



Wise Traditions



IN FOOD, FARMING AND THE HEALING ARTS

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President's Message

This issue focuses on diets for the elderly. It will come as no surprise to our members that the same dietary principles that we espouse for young people apply as well to the elderly. In fact, it's as we age that our dietary mistakes are manifested as various disease conditions, while dietary wisdom practiced during growth and in the prime of life bring the blessings of health and happiness to our later years.

The realization that we can avoid senility, frailty, low energy, confusion and depression, even in advanced old age, should provide inspiration to enjoy real foods and plenty of good fat during the younger years.

Both my husband's parents lived more than one hundred years, as did several of his aunts and uncles. They were all of sound mind and active until almost the end. Geoffrey's mother wrote letters in perfect handwriting—with nary a tremor.

What did all of these centenarians have in common? They ate real food, they cooked at home, and they had a nutrient-dense diet that contained plenty of New Zealand butter, shellfish, organ meats and fresh vegetables. In addition, not one of them was a coffee or tea drinker. Not one of them smoked and for the most part they abstained from alcohol. However, they didn't deprive themselves. Geoffrey remembers one aunt who loved battered fish fried in beef tallow. And all of them enjoyed a moderate amount of homemade desserts.

Maybe it's a sign of old age, but it seems to me that our international conferences get closer and closer together. Hardly have we finished one conference when the next one is upon us. Truly, our November conference is just around the corner. See pages 12-15 for details, including a schedule. This year we will have forty speakers and fifty-one presentations covering everything from complex nutritional science, to cooking to backyard gardening. Our awards banquet will feature the fascinating Denise Minger, speaking on "Death by Food Pyramid."

So don't delay in registering; there's a distinct possibility we may sell out.

We also now have two regional conferences per year—these are scaled-back get-togethers that present the basics to newcomers, along with a more advanced track. The Fall regional will be held September 20-21 in Southbridge, Massachusetts. See page 19 for details. This is a great venue for bringing a friend or family member who has shown some interest in the WAPF dietary principles. The conference puts newcomers on the right path, and inspires old-timers to continue with their diet of real foods.

Letters

GMO VICTORY

I live in Jackson County, Oregon, where local people recently passed a GMO crop ban initiative that made national news. Here's what happened:

Over two years ago, a local organic seed grower discovered that Syngenta, a Switzerland-based corporation, had for a number of years leased many small tracts of local land for GMO beet seed production, distributed so widely that no pollen-free place was left for related organic seed production. Syngenta's move into the valley had been so covert that hardly anyone knew about it.

A "GMO-Free Jackson County" group gathered signatures to put an initiative on the ballot. The state legislature responded by taking away local rights, allowing only state control of GMO farm issues. Jackson County was exempted because they had already qualified for the ballot. A large number of farms and businesses joined the effort with "Our Family Farms Coalition." Our local WAPF chapter added support.

Opposition was fierce, with large donations from Monsanto, Syngenta, nationwide farm bureaus and sugar and food industries, using local farm bureaus and "Good Neighbors Farmers PAC." Most local government officials and news editors vigorously opposed the measure, repeating arguments identical to agribusiness propaganda, and claiming that the conflict could be resolved if farmers would be "good neighbors." Scientists from Oregon State University and the University of California at Davis assured the public that every aspect of GMO science had been thoroughly tested and found to

be absolutely safe, and that any fear of contamination of organic crops was unfounded.

A Portland publicity firm had plenty of money for TV spots, multiple mailings to voters and phone calls from Nevada. Voters were told that enforcement of the measure would cost so much that law enforcement budgets would be decimated and teams of enforcement agents would be inspecting local farms and gardens.



With a very high voter turnout, the initiative passed with 66 percent in favor of banning GMO crops. Neighboring Josephine County passed a similar ban with a 56 percent margin, in spite of the state takeover.

David versus Goliath, or the mouse that roared? What I see is a massive increase in public awareness that GMO is not safe.

If the FDA had not conspired with agribusiness to decree GMO safe, the industry would have been required to

do adequate testing. Glyphosate and Bt crops of soy, corn, beets and alfalfa would not pass real tests.

Oregon is now gathering signatures for a statewide labeling requirement. We will win again. A band of local volunteers with tremendous effort can be an effective force.

See the website www.ourfamilyfarmscoalition.org or contact me at imedwds@gmail.com.

Ira Edwards
Medford, Oregon

HARMFUL TO HUMAN HEALTH?

I didn't renew because I started investigating more about health and found that arachidonic acid [found in foods like butter and liver] is very harmful to human health, causing inflammation down to a molecular level.

Name Withheld

Chris Masterjohn replies: There are two problems with the idea that arachidonic acid is inflammatory. The first is that inflammation is important, and should not be viewed as a bad thing. The second is that arachidonic acid is not "pro-inflammatory" or "anti-inflammatory," but is rather a raw material that our bodies use to regulate the process of inflammation.

Inflammation protects us from infection and cleans up damage within our bodies. Inflammation is one of the reasons we are all alive. Our bodies regulate the initiation of inflammation and regulate the resolution of inflammation. We do not want a diet and lifestyle that are "pro-inflammatory," nor do we want them to be "anti-inflammatory."



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We want to assist our bodies' attempts to properly target inflammation, initiate it when needed, and resolve it when needed, by giving them all the raw materials they need to execute and regulate these processes.

Arachidonic acid is a raw material that our bodies use to communicate about inflammation. When we need to initiate inflammation, our bodies use arachidonic acid to make the signal. When we want to resolve inflammation, our bodies use arachidonic acid to make the signal. In our guts, our immune systems use arachidonic acid in a very special way: there it forms a critical part of the signals that train our immune systems to tolerate the foods we eat instead of mounting attacks against these foods.

Interfering with arachidonic acid metabolism by using "anti-inflammatory" drugs has been shown to contribute to food intolerances and autoimmune diseases by interfering with these signals.

In order to understand arachidonic acid in its proper context, we need to move beyond terms like "pro-inflammatory" and "anti-inflammatory" and instead think of supporting homeostasis. One part of supporting homeostasis is providing our bodies with all the nutrients they need, and arachidonic acid is one of them.

THERAPEUTIC SEA WATER

I want to take this opportunity to share something with you. A friend just sent me a video filmed by a Spanish

activist, Alicia Ninou, which was just subtitled into English, and which covers, among other issues, the use of sea water for therapeutic purposes. Spain is probably the world's leading country on the use of therapeutic sea water.

This is the link: <https://www.youtube.com/watch?v=vL4WrJ9GYTs>. The main theme of this video is a new medical policy that is currently being applied in Nicaragua. They are using alternative medicine therapies as part of their public health program, which is very impressive indeed. One of the therapies they use is based on taking sea water orally. This subject is discussed in depth from minute 6:20 to minute 20:20.

Monica Parea
Gijon, Spain

WAPF on the WEB

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TWITTER and FACEBOOK: twitter.com/WestonAPrice, facebook.com/westonaprice We have a Spanish language page, too: facebook.com/westonaprice.espanol We also have several campaigns, facebook.com/findrawmilk, facebook.com/nopinkslimeburger and facebook.com/soyalert, plus facebook.com/RedMeat4Health. Facebook is a wonderful outreach tool. Please be sensitive to newbies!

YOUTUBE & Flickr: youtube.com/TheWestonAPrice, flickr.com/photos/westonaprice

BLIP TV: westonaprice.blip.tv These are longer format videos such as our press conference on the USDA Dietary Guidelines and Farmageddon panel discussions.

BLOGS: See blogs by Chris Masterjohn, PhD, and Kaayla T. Daniel, PhD, at westonaprice.org/blogs. And check out our new realmilk.com/blog. Share your raw milk and WAPF testimonials on our publicist's blog: hartkeisonline.com. Contact Kimberly at press@westonaprice.org.

ALEXA WEBSITE RATINGS: westonaprice.org is rated seventh among nutrition websites at [alexa.com](https://www.alexa.com) (see www.alexa.com/topsites/category/Top/Health/Nutrition) and is rated first for the category "alternative nutrition." Please visit the Alexa site and post a comment about our website. You can help raise our rating by visiting our website frequently and linking to it from your own website, Facebook page or blog.

INSTAGRAM: Users of Instagram, please tag your posts with #WAPF and #westonaprice.

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THE MILK DIET

A few months back, I was with my mom in the attic of her home in St. Paul (the one I grew up in) and we were putting away Christmas decorations, when I looked over at a shelf on the wall and saw some old letters that were stacked on top of each other. I pulled one of the letters out of the middle and saw it dated 1941 and that it was written to my mother's parents (Mr. & Mrs. H. A. Peterson) from my mother's maternal grandfather, Dr. Grant Simpson Van Horn.

Grant was a doctor in Batavia, Ohio up until the early 1940s. This letter that I randomly selected must have been meant for my eyes to see! It is dated October 20, 1941 and here is what it said:

"Dear Folks, Yours at hand and thanks for invitation to be with you Sunday. Will try to come down about the usual time unless something prevents. Have a confinement at Elk-lick overdue and it might come just as we wanted to get away. I am not feeling at all well & have decided on a milk diet. If that don't help, I am lost. Was up every hour from 9 on and am feeling like I have not been having enough nitrogenous food & am turning to milk diet as cannot eat or chew tough meat with store teeth. Love to all, G.S.V (Dr G. S. Van Horn, Batavia, Ohio)"

Well, sadly for my great-grandfather, he was at the last stage of prostate cancer at the time of this letter and passed away just a few short weeks later.

Finding this letter was no accident. I truly believe this letter was meant for me to find, hidden between all the other

letters and antique items in my mother's attic. To learn that my great-grandfather understood the importance and healing ability of the raw milk diet means more to me than words can express. I feel so blessed to have found such a gem amongst the many treasures in the attic, especially because of my diligence with the Raw Milk Campaign I am working on so hard here in Minnesota. Perhaps



Wedding day photo taken 1899 of Dr. Grant Van Horn, back left, next to his bride, and pictured with her four brothers.

I'll bring this letter along with my raw dairy petition when I get my meeting with our governor, and prove to him that the milk diet was real, and relied upon for healing!

Diane Smith, chapter leader
White Bear Lake Area, Minnesota

DILEMMA

My husband and I just became parents in March when our WAPF baby Evangeline arrived. We have both been eating a very healthy diet prior to and during my pregnancy and Evie is a very healthy girl.

What concerns us is the fact that parents-in-law, my parents, some relatives and friends have been making remarks about Evie getting treats from them here and there—such as purple cupcakes, Doritos, Coke. . . you name it. We are afraid that even though they all know our beliefs, they are going to sneak things in and possibly pressure her to eat them. We hope that Evie is going to refuse them due to the fact that her taste buds are going to tell her the truth. We understand we cannot avoid everything 100 percent but . . .

My question is, is there a special *Wise Traditions* issue or any like-minded resources that discuss a similar topic? I wonder how other WAPF parents deal with this, especially the ones that send pictures of their babies to the Healthy Baby Gallery. My mother-in-law is convinced that cereal is the way to go for a baby even though I gave her some WAPF flyers, etc. Any advice is greatly appreciated! Thank you!

Anna Simpson NTP, MA
Jared Simpson
Vernon, Connecticut

My own advice would be to make it very clear to family members that you don't want junk food given to your children. Bring healthy alternatives to family gatherings and don't accept invitations from these family members to watch the child during mealtimes or for sleepovers. We invite comments and other ideas from our readers. The Nourishing Our Children Facebook page often has discussions on this



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topic. See www.facebook.com/groups/nourishedchildren/.

LINCOLN, NEBRASKA

I went to Lincoln, Nebraska last week and rented a room with a WAPF family (hotels were full for the Berkshire Hathaway Shareholder event that weekend). I had an incredible time. WAPF education has gone far and deep into America and has helped entire families become healthy and mentally well-adjusted that give birth to children free from chronic, lifelong problems. It was shocking for me to see the difference between WAPF nourished children and non-WAPF nourished children. We all owe the Foundation a great debt of gratitude.

I did not know Nebraska lets its farmers sell raw milk on their farms. I went to four different farms in the four days I was there and drank some of the best Jersey milk I've ever tasted. I think I overdosed on milk, pastured eggs and fine cheeses! All the farmers' wives had heard of WAPF, fed their children along the same principles, and the children that I met were simply bursting with life, health, curiosity and intelligence.

Also, I met farmers Charuth and Kevin Loth who make goat milk and cheese. They want to create a fund to purchase a one-hundred-sixty-acre adjacent lot for about one million dollars, where they want to set up a farmer-owned community—before the land

gets consumed by McMansions. Do you have any thoughts on these matters? Land trusts? Non-profit grants? Farm loans? What's a good structure? Any ideas? If so, do pass them along to me. There is a somewhat similar three-hundred-acre intentional community of fifty first-generation farmers here in Sebastopol. It's very cool, and they are just starting. I think two of the farmers bought this land outright several years ago. They are still figuring out leasing arrangements, revenue sharing, etc.

Sushama Gokhale
Larkspur, California

VITAMIN D LEVELS

Chris Masterjohn has made so many valuable contributions to our understanding of how food and health intersect—I have great respect and gratitude for him. But his article, "Beyond Cholesterol: Fat-Soluble Vitamins in the Prevention of Heart Disease," left me uneasy about his conclusions on optimal serum 25(OH)D levels. I am not a scientist, only an avid reader and thinker about food and health, so please forgive my layman's vocabulary and lack of clarity.

I think that what Masterjohn really wanted us to take away from the article was that we don't know exactly what the connections between serum 25(OH)D levels and heart disease are, and we need to ensure that we are getting A, K and D together, through food sources. I agree.

But at the same time, he makes this statement: ". . . people with vitamin D status higher than 40 ng/ml. have a higher risk of heart disease." As evidence for this statement, he apparently relies on two citations—the animal study by

Taura, Taura, Kamio and Kummerow (citation 16) and the chart in Figure 2. I don't think these two pieces of evidence are strong enough to support such a definitive statement.

The animal study showed calcification and lesions in coronary arteries (similar to that seen in humans) in pigs who were supplemented with vitamin D. But the pathology was found only in pigs who had been supplemented with 31,250 IU or more per kilogram of feed. I don't know how much feed pigs consume but my guess is it is some major fraction of a kilogram per day, making their supplementation level much higher than most humans would take. Their serum 25(OH)D levels were apparently never measured.

The other piece of evidence was the chart shown as Figure 2. At first blush, it seems to support the premise—the rate of major cardiac and cerebrovascular events is lowest for a 25(OH)D level of 20-40, and is higher for the >40 group.

But this study was not done on a general population—the subjects were cardiac surgery patients. Could it be that lower vitamin D levels were part of what got these people into the study group in the first place—and that if they had higher 25(OH)D levels and still wound up as cardiac surgery patients, that there were other underlying factors that undermined their health and increased their risk? In addition, what we are really looking for is—where does the right hand side of the U-shaped curve begin? But how can we tell, when everything over 40 is lumped together in a single band? What if everybody from 40 to 60 were fine, but then at over 60, the incidence of events jumped sharply? That could be depicted with the same graph.

SHOPPING GUIDE CORRECTION

New phone number
for Azure Standard
(971) 200-8350



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As I mentioned above, I agree with Chris's basic message about vitamin D. But the simplified statement, especially as it is highlighted in a side bar, is likely to send people running to the lab and panicking about their 25(OH)D levels if they are over 40. Based on the evidence presented in the article, I'm not sure that is warranted. We need more research on this question.

Pia Chamberlain
San Jose, California

Chris Masterjohn replies: Thank you for voicing your concerns about my article.

The phrase you quote, "people with vitamin D status higher than 40 ng/ml have a higher risk of heart disease," is part of a sentence explaining why many people might find this surprising. The initial statement of this fact is found two sentences prior to this, where Figure 2 is clearly provided as a reference. Figure 2, in turn, clearly cites the human study justifying this statement and the legend explains the data in more detail. You are correct that the figure does not show where the risk begins increasing. The paper from which these data are drawn provides a figure (Figure 2 in that paper, not in my article) that attempts to estimate this, and it shows that the risk of heart disease in those patients was lowest at approximately 28 ng/mL. Perusing the continuous curve from the original research paper leads to the conclusion that although the risk of heart disease begins increasing immediately thereafter, it does not become statistically significantly greater until about 40 ng/mL. I chose to provide my own bar graph derived from one of their tables (Table 2 in that paper, not my article) because the statistical analysis

of such a graph is less complicated than the analysis of the continuous curve, because I believe it is simpler and easier for most people to understand than the continuous curve, and because using it does not substantially change any conclusions.

