet to encounter anyone who understands chicken behavior the way my mother and other women in our village did. As a child, I was eager to learn everything my mother knew. Over time, I learned that the thick canopy provided by orange and banana trees was critical to ensuring that we did not lose the birds to aerial predators, and it also protected the chickens from the intense, direct sun. I learned how to find the nests in the thick grass and bushes, and how to manage the thick layers of leaves dropped on the ground where the chickens roamed. Chickens are good teachers—we observed that they thrived in our jungle-like food-producing canopy, a habitat more in line with their geoevolutionary genetic blueprint.

After I finished elementary and middle school, I received a scholarship to Guatemala’s National Central School of Agriculture, followed by years of university-level scientific and business management training in Guatemala

and Minnesota. Little did I know that all of this higher education would pale in comparison to the mind-blowing knowledge, ancient wisdom and practical experience I gained during my early years in the Guatemalan rainforest.

### POULTRY AS AN ENTRY POINT TO SYSTEM CHANGE

The diminished nutritional value of the foods that dominate today’s markets represents a major challenge. It is the result of a system engineered not for the purpose of delivering nourishment but for the purpose of making money. To change this, we need to transition to a system that can give life, regenerate the landscape and make our minds, bodies and spirits whole again.

A decade ago, I helped found Main Street Project, a Minnesota-based organization that is working to develop an alternative food system to reverse the destructive trends of industrial agriculture, with poultry-centered regenerative farming at the core of our model.<sup>1</sup> In 2017, I described some of the journey from hunger to food security in my book, *In the Shadow of Green Man*.<sup>2</sup> As we explain on the Main Street Project website, chickens are at the center of the system because they can provide “a positive revenue stream at a low cost of entry,” offering “a one-stop weed-eating, bug-killing, soil-enhancing replacement for the counterproductive synthetic pesticides, herbicides, and fertilizers destroying conventional farms and their communities.”<sup>3</sup>

To frame this innovative yet ancient way of thinking about agriculture, it is important to understand two basic points. First, farmers, factory farms and the food industry don’t produce food. Only nature can transform inedible energy present in the air, the soil and the sun—and turn that energy into eggs, chickens, nuts, vegetables

Chickens thrived in our jungle-like food-producing canopy, a habitat more in line with their geoevolutionary genetic blueprint.



and so on. Farmers are stewards and “energy managers.” We can’t create energy or destroy it, but we can facilitate the process by which it is transformed. When we choose to do this responsibly, we allow nature to produce plenty of food while regenerating the landscape, thereby ensuring that the process can go on indefinitely. If we instead manage energy irresponsibly, we throw energy cycles out of balance and end up with polluted air, soil, rivers and oceans and, equally important, damaged health.

Second, for a farming system to be regenerative, it has to include animals. No sound ecology exists without the activity and the amazing physical, chemical and biological functions of animals. My team has

found that chickens are the livestock of choice and can be the foundation of wider systems change. Chickens are universal and culturally familiar to millions of small-scale farmers and immigrants around the world. The Food and Agriculture Organization (FAO) of the United Nations calculated in 2000 that family farmers pro-

duced about 80 percent of the world’s food, and more recent research has characterized 98 percent of all farms as family farms.<sup>3</sup> Of these, the World Bank estimates that over four hundred million small farms consist of less than two hectares (just under five acres) of land.<sup>4</sup> Many of these smaller-scale farmers could transition to our system rapidly and launch a global “chicken revolution.”

## PERENNIAL BENEFITS

The starting point of Main Street Project’s transformational system—and the point of engagement for a farmer—is the production unit (PU). Perennial crops that form a multistory and multipurpose canopy are the cornerstone of the PU. The canopy is built by planting valuable (both economically and in terms of food security) species of trees, shrubs, fruits and nuts, native to the region where the system is being deployed. Once a farmer establishes one or more production units, the PU creates an energy-pumping system that can produce eggs, meat, nuts, fruit, timber, soil, carbon, perennial protection for the soil, higher biological activity, increased income for the farmer, ecosystem restoration services and a blueprint for regional resilience.

Among its many benefits, the perennial crop canopy offers paddocks for free-range chickens, sprouted grains to feed them, nighttime shelter and a variety of products that support the farmer. The canopy cools the ground and increases relative humidity, which allows for sprouting small grain mixes directly in the soil. Sprouts exponentially increase the nutritional value as well as the biomass available for the chickens from

the grain. As explained in a Main Street Project blog, the addition of solar-power-heated coops and petroleum-free weeding and fertilizing allows the system to operate as a “closed cycle that perpetually sustains itself...feed is taken in by the chicken, and energy and nutrients excreted by the chicken are taken up by the plants grown in that fertilized soil, producing crops which again feed the chicken.”<sup>5</sup>

Although the requirements for ranging

paddocks and species in the perennial canopy may vary based on local conditions, other requirements remain consistent across settings. Considerations include the square footage of shelter space per chicken, perch space, paddock access and the number of chickens per

PU, which should not exceed fifteen hundred broilers and four thousand laying hens per flock. (Note that our livestock standard prohibits the use of industrial Cornish broilers, as they have lost their ability to display natural chicken behaviors.)

Our system’s aim is a fully regenerative supply chain. To this end, we are developing a grain standard that will require a transition to alley-cropped agroforestry systems, rotations, cover cropping and other practices that support ecological regeneration. These practices represent the foundation of profitable regenerative farms.

With the details per PU established, the next step involves estimating the number of PUs needed to build a family farm. Every farmer will have a different number of PUs, based on the farm’s projections. Our approach is to treat farmers as unique economic units and develop business plans that meet their individual needs without compromising the ability to replicate the model consistently across larger landscapes. As a stand-alone operation, a farmer is highly vulnerable to many risks. Aggregating produc-



Chickens thrive under a cover crop!



ers throughout regions is therefore central to our risk management strategy.

Our preliminary data show that a family can save upwards of seven thousand dollars a year on food purchases by deploying our regenerative system on their farm. Even farmers who deploy the system in conjunction with other production methods can save on fertilizer inputs and increase their income by selling chickens. In a regenerative agriculture design, the benefits come from stacking enterprises on individual farms and throughout a region.

### SCALING UP REGIONALLY

Main Street Project has experienced many successes in building a workable, replicable model for designing poultry-centered regenerative agriculture. The system can deliver a range of foods whose production can be stacked on individual farms and throughout large regions.

It is not possible, however, for one local organization to engage with all the farmers, aggregators, marketers, distributors, processors and the value chain represented at the regional level. Thus, Regeneration Midwest (an evolving coalition of twelve Midwestern states) was formed at the end of 2017. Regeneration Midwest is a regional-scale effort to build farm support systems and infrastructure—such as veterinary services, agronomics, training, financing, branding, processing, creating value-added products, marketing and distribution—intended to support delivery of the regenerative agriculture model throughout the Midwest. Main Street Project’s focus on engineering for replicability was critical in allowing a new system to emerge, but Regeneration Midwest’s work—ensuring that these efforts can be unleashed everywhere—is the next logical system-level priority.

Regeneration Midwest is focusing on strategic agricultural sectors such as poultry, grains, beef and pork, and vegetables and fruit. For example, in partnership with the Midwest Grains Initiative<sup>6</sup> and similar efforts, Regeneration Midwest will bring together existing standards that support agroforestry systems as a foundational blueprint for transitioning small grain production—both for human food and regenerative poultry feed. As another example, the coalition will bring together producers of

pastured pork and grass-fed beef to explore how to build differentiated markets and create competitive economies of scale.

Vegetables represent a challenging sector for regenerative standards development and application. Vegetable production tends to require an intense supply of inputs and frequently involves the destruction of native habitats to establish production, both of which run counter to regenerative ecosystems. However, practices such as cover cropping, crop rotation, incorporation of perennial crops and alley-cropping can build a basis for revitalization of this sector.

In all sectors, Regeneration Midwest will focus first on cataloging promising agriculture production models, markets and investment sources and building collective infrastructure components to facilitate larger-scale regional trading, including infrastructure to facilitate communications and transactions at scale. Second, Regeneration Midwest is working to support investment platforms (such as the Illinois-based Iroquois Valley Farmland REIT and Minnesota-based Shared Capital Cooperative) so that larger numbers of investors from around the country can engage their capital in regenerative agriculture. Third, in partnership with existing organizations, Regeneration Midwest will support marketing campaigns to differentiate regenerative products in the marketplace and increase demand at a regional level. This could also include educational campaigns aimed at industry leaders, investors and government officials. To evaluate the progress and impact of Regeneration Midwest, we will track basic indicators such as farms engaged, acreage impacted, range of products available and farmers’ overall financial performance, as well as tracking the extent to which farms meet our regenerative standards.


The first step toward tackling Regeneration Midwest’s ambitious goals was a planning meeting in June 2018, when representatives from the participating Midwestern states came to Minnesota for a tour of Main Street Project’s demonstration and production farms. Thanks to strong support from partners such as the Organic Consumers Association, Regeneration Midwest now has three core executives who are working daily to plan and execute the coalition’s

For a farming system to be regenerative, it has to include animals.

start-up phase. Members from each state can join if they are ready, willing and at least partially resourced to carry on the process of building and staffing state-level coalitions that fall into alignment with the larger regional vision.