The second paragraph after the phrase you quote from my article makes two important points that moderate the conclusion I drew from these data: one is that vitamin D status this high may be helpful in some people but harmful in others. I cited the specific example of the background diet and its content of vitamins A and K. The second is a point that you make, that the statistical correlation may not represent a cause-and-effect relationship.

There could be other contextual factors besides the background diet. As you point out, for example, these are cardiac surgery patients, which means they clearly have other cardiovascular risk factors. Similarly, the Israeli lifeguards with a mean 25(OH)D of just over 50 ng/mL and a 20-fold increase in the risk of kidney stones (referred to in the "Naked Ape" sidebar) also had signs of dehydration and sun damage that may have played a role in their kidney stones. One reasonable conclusion from this is that 25(OH)D over 40 ng/mL may contribute to soft tissue calcification in people with other predisposing risk factors, but not in everyone. This does not make it any less of a concern, because, if this is true, we don't yet know what all the relevant risk factors are.

Even so, we must keep in mind the consistency between this study and the meta-analysis cited in Figure 1 of my article. The meta-analysis showed that cardiovascular disease bottoms

out around 24 ng/mL in the general population, while a great unknown is associated with higher levels of 25(OH)D because of the paucity of data. This finding is very close to the level at which the risk of major cardiovascular events bottoms out in cardiac surgery patients. There is no basis for believing that the risk increases thereafter in the general population like it does in cardiac surgery patients, but there is only a very weak basis for believing that it does not. As described in the last paragraph of the "Naked Ape" sidebar, and as stated more briefly in the second paragraph after the phrase you quote, we do not know if correlations between 25(OH)D and good or bad health outcomes represent cause-and-effect relationships because there are a variety of things besides vitamin D exposure that affect 25(OH)D. Nevertheless, there is a general consistency between the epidemiology and the animal experiments that cannot be ignored. I cited evidence that both dramatic deficiencies and dramatic excesses of vitamin D have been shown to contribute to cardiovascular disease in animals by inducing soft tissue calcification, and I proposed a mechanism to explain this based on the regulation of vitamin K-dependent proteins by vitamins A and D.

You are absolutely correct to suggest that the animal experiments use more extreme changes in vitamin D status than we find associated with cardiovascular disease in humans, but animal experiments are always performed in the context of a genetically homogeneous animal population with homogeneous background diets meant to be nutritionally adequate. In humans, variations in vitamin D status occur in



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the context of many different genetic variations in nutritional requirements and considerable variations in the status of other nutrients, with the intakes of many other nutrients often inadequate. These variations mean that changes in vitamin D status are more likely to be harmful in some people than others, and more likely to be harmful in humans than in experimental animals.

My article was not intended to produce panic. Panic is very bad for a person's health, and few situations justify it. In this case, I concluded that "we need to pay more attention to optimizing the nutrient density and nutrient balance of the diet rather than overemphasizing the usefulness and importance of optimizing blood levels of vitamin D." I do not believe that shifting the emphasis away from optimizing 25(OH)D and towards a more holistic approach to health constitutes a state of panic and I do not believe it is likely to predispose someone towards panic. If anything, I think taking some of the emphasis off of optimizing a specific blood marker is likely to reduce anxiety.

I believe that you and I are in strong agreement that these studies raise many unanswered questions and that more research is needed, and I appreciate your critical feedback.

GMO MOSQUITOS

I just received my Spring *Wise Traditions* and read the piece about GMO mosquitoes. I wanted to give you more information to add to what you already have.

In February I was a guest and panel member for a day-long local food and sustainability workshop at Valencia College in Orlando. In the evening they

included Jeffrey Smith via Skype to join our discussions. He was in the Florida Keys working with local government officials there concerning these GMO mosquitoes which Oxitec, the British biotech company that developed the insects, would like to release into the Florida Keys as part of a test.

The short version of the story is that Jeffrey Smith discovered the GE gene that makes the mosquitoes sterile is unstable outside of the laboratory setting. Exposure to tetracycline causes the gene to fail and offspring to survive instead of die. Tetracycline, it turns out, is found anywhere there are factory-farmed chickens including bowls of dog food (made from factory farmed chicken) left outside in the neighborhoods where the GE mosquitoes are released.

I give more details in my blog article including Jeffrey's thoughts and comments from University of Florida scientists. Here is the link: <http://wellfedfamily.net/?p=490>

On another subject, I've been thinking a lot about the sacred foods detailed in Dr. Price's work, and the great effort made by the traditional populations to obtain certain nutrient-dense foods, and how this would have applied to the ancient Israelites of the Old Testament. I realized that the sacrificial laws given by God to the Israelites include a way for us to deduce the nutrient-dense (and therefore sacred) foods of these ancient people. Particularly with animals set apart for sacrifice we see specific mention of liver, kidneys and the internal fat surrounding these organs plus the very fatty parts of the meat such as the tail and the thigh.

The very idea of sacrifice means giving up something precious, some-

thing you would normally keep for yourself, and giving it up would create great hardship for you. So to have the command given to give up the internal organs and fatty portions and burn it completely—not getting to eat any of it—for the Lord seems to be God's way of highlighting the very crucial part these items would play in the nutrition and health of His people. Giving these valuable things to God meant their hearts were obedient and focused outwardly rather than selfishly. I wrote an article here <http://wellfedfamily.net/?p=823#comments>.

Thanks for all you do to promote good food, farming and health!

Lee Burdett

Saltamonte Springs, Florida

RAW MILK IN AUSTRALIA

Greetings from Australia! Despite a recent drawn-out court case where the judge ruled against raw milk sales, we continue to have clear access to real milk from a couple of dairies near Adelaide. These dairying families rely entirely upon the discerning people who buy directly from the farm as their sole means of income.

The court case involved a farming family named Tyler, who did things a bit differently, in that they offered not only cow-share opportunities, but they delivered the milk in 1.5 litre bottles (about 3 pints) to designated pick-up points in shops (with refrigeration cabinets, obviously) around the city. That use of shops was what drew attention of the food inspectors and led to the prosecution.

Not written in the judgment is a comment by the judge, saying "I grew up on fresh, raw milk, as did my parents and all the generations before me—and



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I am satisfied that there is no harm to be had by people using fresh, clean raw milk."

The dairy farm I patronize has been selling directly to consumers for more than forty years now—with no health scares ever!

John Patchett
Rostrevor, Australia

SENEFF ON CANCER

The recent issue's cancer article, by Stephanie Seneff, is one of the best, most, informative articles I've read in years! If only MDs would read it, too. I've read Dr. Price's take on cancer, even some works by Otto Warburg, and this piece ranks amongst them!

John Garbarini
Canar, Ecuador

ON KOMBUCHA AND MORNING SICKNESS

Some people are saying we shouldn't drink kombucha. Our family has been using kombucha daily for at least two years without any problems to our teeth, that is, until I accidentally started not fermenting it enough and added too much sugar. I started to get tooth decay again and I couldn't figure out what the problem was—although I hadn't been taking cod liver oil or eating liver much, I must admit. Then my husband started to complain of feeling sore and stiff again like the "old days" (before we changed from the Standard American Diet to the WAPF diet). I had previously dreamed that the kombucha was "poisoned," which didn't make sense at first.

So, you do have to be careful of the kombucha if you add too much sugar and are not eating as you should (liver, cod

liver oil, high vitamin butter oil, etc). I am also predisposed to tooth decay as I had rheumatoid arthritis (as does my mother), but my RA disappeared thanks to the WAPF diet. However, I was also physiologically stressed due to breastfeeding at the time of the kombucha incident.

You also might be interested in what I learned regarding morning sickness (which I got in spades with our first baby, pre-WAPF wisdom). I found with our second child that even though I drank loads of raw milk I would still get sick. When I started eating raw milk yogurt, I stopped getting morning sickness. As you can imagine, I consumed a lot of it. I also ate raw pineapple when I could get it, which was a nice combination with the yogurt.

When I got lazy and fell behind on the yogurt making, the morning sickness came back. I'm not sure if raw pineapple alone would stave off morning sickness or not, as I've heard that it does help prevent it.

Our second and third children are super healthy thanks to the wisdom we received from WAPF. Which brings me to the third tidbit, which is I discovered that if I eat anything that has been sprayed with pesticides or may have GMO in it (even secondary contamination from animals eating GM grains), our baby gets a terrible diaper rash. It looks more like a really bad sunburn. Even a tiny bit of (gasp!) chocolate inflamed it to no end. So, it pays to watch what you eat for your kid's sake! Our children have excellent eyesight, which is more than I can say for me.

God bless all of you for helping to save children (and adults) from a life of medical misery. Seeing people my age

(early forties) who are already failing in health makes me wish that more people would wake up and realize that their food is killing them.

Jenny Murdock
Littleton, West Virginia

MORE ON COCONUT OIL

Regarding letter from Louisa Williams about *Clostridium difficile*, I had *C. diff* caused by an antibiotic I was using (confirmed by blood tests, etc.) and discovered that coconut oil halts it in its tracks. I still take a tablespoon daily, unless I need to use it as an antibiotic (which I did for *C. diff*).

I also cured a massive abscess under a tooth with a coconut oil and sea salt mouth wash, as well as massaging the oil on the exterior of the jaw bone. It cleared it up within three days. Had I gone to a dentist, he would have prescribed an antibiotic, which I would have needed to take for five to seven days!

Coconut oil is even great for first aid—it seals and heals wounds and leaves no scar! Burns? No problem, just reach for the coconut oil and spread over area—the pain will be gone and there won't be any blisters.

The husband of one of our parishioners has Alzheimer's. She has started giving him coconut oil. What a difference after just a few days. He is bright, full of conversation, can now concentrate, and she does not have to tell him more than once to do something. I did warn her that it was not a cure and he would have to keep taking it. Like me, she puts it in his hot drinks.

Jenny Smith
Dunedin, New Zealand



Letters



CELL PHONE DANGERS

I thank Ken Hardy for his letter (Spring 2014) reminding us of the harm of cellphones. A great many people sense intuitively that there is something harmful about our electronic age, and in particular about computers and cell-phones. In some fundamental way these tools cheapen life and do us harm. Some intuit further that this mode of living is really an addiction that draws us away from healthy ways of living, and that ultimately carries a very high price.

As Ken Hardy reminds us, in some particulars we WAPF members do not need to intuit; we already know. It has long been said of human missteps that those people who are not part of the solution, are part of the problem. Sometimes a small group of people or even one person can make a great difference. It matters what we do. Chris Masterjohn has reminded us of Weston Price's humility; perhaps we want to adopt some of it and admit that we can be doing better.

A little story comes to mind of a travel agent talking to a would-be passenger on the Titanic:

"Look, you'll have a billiards room, squash courts, library and staterooms comparable to none; the appointments are the best anywhere."

"Yes, but the ship is going to the bottom."

"Oh, let's not think about that. Live in the present! Look how easy and convenient and comfortable it is."

David Ellis
Portsmouth, Rhode Island

SUSTAINABLE DEVELOPMENT?

Apparently this is the year for the global governance agenda, New World Order or The UN's Sustainable Development Agenda 21, to start taking the land from the rural owners and livestock owners. It is happening here in Washington state, but equally as much in every other state in the USA right now.

I have always said that the Agenda

21 plan was just going to be "theory" until the rubber actually met the road. It would all seem fine until it came time for them to start taking people's property and rights away in order to satisfy the Wildlands Project portion of Agenda 21. (If you don't know about the UN guidelines for the Wildlands Project, pick up a copy of my book called *The Perils of Sustainable Development*). At that point, I figured the wolf would be forced to shed his sheep's clothing and reveal who he truly was to the people; a predator waiting for the right moment to attack. That moment is coming to Washington on July 1st.

According to our legislative representatives, the governor of Washington has said he wants Washington be the shining beacon to the rest of the world on how to be green. This means that our regulations in Washington would have to be more intrusive and more demanding than anyone else's in the entire world. There's an economy-crushing statement

DR. PRICE 1940 RADIO INTERVIEWS NOW AVAILABLE ON MP3

Dr. Price's series of thirteen radio interview are now available to Price-Pottenger Nutrition Foundation members! The voice of Dr. Price is played by Ed Bennett, President of PPNF, and the radio interviewer is played by David J. Getoff, CCN, CTN, FAAIM, Vice President of PPNF. Every word spoken, however, was exactly how Dr. Price said it on the radio in 1940. For access, visit ppnf.org for details. Topics include:

- The purpose of Dr. Price's many trips to study primitive people.
- What guided Dr. Price in selecting places to study primitive races and where did he go?
- Why primitives were more handsome before having access to modern foods.
- The amount of vitamin A needed for efficient reproduction.
- Ease of childbirth among primitives and the difficulty among modern groups.
- How to ensure perfect offspring.
- What guided the primitives in their selection of foods.
- The effects of mineral depletion in the soil.
- The difference of the nutrients in milk depending on what is fed to the cows.
- Why modern science has not made use of the accumulative wisdom of the primitive races.
- Primitive races performing both simple and major surgical procedures.
- Sports that the Aborigines were required to master.



Letters



if I have ever read one. That is a global governance ideal, and not an American reflection. Nowhere in the U.S. Constitution does it say that we are to comply and submit to the sustainable development eco-governance regulations system of the United Nations—nowhere.

That is called "foreign governance" and requires a ratified treaty at the U.S. Senate level. If you might recall, we rejected the idea of "foreign governance" a few years back when we ran the British right out of our country! We didn't want it then and we don't want it now. When the governor or anybody else suggests that we need to be in compliance with "sustainable development," that is what they are referring to: the global eco-governance regulations system called sustainable development. So July 1st is fast approaching. The Washington landowners and livestock owners have tried unsuccessfully for the past eight years to pass bills in the legislature that would benefit the landowners and protect their private property rights and livestock ownership.

Almost every single attempt has failed, as we have been fighting against federal grants that are used to sway our politicians in the opposite direction. Now is the year we have been dreading and fighting to prevent—the year that the servant (government agencies) has become the tyrant and has morphed into some unruly agency that is now master and commander of the people, attempting to take people's private property through unconstitutional regulations and foreign dictates, and acting outside its legal boundaries provided for by the state and U.S. constitutions.

On July 1st, the Washington state Department of Ecology (DoE) can es-

tablish their own 75'-100' buffer zones around water areas and sub-irrigated areas on private property where livestock might be present. This single move will wipe out most livestock owners and crush our local economies, as the land they seek to regulate around these waterways is the best grazing land that people have available to feed their animals. It will wipe out many cattlemen because the cattle—that you and I eat—the best and healthiest meat in the world—require grass. The best grass and grazing is exactly where the DoE wants to stop all grazing. Do you agree that livestock owners should not be allowed to feed their animals? Do you agree that we don't need a local healthy food supply? Nobody in his right mind would ever agree to either of those things.

"Seventy-five to one hundred feet beyond the highest watermarks" means that a farmer could have his entire land boundaries within that watermark—some people have several thousand acres that exist within these watermarks, all of which they have bought and paid for at full asking price, and all of which they pay taxes on. Yet they are being told to give it up without due process of the law, which is a repeated requirement in both the state and U.S. constitutions, and they are also being told they must give it up without any form of a buyout transaction either. The DoE will offer a person a couple dollars per acre per year, even though the farmer had to pay full price. They are never presented with a legitimate buyout offer reflecting the current land values, and loss of revenue from legitimate livestock business transactions. Instead they honestly think people should just more or less give their land and their businesses to the agency at a

total loss to themselves, and yet still pay full taxes on it as well.

In history, the only time I have seen anybody demand land for free is when a country invades and conquers another country in a war.

So I ask you, when did an agency that was first established to serve the people and handle huge issues like industrial pollution on a mega scale slither into their current position of being our private property rights master, telling us to give them our private land without even having to go through both state and U.S. constitutional guidelines of due process?