## EVERYBODY WINS

The Main Street Project model is straightforward. Farmers raise free-range meat and eggs in a well-managed paddock planted with a combination of perennials, cover crops and small grains that provide additional cash value to the farmers and nutrition and shelter for the chickens. The chickens, in exchange, provide manure to fertilize not only the paddock and the plants within, but also other vegetables and perennials.

Whether for meat or eggs, the chickens provide a positive revenue stream at a low cost of entry. Ultimately, both farmers and communities benefit from the increased access to local, healthy food and the economic boost of thriving local markets. 

*Reginaldo Haslett-Marroquin is Chief Strategy Officer at Main Street Project and Director of Regeneration Midwest. Main Street Project, in partnership with local organizations, offers poultry-centered training and support out of Northfield, Minnesota; Pine Ridge, South Dakota; and Mexico. Additional training centers are under development in Guatemala, with plans to expand throughout Latin America and Africa. Farmers or nonprofits interested in engaging in state-level organizing within the Midwest can reach out to the organizers of Regeneration Midwest at [regenerationmidwest@gmail.com](mailto:regenerationmidwest@gmail.com).*

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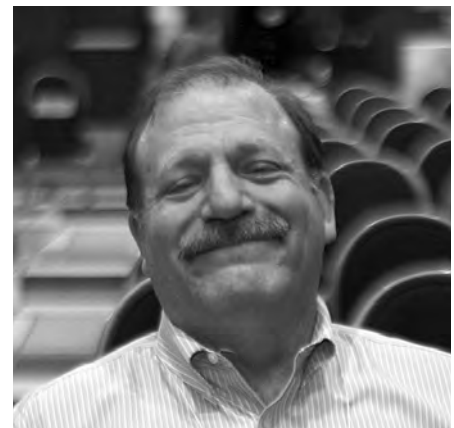
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Top: Happy audience enjoying the talks;

Left: Twila Ranck and grandsons;

Right: conference organizer Paul Frank takes a much needed break.



## THE WAPF 12th ANNUAL FARM TOUR by Will Winter, DMV

The lucky participants of the Weston A. Price Foundation's annual Farm Tour were not the first horde tromping through P.A. Bowen Farmstead, Sally Fallon Morell and Geoffrey Morell's lovely farm. One of the earlier and certainly less welcome groups to pass through were the British military troops who, during the War of 1812, were coming through Prince George's County on their way to burn Washington, DC, and eventually going north to attack Fort McHenry.

This area, ripe with history, had, of course, been happily inhabited by several tribes of Native Americans who found the rich soil, ample game, access to the sea and mild climate much to their liking. Then as now, the Southern Maryland land presented near-ideal conditions for crops of all sorts as well as for livestock operations, especially for small regenerative farms.

Following that earliest era of human occupation, the desired farm export crop of this, the northern-most of the so-called "southern" colonies, was tobacco. In high demand, tobacco was unfortunately also a slave crop, as each tobacco leaf needed to be handled at least ten times before it was fully cured and ready to use. Unlike cotton, tobacco production could never be mechanized. One of the original tobacco barns on the Morell's property now serves as the main event center and catering facility. The barn has been beautifully renovated by Amish barn builders using local tulip poplar wood, and may be rented for weddings, family gatherings and other events.

Unlike the British troops, the WAPF tour buses were heartily welcomed, in this case with Sally at the drive waving us in. We sampled the artisan cheeses that are made on the farm, we drank kombucha and had a catered "real food" lunch by Betka of Real Food, LLC. It's easy to see that good food is sacred here.

Throughout the day we divided up into small groups. We were given the history lesson and introductory story by Sally and then took farm tours guided by the co-farm managers Brian Wort and his wife Amy McCurdy. Each of us got to butcher one chicken and shoot one pig—just kidding—but we did get a full tour of their on-site poultry processing area and hog-rearing paddocks where their very happy pigs can roam the woodlands as if totally free. Brian, as part of his mission of mindful and conscientious farming, blesses and gives gratitude to each animal, great or small, that has been raised on the farm. We also saw Geoffrey's New Zealand-style and highly functional milking parlor and watched a video on making cheese at the farm.

The farmstead features a year-round farm store which sells many naturally delicious products, including farm-raised chicken, eggs, pork, turkey and the world's greatest pet milk, plus interesting books and crafts by Maryland artists. Be sure to look for Harrison, the gigantic white goose, who greets all interlopers with his harsh honks while sniping at pant legs, no doubt still on the lookout for marauding British troops! Now, that's true farm security!



Photos by Lisa Bianco-Davis



# Legislative Updates

## STATE LEGISLATIVE SESSIONS, LAB MEAT AND MORE

By Judith McGeary, Esq.

'Tis the season...for state legislators to decide what they will work on in the coming legislative sessions. With the elections over, new and returning state legislators are getting their staffing in order and talking priorities. The exact time frame differs from state to state—some start their sessions in early January, others not until March—but they are all buckling down for work.

Local, sustainably raised food is an issue that can bring people together from all points on the political spectrum. Reforms that help WAPF farmers and consumers also reduce regulatory burdens and the size of government, stimulate small businesses, preserve open space land, improve air and water quality, promote humane animal treatment and more; regardless of one's political affiliation, it's a "win." With the current intense partisan divides, that makes sustainable agriculture an attractive area for policy reforms, since many state legislators would like to find a topic on which they could have a cooperative relationship with their colleagues on the other side of the aisle. Not all, of course, but there are those on both sides who want to find areas of common ground.

Other broad political developments also provide opportunities for healthy, local food advocates. Libertarian-oriented conservatives are increasingly recognizing the problems with corporate consolidation and the resulting market dysfunction. At the same time, more progressives are recognizing that food-and-ag issues don't consist solely of food deserts and SNAP (food stamp) concerns. I recently spoke at a conference of progressive state legislators on the topic of "Bridging the Urban-Rural Divide" using local food policy. The room was completely full, with legislators from Arizona, Texas, Florida, Minnesota, Iowa and many

more. And while I was talking with progressive legislators at the conference, I received emails from two conservative legislators interested in food freedom bills.

But these are just openings, and it's up to each of us to take advantage of the opportunities in order to work for the changes we need to make healthy food easier to raise and access. Have you ever talked with your state representative and senator or their staff? It's easier than you think! A short in-person meeting, or even a fifteen-minute phone call, goes a long way toward gaining their support for local food. Focus on the issue most important to you, whether that be expanding access to raw milk, broadening your state's cottage food law, providing incentives for healthy soils or similar issues. What matters is developing a relationship, so that they know that they have constituents who are passionate and knowledgeable about food and agriculture—and so that they can see the potential for positive policy making on their part. The next issue of *Wise Traditions* will have an article focused on how to be a citizen lobbyist, and in the meantime, you can check out some of the materials posted at <http://farmandranchfreedom.org/take-action-center/tools-and-resources/> to help you get started.

### LAB MEAT

You aren't just what you eat, but what your food eats. How do test tube nutrient liquids sound to you?

It's baffling how many people are determined to separate humans from animals, whether it is the segment of the environmental movement that believes that animal agriculture is bad for the environment, or the part of the animal rights community that wants everyone to go vegan. While many of their arguments are

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true in the context of industrial agriculture, with its massive inhumane and polluting CAFOs, the same arguments are simply false when it comes to small-scale, pastured livestock operations. Fortunately, more people in both movements are becoming aware of that fact and moving toward working with us. Yet many continue to seek ways to take meat out of people's diets.

A few years ago, the opponents of animal agriculture began talk of "clean meat"—meat cultured in a lab from a few cells, which would enable people to continue to have meat in their diets without animals being slaughtered and without the obvious environmental impacts of the CAFOs. Production of lab-grown meat involves retrieving a live animal's adult muscle stem cells and setting them in a nutrient-rich liquid. The clusters of multiplying cells grow around a "scaffold" of some substance, which helps the tissue take on a desired shape—nuggets or patties, for example.

As is the case with technology nowadays, the idea has moved from "perhaps some day" to "coming soon to a store near you" much faster than anyone, whether proponents or opponents, anticipated. Lab-grown meat isn't yet ready for commercial sale, but it's likely to be in the relatively near future. And with that prospect on the horizon, the FDA and the USDA have been arguing over who will regulate it. The FDA regulates the majority of our food supply, including all processed foods. The USDA regulates livestock and meat products: beef, pork, lamb, goat and poultry. So who should oversee lab-grown meats?

After multiple debates and meetings through the summer and fall of 2018, the agencies announced in November that they would split the responsibility, with the FDA overseeing "cell collection, cell banks and cell growth and differentiation," and the USDA overseeing the production and labeling of the products. At the time this article was going to print, however, Congress was still considering stepping in to assign responsibility to one agency alone.

Regardless of who regulates the product, it is coming—and it will be promoted heavily to environmentally conscious consumers. Absent from the discussion, however, has been any

real life-cycle analysis of all the inputs required. The proponents and opponents alike are ignoring the resources necessary to build the labs and produce the liquid nutrients. And the question of the environmental impact of not grazing grasslands is not even on their radar.

Even within the narrow scope of the discussion, concerns have been raised. Bacteria or viruses could sneak into the initial tissue sample, or into the cultured cells as they're transferred to successively larger quantities of culture medium, or when medium is added to prompt them to grow. And large-scale bioreactors provide another avenue for mass contamination. And what about the nutritional value? It's a safe bet that the lab-grown meats will not have the same nutrient profile as healthy livestock raised on pasture with mineral-rich diets.

## VICTORY AGAINST MONSANTO

In the "good news" category, the first case against Monsanto over the safety of its flagship product, the herbicide Roundup, has been decided in favor of the plaintiff, Dewayne Lee Johnson.

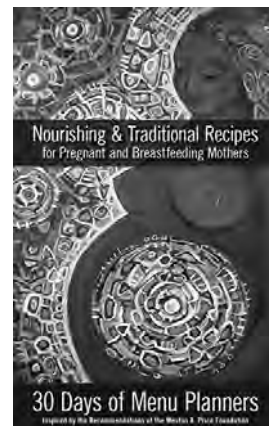
A jury found that Monsanto's weed killer caused the groundskeeper's cancer and awarded Johnson two hundred eighty-nine million dollars: thirty-nine million dollars in compensatory damages (for his illness and pain and suffering) and two hundred fifty million dollars in punitive damages. Punitive damages are designed to punish companies that juries determine have purposely misbehaved and to deter others from operating similarly.

The trial judge in the case upheld the verdict and the compensatory damages, but slashed the amount of punitive damages to thirty-nine million dollars, for a total award of seventy-eight million dollars. While that is a much smaller financial blow to Monsanto in terms of the immediate award, the judge's decision is still a victory for both the plaintiff and the larger movement. The jury awarded the punitive damages after it found that Monsanto, an agribusiness based in St. Louis, had purposefully ignored warnings and evidence that its popular Roundup product causes cancer, including Johnson's lymphoma. The judge's decision to uphold the verdict, even at a reduced amount, leaves that finding intact.

In the long run, Monsanto—now owned by Bayer—faces many more losses if other juries and judges find similarly. Johnson's lawsuit

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was the first case to go to trial, but there are thousands of cases currently pending in U.S. courts alleging Roundup caused cancer. And Bayer is taking the hit. According to one report, the potential liability is as high as eight hundred billion dollars—more than ten times the amount of the Bayer-Monsanto buyout.

Court cases don't happen in a vacuum—the decision of the plaintiff to pursue the case, the attorneys' calculation of whether the case was worth pursuing, the judge's and jury's initial assumptions and paradigms, are all a function of the larger narrative in our society. This courtroom victory has occurred, at least in part, thanks to the broad movement that has fought to expose the health risks of Roundup and the unethical actions of Monsanto. And, in turn, the jury's finding will help feed back into the larger movement, helping us to show more people that the agribusiness industry is following the tobacco industry's playbook. With continued work, we can bring them to similar ends.

#### ANIMAL ID

Eight years after we killed the National Animal Identification System (NAIS), the USDA is trying to sneak it back piecemeal.

First, a little background for those new to this topic: the NAIS was a joint Big Ag-USDA plan to require anyone who owned even a single poultry or livestock animal to register their property, individually ID each animal with a 14-digit internationally unique number using an electronic tag (microchip or RFID, except for poultry) and report their movements (both inter-state and intra-state) to a database. This expensive, intrusive program was designed to promote international trade during disease outbreaks, increasing corporate profits at the expense of small producers. WAPF participated in a national coalition effort that fought back and succeeded in getting the USDA to withdraw the program in January 2010.


In its place, the USDA adopted a much-reduced set of regulations that apply only to cattle and require only that adult cows have some form of official identification when they cross state lines. Producers can use electronic tags or metal tags or, in states that accept them, brands for their inter-state transports.

But the big agribusinesses and their technology allies have continued to push for a more expensive, intrusive program. Last year, they formed an Animal Disease Traceability Working Group that supposedly represented “the industry”—yet had no one from the grass-fed, organic or small farm portions of the livestock industry. The working group developed a plan that called for requiring electronic forms of ID and for extending identification requirements to intra-state movements.

Making these changes, though, would have required USDA to do a formal rulemaking to change the regulations. And that process would have been open to public comment, as well as having to navigate the administration's provisions for repealing two regulations for every new one proposed. Rather than deal with that process, USDA appears to have figured out how much it can do without actually changing the regulations.

The plan, announced in late September, is to simply stop providing the free metal tags that producers have used for decades for official identification. Instead of paying for these ten-cent tags, the USDA will instead spend five times as much to do a partial cost share on electronic tags—leaving the states and producers to also pay. And after three years, there is no guarantee that even this partial cost sharing will continue. While the cost of electronic tags is less than two dollars each, that is still a jump—for both the use of our tax dollars and for the narrow profit margins that cow/calf producers often have on a per cow basis.

More significantly, the costs of switching to electronic ID do not end with the tag itself. Not only will producers need to get electronic readers if they don't want to have to hand-transcribe 15-digit numbers, but the sale barns will almost certainly have to. A full system for a sale barn can run several tens of thousands of dollars, which will have to be passed on to the mostly small-scale producers who are their clients. The same issue will arise with small-scale slaughterhouses. Both the sale barns and the slaughterhouses are a vital part of the marketing chain for independent producers, and we are already facing a shortage of both—any closures would hurt producers who rely on these businesses.

As we noted, USDA is legally able to institute these changes without going through the rulemaking process. But we are looking for opportunities to weigh in through alternative strategies. Stay tuned for actions you can take. And in the meantime, watch your state agriculture or animal health agency closely for any proposed rule changes, since USDA informal policies all too often become state-level rules thanks to both political and funding pressures. 

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Winter 2010	Joel Salatin on the Politics of Food; Saving the Polish Countryside; Biological Farming; Glutathione in Raw Milk.
Summer 2011	Sulfur Deficiency; The Importance of Salt; The Senomyx Scandal; Why We Crave; Raw Milk Safety.
Fall 2012	Vitamin & mineral synergies; Bacon; Protect against tooth decay with a high-fat diet; Kombucha.
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Summer 2015	Vaccination Dangers Issue.
Fall 2015	The Scandal of Infant Formula; Vitamin D in Cod Liver Oil; Cod Liver Oil Controversy; Fermented Fish Foods.
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Spring 2017	Type 2 Diabetes; Couch Potato or Marathon Runner?; Weight Loss; Costa Rica; Moving Heavy Loads; MSG.
Summer 2017	Cholesterol Sulfate and the Heart; Vitamin D Dilemmas; Five Obstacles to Cure; The Adrenal-Heart Connection.
Fall 2017	Why Do We Get Cancer; Support for Pediatric Cancer; The Tijuana Clinics; GCMaF and Raw Milk; Black Salve.
Winter 2017	The HPA Axis; A Primer on the Thyroid; Recovery from Bioidentical Hormones; WAPF in Peru.
Spring 2018	Mercury Issue: Mercury as Anti-Nutrient; The Thimerosal Travesty; Poisoning Our Children; The Cutler Protocol.
Summer 2018	Treating GERD; Gallbladder Health; Herbal Bitters; Hidden Histamine Problems; Constipation.
Fall 2018	Seniors on Drugs; Chronic Hyperinsulinemia; Dangers of Daily Aspirin Use; Incontinence; Nepal.

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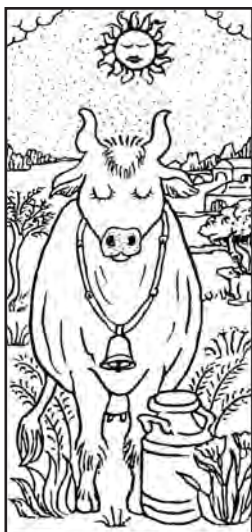
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# A Campaign for *Real Milk*

## WHAT PASTEURIZATION DOES TO THE VITAMINS IN MILK

By Sally Fallon Morell

“Pasteurization of milk ensures safety for human consumption by reducing the number of viable pathogenic bacteria.” So begins an article published in *The Journal of Food Protection*, published in 2011.<sup>1</sup>

According to the study authors, one argument against pasteurization is its association “with destruction of selected vitamins present in raw milk.” This statement is not completely accurate, and we will return to it in a moment. Nonetheless, the direct effect of pasteurization on vitamin levels is important to know.

The researchers looked at studies measuring vitamins A, B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub>, C, E and folate, eliminating many for various reasons, some or all of which seem frivolous—such as not published in English, not reporting sample size, not including a standard deviation, not reporting mean values. Nevertheless, even after leaving out over half the studies looking at vitamin levels published between 1936 and 2003, the researchers came up with interesting results.

Starting with the fat-soluble vitamins, studies on vitamin A were inconsistent, with two studies reporting a reduction and—strangely—two reporting an increase in vitamin A after pasteurization. (The suspicion is that vitamin A was added to the pasteurized milk.) The available data do not allow the researchers to make important conclusions about vitamin E, although “pasteurization appeared to qualitatively reduce concentrations” of vitamin E. They did not examine vitamin D “because secreted bovine milk is deficient in vitamin D based on human nutrition needs.” Vitamin K<sub>2</sub> was not on the radar screen until very recently, so the researchers did not look at this fat-soluble vitamin either.

Looking at the water-soluble vitamins, researchers found a significant decrease for vitamins B<sub>12</sub>, B<sub>2</sub> and folate, with a slight decrease

in vitamins B<sub>1</sub> and B<sub>6</sub>. As for vitamin C, “In the majority of trials, a numeric decrease in vitamin C was found after heat treatment.”