"Due process" is guaranteed in both constitutions and simply cannot be trumped with the Revised Code of Washington—it's not even legally possible. Typically those kinds of practices are left to dictatorships and communist countries, and they have absolutely no place in our nation. So we must refuse to submit to anything that opposes our "due process of law" guarantee, which is repeated many times throughout both the state and U.S. constitutions.

René Holaday
Chewelah, Washington

This sounds like a good case for the Farm-to-Consumer Legal Defense Fund. ☺☺

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



Wise Traditions 2014

FIFTEENTH ANNUAL INTERNATIONAL CONFERENCE OF THE
WESTON A. PRICE FOUNDATION®

FOCUS ON FOOD

Friday November 7 – Sunday November 9
with additional events on Thursday November 6 and Monday November 10

JW Marriott Hotel, Indianapolis, Indiana

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Traditional nutrient-dense meals • WAPF-friendly vendors • Wise children's program

For anyone interested in health, nutrition and food
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SPEAKERS

Calvin F. Bey, PhD, expert on nutrient-dense vegetable gardening
Summer Bock, fermentation specialist
Natasha Campbell-McBride, MD, PhD, *Gut and Psychology Syndrome (GAPS)*
Tom Cowan, MD, author of *The Fourfold Path to Healing*
Cynthia Daley, PhD, expert on dairy safety
Kaayla Daniel, PhD, co-author of *Nourishing Broth*
Annie Dru, expert on ancestral cuisine
Sally Fallon Morell, MA, author of *Nourishing Traditions*
Michael Farrell, PhD, author of *The Sugarmaker's Companion*
Patricia Foreman, PRH, MPA, author of *City Chicks* and *Chicken Tractor*
Esther Gokhale, LAc, author of *8 Steps to a Pain-Free Back*
William M. Hang, DDS, MSD, holistic dentist
Kimberly Hartke, publicist, WAPF and FDTCLDF
Randy Hartnell, founder & president of Vital Choice Wild Seafood & Organics
Hal Huggins, DDS, holistic dentist, expert on amalgam dangers
Anore Jones, author of *The Fish We Eat*
Lierre Keith, author of *The Vegetarian Myth*
Min Kim, expert on sourdough bread
Chris Kresser, MS, LAc, of chriskresser.com
Karel Littman, JD, GFI, advanced MELT trainer

Thomas J. Lokensgard, DDS, NMD, ABAAHP, holistic dentist
Jeff Lowenfels, JD, author of *Teaming with Microbes* and *Teaming with Nutrients*
Leslie Manookian, producer of *The Greater Good*
Jim Marlowe, nutrition and optimum health counseling
Chris Masterjohn, PhD, expert on fat-soluble vitamins
Mark McAfee, chairman of the board, Raw Milk Institute
Denise Minger, author of *Death by Food Pyramid*
Konstantin Monastyrsky, author of *Fiber Menace*
John Moody, author of *Food Club and Co-op Handbook*
Rami Nagel, author of *Cure Tooth Decay* and *Healing our Children*
Linda Robins, MD, holistic homeopath, Montclair Homeopathy LLC
Mark Schauss, MBA, DB, author of *Achieving Victory Over a Toxic World*
Michael Schmidt, Canadian farmer & raw milk hero
Kim Schuette, CN, Cert. GAPS Pract, expert on GAPS and mental health
Stephanie Seneff, PhD, expert on sulfur and vitamin D
Allison Siebecker, ND, MSOM, LAc, of www.SIBOinfo.com
Kim Thompson, RYT, movement instructor
Donna Wild, author of *The Skin, Tongue, and Nails Speak*
Louisa Williams, MS, DC, ND, author of *Radical Medicine*
Will Winter, DVM, expert on pastured livestock

LOCATION AND ACCOMMODATION

The conference hotel is the JW Marriott Indianapolis Hotel at 10 S. West Street, Indianapolis, IN 46204. Attendees are offered a special room rate of \$149 per night (plus taxes and fees) until October 20, 2014 or until all rooms are sold. This rate is for single through quad occupancy. Reserve your room by calling (877) 303-0104—mention the Wise Traditions Conference. Or reserve online at <https://resweb.passkey.com/go/WiseTraditions2014>. Refrigerators are available for \$15 per day plus tax. Parking for hotel guests is \$25 per day. Valet parking is \$36 per day. Self parking is available.

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First Name _____	Last Name _____	Name for Badge _____
Organization/Affiliation _____		Website _____
Address _____		
City _____	State _____	Zip Code _____ Country _____
Phone _____	Email _____	<input type="checkbox"/> Check here if you are interested in donating food. <input type="checkbox"/> This is my first Wise Traditions conference.

MEMBERSHIP: become a member of the Foundation and receive our quarterly journal, full of informative articles as well as sources of healthy food. WAPF members receive a conference registration discount.

☐ \$40 US Regular Annual Membership ☐ \$25 US Student or Senior (62+) ☐ \$50 Canadian/International

Full conference registration includes conference materials, Friday sessions, Friday lunch, Friday dinner, Saturday sessions, Saturday lunch, Saturday evening awards banquet, Sunday sessions and Sunday brunch

	By Sept. 5	After Sept. 5
<input type="checkbox"/> Full Registration Student/Senior Member*	\$340.	\$390.
<input type="checkbox"/> Full Registration Student/Senior Non-Member*	\$365.	\$415.
<input type="checkbox"/> Full Registration Member	\$440.	\$490.
<input type="checkbox"/> Full Registration Non-Member	\$480.	\$530.
<input type="checkbox"/> Daily Registration Student/Senior Member*	\$135.	\$175.
<input type="checkbox"/> Daily Registration Student/Senior Non-Member*	\$160.	\$200.
<input type="checkbox"/> Daily Registration Member	\$185.	\$225.
<input type="checkbox"/> Daily Registration Non-Member	\$225.	\$265.
<input type="checkbox"/> Friday Dinner & Evening Events	\$ 60.	\$ 85.
<input type="checkbox"/> Saturday Evening Awards Banquet	\$ 75.	\$100.
<input type="checkbox"/> Monday Posture and Movement (8-4, includes lunch)	\$ 100.	\$100.
<input type="checkbox"/> Monday Farm Tour (8-5, includes lunch)	\$ 100.	\$100.
<input type="checkbox"/> Monday Raw Milk Series (8-4, includes lunch)	\$ 100.	\$100.
<input type="checkbox"/> Monday Homeopathy Workshop (8-4, includes lunch)	\$ 100.	\$100.
<input type="checkbox"/> Monday MRT Energetic Testing	\$ 100.	\$100.
<input type="checkbox"/> Monday WAPF Cooking (8-4, includes lunch)	\$ 100.	\$100.

* Student/Seniors must show ID. Senior is 62 and older.

If you are attending as a daily registrant, please indicate the day(s) you will be attending:

- ☐ Friday November 7 Registration includes conference materials, Friday sessions and Friday lunch
☐ Saturday November 8 Registration includes conference materials, Saturday Joint sessions and Saturday lunch
☐ Sunday November 9 Registration includes conference materials, Sunday sessions and Sunday brunch

Friday Seminar Choice – please select one for planning purposes only, not binding. ☐ Nourishing Trad. Diets

☐ Gut and Psychology Syndrome ☐ Fat Soluble Activators ☐ Whole Organic Foods ☐ Farming

Friday Evening Choice – please select one for planning purposes only, not binding.

☐ Radical Medicine ☐ Vaccines ☐ Environmental Toxicity ☐ Art of Eating When Healthy ☐ Take Back Your Power

Saturday Choice – please select one for planning purposes only, not binding.

☐ Main General Session: Focus on Food ☐ Wellness ☐ Farming & Gardening

Sunday Seminar Choice – please select one for planning purposes only, not binding.

☐ Food and Nutrition ☐ Interpreting Blood Tests/diagnosis ☐ Native Ways ☐ Dental ☐ Making it Practical

Children's Program (Child must be age 3-12 and potty trained.)

____ Child's Name(s) _____ Age(s) _____

@ \$225 per child for Friday to Sunday includes Friday lunch & dinner, Saturday lunch, Sunday brunch

☐ GF/CF meals OR ☐ GF only OR ☐ CF only for ____ children OR ____ @ \$150 per child, includes no meals.

Continuing Education Credits for RNs & LACs. A \$5 certificate of attendance is available. It suffices for RDs & nutritionists.

☐ RN ☐ LAC - ☐ All 3 days \$65 ☐ Friday \$25 ☐ Saturday \$25 ☐ Sunday \$25//☐ RD or nutr. ☐ Cert of Attend. \$5.

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Total Due: _____ ☐ MasterCard ☐ Visa ☐ Check Payment/Money Order (make payable to WAPF)

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Expiration Date _____

CHAPTER LEADERS

☐ I am a chapter leader.

☐ I plan to attend the chapter leader meeting
Thursday, Nov 6, 10 am - 4 pm

☐ I will help! Please send me info about how I can help promote the conference.

How did you hear about the conference?

- | | |
|--|--|
| <input type="checkbox"/> WAPF journal | <input type="checkbox"/> WAPF email |
| <input type="checkbox"/> Friend/colleague | <input type="checkbox"/> Flyer |
| <input type="checkbox"/> Blog | <input type="checkbox"/> Twitter or FB |
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What is your current occupation?

- | | |
|--|-------------------------------------|
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PLEASE FAX OR MAIL THIS FORM TO:

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WAPF Wise Traditions Conference
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Winchester, VA 22602

Contact:

Registration (540) 722-7104
registrar@ptfassociates.com or
WAPF (202) 363-4394
info@westonaprice.org

Poster Presentation info:

info@westonaprice.org

PLEASE NOTE:

One adult registration per form, please.
Forms submitted without payment will not be processed.

NO REFUNDS will be issued after December 31, 2014.

FOR FURTHER INFORMATION

<http://conferences.westonaprice.org/main-conference/>

By submitting this form, I authorize Wise Traditions to charge the applicable registration fees. I understand that all cancellations must be submitted in writing and must be received by October 18, 2014 to be eligible for a refund, less a \$25.00 administrative fee. All refunds will be issued following the conference. Substitutions will be permitted at any time. Registration packets will not be mailed and must be picked up on-site at the conference registration desk at the JW Marriott Hotel, Indianapolis, IN.

Wise Traditions 2014

Schedule

FRIDAY LECTURES

09:00-05:00	Seminar on Traditional Diets, Sally Fallon Morell, MA
10:00-05:00	Gut and Psychology Syndrome, Natasha Campbell-McBride, MD, PhD
10:00-05:00	Fat-Soluble Vitamin Interactions and Foods From Pastured Animals, Chris Masterjohn, PhD
10:00-05:00	Pesticides, Antibiotics, Vaccines and Pharmaceuticals, Stephanie Seneff, PhD
10:00-05:00	Teaming with Microbes: All You Need to Know About the Soil Food Web, Jeff Lowenfels

Friday Evening lectures

08:00-10:00	"CASPERs" – A Hidden Epidemic, Louisa Williams, MS, DC, ND
08:00-10:00	Toxic Vaccines: The Current Science, Leslie Manookian
08:00-10:00	The Effects of Environmental Toxicity on Chronic Illness, Mark Schauss
08:00-10:00	Making Sense out of Fiber Nonsense, Konstantin Monastyrsky
08:00-10:00	The Food Rights Struggle, Kimberly Hartke

SATURDAY LECTURES

Plenary Session: Focus on Food

09:00-09:30	Introduction to the Work of Weston A Price, Sally Fallon Morell, MA
09:30-10:45	Wild Seafood, Randy Hartnell
11:00-12:15	The Acid-Alkaline Myth, Chris Kresser, LAc
01:45-03:00	The Science of Broth, Kaayla Daniel, PhD
03:15-04:30	Vegetarian Myths, Lierre Keith

Wellness Track

09:00-12:15	From Mush to Flush: A Brief Primer on the Physiology of Digestion, Konstantin Monastyrsky
01:45-04:30	The Health Secret of All Indigenous People, Tom Cowan, MD

Farming & Gardening Track

09:00-10:30	Tree Tapping Opportunities for Everyone, Michael Farrell
10:45-12:15	Six Inches of Soil, John Moody
01:45-03:00	City Chix, Pat Foreman
03:15-04:30	Growing Your Own Nutrient-Dense Vegetables, Calvin Bey, PhD

Awards Banquet Death by Food Pyramid, Denise Minger

SUNDAY LECTURES

Track I: Food and Nutrition

09:00-10:20	The Effect of Food on Cognitive Function, Mark Schauss
10:30-11:50	The Art of Eating Without Harm, Konstantin Monastyrsky
01:30-02:50	Treating SIBO with Traditional Foods, Allison Siebecker
04:00-05:20	Reviving Health through Gentle Detoxification, Kim Schuette, CN

Track II: Testing

09:00-10:20	Understanding Your Own Blood Test Results 101 - Part 1, Jim Marlowe
10:30-11:50	Understanding Your Own Blood Test Results 101 - Part 2, Jim Marlowe
01:30-02:50	Tongue Signs and Fingernail Signs of Nutritional Deficiencies - Part 1, Donna Wild
04:00-05:20	Tongue Signs and Fingernail Signs of Nutritional Deficiencies - Part 2, Donna Wild

Wise Traditions 2014

Schedule

Track III: Native Ways

- 09:00-10:20 Bending, the Bane of our Backs, Esther Gokhale, LAc
 10:30-11:50 Traditional Inupiat Food Wisdom, Recipes and Technologies, Anore Jones
 01:30-02:50 Foodways of the Australian Aborigines, Sally Fallon Morell, MA
 04:00-05:20 Foodways of the Masai, Chris Masterjohn, PhD

Track IV: Dental

- 09:00-10:20 Cardiovascular, Periodontal Disease, Sugar Metabolism: The Connection, Thomas Lokensgard, DDS
 10:30-11:50 Amalgam and Dental Implants Dangers, Hal Huggins, DDS
 01:30-02:50 Does Orthodontics as well as Nutrition and Growth Affect the Airway?, William Hang, DDS
 04:00-05:20 Traditional Foods for Preventing Tooth Decay and Gum Disease, Rami Nagel

Track V: Making It Practical

- 09:00-10:20 Ferments, Summer Bock
 10:30-11:50 Light as Air Artisan Sourdough Bread, Min Kim
 01:30-02:50 Continuous Kombucha, John Moody
 04:00-05:20 Food Co-ops, John Moody

- 05:30-06:30 Closing Ceremony: Sally Fallon Morell, MA

MONDAY ACTIVITIES

- 07:30-05:00 Farm Tour with Will Winter

Movement Track

- 09:00-12:00 Gokhale Method Posture Workshop, Esther Gokhale
 01:00-04:00 MELT: Hands-Off Bodywork, Karel Littman

- 09:00-04:00 WAPF Cooking, Annie Dru

- 09:00-04:00 Homeopathy Workshop, Linda Robins, MD

Raw Milk Track

- 09:15-10:30 Producing Safe Raw Cheese, Sally Fallon Morell, MA
 10:45-12:00 RAWMI Progress and Lessons from the Listed, Mark McAfee
 01:15-02:30 Raw Milk in Canada, Michael Schmidt
 02:45-04:00 A New California Raw Milk Dairy, Cynthia Daley, PhD

- 09:00-04:00 Wiser Nutritional and Dietary Choices Through MRT Self-Testing, Louisa Williams, MS, DC, ND

PRE-CONFERENCE AND POST-CONFERENCE ACTIVITIES



Farm-to-Consumer
Legal Defense Fund®

THURSDAY, NOVEMBER 6

**FundRAISER Reception Dinner &
Food Freedom Program 6 – 9:30 pm**
 Earlybird thru Oct. 1: Adults \$79/ Kids \$59
farmtoconsumer.org/WAPF2014

MONDAY, NOVEMBER 10 (9 am – 4 pm Registration \$100)

- **Raw Milk** – Sally Fallon Morell, Mark McAfee, Michael Schmidt and Cynthia Daley
- **Posture and Movement** – Esther Gokhale and **MELT: Hands-on Bodywork** – Karel Littman
- **WAPF Cooking** – Annie Dru
- **Wiser Nutritional and Dietary Choices through MRT Self-Testing** – Louisa Williams
- **Farm Tour** – Will Winter
- **Homeopathy Workshop** – Linda Robins

Caustic Commentary

Sally Fallon Morell takes on the Diet Dictocrats

BUTTER CONSUMPTION RISING

Americans are eating more butter—consumption has risen 25 percent in the last decade. Americans now eat 5.6 pounds of butter per person per year, up from a low of 4.1 pounds in 1997. This is a far cry from the 18 pounds per person per year Americans consumed as late as 1934, before the Great Depression, World War II and the advent of margarine changed the nation's eating habits. A report in the *Los Angeles Times* (January 7, 2014) credits butter's growing popularity with "more understanding about the health hazards of its processed counterparts" namely margarines containing *trans* fats. But the *Times* report states as fact that "it's not a health food. In a word, butter is fat—and not the good kind. It's loaded with saturated fat, which has been linked to heart disease." Fortunately more and more Americans are rejecting this kind of propaganda. Food manufacturers "are working hard to take advantage of [the new] demand by labeling their cookies and frozen pies as 'made with real butter'." Even "healthier" margarine is struggling to stand out in a nation "increasingly captivated by foodie culture. Butter has become a symbol of America's growing appreciation of authentic cooking. . . "

CRACKS IN THE SATURATED FAT DOGMA

A large, exhaustive new analysis of nearly eighty studies by a team of international scientists has found no evidence that eating saturated fat increases the incidence of heart attacks and other cardiac events. The study, published in *Annals of Internal Medicine* (2014;160(6):398-406), did not find that people who ate higher levers of saturated fat had more heart disease than those who ate less, nor did the study find less heart disease in those dutifully eating higher amounts of polyunsaturated and monounsaturated fat. "My take on this would be that it's not saturated fat that we should worry about" in our diets, said Dr. Rajiv Chowdhury, the study's lead author and a cardiovascular epidemiologist in the department of public health and primary care at Cambridge University. But here in the U.S., health officials will make sure we keep worrying. Dr. Frank Hu, professor of nutrition and epidemiology at the Harvard School of Public Health said that the findings "should not be taken as a green light to eat more steak, butter and other foods rich in saturated fat." Prominent food Puritan Alice H Lichtenstein, a nutritional biochemist at Tufts University chided, ". . . it would be unfortunate if these results

were interpreted to suggest that people can go back to eating butter and cheese with abandon." And the American Heart Association is sticking to its strictures against butter, cheese and cream. These folks, enchained in academia, will still be shaking their fingers at us when everyone else has gone back to delicious, healthful eating.