These results are pretty shocking. Every water-soluble vitamin decreased, some significantly. But not to worry, say the researchers, since “milk is not an important source of vitamin C and folate,” nor of vitamin B<sub>12</sub>! Only the reduction of B<sub>2</sub> had them a little worried: “With the exception of vitamin B<sub>2</sub>, pasteurization does not appear to be a concern in diminishing the nutritive value of milk because milk is often not a primary source of these studied vitamins in the North American diet.” Put another way, “The effect [of pasteurization] on milk’s nutritive value was minimal because many of these vitamins are naturally found in relatively low levels.”

Note the word “often.” Milk “is often not a primary source of these studied vitamins. . .”

For someone not drinking milk, or drinking little milk, this statement is true. But what about babies and toddlers? Milk is often a primary source of these nutrients for this group. And what about a mom worried about her children’s junk food habits or pickiness, who wants to ensure that her children at least get the basics of what they need? Raw milk can be a primary source of these nutrients for these children. And what about vegetarians depending on milk for vitamin B<sub>12</sub>? The destruction of B<sub>12</sub> by pasteurization could be disastrous for these folks.

But let’s go back to the premise that people are opposed to pasteurization because it destroys vitamins in the milk. Indeed it does, but this is only half the story. What pasteurization completely destroys is the enzymes—after all, the test for effective pasteurization is the destruction of the enzyme phosphatase—and many of these enzymes act as carriers for the

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vitamins and minerals in the milk. This explains why levels of some vitamins in milk seem low—since the enzymes in raw milk ensure that they are completely absorbed, the levels do not need to be high.

The researchers did not even examine vitamin D levels on the assumption that there is not enough vitamin D in milk to satisfy human needs. If this is the case, where do infant humans and animals get their vitamin D? The fact is that vitamin D is very difficult to measure in foods, and also vitamin D levels vary widely depending on the diet of the human mother—and presumably depending on the diet of the animal mother also.

Pasteurization destroys the enzymes and carrier proteins needed to absorb calcium, folate, B<sub>12</sub>, B<sub>6</sub>, vitamins A and D, iron and many other minerals. To absorb these nutrients in pasteurized milk, the body has to produce its own enzymes, something that takes a lot of energy to do, especially in amounts required to ensure 100 percent assimilation.

So despite assurances by apologists for pasteurization, heat treating Nature’s perfect food *does* have a negative effect on the amount of nutrients and their availability—a profoundly negative effect.

One more thing: most of the studies the researchers had available were for regular pasteurization, not for ultra-high temperature (UHT) pasteurization—and most milk today, even organic milk, is ultra-pasteurized. It is not beyond the realm of possibility that the additional heat pretty much kills everything.

What emerges is a story of the most colossal waste—think of the nutrients that our growing children are not getting, but should be getting, because we pasteurize! ☹☹

*This article was first published at [nourishing-traditions.com](http://nourishing-traditions.com).*

1. [www.researchgate.net/publication/51770785\\_A\\_Systematic\\_Review\\_and\\_Meta-Analysis\\_of\\_the\\_Effects\\_of\\_Pasteurization\\_on\\_Milk\\_Vitamins\\_and\\_Evidence\\_for\\_Raw\\_Milk\\_Consumption\\_and\\_Other\\_Health-Related\\_Outcomes](http://www.researchgate.net/publication/51770785_A_Systematic_Review_and_Meta-Analysis_of_the_Effects_of_Pasteurization_on_Milk_Vitamins_and_Evidence_for_Raw_Milk_Consumption_and_Other_Health-Related_Outcomes).

So despite assurances by apologists for pasteurization, heat treating Nature’s perfect food does have a negative effect on the amount of nutrients and their availability—a profoundly negative effect.

VITAMIN STATUS IN PASTEURIZED MILK

Vitamin C	Raw milk but not pasteurized can resolve scurvy. “. . . Without doubt. . . the explosive increase in infantile scurvy during the latter part of the 19th century coincided with the advent of use of heated milks. . .” Rajakumar, <i>Pediatrics</i> . 2001;108(4):E76
Calcium	Longer and denser bones on raw milk. Studies from Randleigh Farms.
Folate	Carrier protein inactivated during pasteurization. Gregory. <i>J Nutr</i> . 1982, 1329-1338.
Vitamin B12	Binding protein inactivated by pasteurization.
Vitamin B6	Animal studies indicate B6 poorly absorbed from pasteurized milk. Studies from Randleigh Farms.
Vitamin A	Beta-lactoglobulin, a heat-sensitive protein in milk, increases intestinal absorption of vitamin A. Heat degrades vitamin A. Said and others. <i>Am J Clin Nutr</i> . 1989;49:690-694. Runge and Heger. <i>J Agric Food Chem</i> . 2000 Jan;48(1):47-55.
Vitamin D	Present in milk bound to lactoglobulins, pasteurization cuts assimilation in half. Hollis and others. <i>J Nutr</i> . 1981;111:1240-1248; <i>FEBS Journal</i> 2009 2251-2265.
Iron	Lactoferrin, which contributes to iron assimilation, destroyed during pasteurization. Children on pasteurized milk tend to anemia.
Minerals	Bound to proteins, inactivated by pasteurization; <i>Lactobacilli</i> , destroyed by pasteurization, enhance mineral absorption. <i>BJN</i> 2000 84:S91-S98; MacDonald and others. 1985.

#### NEW JERSEY – RAW MILK: Rx FOR DAIRY CRISIS

The New Jersey Department of Agriculture (NJDA) held a statewide Dairy Summit on October 11 to show the state's dairies ways to survive the current crisis the industry is going through. The event was great testimony to how unfair the commodity pricing system, the Federal Milk Marketing Order (FMMO), is, and how legalization of raw milk sales and/or distribution in the state could help dairy farms remain in business. In the mid-1970s, there were over five hundred dairy farms operating in New Jersey; today there are forty-eight.

Earlier this year, the state's Grade A dairies were receiving around fourteen dollars per hundredweight (one hundred pounds of milk); that figure shrunk to twelve after deducting transportation costs (moving the milk from the farm to the processing plant of the farmer's dairy cooperative). According to one of the speakers at the summit, the average cost of production for the dairies is over eighteen dollars, a path to bankruptcy.

Dairy farmers know the FMMO pricing system robs them of revenues they should be earning, but the pricing is complicated enough that it is difficult to figure out exactly how the FMMO denies them income that should rightly be theirs. Most dairy farmers are captive to the FMMO and the commodity pricing system; they belong to a cooperative that bottles and markets their milk. In that situation, individual farmers do not set their own price.

Four ways a dairy farmer can escape or survive the commodity system are:

- Own bottling and pasteurization equipment; this is a major expense most dairy farmers cannot afford.
- Find a creamery willing to bottle and pasteurize an individual farmer's milk, something that's not easy to do. Jared Weeks, a dairy farmer from Ringoes who spoke at the summit, has been able to find a creamery in Pennsylvania to take some of his milk for bottling and pasteurization, but few if any other dairy farmers in the state have been able to make the same arrangement.
- Make value-added dairy products, such as butter, cream, and yogurt; again, this typically involves substantial up-front expense, which most dairy farmers cannot afford.
- Sell or distribute raw milk for direct consumption—this is a less expensive way to escape or survive the commodity system, whether the farmer is selling direct to the consumer, distributing direct to the consumer through a herd share agreement or selling to retail stores.

New Jersey is one of seven remaining states that do not allow any raw milk sales or distribution. Legislators began introducing raw milk bills in the New Jersey General Assembly back in 2006; since that time, New Jersey has lost more than half of its remaining dairies.

The New Jersey Department of Agriculture is not opposed to legislation legalizing raw milk sales and/or distribution; it is the New Jersey Department of Health (NJDOH) that opposes raw milk legalization. The health department sees raw milk as a health threat, but a recent Canadian study found, "The rate of unpasteurized milk-associated outbreaks [in the U.S.] has been declining since 2010. Controlling for growth in population and consumption, the outbreak rate has effectively decreased by 74 percent since 2005."

Raw milk sales or distribution was not on the agenda for the Dairy Summit even though WAPF members Judy Mudrak and Joe Heckman both managed to speak about the demand for raw milk and the need to legalize distribution of the product. Instead, the focus was on individual dairy farmers having access to or building a processing plant that would bottle and pasteurize milk as well as manufacture value-added dairy products. Jon McConaughy, the owner of Double Brook Farm in Hopewell, estimated that it would cost almost half a million dollars to build a processing plant. Daniel Wunderlich, dairy program coordinator for NJDA spoke about having a group processing plant that would bottle both conventional and organic milk. Unfortunately, at this time the New Jersey General Assembly had not allocated any money toward such a project.

There were speakers for various agencies of USDA and other organizations who spoke about loans to farmers for marketing and dairy processing plants and equipment, but how can farmers qualify for a loan when they are already deeply in debt and are losing money with every shipment of milk they make to their cooperative? Dairy farmers need a decent price for their milk more than they need a loan.

Even though the FMMO wasn't a topic at the Dairy Summit, the information speakers presented was still an indictment of the commodity milk pricing system.