TYLENOL AND ADHD

In a disturbing study published in *JAMA Pediatrics* (2014;168(4):313-320), researchers at the University of Aarhus in Denmark found a strong correlation between acetaminophen (found in common pain killers like Tylenol) use among pregnant women and the rate of ADHD in their children. Overall, moms who used the pain reliever to treat headaches or to reduce fevers saw a 37 percent increased risk in their children receiving an ADHD diagnosis and a 29 percent increased risk in the chances their children received ADHD medications compared with moms who didn't use the medication at all. Even after the team accounted for other factors, the link remained strong. The findings are especially troubling since more than sixty-four thousand women in the study reported using acetaminophen in the three months prior to the survey. Higher acetaminophen use among others was linked to higher rates of ADHD in their children. Scientists speculate that hormone disruptions in utero, triggered by acetaminophen, may cause enough imbalance in the brain to make certain children more vulnerable to autism or hyperactivity later in life.

"POLIO LIKE"

When vaccines have wiped out polio and people still get polio, what happens? Medical personnel call the paralytic symptoms something else, in this case Non-Polio Acute Flaccid Paralysis (NPAFP). In India, for example, the "last" case of polio occurred in 2011; but in the same year there were an extra 47,500 new cases of "rare" NPAFP. The occurrence of NPAFP was directly proportional to doses of oral polio vaccine received. The symptoms of NPAFP are clinically indistinguishable from polio paralysis and the illness is twice as deadly. Now we are hearing about "polio-like" illness in California, with a cluster of five children with paralysis in one year—and this is just the reported cases. Other countries are also seeing increases in the new "non-polio" illness. The truth is, polio was on a steep decline when the vaccine was

Caustic Commentary

introduced (some say due to banning of neurotoxic DDT), and now it's back. The most logical conclusion is that NPAFP is caused by the polio vaccine.

UNVACCINATED CHILDREN HEALTHIER

A study from the 1990s has come to light, proving that compared to unvaccinated children, vaccinated children are more likely to suffer from asthma, eczema, ear infections, hyperactivity and many other chronic conditions. Vaccinated children had a tenfold increase in tonsillitis while not one unvaccinated child had a tonsillectomy. The Immunization Awareness Society (IAS) conducted the survey in 1992 to examine the health of New Zealand's children. Out of a total of 495 children surveyed, 226 were vaccinated and 269 were unvaccinated. A survey that included eight thousand unvaccinated children in Germany found that vaccinated children were up to five times more likely to suffer from a variety of diseases and disorders than unvaccinated children. The unvaccinated children had very low rates of autism, dyslexia, speech delay, anxiety, depression, bedwetting, celiac disease, gluten sensitivity and GERD (<http://vactruth.com/2014/02/26/unvaccinated-children-healthier/>).

VEGETARIANS NOT HEALTHIER

While American health officials trumpet the putative benefits of a plant-based diet, researchers in Austria have concluded that people consuming a vegetarian diet have poorer health generally, poorer quality of life and a higher need for health care than their meat-eating counterparts. The study was carried out at the Medical University of Graz in Austria, where scientists found that vegetarians were indeed more physically active, drank less alcohol and smoked less tobacco than those who consume meat in their diets. Vegetarians also have a

higher socioeconomic status and a lower body mass index. They consumed low levels of saturated fat and cholesterol and high levels of fruits, vegetables and whole grain products. But in spite of all these factors said to be correlated with better health, the vegetarians had more cancer, allergies and mental health problems, especially chronic anxiety and depression. Vegetarians had more visits to doctors and put more burden on the public health care system. This is important information for young Americans to know, since one in two hundred children, or about 367,000 American youngsters, are vegetarians (www.plosone.org/article/doi/10.1371/journal.pone.0088278&representation=PDF).



NEW FLAVORS

DairiConcepts flavoring company has introduced seventeen new “topical” seasoning blends. These include organic tomato chipotle cheddar salsa seasoning, beefy nacho, tikka masala, spiced caramel yogurt, garlic butter and various cheese flavors including cheddar, blue and Parmesan (www.dairiconcepts.com). These come in the form of artificially colored powders,

formulated by mad scientists in laboratories, not chefs in kitchens. Also coming soon is a synthetic vanilla created by inserting coded DNA into yeast. This new method of genetic engineering is called “natural” by Evolve, the company that makes it (<http://www.infowars.com/new-form-of-gmo-sneaking-into-food-supply-this-year/>).

GMO UPDATES

Russia was expected to allow GM food production and distribution after entering the World Trade Organization. However, in March, Russia's President Putin said the country would stay GM-free without violating its obligations to the WTO. A draft bill banning GMOs submitted to the Russian parliament

Caustic Commentary

likens GMO production and distribution to terrorism (www.globalresearch.ca, May 20, 2014). Geopolitical analyst William Engdahl predicted the move would increase productivity in Russia while that in Europe would decline. Sri Lanka has partially banned glyphosate (the herbicide Roundup) following a deadly kidney disease epidemic (www.i-sis.org.uk, April 9 2014).

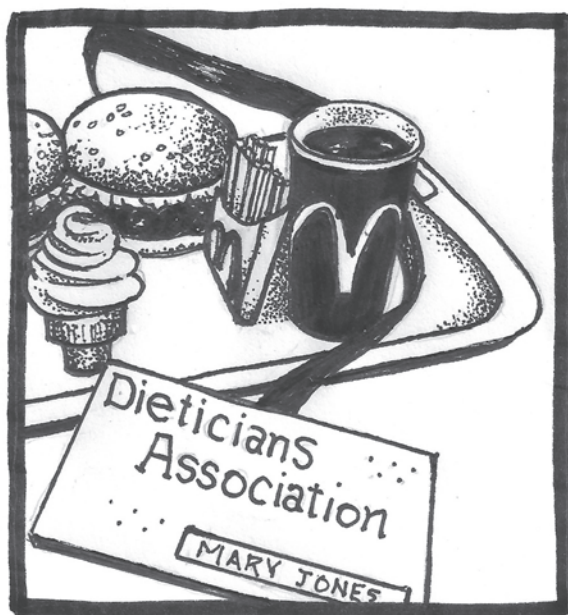
WORLD'S OLDEST PERSON

The world's oldest person is Peruvian Filomena Taipe Mendoza, who has led a secluded life in the heart of the Andes mountains. Her government identity card puts her date of birth as December 20, 1897, making her one hundred sixteen years old. What does she eat? Definitely not a "Paleo" diet. "My secret to longevity is a natural diet—potatoes, goat meat and beans," she says. She also has never drunk canned drinks, and she cooks everything she eats from her garden (news.yahoo.com/peruvian-116-stakes-claim-oldest-woman-crown-214858246.html). The region also boasts eight other individuals who are one hundred ten years old or older, all presumably eating a mixed diet of natural foods.

COLLATERAL DAMAGE

The war on germs, which uses antibiotics indiscriminately and keeps babies and children from exposure to the real world of germs, has created a generation of children with poor immune systems. The latest evidence comes from a study by the Children's Hospital of Philadelphia, where researchers found that when pregnant women take antibiotics, this can depress the immune system of their offspring. By contrast, moms can help strengthen a child's ability to avoid illness by passing on certain germs. The study showed that bacteria in the gut play a crucial role in fostering the rapid production of infection-fighting white blood cells. The researchers found

that mice have a surge of white blood cells around birth, but this response is reduced when their mothers are exposed to antibiotics. The offspring of mothers given antibiotics were more vulnerable to deadly *E. coli* infections, especially when they were born prematurely. Unfortunately, not only are moms routinely given antibiotics—if they test positive for Strep, for example, or have a Cesarean section—critically ill babies are often treated with antibiotics as a precaution without proof of infection (*Nature Medicine* 20, 469–470 (2014).



MCDONALD'S NUTRITION

Dietitians go to professional conferences to get continuing education credits. At the recent conference of the California Dietetic Association (CDA), attendees had only one choice for food—McDonald's, the only Gold Sponsor. McDonald's served salad with additive-laden ranch dressing, a strawberry pink yogurt parfait, chocolate chip cookies and other paradigms of processed food. Vendors in the exhibit hall included Davidson's "Safest Choice" pasteurized eggs, Butter Buds (fake butter flavor), Carmi Flavors, Monsanto, Nestlé, Smart Balance, and Sysco (which supplies foods to restaurants and hospitals.) The sessions had food industry sponsors as well. The Wheat Council hosted a presentation about how gluten intolerance was just a fad, not a real medical problem. The International Food Information Council—

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.

Caustic Commentary

whose supporters include Coca-Cola, Hershey, Yum Brands, Kraft, and McDonald's—presented a discussion in which the panelists assured audience members that genetically modified foods were safe and environmentally sustainable. A session entitled "Sweeteners in Schools: Keeping Science First in a Controversial Discussion," sponsored by the Corn Refiners Association, whose members produce and sell high-fructose corn syrup, hosted a panel composed of three of the trade group's representatives. The panelists bemoaned some schools' decision to remove chocolate milk from their cafeteria menus. Later, one panelist said that she'd been dismayed to learn that some schools had banned sugary treats from classroom Valentine's Day parties, which "could be a teachable moment for kids about moderation." The moderator nodded in agreement, and insisted that all sugars contain the same calories, so you can't say that there is one ingredient causing the obesity crisis" (motherjones.com, May 12, 2014).

CAUSES OF VIOLENCE

The malaria drug Lariam (mefloquine) is linked to grisly crimes like that of Army Staff Sergeant Robert Bales, who murdered sixteen Afghan civilians in 2012; and the murder of four wives of Fort Bragg soldiers in 2002. The FDA has beefed up warnings about the drug's neurotoxic effects and users are now given a medication guide and wallet card, but the drug and its generic versions are still the third most prescribed malaria medication in the U.S., with over two hundred thousand prescriptions annually. A recent paper admitted that Lariam may be behind "seemingly spectacular and impulsive suicides." It produces "derealization and depersonalization, compulsions toward dangerous objects, and morbid curiosity about death" (OpEdNews.com, April 8, 2014). Drugs like these coupled with the recommended lowfat, high-carbohydrate diet make a recipe for violent behavior. A recent study from Denmark found that a high-fat, low-carbohydrate diet limited fear and aggression in test animals (PLOS ONE 9(4), April 16, 2014). ☺☺



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Sally Fallon Morell, author of *Nourishing Traditions*

Kaayla Daniel, PhD, co-author of *Nourishing Broth*

Kathy Pirtle, author of *Performance without Pain*

Hilary Boynton, author of *The Heal Your Gut Cookbook*

Kristin Canty, producer of *Farmageddon*

Arthur Haines, author of *Ancestral Plants*

John Kozinski, expert on visual, touch & sound diagnosis

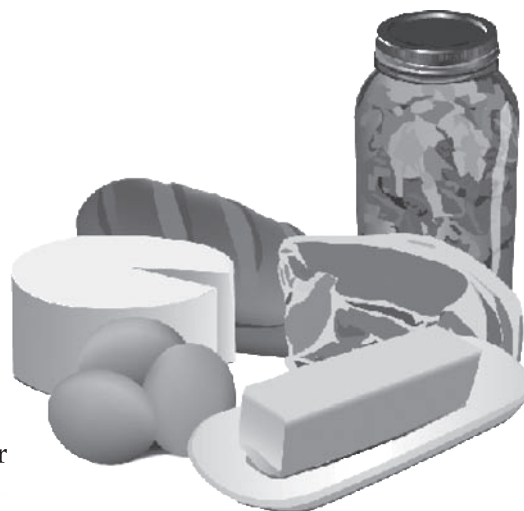
Beth Lambert, author of *A Compromised Generation*

Alex Lewin, author of *Real Food Fermentation*

Richard Maurer, ND, author of *The Blood Code*

Gena Mavuli, MA, nutrition consultant & traditional foods teacher

Tanya Renner, CCH, RSHom(NA), homeopathic practitioner



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Nutrition: The Anti-Aging Factor

by Sylvia P. Onusic, PhD, CNS, LDN

Due to increasing gains in life expectancy, by 2025 the number of people aged sixty-five and over will comprise 29 percent of the U.S. population. As a consequence of aging, the typical chronic diseases of the body and brain such as cardiovascular disease, cancer, hypertension, and Alzheimer's disease (AD) will claim more and more precious human resources. To pursue good health as we age becomes more and more important in order to enjoy a disease-free and rewarding quality of life during our later decades.¹

From the moment of our birth we begin to age. Aging can generally be defined as a progressive decline in the efficiency of biochemical and physiological processes after the reproductive phase of life.² From one birthday to the next we are unaware of the fact that our cells, organs and bones are slowly losing some of their function. The common lament, "I am not as young as I used to be," has become reality for the Baby Boomer Generation as it grows older.

With the appearance of the first crow's feet, many men and women flock to cosmetic surgeons, anti-aging physician specialists, dietary supplements, and cosmetics counters to buy the newest anti-aging products, which are often laden with toxic chemicals. Americans spend millions on anti-aging therapies, according to Global Industry Analysts, which says that this spending will "push the U.S. market for anti-aging products from about \$80 billion now to more than \$114 billion by 2015."³ But the solution to feeling good and looking fit and healthy may not be so elusive or expensive, and in fact may be found only a few steps away—at your farmers' market or in your own garden.