Tom Beaver, director of marketing and development for NJDA, said that New Jersey dairies produce one percent of the milk New Jersey residents consume. NJDA established a Jersey Fresh logo that in-state producers of milk and other foods can put on their labels to promote their products. It looks like the state is down to forty-eight Grade A dairies because New Jersey consumers don't want to purchase milk produced in-state, he said, that is not so.

Beaver said that NJDA recently conducted a Jersey Fresh Milk Consumer Survey throughout New Jersey and all five boroughs of New York City; 85 percent of those responding to the survey “indicated an interest in buying Jersey Fresh milk; 23 percent of those surveyed would be willing to pay a premium, with the average premium being one dollar seventy four cents above what respondents are currently paying for a half gallon.” What is wrong with this picture?

Dairy farmer Pete Southway, owner of Springhouse Creamery in Sussex County, said that the fifty cows he milks provide only 7 percent of the milk residents of his county need. McConaughy estimated that producers free from the commodity system and the milk cooperatives could take in as much as one hundred four dollars per hundred-weight (about nine dollars per gallon). The demand for local milk is there; it’s not the lack of consumer demand as much as the commodity pricing system that is driving dairies out of business.

Retired dairy farmer John Pugh attended the summit. Pugh, who is 97 years young, recalled that once the FMMO went into effect, he switched his herd from Guernseys to Holsteins, placing greater emphasis on the quantity of milk production and less on quality. Legalizing raw milk sales and distribution in New Jersey is a way to put more quality milk on the market and to revive the dairy business in the state that the FMMO helped destroy.

#### NORTH CAROLINA – HERD SHARE BAN LIFTED

Earlier this year the North Carolina legislature passed a bill containing a provision that ended a 14-year ban on herd share agreements in the state. Herd share agreements are private contractual arrangements in which a consumer purchases an ownership interest in a dairy animal (or herd of dairy animals) and pays a fee to a farmer for boarding, caring for and milking the animal(s). The herd share law went into effect on October 1. With the new law, only two states remain that have expressly banned herd shares by either statute or regulation: Maryland and Nevada.

Session Law 2018-113, also known as the North Carolina Farm Act of 2018, contains a clause stating, “nothing... shall prohibit the dispensing of raw milk or raw milk products for personal use or consumption to, or the acquisition of raw milk or raw milk products for personal use or consumption by, an independent or partial owner of a cow, goat, or other lactating animal.”<sup>1</sup>

The new herd share law marks the continued move away from earlier attempts to ban raw milk distribution in the state. The sale of raw milk for human consumption has long been illegal in North Carolina. In 2004, an official from the state Department of Environment and Natural Resources was able to engineer a stealth bill banning herd shares through to passage in the final hours of the legislative session. Sales of raw pet milk were still legal at the time, but the state Department of Agriculture attempted in 2008 through rulemaking to require all pet milk to be denatured before sale. Opponents led by then-Weston A. Price Foundation chapter leader Ruth Ann Foster were not only successful in defeating the proposed rule but were able to pass a bill in 2009 that legalized the unlicensed sale of raw pet milk.

North Carolina is the second state to pass raw milk legislation this year; in March Utah enacted a law allowing the delivery of raw milk by licensed producers and the on-farm sales by unlicensed producers on a limited basis. With the crisis the conventional dairy industry is going through, there will be more opportunity to increase raw milk access around the country; raw milk is a way to survive or escape the commodity system that is throwing so many dairy farmers out of business.

1. North Carolina General Assembly, Session Law 2018-113 (Senate Bill 711), Section 15.2, June 27, 2018. Retrieved October 9, 2018 from <https://www.ncleg.net/Sessions/2017/Bills/Senate/HTML/S711v8.html>

#### OHIO – RETURN OF THE MILKMAN

Like the rest of the country, Ohio is in the midst of a dairy crisis that shows little sign of getting better for most farms producing raw milk for pasteurization. Yorkshire farmer Dan Kremer who also owns and operates the Eat Food For Life buyers club, believes that family dairy farms, particularly those producing organic milk, can stay in business by producing raw milk for direct consumption. Kremer, who raises beef, poultry and eggs also distributes raw milk through a herd share agreement; his brother-in-law manages a herd of Jersey cows on the same farm.

The distribution of raw milk through herd share agreements is legal by policy in Ohio<sup>1</sup>; Kremer thinks that distribution capability is key to success and that this hinges on restoring the tradition of the milkman—the raw milkman.

In 1995, there were sixty-eight hundred dairies in Ohio; today there are about two thousand. In recent months, the average price of milk conventional farmers receive is around 30 percent below the cost of production. Dairy cooperatives are sending suicide hotline numbers along with milk checks. Organic dairies can’t compete with the certified organic mega-dairies in Texas and Colorado, which are flooding the market with “organic” milk while

violating federal regulations on the amount of time their herds should be out on pasture.

Kremer says, “Many in the industry consider the disappearance of the family dairy farm as inevitable. We do not. In fact, we are convinced that this crisis event is an opportunity to strengthen the economic base of this demographic and re-establish it under its own branding.”

“To continue in dairy, the farmers will need an alternate market. We are encouraging them to consider the real or raw milk market. It would mean having direct and independent access to the public, a sufficient margin for their family’s economic viability, and the opportunity to work collaboratively with those of us they would serve to ensure the integrity and safety of their product. Most importantly, it will mean restoring the direct relationship between us and them.”

The first milkman in the U.S. was a raw milk man; home deliveries of raw milk began in Vermont in 1785.<sup>2,3</sup> In the 1950s over half of all milk sales were made through home delivery; even though these sales were mostly pasteurized milk, there were still home deliveries of raw milk. By 1963, 29.7 percent of milk sales were made through home delivery;<sup>4</sup> the growth of supermarkets and other factors contributed to the decline. By 2005, only 0.4 percent of milk sales were made through home deliveries.<sup>4</sup>

Since 2005, home deliveries from the milkman have started to make a comeback. Distributors are delivering not only pasteurized milk but other foods such as meat, eggs and produce.

Deliveries of raw milk and raw milk products have been on the rise for a while as well, but these deliveries mainly take place at a central drop-site and not door-to-door. It is the hope of Kremer that he and others will have enough demand to start home deliveries of raw milk to individual shareholders who request it.

American consumers like their convenience; door-to-door raw milk delivery fills this need and tries to encourage raw milk drinkers to order the product. Home delivery is becoming an increasingly important part of the overall competition for the food dollar; chains like Whole Foods are using the delivery service Instacart to drop off food orders at customers’ homes. Instacart claims it can make deliveries in as little as an hour after the customer places the order. Raw milk sales can help dairies currently producing only pasteurized milk remain in business; the easier the dairies make it for the consumer to obtain their products, the better their chances of success.

Many baby boomers who grew up in the ’50s and ’60s nostalgically recall the milkman as someone who was part of their community or as someone who was like an extended family member. There’s no reason that can’t happen for the raw milkman; a familiar face in the neighborhood can bring on additional demand.

Kremer is starting a campaign to increase consumer demand for raw milk through increased participation in herd share programs. He hopes increased demand will encourage more dairy farmers to make the transition to producing raw milk for distribution through herd shares; bringing back a piece from our cultural past and restoring a tradition of the milkman is part of the path to success.

1. In Darke County herd shares are legal by judicial decision thanks to a 2006 court ruling in the case of Daley v. Schmitmeyer
2. Drink Milk in Glass Bottles. “The Day the Milkman Went Away: A History of Home Milk Delivery” [Blog post]. Last retrieved 12/5/2018 from <http://www.drinkmilkinglassbottles.com/a-quick-history-home-milk-delivery/>
3. Stanpacnet. “Brief History of Home Milk Delivery Service” [Blog post]. Last retrieved 12/5/2018 from <http://www.stanpacnet.com/a-brief-history-of-home-milk-delivery-service/>
4. Eve Tahmincioglu, “Remember the Milkman? In Some Places, He’s Back”, New York Times, December 16, 2007. Last retrieved 12/5/2018 from <https://www.nytimes.com/2007/12/16/business/yourmoney/16milk.html>

## NEW INFORMATION RESOURCE FOR WAPF MEMBERS

Consultation with Pete Kennedy on state laws, regulations and policies including food freedom legislation and issues regarding consumer access to raw milk, cottage foods and on-farm meat and poultry processing. (Pete cannot give individual legal advice or recommend support for or opposition to pending legislation.) Contact Pete at [pete@realmilk.com](mailto:pete@realmilk.com).



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## FARM AND FOOD LEADERSHIP CONFERENCE

Chapter leaders Karl and Nancy Falster at the 2018 Farm and Food Leadership Conference of the Farm and Ranch Freedom Alliance in McKinney, Texas. Nancy was also a speaker, teaching fermentation using WAPF methods.

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## SEVENTEEN YEARS OF LEADERSHIP

Shan Kendall, chapter leader for seventeen years, gave her last presentation as a chapter leader (on “Kefir: King of Cultured Dairy”) as part of the fun Fourth Annual Fermentation Festival in October in Nevada City, California. Cathe’ Fish, Terry Fowler and James Hipkin also presented, for a total of fifteen demonstrations.



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After meeting chapter leader Mandy Blume at Florida's MommyCon, a family returns to say they are so pleased with the results of one year on a Wise Traditions diet.