THE PHYSIOLOGY OF AGING

Aging has been predetermined in our genes, experts say, and cells can only divide forty to sixty times before they reach the "Hayflick Limit," a theory advanced in 1961 by Leonard Hayflick at the Wistar Institute in Philadelphia, Pennsylvania. Structures at the end of chromosomes called telomeres protect cells from deterioration or fusion with other chromosomes. After each new replication the telomeres shorten until they reach a critical length when they stop dividing, begin to "age" and ultimately die.⁴ Scientific laboratories like SpectraCell now provide telomere testing as "a window into your cellular age."⁵ DNA damage, exposure to toxins, irradiation, and activation of oncogenes (genetic material that carries the ability to induce cancer) also cause cell aging and death in healthy cells.⁶

On the other hand, a rare "genetic condition" called progeria—accelerated premature aging—can develop in infants and young children which is not actually genetic in nature yet appears through a "new" point mutation on a specific chromosome. These children quickly develop the typical symptoms of old age, such as hair loss, atherosclerosis, loss of eyesight, wrinkles and stiff joints, but the brain seems not to be affected and mental development is normal.⁷

An exception to the Hayflick limit is cancer cells, which appear to be immortal in their ability to continue reproducing. Because of a telomere-lengthening enzyme, mutation, viral infection, or production of chemicals such as the enzyme nagalase, which blocks the immune system from

destroying them, they avoid normal programmed cell death (apoptosis).⁸

The most famous, oldest, and most commonly used immortal cell line, dubbed HeLa, originated in a tumor sample taken from an African-American woman, Henrietta Lacks, who is the subject of the recent book *The Immortal Life of Henrietta Lacks*.⁹ The tumor cells, harvested at Johns Hopkins Hospital, gave rise to the eponymous HeLa cell line which researchers have used continuously since her death in 1951 for numerous experiments, including Jonas Salk's development of the polio vaccine. Contamination with human papillomavirus made them immortal.¹⁰ Neither Henrietta Lacks nor her family received one penny from the millions of dollars made from her uninformed and involuntary cell donation. Researchers have grown and used around twenty tons of her cells and research relating to this cell line has generated seventy-six thousand abstracts on Pub Med.¹¹

Cancer cells aside, probably the most important factor in aging and living long with a good quality of life is nutrition. What we eat supplies the building blocks for our body's cells, energy-producing mitochondria, enzymes, and cofactors that build or break the body. When a vital piece of this complex puzzle goes missing, the body scrambles to find substitute pieces. But the results may not look much like what nature intended. Disease and illness are the result.

The Standard American Diet (SAD) comprises a supermarket basket of industrially refined products whose packaging is sometimes more nutritious than the contents. Dominated by genetically modified corn and soy derivatives along with *trans* fats, refined and rancid vegetable oils, artificial colorings, flavorings, sweeteners, and high fructose corn syrup, the unpalatable and sickening ingredient list goes on and on. Coupled with pesticide-laden fruits and vegetables, suspicious animal products from factory and confinement operations, our standard commercial food supply is far from nutritious and is more likely dangerous. Fortunately there are many things that we can do to improve the quality of our meals and supply our bodies with the building blocks they need to function optimally all throughout life.¹²

Probably the most important factor in aging and living long with a good quality of life is nutrition.

Fructose in particular is an extremely potent pro-inflammatory agent that accelerates aging.

AVOID SUGAR

Sugar has proved to be one of the most damaging substances to health and is a major factor in premature aging. Fructose in particular is an extremely potent pro-inflammatory agent that accelerates aging.¹³

Since its introduction to the New World, sugar consumption has progressively increased from less than five pounds per year per individual in 1850 up to one hundred fifty pounds in 2003.¹⁴ Between 1900 and 1967 the use of sugar more than doubled in the U.S. and U.K.¹⁵ In 1970, an additional sugar source, high-fructose corn syrup, was introduced into the industrial food supply.¹⁴

Fructose, contained naturally in some fruits and in the form of high fructose corn syrup, is a part of the fructose load, which the body processes differently from glucose. The body uses glucose for fuel but stores fructose in the form of triglycerides. Sucrose (cane or beet sugar) is half glucose and half fructose.¹⁶

Sugar forms advanced glycation end products (AGEs) when it reacts with amino acids and fats, a process which can occur in food itself

during cooking and also in metabolic reactions inside the body.¹⁵ In cooking, the process is called the Maillard reaction, which gives breads and meats their browned, caramelized aroma and appearance. Searing meat and cooking at high heat form AGEs. Braising and stewing cuts of meat at lower temperatures and in “moist heat” environments in covered vessels are more healthful cooking methods because fewer AGEs are formed. AGEs are also responsible for colors and flavors in foods, such as in toasted bread, french fries, malt whiskey or beer, condensed milk, roasted coffee, caramel, chocolate syrup, and others.¹⁷ Pressure cooking can also contribute to the formation of AGEs because of the high temperatures generated during cooking.¹⁸

Glucose is the least reactive form of sugar and forms many fewer AGEs than fructose. In diabetic patients the concentration of fructose often surpasses that of glucose in the lens of the eye, causing cataract growth and blindness, and in nerves, causing neuropathies.¹⁹

Fructose is also a potent creator of AGEs that speed up the aging process.²⁰ It does this in the conversion from fructose to fructose 1-phos-

YOU ARE ONLY AS YOUNG AS YOUR DETOXIFICATION SYSTEM

The body detoxifies chemicals and substances that occur naturally, such as alcohol, cigarette smoke, cholesterol, steroids, bile acids, and lipids, or those that are synthetic, such as drugs, food additives, agricultural chemicals, chemical products, parabens and phthalates, in a two-step balanced process called *biotransformation*, making them water-soluble to promote their elimination. In the liver, Phase I breaks down substances into substrates which then must go through Phase II to become water-soluble. A system of enzymes called cytochrome P450 (CYP), found in the liver, kidney, lungs and the brain do the job. However, things can go awry. Products produced in Phase I, such as reactive oxygen species (ROS) and toxic metabolites, are often more harmful than the original substances. The products of Phase I can also be delayed entering Phase II systems and can do local damage. Imbalances often occur with one phase becoming up-regulated or downregulated depending on nutrition, genetics and toxicities. Both phases are fueled by specific nutrients, and if these are not supplied by diet, the pathways may not function correctly. There are thousands of mutations in the CYP genes that can affect the efficiency of the detoxification enzymes.

Certain foods promote detoxification or imbalances in detoxification pathways. Diets low in protein increase pesticide toxicity because certain detoxification mechanisms are dependent upon adequate amino acids. Foods like onions, garlic, cruciferous and green leafy vegetables, citrus, ginkgo biloba, grape seeds, green tea and curcumin “act in a complex, highly beneficial manner to improve balance in detoxification capability.”²¹ In Phase II activity adequate amounts of glycine, glutamine, methionine, cysteine, N-acetylcysteine, sulfur, selenium, and taurine are very important to support activity. These proteins are found in pastured meat and eggs. Lipoic acid is an effective inducer of Phase II enzymes and supplementation enhances the level of glutathione synthesis when sulfur is adequate. Alpha lipoic acid is found in spinach, broccoli, yams, tomatoes, carrots and beets. Red meat, particularly organic meats, are good sources of this nutrient.²³

In older rats compared to young rats, cellular oxygen uptake is lower and lipid peroxide levels higher. Age-induced oxidative damage caused deformities in the ability of key enzymes to bind to their substrate components. Scientists were successful in reversing mitochondrial decay in old rats by feeding them alpha lipoic acid and acetyl-carnitine in higher levels, which served to speed up the enzymes’ ability to function as well as to increase cognition and improve heart rate.²³ Animal-based foods such as beef, chicken, milk and cheese are good sources of acetyl-carnitine.²⁴

phate, which drains the energy source, ATP, from the cells and promotes a dramatic inflammatory response.²¹ Gary Taubes explains in his books, *Good Calories, Bad Calories* and *Why We Get Fat*, that it is fructose, not saturated fats, that contribute to high insulin levels and insulin resistance, promoting adipocyte formation around the liver and midsection, and increasing insulin and leptin levels, all factors associated with premature aging.²² In addition, fructose elevates blood cholesterol, uric acid, urea nitrogen and lactate production.²⁰

AGEs cause inflammation, which promotes heart disease, Alzheimer's disease, diabetes, liver damage, and other chronic degenerative diseases. When receptors for AGEs bond with scar tissue in the endothelium of blood vessels, arterial plaques are formed. Collagen, the lens of the eye (cataracts), myelin, and DNA also accumulate AGEs. Glycation can be determined by a test for hemoglobin A1c, which is a marker of long-term blood sugar levels and how the body processes sugar.²⁰

FLUORIDE HASTENS AGING

Fluoride has been added to community water supplies in the U.S. since the 1940s and continues to be a goal of the Public Health Service (PHS), which considers water fluoridation "one of the ten greatest achievements of the 20th century." Yet for all this lip service to the

victories of public health mandates, the PHS in fact has paid little attention to the *harmful* physical effects of fluoride on the human body. No government funds are available to explore the topic of fluoridation dangers. Existing research on fluoride's insidious effects on the body comes from scientists in other countries such as India, where ground water contains extremely high amounts of fluoride and all want it out, not in. The Chinese government recently funded a series of studies on fluoride and IQ.^{25,26}

Ingestion of fluoride induces adverse effects not only in teeth and bones, but also in various soft tissues such as brain, skeletal muscle, kidney and liver, and interferes with reproductive functions, such as the production of sperm. Fluoride is a powerful central nervous system toxin and adversely affects brain function even at low doses, and causes neuron death along with impaired memory and learning. Fluoride disturbs the antioxidant enzyme activities in the brain. Fluoride fed to rats caused DNA damage in their brain cells and epigenetic changes in the brain tissue of offspring of the exposed rats.²⁷

In rats treated with sodium fluoride (NaF) (the pharmaceutical form of fluoride), administration of vitamin D significantly lessened the skeletal and visceral abnormalities of skeletal fluorosis. Altered serum enzyme activities and lipids in the livers of male rats with fluorosis recovered to normal levels when the rats were

Selenium appears to be an anti-aging nutrient in that it protects humans from the pro-oxidant effects of fluoride on the brain and body.

STATIN, STATIN, ON THE WALL, THE DRUG MOST AGING OF THEM ALL

Senior citizens are targets for pill-pushing physicians; many become dumping grounds for drugs, taking up to ten or more per day, most of them unnecessary. Often seniors in decline will recover their health and energy simply by going off all their drugs.

By far the drugs that age us the most are the statin (cholesterol-lowering) drugs, prescribed today to almost all seniors, male and female alike. The side effects of statins read like a description of aging: sore muscles, back pain, shuffling gait, slowed reactions, type 2 diabetes, digestive problems, liver disease, depression, Parkinson's disease, mental confusion and memory loss. When patients complain about these side effects, their doctors usually brush off their concerns with the observation, "You're getting older, these are the normal signs of aging." But there is no need for seniors at any age to suffer from these symptoms.

Most seniors are unaware of the cruel irony—cholesterol lowering does not help you live longer. In fact lower cholesterol levels in the elderly are associated with increased rates of death from cancer, suicide, stroke and intestinal diseases. Several studies have shown that once past the age of sixty, the higher your cholesterol, the longer you live.

Seniors with all their mental faculties can just say no to cholesterol-lowering drugs. Those in long-term care facilities will receive cholesterol-lowering drugs as a routine unless family members make it very clear that they don't want them given—repeating the instruction every few months and checking the medication list to make sure their instructions are not forgotten.

For more information, see "Dangers of Statin Drugs," by Mary G. Enig, PhD and Sally Fallon at westonaprice.org.

Cells cannot live without oxygen, yet oxygen is the very source of free radicals which endanger the cells' existence.

given selenium. By improving mitochondrial membrane stability, selenium (Se) protected skeletal muscle cells damaged by fluoride through a disruption of energy metabolism in the mitochondria.²⁷

A recent Indian study showed that rats treated with NaF showed significantly enhanced activity of the pro-oxidants xanthine oxidase and lipid peroxidation, and decreased activity of the antioxidants catalase, superoxide dismutase, glutathione-S-transferase, glutathione peroxidase, and glutathione reductase. Supplementation of Se along with NaF reversed the pro- and antioxidant systems towards normal levels. Selenium also increased general fluoride excretion. The accumulation of fluoride in the mouse brain was significantly less in mice treated with Se.²⁷

Selenium is a necessary trace mineral in human nutrition and a potent antioxidant. The major biological form of Se is found in the amino acid selenocysteine. It is toxic in high doses. As a cofactor, it is required for the activity of a number of selenoenzymes involved in the stress response and in the maintenance of high tissue antioxidant levels.

Selenium acts nutritionally through its various selenoproteins to control the level of cellular hydroperoxides and the redox tone of the cell. Hydroperoxides can damage protein and cell organelles involved in the regulation and control

of the body's antioxidant glutathione peroxidase system, which plays a major role in the control of reactive oxygen species (ROS).²⁸

Selenium appears to be an anti-aging nutrient in that it protects humans from the pro-oxidant effects of fluorides on the brain and body. Selenium is found in fish, shellfish, Brazil nuts, organ meats, poultry, dairy, onions, and in supplements of seleno-methionine. Supplements containing selenites are not useful and may be harmful.²⁸

One of the most memorable fluoride researchers of all time was Dr. John Yiamouyannis, a biochemist, researcher, and the editor of *Chemical Abstracts Service*, the world's largest information center on chemicals. Dr. Yiamouyannis demonstrated that fluoride caused cancer and that mortality rates were significantly higher in fluoridated communities. In 1993 he wrote in *Fluoride: The Aging Factor* that fluoride caused premature skin wrinkling through its effect on the breakdown and irregular formation of collagen in the skin, along with weakened tendons, ligaments, muscles, cartilage and bones, causing cases of irreversible arthritis. By studying populations in Turkey, India, and Italy where natural fluoride in the water is high, he saw the effects of crippling skeletal fluorosis.²⁹

He revealed in his book that by 1981, scientists knew that fluoride inhibited enzymes by

CONSERVING THE DIGESTIVE FIRE

As we age, our digestive forces weaken. It becomes harder for the body to make hydrochloric acid (for digesting protein), bile (for digesting fats) and digestive enzymes (for digesting carbohydrates, proteins and fats). That means that seniors are often not getting the full benefit of their food, even if they are eating well and the food is nutritious.

Attention to the digestibility of foods is key to ensuring optimal nutrition for senior diets. Soups and stews made with nourishing bone broth are ideal, as bone broth greatly aids the digestive process. Vegetables should be well cooked. Salads may not be the best choice for seniors—soups serve them better, being easier to digest. Vegetable purées made with butter and cream are great comfort foods for seniors. Lacto-fermented foods with every meal will help ease the digestive burden.

Government warnings to the contrary, raw milk is a great food for senior citizens. It contains all the enzymes needed for full digestion and nutrient assimilation and represents a complete nutrition package. It is our best source of glutathione, the body's leading anti-oxidant. Fermented raw milk products, like yogurt and kefir, supply the digestive tract with beneficial bacteria, as well as digestive enzymes.

All grains should be properly prepared by soaking or sour leavening, for optimal digestion. Hard-to-digest grains like extruded breakfast cereals, granola, granola bars and muesli represent a difficult digestive burden for aging digestive tracts.

In addition to proper food preparation, supplements that can aid digestion include hydrochloric acid and ox bile; while the herbal preparation Swedish bitters aids in the digestive of protein and fatty foods.

The goal is not to live forever, but to ensure that all those years at the end are full of vigor and optimism. Making sure the diet is easy to digest will ensure that the "golden years" are truly filled with golden good health.

binding to their cofactors, such as magnesium and phosphate. At one part per million (ppm) fluoride changes the bonds holding the protein in place, disrupting the enzyme shape and activity and setting off an autoimmune reaction, with possible effects on the DNA molecule itself.²⁹ The U.S. government claims that fluoridation at four parts per million is not harmful.²⁵

Fluoride also blocks the migration of white blood cells to the site of infection in the body, damaging the immune system's ability to destroy pathogens. Researchers discovered that fluoride perturbed the white blood cells' components and function by stimulating their production of superoxide when at rest, thus releasing superoxides into the blood stream, damaging tissues and depleting energy reserves, processes associated with accelerated aging. Further, in the presence of infection, fluoride *inhibited* the cells' production of superoxides—compounds that the cells normally employ against the challenge of a pathogen—thereby crippling white blood cells' healthy response.²⁹

Back in 1932 the dentist Dr. Weston Price

reported a general disturbance of mineral metabolism and decreasing blood levels of iron, calcium, phosphorus, and potassium by fluorides. He wrote about his findings in the paper “Evidence of a need for fluorine in optimum amounts for plants and animal growth, and bone and tooth development with thresholds for injury.”²⁶

To avoid fluoride's detrimental effects on the body, avoid fluoridated water, and products made from it, such as soft drinks, beers, tea mixes, energy drinks, fruit juice mixes, and especially those products packaged in aluminum cans. Baby formula should never be mixed with fluoridated tap water. Mother's milk is the beverage of choice for infants.²⁵

If you live in an area where the community waters are fluoridated, a reverse osmosis system will remove it from your water. However, exposure to fluoride occurs not only through drinking and cooking, but also through bathing, showering, and watering the garden. Many vegetables and fruits are sprayed with a fluoride spray for storage and grown with fertilizers that contain fluoride.²⁹

The body possesses multiple endogenous mechanisms to protect it from free radicals by weakening and destroying those substances.

VITAMIN B₁₂: THE MOTHER OF ANTI-AGING SECRETS

Conventional medicine rarely associates falls, difficulty in walking, memory lapses, depression, dementia—all symptoms of aging—with B₁₂ deficiency. However, studies closely link these behaviors with B₁₂ deficiency. Between 15 and 40 percent of people over sixty have low serum B₁₂ levels. Seniors are a high risk group for severe B₁₂ deficiency for several reasons. Wasting of the stomach lining causes decreases in the levels of stomach acid, which is needed to liberate B₁₂ from its protein host so that it can be absorbed. Unfortunately doctors treat the effects of this condition with protein pump inhibitors like Zantac, Prilosec, Pepcid and other medications; these actually lower stomach acid even more. Because of this condition, people may not be able to break down the foods containing B₁₂. Unfortunately, B₁₂ oral medications may not make any difference in blood levels. B₁₂ injections of hydroxyl or methylcobalamin are often the most effective in raising B₁₂ levels.

Low B₁₂ levels at any age cause brain shrinkage and cognitive decline, even within the lower “normal range,” resulting in inflammation of brain myelin. Bi-polar disorder and other mental illnesses may be a result of B₁₂ deficiency, as well as other factors.

At risk for premature aging are vegans, vegetarians, and those who follow macrobiotic diets, because they avoid the very foods that contain substantial sources of B₁₂: meats and organ meats. B₁₂ analogues found in such foods as spirulina or tempeh falsely raise B₁₂ levels because they are not active in the body and may in fact increase the risk of B₁₂ deficiency disease as these B₁₂ analogues compete with true B₁₂ at binding sites and inhibit metabolism. Vegan websites like vegan-health.org caution that no plants, including mushrooms, have real vitamin B₁₂ activity. In these cases regular supplementation with B₁₂ injections (hydroxycobalamin or methylcobalamin) are necessary to avoid premature aging. Unfortunately, pharmacy prepackaged B₁₂ injectibles contain aluminum and parabens. It's best to get B₁₂ injectible preparations from a compounding pharmacy and check with the pharmacist about excipients he may include. The doctor should specify “no preservatives” on the prescription.

B₁₂ deficiency can actually start in infancy if mothers of breastfed babies have undiagnosed pernicious anemia, are vegan, celiac, or B₁₂ deficient in any way. B₁₂ deficiency can take the form of developmental delays and behavioral disorders in children. Young children with inadequate B₁₂ levels can develop low IQ levels and mental retardation. Some antibiotics, birth control pills, antacids and other prescription drugs deplete bodily stores of B₁₂.⁵⁷

The most important characteristic of age-related gut dysbiosis is the decline in *Bifidobacterium* species.

Fluoride occurs naturally in the soil and tea plants (*Camellia sinensis*) have a natural affinity for it—they take it up into their roots. Soils in parts of India, Turkey, and China, where most tea is grown, have high amounts of fluoride in the soil. Some tea is also sprayed with fluoride-containing pesticides. Especially high in fluoride is instant tea. Organic teas have somewhat lower fluoride content. Grapes and grape products such as raisins and wines are high in fluoride.^{25-26,29} People living near industrial areas with steel, fertilizer, aluminum, clay, glass, enamel and other manufacturing industries are exposed to high levels of fluorides in the air.²⁹

FREE RADICAL THEORY OF AGING

Cells cannot live without oxygen, yet oxygen is the very source of free radicals that endanger the cells' existence. The body uses molecular oxygen to produce energy via oxidative phosphorylation in the mitochondria. This energy production and other metabolic reactions generate free radicals which cause a condition called oxidative stress. This cellular damage affects proteins and DNA replication, and inhibits repair through many complex processes, including telomere shortening in the DNA components.³⁰⁻³¹

Denham Harman, MD, PhD, the “father” of the free radical theory of aging, first proposed his hypothesis in 1965. Today it is the most widely

accepted theory used to explain the aging process. Harman claimed that aging is the result of oxidative stress due to reactive oxygen species (ROS)—also called free radicals—generated by a multitude of endogenous and environmental processes. They are highly reactive molecules that can directly damage the structures of cells and their lipids and proteins, as well as DNA. Other cellular sources of superoxide radicals include xanthine oxidase activity which forms the superoxide anion followed by the generation of hydrogen peroxide. Neutrophils, eosinophils, and macrophages are also sources of cellular ROS.³²

In the body, free radicals are produced in the mitochondria during detoxification reactions (cytochrome 450), in peroxisomes, and during inflammation. ROS can be produced from outside sources such as xenobiotics, chlorinated compounds, fluorides, environmental agents, metals, ions and radiation.³⁰

The body possesses multiple endogenous defense mechanisms to protect it from ROS by weakening and destroying those substances. These mechanisms take the form of antioxidant enzymes (superoxide dismutase, catalase, glutathione peroxidase, glutathione-S-transferase) and the non-enzymatic antioxidant molecules (vitamin E, vitamin C, vitamin A, ubiquinone and others), which include the sulfur-containing

AGING HAIR: THE SECRET LIFE OF THE HAIR FOLLICLE

Aging is a complex process involving various genetic, hormonal, and environmental mechanisms. With aging of the body often comes graying hair and decrease in hair production as a result of the decrease in melanocyte function and lower levels of the enzyme catalase. Oxidative stress may be the main mechanism contributing to hair graying and hair loss. Endogenous factors influence familial premature graying and androgenetic alopecia (hair loss). External factors include ultraviolet radiation (UVR), smoking, and nutrition.³¹

Hair color is determined by the presence or absence of melanin pigments. Skin and hair melanins are formed in cytoplasmic organelles called melanosomes, produced by the melanocytes, and are the product of a complex biochemical pathway (melanogenesis) with tyrosinase being the rate-limiting enzyme.³¹

Current theories say that hair graying is caused by the loss of the pigment-forming melanocytes in the hair follicle because of a decrease in activity of the tyrosinase enzyme and a reduction in a number of melanosomes. The free radical theory says that the activity of producing melanocytes is likely to generate ROS and if not neutralized, graying and hair loss will result. A recent study by Wood et al. demonstrated for the first time that human white scalp hair shafts accumulate hydrogen peroxide, a product of oxidation, with absent or very low levels of catalase and methionine sulfoxide reductase (MSR) protein. MSR is known to repair or damp down the effects of the free radical produced there, methionine sulfoxide (MS). MS produces residues in the active site of the key enzyme tyrosinase, which limits the melanogenesis process, leading to loss of hair color.³³⁻³⁴

Wood suggested that methionine oxidation may be prevented by supplementation with L-methionine, thus reversing or preventing hair graying. Methionine is an important amino acid found in meats.³⁴

Studies indicate that lipid peroxides, which can cause free radicals, induce the cell death (apoptosis) of hair fol-

antioxidants (glutathione, theoredoxin, alpha lipoic acids), melatonin, carotenoids, flavonoids, and polyphenols. The best dietary choice to fight aging is first and foremost avoidance of industrial fats and oils, which are just loaded with free radicals. Use butter, cook in saturated fats, and make your own salad dressing with olive oil.

Next, include foods and botanicals that contain multiples of anti-oxidant nutrients: the anti-aging powerhouses of garlic, curcumin, herbs, blueberries, and so on, which contain potent free radical scavengers.³⁰

Catalase is a very important enzyme which protects the cell from oxidative damage by ROS. It is involved in the quick conversion of hydrogen peroxide (H_2O_2), produced in many reactions, to water and oxygen. Hydrogen peroxide is produced as a potent antimicrobial agent in the immune response when cells are infected with a pathogen. It is also a byproduct of normal cellular respiration, and is formed from the superoxide anion by the action of superoxide dismutase. Fuel your catalase production by eating foods like meat which contains sulfur, iron and methionine.³²

Catalase has one of the highest turnover rates for all enzymes: one molecule of catalase can convert approximately six million molecules of hydrogen peroxide to water and oxygen each minute.⁶² Catalase deficiency has been implicated

in diabetes type 2, and in schizophrenia, atherosclerosis and other chronic diseases.³²

Despite the presence of the cell's antioxidant defense system to counteract oxidative damage from ROS, oxidative damage accumulates during the life cycle and has been implicated in aging and age-dependent diseases such as cardiovascular disease, cancer, neurodegenerative disorders and other chronic conditions. It becomes extremely important to supply the body with building materials needed for enzyme and antioxidant production through diet and supplementation to lessen the processes that lead to aging.³⁰⁻³²

PROBIOTICS FOR HEALTHY GUT AGING

Aging is accompanied by lower levels of gastric acid, an increase in stomach pH, and delayed stomach emptying, all of which contribute to a shift toward gut dysbiosis and a loss of microbial diversity. A lifetime history of antibiotic use destroys healthy colonies of probiotic bacteria and leads to increasing numbers of pathogenic bacteria, such as *Clostridium difficile* (*C. diff*), especially in those receiving antibiotic therapy. Studies show 21 percent of hospitalized patients with *C. diff* infections compared to 1.6 percent in the community at large.

Preserved immune function modulated by a balanced gut microbiota is a characteristic of healthy elderly people at any age.

lice cells in an inflammatory process which is gradual and initiated by several factors. Tobacco smoking has long been linked to premature aging of the skin and is now associated with graying hair and hair loss. High doses of environmental cigarette smoke cause alopecia (bald patches) in mice, which was prevented by oral doses of L-cystine and vitamin B₆.³⁵

For hair loss in women with androgenic hair loss, a 0.1 percent topical melatonin solution applied to the scalp once daily for six months led to significantly increased hair growth in occipital hair compared to placebo. For frontal hair loss in the group with diffuse alopecia, the melatonin solution gave a significant increase in hair growth. "The occipital hair samples of patients with diffuse alopecia and the frontal hair counts of those with androgenetic alopecia also showed an increase of anagen hair, but differences were not significant."³⁶ Anagen is the active growth phase of the hair follicles during which the root of the hair is dividing rapidly.

Melatonin is a potent antioxidant with anti-inflammatory effects in humans: it is a direct free radical scavenger and anti-aging factor made in the pineal gland, originating with the base amino acid tryptophan in four steps, with production of serotonin at the third step.³⁸

There is a melatonin-producing system in the skin. In healthy human subjects, topical melatonin effectively prevented the development of redness and blistering in skin exposed to UV rays. In studies, the antioxidative effects of melatonin were superior to those exerted by vitamin C. "Topical melatonin would seem to represent the first topical 'antiaging' product for treatment of the aging scalp."³¹

Melatonin is secreted into the blood during the dark period of sleep thus highlighting the importance of sleep. Sleep quality and duration will be affected with aging because melatonin production gradually decreases, and an exogenous source, via diet or supplements, may be desirable.³⁸ Melatonin is found in cherries, bananas, oranges, grapes, herbs (feverfew, St. John's wort), olive oil, wine, tomatoes and other fruits. Blood levels of melatonin significantly increase in humans consuming foods rich in melatonin.³⁷⁻³⁸

The most important characteristic of age-related gut dysbiosis is the decline in the abundance, diversity and adhesive properties of *Bifidobacterium* species, which have important anti-infective and immunomodulatory functions. Lower levels are associated with an increased susceptibility to gastrointestinal and systemic infections as well as inflammatory conditions. This status leads to a decline in immunological function accompanied by an increase in inflammation, called “inflamm-aging,” a characteristic of many chronic diseases such as cardiovascular disease, Alzheimer’s disease, type 2 diabetes, osteoporosis and cancer. Aging is also accompanied by a decrease in innate as well as adaptive immunity, termed “immunosenescence,” which relates to an increased susceptibility to infections and autoimmunity.

One of the most important strategies to healthful aging and long life is to maintain a healthy immune system via the gut. Centenarians studied have healthy immune factors and the portion of healthy *Bifidobacterium* species ranging from 53 to 87 percent compared to 40 percent found in healthy younger people.

“*Bifidobacterium* strains isolated from healthy centenarians have been shown to enhance both immune function and intestinal function in healthy mice following oral administration. These findings provide tantalizing evidence that healthy centenarians are characterized by

WAYS TO PROMOTE HEALTHY, HAPPY AGING

- First and foremost, avoid all industrial fats and oils, such as margarine, spreads, artificial whipped cream, commercial dips and cooking oils. Use butter liberally, cook with animal fats and use olive oil in salad dressings.
- Take it easy on the sweets, and use only natural sweeteners.
- Make sure foods are easy to digest, using bone broths and proper cooking techniques. Eat lacto-fermented foods daily.
- Raw whole milk can be a senior citizen's best friend; it is a full nutritional package that is very easy to digest.
- Avoid all pharmaceutical drugs, especially the cholesterol-lowering statin drugs.
- For healthy catalase production, favor foods with lots of healthy sulfur like eggs, garlic, and crucifers. Avoid food additives, artificial flavorings and sweeteners, and products made with them as they create oxidative stress in your body.
- Avoid genetically modified foods like corn, soy, cottonseed oil (in many snack foods), sugar beets, and papayas. GMO feeds cause rampant inflammation in the pigs and cancerous tumors in laboratory animals.
- Avoid fluoridated water by using reverse osmosis filtration or spring water, and don’t ingest instant teas, conventional grape juice and wines, which all contain high levels of fluoride.
- Make it a pleasurable priority to search out organic, local and biodynamically grown fruits, vegetables, flowers and herbs. Even better, grow at least some of your own!
- Make sure you get plenty of fat-soluble vitamins from grass-fed butter and egg yolks, organ meats, fatty fish and cod liver oil.
- Exercise, walk, and maintain a happy, grateful mood during the day. Relaxation exercises and yoga lead to higher melatonin production.
- Eat only enough to satisfy hunger, savor your meals in relaxed surroundings with good company, and avoid excess calories and stress-related eating.
- Get enough good quality sleep regularly.
- Selenium, vitamin C ascorbates or natural vitamin C formulations, omega-3 fatty acids, and natural sources of vitamins E and K are great antioxidants.
- Pure water is healthful and delicious. Avoid diuretics such as coffee or tea, which flush out minerals.
- Maintaining an active social life and friendships is good for mental health.
- Intellectual and cultural activities such as attending opera or theater, reading and writing keep your mind young.

a gastrointestinal microbiota containing more numerous, diverse *Bifidobacterium* populations that possess more valuable immunomodulatory properties than are even present in younger healthy people. Other studies show that preserved immune function modulated by a balanced gut microbiota is a characteristic of healthy elderly people at any age.⁴⁰

Centenarians and especially those over one hundred years of age are examples of those who have learned to age successfully and well. What factors contribute to that longevity? Some of the longest lived people come from the Bulgarian mountains near the Greek border where fermented milk products have a long tradition in the local diet. The bacterium that ferments milk to yogurt is known as *Lactobacillus bulgaricus* and researchers from around the world have come to Bulgaria to study the fermented milk. A typical Bulgarian centenarian eats yogurt three times a day, “sometimes with bread crumbs.” In existing pockets of longevity in locations around the world, like the native peoples studied by Dr. Weston Price, these peoples continue to eat their native diets of mostly fresh and unprocessed foods, and are generally isolated from most of the worst influences of modern civilization. They enjoy lives of moderation, sleep well and walk and work outdoors. They benefit from sunny, pollution-free, and oxygen-rich mountain living.⁴¹

THE AGING BRAIN

The brain also ages and neurodegenerative diseases such as Alzheimer’s, Parkinson’s and Huntington’s, can be blamed on the processes of aging. Cerebral volume decreases and ventricles expand. Plasticity—the ability to change and function—decreases, as do the gray matter cells composed of neurons involved in senses, emotions, self-control, and muscle control, as do the memory parts of neurons, called dendritic spines.⁴²⁻⁴⁴

Increasing numbers of neurofibrillary tangles, accumulated tau proteins, and amyloid plaques are found in the brains of Alzheimer’s disease (AD) patients. Recent theories have connected aluminum deposits in the brain to the formation of fibrillary tangles, the hallmark of AD. Aluminum is a neurotoxin involved in the

development of AD. It is contained in vaccines, absorbed from aluminum cookware, and is an ingredient in antiperspirants, coated aspirin, and many over-the-counter medications. “Aluminum’s contribution to AD is based upon at least seven independently derived observations that at physiologically realistic concentrations, aluminum strongly promotes amyloid aggregation and accumulation, a key feature of AD neuropathology.”⁴⁵⁻⁴⁷

Vitamin D is extremely important in the maintenance of a healthy brain and makes the antimicrobial peptide cathelicidin, which suppresses herpes simplex virus-1 (HSV-1) flare-ups, otherwise silent except for the appearance of cold sores. HSV-1 has been implicated in AD. The best source of vitamin D is the sun. As a fat-soluble vitamin, it is found in fat-based foods such as cod liver oil, pastured butter and lard from pastured pork. Vitamin D supplements are not always effective because they lack vitamin D’s partners, vitamin A and vitamin K₂, which work in tandem with vitamin D.⁴⁸

A recent study found that melatonin protects neurons against the damage of AD.⁴⁶ Melatonin is produced from serotonin in the pineal gland located in the inner brain. With aging, the pineal gland becomes calcified, thus less functional. But calcification has also been observed in young children. About 40 percent of Americans have calcified pineals by age seventeen.⁵⁰ “Calcium, phosphorus and fluoride deposits increase with aging and are likely to cause decreased melatonin production and abnormal pineal function, which could contribute to a variety of effects in humans.”⁵¹ Upon examination in many studies, the pineal gland had the highest fluoride concentrations in the body, higher than bone or teeth.⁵² This contributes to accelerated sexual maturation in females.⁵³

Cognitive impairment is related to ROS. Inflammation is the most controllable risk factor in oxidative stress.⁵⁴ Antioxidants like fat-soluble vitamins A, D, E, and K, as well as B and C vitamins, and omega-3 fatty acids, are recommended to reduce oxidative stress.²³

Neurotransmitters like serotonin and their receptors change with aging.⁵⁴ Dopamine synthesis declines as well as the number of dopamine receptors. DNA damage accumulates with age

Vitamin D is extremely important in the maintenance of a healthy brain.

in the brain.⁵⁵⁻⁵⁶ Saturated fats and fats from cod liver oil are extremely helpful in regulating the oxidative stress in the brain as we age.