Christine Williams, chapter leader in Kannapolis, NC, was invited to teach a fermented foods class at the American Association of Holistic Nurses. Everyone took home a jar of her own.



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## LOCAL CHAPTER BASIC REQUIREMENTS

1. Create a food resource list of organic or biodynamic produce, milk products from pasture-fed livestock (preferably raw), pasture-fed eggs and livestock and properly produced whole foods in your area.
2. Provide a contact phone number to be listed on the website and in our quarterly magazine.
3. Provide Weston A. Price Foundation materials to inquirers, and make available as appropriate in local health food stores, libraries and service organizations and to health care practitioners.
4. Provide a yearly report of your local chapter activities.
5. Be a member in good standing of the Weston A. Price Foundation.
6. Sign a contract on the use of the Weston A. Price Foundation name and trademark.

## OPTIONAL ACTIVITIES

1. Maintain a list of local health care practitioners who support the Foundation's teachings regarding diet and health.
2. Represent the Foundation at local conferences and fairs.
3. Organize social gatherings, such as support groups and pot luck dinners, to present the Weston A. Price Foundation philosophy and materials.
4. Present seminars, workshops and/or cooking classes featuring speakers from the Weston A. Price Foundation, or local speakers who support the Foundation's goals and philosophy.
5. Represent the Weston A. Price Foundation philosophy and goals to local media, governments and lawmakers.
6. Lobby for the elimination of laws that restrict access to locally produced and processed food (such as pasteurization laws) or that limit health freedoms in any way.
7. Publish a simple newsletter containing information and announcements for local chapter members.
8. Work with schools to provide curriculum materials and training for classes in physical education, human development and home economics.
9. Help the Foundation find outlets for the sale of its quarterly magazine.

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## CHAPTER RESOURCES

Resources for chapter leaders can be accessed at [westonaprice.org/local-chapters/chapter-resources](http://westonaprice.org/local-chapters/chapter-resources), including our trifold brochures in Word format, chapter handbook and PowerPoint presentations.

## LOCAL CHAPTER LIST SERVE

Thank you to Maureen Diaz, a chapter leader in Virginia, for administering the local chapter chat group. New chapter leaders can sign up at <http://groups.yahoo.com/group/wapfchapterleaders/>.

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Gisborne East Coast: Bridget Scully & William Lane 06 8633042 & 02 1101 7405, [bridgetscully@gmail.com](mailto:bridgetscully@gmail.com), [kiwilampo@gmail.com](mailto:kiwilampo@gmail.com)  
Hawkes Bay: Phyllis Tichinin 64 6874 7897, [phyllis@truehealth.co.nz](mailto:phyllis@truehealth.co.nz)  
Palmerston North: Susan Galea 646 324 8586, [susangalea@hotmail.com](mailto:susangalea@hotmail.com), [realmilk.co.nz](http://realmilk.co.nz)  
South Canterbury: Carol Keelty 03 6866 277, [bckeelty@outlook.com](mailto:bckeelty@outlook.com) & Inez Wilson [inezmwilson@xtra.co.nz](mailto:inezmwilson@xtra.co.nz)  
Tauranga: Natasha Lucas 02 1047 1501, [nlucas@mykolab.ch](mailto:nlucas@mykolab.ch)  
Wellington: Ian Gregson 64 04 934 6366 [wapf@frot.co.nz](mailto:wapf@frot.co.nz) & Deb Gully (04) 934 6366, [deb@frot.co.nz](mailto:deb@frot.co.nz), [wapfwellington.org.nz](http://wapfwellington.org.nz)  
NZ Resource List: Ian Gregson and Deb Gully, [frot.co.nz/wapf/resources.htm](http://frot.co.nz/wapf/resources.htm)

# International Chapters

## NORWAY

Hedmark (Stange): Sindre Vaernes & Tom Olsen 4847 1030, [sindre.vaernes@gmail.com](mailto:sindre.vaernes@gmail.com)

## PERU

Lima: Verónica Belli Obando & Úrsula Sandoval Portella 511 451 1316, [veronicabelli90@gmail.com](mailto:veronicabelli90@gmail.com)

## PHILIPPINES

Metro Manila: Tess Young 63 915 486 5303, [livingfoodsbc@gmail.com](mailto:livingfoodsbc@gmail.com), [chapters.westonaprice.org/metromanila/](http://chapters.westonaprice.org/metromanila/), [livingfoodsbuyingclub.com](http://livingfoodsbuyingclub.com)

## POLAND

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## PORTUGAL

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Porto: Hugo Dunkel Matos Couto e Neiva 00 351 914338761, [hugo.dunkel.porto.wapf@gmail.com](mailto:hugo.dunkel.porto.wapf@gmail.com)

## SINGAPORE

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## SLOVAKIA

Šana and Dunajská Streda: Monika Jarosiova 0903 887704, [jarosi.monika@centrum.sk](mailto:jarosi.monika@centrum.sk), [www.vyzivujucetradicie.wbl.sk](http://www.vyzivujucetradicie.wbl.sk)

## SPAIN

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Malaga: James Fehr & Craig Chanda, 0034 622506214, [jamiefehr@fastmail.es](mailto:jamiefehr@fastmail.es)

## SWEDEN

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## SWITZERLAND

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## UNITED KINGDOM - ENGLAND

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Derby: Russell Davison 01332 737216, [Russell@davisonproperty.co.uk](mailto:Russell@davisonproperty.co.uk)

Herefordshire: Sally Dean 01432 840353, [sally.dean@myphone.coop](mailto:sally.dean@myphone.coop)

East London: Deborah Syrett 020 8518 8356, [medical.herbalist@ntlworld.com](mailto:medical.herbalist@ntlworld.com)

Kent: Keli Herriott-Sadler 01732 354 527, [keli@herriott-sadler.co.uk](mailto:keli@herriott-sadler.co.uk), [chapters.westonsprice.org/maidstonekentuk/about-us/](http://chapters.westonsprice.org/maidstonekentuk/about-us/)

London: Philip Ridley [philridley@hushmail.com](mailto:philridley@hushmail.com), [westonaprice.london](http://westonaprice.london)

Wise Traditions London, Festival for Traditional Nutrition Phil Ridley, [westonaprice.london@gmail.com](mailto:westonaprice.london@gmail.com), [westonaprice.org/london](http://westonaprice.org/london), [meetup.com/westonaprice-london](http://meetup.com/westonaprice-london)

Nottingham, East Midlands: Jessica Taylor 0044 79 8046 2874, [clairebackhouse78@gmail.com](mailto:clairebackhouse78@gmail.com)

Surrey and Hampshire: Diana Boskma 44 1252 510 935, [dboskma@gmail.com](mailto:dboskma@gmail.com), <https://www.facebook.com/groups/336421596766813/>



## TRADITIONAL FOOD & HEALTH EVENT

Kent chapter leader Keli Herriott-Sadler organized a convivial Traditional Food & Health Event in November. Speakers Isobella Cooper, Khush Mark, PhD, and Ashvy Bardwaj, GP, presented information on lacto-fermented foods and other features of healthy traditional diets.



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## CO

Meadow Maid Foods, 100% grass-fed, grass-finished beef. On pasture year-round at the family ranch in WY. Production practices detailed on our website. Custom beef, Farmers markets, and food co-op in Fort Collins. meadowmaidfoods.com, (307) 534-2289.

Rafter W Ranch, Simla, CO. A family-owned ranch, practicing regenerative agriculture, bringing you nutrient-dense food. Our animals are **100% certified American Grass-fed**. Our beef is 30-day dry-aged. We also offer pasture-raised lamb and broiler chickens. Bones, offal (liver, tongue, oxtail, kidney, cheek, heart) and other choice cuts available. Bulk and piece orders. Pick-up locations along the Front Range and **NOW** shipping in CO. (719) 541-1002, www.rafterwranch.net

## FL

Pineshine Farms – We raise grass-fed, grass-finished beef and pasture raised chicken and eggs! Our animals are free from vaccines, antibiotics and hormones. We offer **national shipping** and local pick-up. Please visit our website www.pineshinefarms.com or send a note to info@pineshinefarms.com.

## IN

100% grass-fed raw butter, cheese, and other dairy products, **will ship**. Also available in Indiana only: 100% grass-fed beef, veal and whey/skim fed pork. Check out our online store for other local products available at https://thefarmconnection.grazecart.com. Alan & Mary Yegerlehner, Clay City, Indiana (812) 939-3027.

Spring River Dairy (Fry Farms Co-op) has raw milk and milk products including 5 raw milk cheeses from healthy Jersey cows grazed on organically managed pasture and hay. Available to herd-share members. Delivery to Fort Wayne and Columbia City. Fry Farms Co-op (260) 704-0132.

## MA

Many Hands Organic Farm in Barre, MA. All products certified organic and free range. Lamb, pork, chicken and beef stocks, pork, chicken, turkey and 26 weeks of CSA. No till, nutrient dense. www.mhof.net; (978) 355-2853; farm@mhof.net.