IN CONCLUSION

Although there are many other nutritional giants that could be included in your arsenal, they cannot all be discussed here. Overall, the basic advice that we learned as children to “eat a variety of foods from many colors” still applies. Of course man cannot live on fruits and vegetables alone. Saturated fats, especially those from pastured animals and poultry, are most important in the diet to promote a happy, healthy brain and body. Follow the principles of the Weston A. Price Foundation diet which includes generous amounts of vitamins, minerals, trace minerals, good fats, high quality proteins, and probiotic foods flavored with unprocessed sea salt.⁵⁹⁻⁶¹

Avoid industrial fats and oils, processed foods, refined sweeteners and fluoridated water.

In addition to good nutrition, other lifestyle practices such as those listed in the sidebar below all provide pieces to the puzzle that can help create a good life crowned with satisfaction, pleasure, health, and fulfillment as we age.⁵⁸



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MEMBERSHIP POSTER

Membership is the main source of financial support for the many projects of the Weston A. Price Foundation. We appreciate your help to increase membership. We are happy to send a free copy of our membership poster to those who will display it.

The poster is 8.5" x 11" with a cardboard flap that allows it to stand. It goes well with our Dietary Guidelines booklet. It can be displayed at an exhibit, a doctor's office, a library, a farmers market, etc.

If you will display it, please write for a free copy: info@westonaprice.org



Type 3 Diabetes:

Metabolic Causes of Alzheimer's Disease

by Amy Berger, MS, NTP

As the population of the industrialized world ages, illnesses associated with aging consume a larger portion of our healthcare budgets and impose increasing burdens on the quality of life of patients and their caregivers. Estimates suggest that in the U.S., Alzheimer's disease (AD) affects 12 percent of people over age 65 and nearly 50 percent of those over 85, with predictions for this to include 16 million people by 2050.¹ National healthcare costs associated with AD are expected to surpass one trillion dollars by mid-century.¹

Considering the fact that AD has no known cure and current therapies are largely ineffective, identifying the triggering mechanisms and exacerbating factors behind AD is of paramount importance, as prevention and early detection would serve to decrease—or at the very least delay—the physical, emotional and financial hardships this illness creates. Prevention is also critical because AD symptoms often do not appear until loss of functional neurons is so widespread that irreversible damage has already occurred.

Significant epidemiological and clinical evidence has emerged that suggests AD belongs among the “diseases of civilization,” primarily caused by modern Western diets and lifestyles at odds with human physiology. High intakes of refined carbohydrates and omega-6-rich polyunsaturated oils, low antioxidant intake, lack of physical activity, and misguided avoidance of cholesterol and saturated fats combine to create a perfect storm for glycation and oxidative stress in the brain, ultimately resulting in severe cognitive decline that renders nearly impossible the tasks involved in everyday living.

Our evolutionarily discordant dietary environment has been linked to conditions as diverse as heart disease, diabetes, rheumatoid arthritis, polycystic ovarian syndrome (PCOS), and schizophrenia.^{2,3} Often, the brain is seen as a space unto itself, as though the blood-brain barrier were an impenetrable border that spares the brain the deleterious effects the rest of the body suffers as a result of a physiologically incongruous diet. However, research on AD confirms that not only is the brain as susceptible to metabolic and environmental insults as the rest of the body, but due to its high energy demands, disproportionate oxygen consumption, high concentration of oxidation-prone long-chain polyunsaturated fatty acids (PUFAs), and decreased capacity for regeneration, the brain is *especially* vulnerable to the detrimental effects of modern Western diets.²⁻¹⁰

Research into AD pathology, like that of many of its chronic, degenerative illness counterparts, is riddled with uncertainty regarding which factors are causative and which are merely correlative. Nevertheless, up-to-date literature points to genetic and environmental factors that greatly increase the risk for developing this condition. The risk profile has a strong basis in epigenetics—the influence of diet and lifestyle on how particular genotypes are expressed. The two most striking risk factors appear to be hyperinsulinism and possession of one or two E4 alleles for the apolipoprotein E gene (ApoE4), which is involved in lipid processing. (See sidebar on page 34.)

Possession of an E4 allele is so strongly correlated with AD that one study author calls it the “susceptibility gene.”¹¹ ApoE4 heterozygotes

(people with one allele) have a five-fold increased risk of developing AD, and homozygotes (two alleles) are estimated to have a staggering lifetime risk between 50-90 percent.¹² Despite this seemingly damning genetic heritage, the ApoE4 allele is neither required nor sufficient for development of AD, as 50 percent of people with AD are *not* carriers, and some E4 homozygotes never develop the disease.¹³ On the other hand, the other known risk factor—hyperinsulinism—elevates risk by 43 percent *independently* of ApoE status. As hyperinsulinemia occurs in approximately 40 percent of people over age sixty, it’s not surprising that it correlates with a condition that preferentially strikes the aging.¹⁴

Some researchers believe the connection between impaired glucose metabolism, insulin signaling and AD is so strong that they refer to AD as “type 3 diabetes.”¹⁵ In fact, type 2 diabetes (T2D)—a condition stemming from broken glucose metabolism and insulin signaling—has been identified as an additional risk factor for developing AD.^{16,17} Moreover, the pathological changes that occur in AD in the brain physically resemble those seen in the pancreas and vasculature in T2D.^{9,18} Type 2 diabetics who carry ApoE4 alleles are at the greatest risk for AD, with an even more severe risk reserved for those treated with exogenous insulin.¹⁹ This suggests that either T2D or related features of the metabolic syndrome bring about AD, or that they are separate consequences of the same underlying cause—and moreover, that insulin is a key factor.

That not all type 2 diabetics develop AD and not all AD patients are diabetic should disabuse us of the notion that diabetes *causes* AD. What is more likely—and what the research seems to support—is that they are physiological cousins. That is, they result from the same underlying metabolic imbalances, but manifest differently depending on which parts of the body are affected.

Clinically, AD patients have decreased cognitive function and lapses in memory that decline progressively and ultimately affect performance of tasks involved in everyday living. Physiologically, AD is characterized by several physical hallmarks that can be measured or observed via biopsy, positron emission tomography (PET)

Not only is the brain as susceptible to metabolic and environmental insults as the rest of the body, it is *especially* vulnerable to the detrimental effects of modern Western diets.

A slow decline in brain glucose usage can be seen as preclinical evidence that something has gone awry long before the appearance of overt signs and symptoms.

scan, or upon autopsy. These include insoluble extracellular plaques made of beta-amyloid peptide (A β); intracellular neurofibrillary tangles (NFTs) resulting from the hyperphosphorylation of tau (a microtubule-associated protein); loss of hippocampal neurons; a decrease in production of brain acetylcholine; and a marked decline in glucose usage in regions of the brain associated with memory and learning.^{5,11,20-22} All of these changes can be logically explained as the sequelae resulting from long-term dysregulation of insulin signaling and glucose metabolism. Their damaging effects are compounded by other features of a modern Western diet and lifestyle apart from an evolutionarily discordant degree of refined carbohydrate consumption—namely, a gross imbalance between n-6 and n-3 essential fatty acids, a lack of micronutrient and antioxidant-rich vegetables and fruits, and a paucity of physical activity.

PHYSICAL HALLMARKS OF AD: REDUCTION IN CEREBRAL USAGE OF GLUCOSE

One of the most striking observations in AD patients is a marked decline in the rate at which their brains use glucose (called the cerebral metabolic rate of glucose [CMRglu]). Specifically, this reduced fuel usage is localized in regions of the brain involved in memory processing and learning.^{10,11,21,24} PET scans of people at high risk for developing AD show that this decline

occurs long before symptoms of AD are present, and seems to be the first step in a long chain of events whose eventual end is overt AD. The decline can be detected in those at risk as young as their twenties and thirties—decades before the manifestation of AD.¹¹ More dramatic declines are seen in later years, with the largest declines occurring in ApoE4 homozygotes.²⁰ These declines are associated with normal aging, but in people at risk for AD, they begin at a younger age and decline more aggressively.

It is noteworthy that the subjects tested in younger years are cognitively normal; they show no clinical signs of AD, so there is little reason to suspect that metabolic and cognitive derangement are brewing. This slow decline in brain glucose usage can be seen as a kind of “canary in the coal mine”—preclinical evidence that something has gone awry long before damage has progressed to the point of overt signs and symptoms. With the brain’s disproportionate consumption of fuel (at just 2 percent of body weight, it uses around 20 percent of the body’s glucose and oxygen), any regional reduction in fuel metabolism will have dramatic effects.²⁵

The extent of the reduction in CMRglu is tied to AD severity. A longitudinal study using PET scans to measure CMRglu in people ages fifty to eighty showed that people with the lowest CMRglu at baseline experienced the quickest development of overt AD.²⁴ At baseline, hippocampal glucose metabolism in people who

WHAT IS APOLIPOPROTEIN E?

Lipoproteins are vesicles that transport non-water-soluble substances—such as fatty acids and cholesterol—through the bloodstream. Apolipoproteins appear on the surface of lipoproteins, where they serve as ligands (recognition factors) for receptors and as cofactors in enzymatic processes.⁸ The gene for ApoE occurs in three isoforms, and it is theorized that their distribution is related to human evolutionary migration patterns and the historic adoption of grain-based agriculture.²³ Groups with the longest exposure to grain consumption have a lower E4 frequency, suggesting that high carbohydrate intakes may have selected against E4.⁵

The three ApoE isoforms differ by just one amino acid, but this substitution has dramatic biochemical implications.¹² These single substitutions affect tendency to become glycosylated, as well as determine binding affinity to enzymes and receptors, which is why the three isoforms are associated with different trends in serum LDL, VLDL, and triglyceride measurements.⁸

Neurons have ApoE receptors, which suggests that ApoE plays a role in the delivery and clearance of fatty acids, cholesterol, and phospholipids to and from the brain. Delivery and recycling of cholesterol in the brain is critical because the brain contains 25 percent of the body’s total cholesterol—used as an antioxidant, electrical insulator and key structural component of plasma membranes. ApoE4 is associated with reduced LDL uptake and all the consequences that would result from an inability to deliver cholesterol and fatty acids to target cells.⁶ Cholesterol is an essential contributor to structure and function in the brain, and any interruption in its supply would have extreme consequences for cognitive function.

progressed from normal to AD was 26 percent below that of people who did not develop AD, and the annual rate of decline averaged 4.4 percent. Assuming the rates of decline were somewhat constant, extrapolating backward indicates that the decline may have started several years before baseline testing, and possibly decades before any overt signs of AD were present. At baseline, despite the already decreased CMRglu in some subjects, *all subjects were cognitively normal*. This suggests that reduced glucose utilization in the brain might be one of the earliest events in AD. The occasional foibles and forgetfulness we associate with normal aging could, in fact, be the earliest signs that the brain is losing its ability to fuel itself effectively.

NEUROFIBRILLARY TANGLES

A second physical hallmark of AD is intracellular neurofibrillary tangles (NFTs) made of hyperphosphorylated tau protein. Tau is a protein that binds to microtubules and promotes stabilization of the cell's internal structure. Hyperphosphorylated tau does *not* bind to microtubules and instead tangles in upon itself, leaving this debris inside the cell, and also resulting in an improperly constructed cytoskeleton, leading to compromised cell function.^{12,26} A critical result of malformed microtubules is loss of structure and function in neuronal axons and dendrites—the projections responsible for cellular communication—sending and receiving electrical impulses and metabolic materials.²⁶

What, then, causes the phosphorylation of tau? This is regulated by the enzyme glycogen synthase kinase 3 β (GSK-3 β). Insulin inhibits this enzyme, so if the brain is insulin resistant, the process is not inhibited. An interesting feature ties hyperphosphorylated tau back to ApoE4. Of the three isoforms of ApoE, E4 is unique in its *inability* to bind tau. The E3 isoform has been proven to bind to tau (with the same suspected for E2), thus preventing or minimizing its phosphorylation.

BETA-AMYLOID PEPTIDE

The most prominent physical characteristic of an AD brain is the accumulation of insoluble extracellular plaques consisting of beta-amyloid peptide (A β). A β results from the normal cleav-

age of amyloid precursor protein (APP), but its accumulation and aggregation into plaques represents the quintessential feature of AD.²⁷ A β is found in orders of magnitude greater in AD brains than in healthy brains.²⁸ This fact is noteworthy because lower concentrations of A β tend to stay soluble; higher concentrations form plaques more readily.²⁹

If these plaques are either causing or exacerbating AD, it is crucial to identify why they're being secreted out of the cell and why they are not degraded normally. It has been shown that insulin is behind both of these phenomena: insulin stimulates the secretion of the two forms of A β associated with AD, and it also inhibits its degradation and clearance.³⁰

Rather than increased production of A β inside the cell, research indicates that *reduced extracellular clearance* is what causes A β to accumulate. A β is cleared primarily by insulin degrading enzyme (IDE). The affinity of IDE for insulin is so high, however, that the presence of even small amounts of insulin completely inhibits the degradation of A β .³⁰ Insulin acts as a kind of competitive inhibitor, such that when insulin is present, IDE will be “busy” clearing it, leaving A β to accumulate. Hyperinsulinemia equates to a functional (if not clinical) “IDE deficiency.” This strikes an even bigger blow to aging populations because IDE production declines with age, so there is an increasing amount of substrate combined with lower enzyme activity.³¹

Just as insulin can be seen as a competitive inhibitor of IDE for degradation of A β , A β can be viewed as a competitive inhibitor of insulin for its receptor. This has been proven in human cells in vitro—A β reduces the binding of insulin to its receptor in a dose-dependent manner.²⁸ Insulin levels are already reduced in the brain of AD patients, and now there is something interfering with the proper binding of what little insulin is present.