## MD

100% soy-free chicken, eggs, pork and beef. Chicken livers, chicken feet and heads. Bacon and sausage. Raw pet milk. Raw milk blue and cheddar cheese by cheesemaker

Sally Fallon Morell. **Will ship** whole cheese wheels. Southern Maryland, within 1 hour of downtown Annapolis and Washington, DC. Saturday farm tours. Store open Thursday to Saturday 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

Nick's Organic Farm. Grass-fed beef (no grain ever), free range eggs, pastured chicken and turkey. Liver, organ meats, and bones. Organic poultry feed. Pick up in Potomac or Buckeystown. Our livestock are rotated to fresh pastures on our fertile organic soils and receive organic feed, no hormones, antibiotics, or animal parts. We raise our cows 100% grass-fed. We raise our hay, raise and grind our own grain into poultry feed and process our poultry. Quality organic products since 1979. (301) 983-2167, nicksorganicfarm@comcast.net, nicksorganicfarm.com.

## MI

Creswick Farms. Dedicated to raising healthy, happy animals—lovingly cared for just as Mother Nature intended—which provide high-energy, nutritious and delicious food sources for health-conscious individuals. No antibiotics, steroids or GMOs ever fed to our animals! (616) 837-9226, CreswickFarms.com.

Pastured pork, chicken, beef and lamb sold from farm or delivered monthly to your home from Grand Rapids to Cadillac; Muskegon to Mt Pleasant. No GMOs, no soy and no chemicals. Come visit the farm! Provision Family Farms, White Cloud. (231) 689-0457, provisionfamilyfarms@gmail.com, www.provisionfamilyfarms.com/shop-the-farm.html.

## MN

Farm On Wheels offers animals raised green grass-fed & certified organic. Nutrient-dense beef, lamb, chicken, eggs, turkey, goose, duck, and pork. No corn or soy. Farmers Market year around in St. Paul, Prior Lake, Northfield. Linda (507) 789-6679, farmonwheels.net, farm\_on\_wheels@live.com.

## MO

Fruitful Hills. Grass-fed raw milk, cheese, butter, etc. Raw goat's milk. Pastured pork, chicken, turkey and eggs. Grass-fed beef. Local raw honey. Fermented veggies. Our summer and winter CSA offers fresh organically raised vegetables. Dropsites in select areas. (660) 938-4291.

## NY

Raw milk, cheese, butter, etc. from 100% grass-fed Jersey cows. 100% grass-fed beef

and lamb. Pastured pork, chicken and turkey (soy-free options available). Fermented veggies and more! Have dropsites in select areas or **can ship**. Call for details. Pleasant Pastures (717) 768-3437.

Dutch Meadows brings you the finest in high quality grass-fed meats and organic dairy products, raised in harmony with the land. Order online and choose from hundreds of farm products, **WE SHIP**. Convenient pick-up locations in NYC. (717) 442-9208 info@dutchmeadowsfarm.com – www.DutchMeadowsFarm.com.

MYS-permitted raw milk on Long Island, from grass-fed pastured Jersey cows. Visitors welcome. 5793 Sound Ave, Riverhead, NY 11901. (631) 722-4241.

## OH

Heritage Devon beef, 100% grass-fed, no antibiotics, no growth hormones. Selling full cow, 1/2 cow or individual cuts from my ranch in St. Leon, Indiana (5 miles off I-74) or at "Lettuce Eat Well Farmers Market" in Cheviot, Ohio (western suburb of Cincinnati), OH – www.lewfm.org) first Friday of every month. Also pastured pork, 100% antibiotic free, fed minimum amount of non-GMO grain, 100% outdoors on pasture and woods. Pigs use small huts for shelter and farrowing. All meats USDA inspected. To see how we raise our beef and pork plus important health links visit our website www.abundantgreen-pastures.com. For more information call Mike at (812) 637-3090.

Soaptown Poultry. Fresh eggs from chickens pastured on high omega-3 forage, supplemented with organic, non-GMO, soy-free feed (including kelp and probiotics). The richest yolks you have ever seen. Raised responsibly in Lordstown, Ohio (halfway between Cleveland and Pittsburgh). (330) 550-9745.

Sugartree Ridge Grassfed Herdshare/PMA, located 60 miles east of Cincinnati in Highland County. We deliver 100% grass-fed milk, optional A2-A2 milk and many other products to twelve delivery sites in Cincinnati. Farm and contact address is: 6851 Fair Ridge Road, Hillsboro, OH 45133-9548.

## OR

Grass-based biodynamic raw milk dairy offering Jersey Hi-creamline milk, cream, golden butter, cottage cheese and aged cheeses. Soy-free veal and pork seasonally. On farm sales and membership club. **Can ship**. Sherry and Walt (541) 267-0699.

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## PA

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RAW CHEESES made from milk from our herd of 100% grass-fed cows on our organically managed farms. Prices start at \$5.25/lb. **WE SHIP**. Oberholtzer at Hilltop Meadow Farm. (570) 345-3305.

Thousand Hills Grazing (in Central PA) is taking orders for nutrient dense pastured poultry (soy free and non-GMO) and grass-fed beef moved daily to fresh pasture. Contact Cassie Seppanen at (717) 636-0299 or visit bcseppanen.wixsite.com/thousandhillsgrazing for more information.

Raw milk cheese from our grass-fed Jerseys, made on our family farm with Celtic sea salt. No grain feed. Also grass-fed beef and pastured chickens, turkeys and eggs. All soy-free, no hormones or synthetics. On-farm sales, **will ship cheese**. Wil-Ar Farm, Newville, PA (717) 776-6552.

## VA

Salatin family's Polyface Farm has salad bar beef, pigator pork, pastured chickens, turkeys and eggs, and forage-based rabbits. Near Staunton. Some delivery available. Call (540) 885-3590 or (540) 887-8194.

Raw milk, cheese, butter, etc. from 100% grass-fed Jersey cows. 100% grass-fed beef and lamb. Pastured pork, chicken and turkey (soy-free options available). Fermented veggies and more! Have dropships in select areas or **can ship**. Call for details. Pleasant Pastures (717) 768-3437.

## WY

Diamond S Ranch specializes in raw A2 milk from our 100% grassfed Jersey & Brown Swiss cows. Also offers grassfed beef, free range eggs, kombucha, sourdough bread, fermented veggies & more. For more information and check what's available at diamondsretreat.com. Wyoming delivery (307) 272-5334, text only.

Meadow Maid Foods, 100% grass-fed, grass-finished beef. On pasture year-round at the family ranch in Goshen County. Production practices detailed on our website. Custom beef, Cheyenne farmers markets and local delivery. (307) 534-2289, meadowmaidfoods.com!

## HEALTHY PRODUCTS

FLUORIDE FREE AMERICA Mission: Enhancing communication between individuals and organizations to exchange information and create strategies to end water fluoridation. facebook.com/waterliberty \* Twitter.com/FluorideFreeAmerica/waterliberty \* 70% of Americans are fluoridated. JOIN IN THE EFFORT TO END FLUORIDATION - You have the right to safe drinking water.

FRONTYARD FARM'S FARM-INSPIRED SOAPS. Connecting you with Virginia's pasture-raised farms through our lard and tallow soaps. Scented with essential oils. Absolutely no synthetic colorants, fragrances, soy, or palm. Great for gifts and everyday use. frontyardfarmva.com, frontyardfarm.etsy.com, and @frontyardfarm\_va!

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## CRAFTS

Beautiful crafts by local artists. Keep your gift-giving dollars in the USA. Alpaca blankets, socks and yarn; hand painted decorations, paintings by award-winning artist David Zippi; handmade quilts. Exclusive source of Nourishing Traditions posters. Saturday farm tours. Store open Thurs-Sat 10-6 or by appointment. P.A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

## DONATIONS

Please help us bring a service dog home to our autistic daughter. A traditional diet reduced her gut inflammation—this dog will reduce her high anxiety so she can thrive. Donate directly or commission a drawing for our cause: <https://www.theaccidentaloctopus.com/about-1/>.

## DVDS

DVD "Nourishing Our Children" recently launched a DVD that may be used for one's self-education or to present to an audience. You will learn how to nourish rather than merely feed your family. [nourishingourchildren.org/DVD-Wise.html](http://nourishingourchildren.org/DVD-Wise.html) **Free shipping!**

## EMPLOYMENT OPPORTUNITIES

DIAMOND S RANCH is seeking a ranch couple or individual to be the production manager at our micro dairy & ranch store. Duties include but are not limited to: morning milkings, product production, keeping our customers up-to-date & sale records management. Resumes to [kgrob324@gmail.com](mailto:kgrob324@gmail.com).

PERMACULTURE FARM near Tampa FL seeking farming partners. We grow vegetables (in dirt), perennials, and manage a small herd of water buffalo for milk and meat. 54 acres with wetlands and pasture, small orchard, building, equipment, solar systems, housing, and our interests are community, sustainable living, promoting the Weston A. Price Foundation, regenerative farming, ecology, social activism, etc. We are a older couple that want to continue farming. Contact Jon at (813) 708-3179 or e-mail [ecofarmfl@yahoo.com](mailto:ecofarmfl@yahoo.com).

We are seeking a middle aged couple to move into our log home and care for our small herd of dairy cattle. Knowledge of organic farming, animals and cheese making helpful. Does this look like something you could enjoy? Come give it a try! – Commit to 6 months or longer if both couples find a good fit. Couple mid 60's due to health reasons need a sabbatical from our new and fast growing A2 raw milk micro-dairy in Wyoming. For more information send email w/ resume [diamondsretreat@gmail.com](mailto:diamondsretreat@gmail.com); [diamondsretreat.com](http://diamondsretreat.com).

## HEALING ARTS

DIAGNOSIS+NUTRITION HEALTH COACH TRAINING for health care professionals and the general public; this "no pressures" integrative program is available online and in-person. Learn diagnosis techniques to create the best diet/lifestyle program for yourself and others. John Kozinski MEA, (413) 623-5925 [www.macrobioitoic.com](http://www.macrobioitoic.com).

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VIROQUA NUTRITION COUNSELING is a traditional foods-based practice in South-west Wisconsin. Laura Poe, RD is a holistic dietitian, culinary instructor and WAPF member. In-person or distance consultations available. Email Laura at laurapoerd@gmail.com for more information or to schedule an appointment. Initial consults are \$100, \$75 for follow-ups.

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HISTORIC HOUSE and property for sale, walking distance to Sally Fallon's P A Bowen Farmstead and farmstore selling raw milk and pasture-raised products. 5 bdr, 5 bath, 78 acres, \$775,000. 16002 Doctor Bowen Rd, Brandywine, MD. Phone: (443) 256-3773.

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SOUTHERN MARYLAND – Farm stay at P A Bowen Farmstead. Living room with kitchenette, 1 bedroom, plus cots, to sleep 4, even 6 total. Barbeque, pool, private entrance. Tree house for children. Walks, farm activities. 1 hour from downtown Washington, DC and Annapolis. Listed at AirBNB or contact Lindsay at [farmstay@pabowenfarmstead.com](mailto:farmstay@pabowenfarmstead.com). 15701 Doctor Bowen Rd, Brandywine, MD.

WAPF-ORIENTED RETREAT ON THE BEACH IN COSTA RICA – December 12-December 17. Register by October 30: \$797/person + lodging includes meals, cooking classes, guided walks, soap making and bird watching. Hotel and Club Punta Leona, Jaco, Costa Rica. Organized by chapter leader Gina Baker. Information [gmschler@yahoo.com](mailto:gmschler@yahoo.com); 011-506-2289-8806

## NEW FILM

Autoimmune documentary in post production seeks funding or investors. This film tells the stories of those who kept searching

for an answer to their challenge and are now lighting the path of healing for others. Contact: Gabe - 310-779-2816 [www.goldenfilmproductions.com/in-production](http://www.goldenfilmproductions.com/in-production).

Diana Rodgers is a real food nutritionist living on a working farm making a documentary called Kale vs. Cow that will defend the nutritional, environmental and ethical case for better meat. Endorsed by WAPF, Savory Institute, Animal Welfare Approved. Contributions are tax-deductible. [Sustainabledish.com/film](http://Sustainabledish.com/film).

## WAPF RESEARCH

ONGOING PROJECTS SHARING THE BENEFITS OF A WAPF DIET FOR GROWING CHILDREN: Johanna Keefe, PhD, RN, GAPS/P, has completed her doctoral research through the California Institute of Integral Studies (CIIS) revealing, though in-depth interviews, the lived experience of mothers as they describe their lifestyle following a real food diet based on the principles of the WAPF. Please consider contributing to her post-doctoral project to collect a more robust sample of mothers who are finding positive outcomes over time for their children and teenagers on a traditional diet. You can begin by offering your story to the research blog [www.growingsuccessstories.org](http://www.growingsuccessstories.org), which may serve to seed other doctoral studies, and also contribute to her forthcoming project: a published photo-essay leading to an uplifting film to inform and inspire our next generation of parents. If you would like to find out how to contribute to these projects, please contact Johanna through email at [jmkeefe@endicott.edu](mailto:jmkeefe@endicott.edu) or by phone at (978) 290-0266.

## TRAVEL



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*Abraham Lincoln*



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Please call for membership contract form and pricelist.



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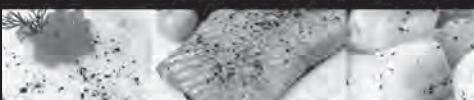
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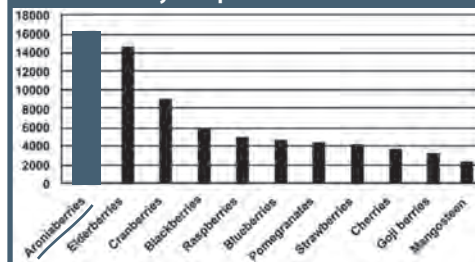
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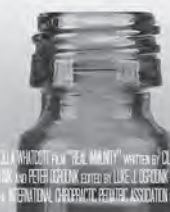


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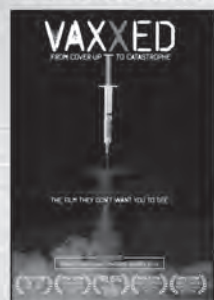
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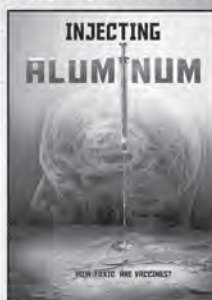
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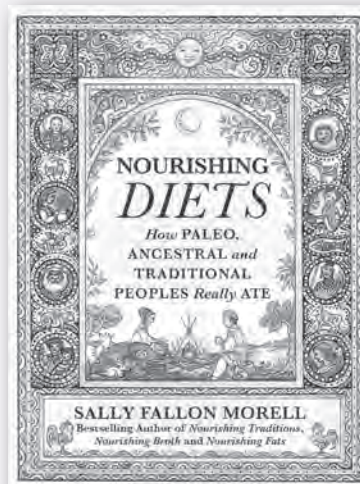
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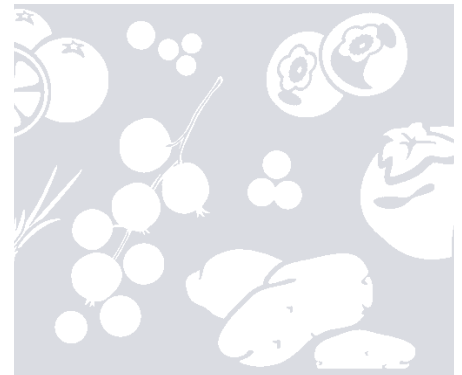
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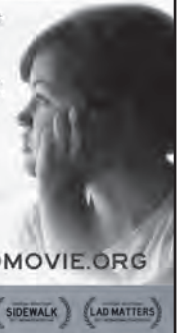
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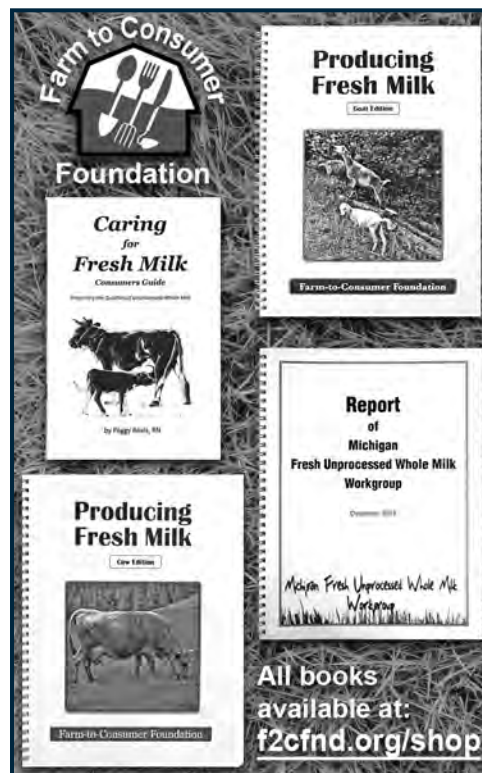
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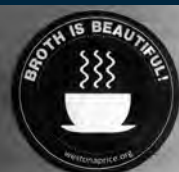
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# Upcoming Events

2019

- February 9**     **Eemlandhoeve, Netherlands:** Wise Traditions Netherlands with the theme 'gut health'. Speakers include Dr. Natasha Campbell-McBride. [https://www.ticketkantoor.nl/shop/wisetraditions?fbclid=IwAR34i1B7igQp2yt9i\\_4z9VB4sjS1ad\\_5pbSWbHiAq48HIHNdLUW972PxICQ](https://www.ticketkantoor.nl/shop/wisetraditions?fbclid=IwAR34i1B7igQp2yt9i_4z9VB4sjS1ad_5pbSWbHiAq48HIHNdLUW972PxICQ). **Contact:** Tanja Stevens [tanjastevens@hotmail.com](mailto:tanjastevens@hotmail.com).
- March 23**     **Los Angeles, CA:** Nourishing Traditional Diets by Sally Fallon Morell. **Contact:** [charlesbartht@gmail.com](mailto:charlesbartht@gmail.com)
- May 28–June 2**     **Almond, Wisconsin:** Midwest Women's Herbal Conference with Susun Weed, Mary Lou Singleton, Venice Williams and Mimi Hernandez. [midwestwomensherbal.com](http://midwestwomensherbal.com). **Contact:** [herbwomen@gmail.com](mailto:herbwomen@gmail.com).
- June 29**     **Hudson, NY:** Traditional Diets, The Oiling of America, All About Cheese by Sally Fallon Morell. **Contact:** [info@churchtowndairy.org](mailto:info@churchtowndairy.org)

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