Due to reduced clearance via IDE, A β accumulates, and the more it accumulates, the more prone it is to form insoluble plaques. Two other factors contributing to plaque formation are intimately related to the genetic and metabolic risk factors for AD—ApoE genotype and hyperinsulinism (with attendant hyperglycemia). Autopsy of human AD brains shows that the amount of

The occasional foibles and forgetfulness we associate with normal aging could in fact be the earliest signs that the brain is losing its ability to fuel itself effectively.

High cholesterol levels later in life are associated with reduced risk of dementia.

plaque present and its density are directly influenced by ApoE genotype, with E4 homozygotes having the densest and most extensive plaques. Sections from the brains of homozygous ApoE4 AD patients are so riddled with A β plaques that they can often be distinguished from those of E3 carriers without a microscope.³²

ApoE particles themselves have been identified in amyloid plaques. However, strong evidence that they bind directly to the plaques is lacking. What has been established is the fact that ApoE particles bind to advanced glycation end products (AGEs), and yet another factor contributing to the insolubility of the plaques is their degree of glycation. The plaques become glycosylated (bonded to sugar) and form cross-linkages with each other, resulting in toxic AGEs. It is the glycosylated plaques and AGEs that the ApoE particles actually bind to. Glycation is a factor of glucose concentration exposure and time, with more AGEs forming upon longer exposure to higher concentrations of glucose.³³ It follows that in a body that is hyperinsulinemic, and a brain that is insulin-resistant, the peripheral hyperinsulinism will inhibit the clearance of soluble A β by IDE, thereby causing it to remain in the extracellular space for an extended amount

of time, and the functional “hyperglycemia” in the brain will provide an elevated level of glucose—the perfect storm for glycation of A β and its aggregation into insoluble plaques. As if that were not challenge enough for a brain that is already struggling to metabolize fuel efficiently, AGEs themselves have been shown to be neurotoxic, likely by inducing apoptosis (cell death) and lipid peroxidation—a process that is especially damaging to cells whose membranes are particularly rich in PUFAs.^{10,33}

Similar to the reduction in the CMRglu, AGE accumulation is a normal product of aging, but AGE formation occurs more quickly and to a greater degree in AD patients. AD brains show more AGEs than those of healthy, age-matched controls.³⁴ ApoE4 particles have been shown to have three times greater AGE-binding affinity than ApoE3, and apolipoprotein particles themselves are subject to glycation. Increased glycosylated ApoE particles have been detected in the cerebrospinal fluid (CSF) of AD patients.^{34,35} The physiological insult of glycosylated ApoE is that ApoE helps transport LDL particles (and their critical cholesterol and fatty acid passengers) across the blood brain barrier. LDL containing normal ApoE will be recognized by its receptor

WHAT TO AVOID TO HELP PREVENT ALZHEIMER'S DISEASE

- **STATIN DRUGS:** Cholesterol is a vital part of the myelin sheath insulating neurons and assisting in propagation of nerve impulses; metabolites in the cholesterol biosynthesis pathway inhibited by statins are required to produce CoQ₁₀ as well as functional GLUT4s. Cholesterol is also an integral part of plasma membranes, lending structural stability. Any pharmaceutically-induced disruption in endogenous synthesis of cholesterol—especially when combined with long-standing, population-wide recommendations to limit dietary intake—would starve the struggling brain of this absolutely critical nutrient. In fact, *high* cholesterol levels later in life are associated with *reduced* risk of dementia, and the CSF of AD patients has been shown to be *lower* in cholesterol than that of healthy controls.^{62,63} HMG CoA reductase—the target of statin therapy—is abundant in brain cells. They require a constant supply of cholesterol, and when its production is inhibited, the result is a loss of myelin as well as malformation of membranes—including those of the mitochondria.⁸ Compromised mitochondrial function deprives the brain of ATP. It is no surprise that decades of recommendations to reduce consumption of cholesterol and perhaps overzealous prescription of statin drugs have paralleled the rise in AD incidence.⁶
- **PROCESSED FOODS:** These present a quadruple nutritional assault upon a brain suffering the ravages of the modern diet: they are usually high in refined carbohydrate; high in rancid, easily oxidized vegetable oils; low in antioxidants; and low in vitamins and minerals.
- **EXOGENOUS INSULIN:** Although insulin has been shown to improve memory and cognition acutely, chronically high insulin levels are known to impair brain function.^{42,64} Exogenous insulin would serve to inhibit IDE more strongly, thereby preventing the clearance of A β , causing it to linger in the brain interstitial fluid even longer, where it is subject to glycation and oxidation. As noted, the greatest risk for AD is reserved for ApoE4 carriers who are treated with exogenous insulin.

and proceed through, while glycosylated ApoE is not recognized, thus depriving brain cells of these essential building blocks.⁶

There is even more to the interaction of ApoE genotype and A β . ApoE genotype influences insulin degrading enzyme production, with E4 homozygotes expressing 50 percent less hippocampal IDE than non-E4 carriers.²⁷ It is not known whether the ApoE4 genotype causes reduced IDE. They could both arguably be the result of an overall hunter-gatherer genotype not designed for the carbohydrate-rich Western diet. Pre-agriculturalists presumably would have derived more of their calories from fat and protein and would therefore have had a lower requirement for both insulin and IDE.^{36,37}

Several authors have asserted that A β is toxic. A β is believed to penetrate neuronal plasma membranes, where it leads to lipid peroxidation.¹⁰ It has also been implicated in deactivating a subunit of the pyruvate dehydrogenase complex, thereby inhibiting conversion of pyruvate to acetyl CoA and the eventual production of cellular energy as ATP.³² Another way A β affects glucose metabolism in the brain is that fragments of A β disrupt insulin signaling by binding to neuronal synapses, which alters their shape and function.^{15,38} Insulin receptors are abundant at synapses, so if the integrity of the synapse itself has been compromised, the receptors won't function effectively.

It's easy to see why one school of thought subscribes to the belief that A β plaques cause AD. However, an alternative theory is emerging wherein A β is argued to be *protective*. This more holistic view of AD pathology will be addressed after a discussion of the critical role of insulin in AD causation and progression.

INSULIN'S ROLE IN AD PATHOLOGY

It had long been believed that glucose uptake in the brain was entirely independent of insulin, as the common brain glucose transporters—GLUT1 and GLUT3—are non-insulin-sensitive. However, it is now recognized that there are insulin receptors *and* insulin-sensitive glucose transporters (GLUT4) at the blood brain barrier (BBB) and in certain brain cells. They are particularly abundant in regions involved in memory and learning.^{39,40}

Entry of insulin into the brain is a saturable mechanism; there comes a point when increased peripheral insulin levels no longer elevate levels in the central nervous system (CNS). Entry of glucose into the brain can be seen as saturable as well. GLUT1 transporters at the BBB are saturated by normal physiological concentrations of glucose.⁴¹ Therefore, increasing glucose uptake by the brain would require an upregulation of insulin receptors or GLUT4s. But when the receptors have been compromised, it could equate to a functional hypoglycemia in the brain, which would account for the decreasing rate of brain glucose metabolism that is one of the defining features of AD. On the other hand, if a physiologically normal amount of glucose is entering the brain interstitial fluid but there's a lack of insulin, this could result in the increased glycation observed in AD brains. The presence of glucose with an inability to metabolize it would account for both the reduced CMRglu and increased AGE formation.

A noteworthy feature of AD is the intriguing combination of hyperinsulinism (too much) in the periphery and hypoinsulinism (not enough) in the CNS. Patients with advanced AD show higher plasma but lower CSF insulin concentrations than healthy controls.⁴⁰ Clearly, then, the lower concentration of insulin in the brain is not a result of reduced circulating levels in the blood. Somehow—partly through the effects of A β , but more likely due to long-term overconsumption of refined carbohydrates—the brain becomes insulin-resistant.

Insulin plays a definite role in cognitive function. However, as is true of most biological mechanisms, context must be taken into account: acute administration of insulin improves performance on tests of memory and cognition, but chronically elevated insulin levels have the opposite effect.^{4,42,43} This is akin to the pathology of T2D, in which normal, acute doses of insulin help regulate glucose uptake, but chronically elevated levels lead to insulin resistance, hyperglycemia, and the attendant inflammation and vascular damage. Chronically elevated insulin levels in the periphery, it seems, depress insulin sensitivity at the BBB and therefore glucose utilization in the brain. In the absence of an alternative fuel source, brain cells starve. Metabolic fuel is

Acute administration of insulin improves performance on tests of memory and cognition but chronically elevated insulin levels have the opposite effect.

NUTRITIONAL THERAPIES FOR ALZHEIMER'S DISEASE

The damage observed in AD brains is complex and multifactorial. Any intervention intended to delay or possibly reverse this damage should therefore be a multipronged strategy designed to address as many of the contributing factors as possible. The majority of these potentially helpful practices are nutritional, but two can be considered lifestyle modifications. Obviously, the foundation of what might be considered an “anti-Alzheimer’s strategy” is a reduced carbohydrate diet. Beyond that, there are numerous nutritional supplements that could be effective based on their biochemical functions:

- **Chromium picolinate:** Chromium is required for proper function of the insulin receptor, and has been proven to aid in glucoregulation and insulin sensitivity.^{58,59}
- **Zinc:** Insulin degrading enzyme requires zinc as a cofactor.⁵⁷
- **High-quality cod liver oil:** To balance the n-6/n-3 ratio and decrease inflammation. Generally, oils rich in n-6 fatty acids induce inflammation in the body, while n-3-rich oils stimulate anti-inflammatory pathways. The ratio of n-6 to n-3 in the modern American diet is estimated to be as high as 30:1, while our evolutionary dietary patterns suggest we are physiologically suited to a ratio closer to 3:1.^{36,60} Additionally, dietary imbalances of these fatty acids cause imbalances in their incorporation into cellular and organelle membranes, resulting in altered permeability and increased vulnerability to lipid peroxidation.
- **Medium-chain triglycerides (MCTs):** These saturated fatty acids (found mostly in coconut and palm kernel oils) are metabolized differently from others and can serve as a source of ketones even in the absence of carbohydrate restriction.⁶¹
- **L-Carnitine:** This amino acid is required by carnitine palmitoyltransferase-1, the enzyme responsible for shuttling fatty acids into the mitochondria, as well as other enzymes in the breakdown of fats.⁵⁰ A patient on a reduced carbohydrate diet with the specific intention of ramping up fatty acid oxidation and ketogenesis could likely benefit from supplemental carnitine.
- **Coenzyme Q₁₀:** CoQ₁₀ is a vital member of the mitochondrial electron transport system (and therefore generation of ATP) and also a potent antioxidant. CoQ₁₀ administration has been shown to reduce production of ROS by mitochondria exposed to Aβ in animal models of diabetes.¹⁸ With the AD brain struggling to produce energy and under great oxidative stress, CoQ₁₀ could be a powerful adjunct.
- **Antioxidants:** In addition to increasing antioxidant-rich foods in the diet, supplemental N-acetyl-cysteine for glutathione regeneration might be helpful. (It’s noteworthy that the fruits highest in antioxidants are also lower in glycemic index and load; namely, berries.) Supplemental superoxide dismutase might also be beneficial.
- **Physical activity:** Physical activity induces recruitment of GLUT4s and ultimately helps maintain insulin sensitivity. Resistance training or weightlifting might prove particularly beneficial, as it would serve to increase muscle mass and potentially increase insulin sensitivity. This might be especially protective if started early in life so as to minimize the impact of sarcopenia (loss of muscle mass) as one ages.
- **Stress reduction:** Cortisol, the primary glucocorticoid “stress hormone,” releases glucose in response to acute stressors.²⁵ In our hyper-stressful modern environment, our bodies almost always perceive dire threats all around us. Chronically high cortisol levels could induce hyperglycemia even in the context of a reduced carbohydrate diet.
- **B₁₂:** While B₁₂ is not necessarily required for a therapeutic diet for AD, it is important to note that memory loss and cognitive decline are insidious signs of long-term B₁₂ deficiency. Sufficient stomach acid is required for B₁₂ absorption, and stomach acid production naturally declines with age. Combine this with the possibility that older people are less likely to consume B₁₂-rich foods (which can take more effort to prepare than convenient, ready-to-eat refined carbohydrates), and B₁₂ deficiency becomes fairly common in the elderly. B₁₂ deficiency can even be mistaken for AD, so it’s worthwhile to have B₁₂ levels tested if AD is suspected.

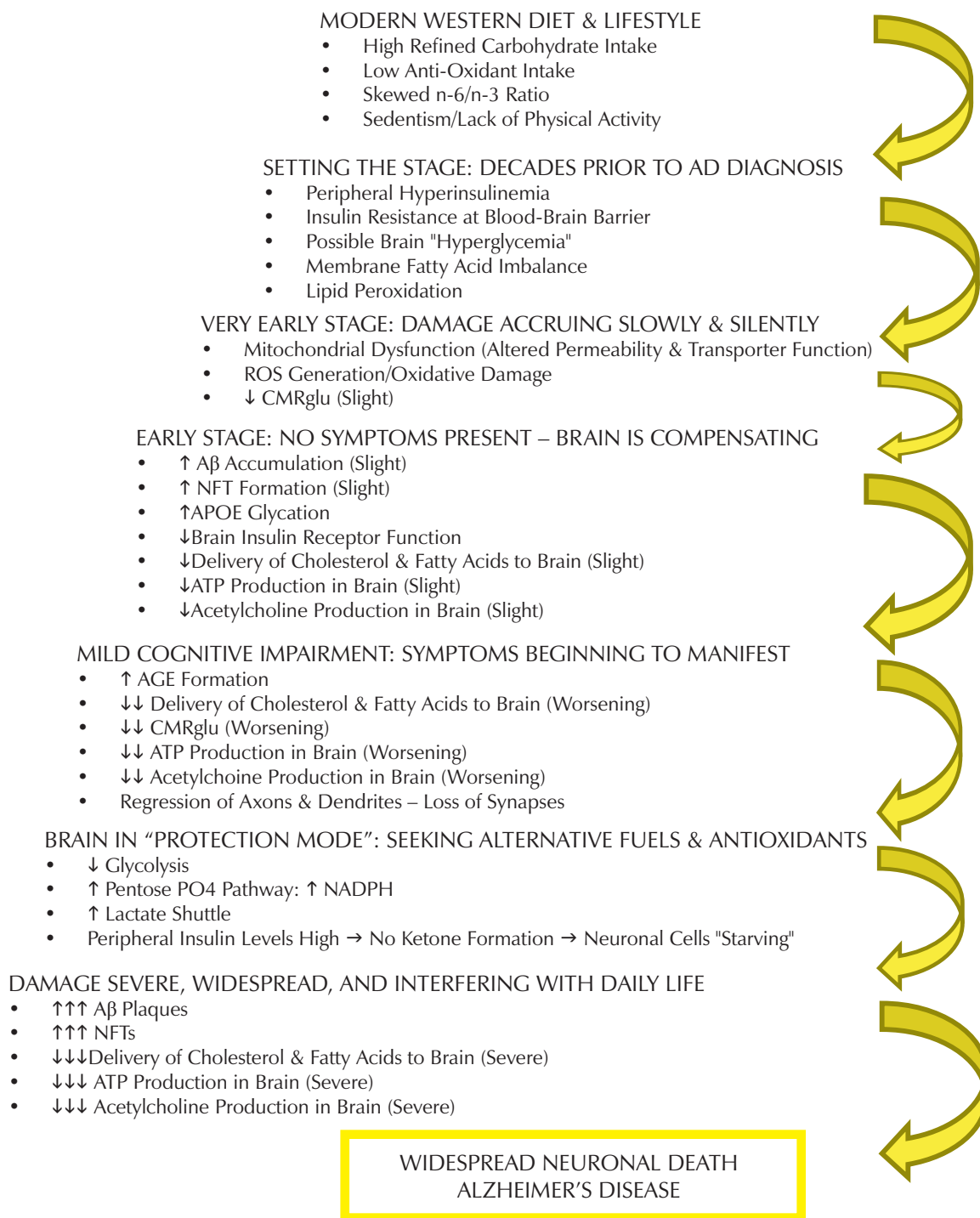


Figure.1: The Alzheimer's disease cascade: Dietary imbalances cause mitochondrial dysfunction, oxidative damage, peripheral hyperinsulinemia, and insulin resistance at the BBB. Decades prior to clinical disease manifestation, the brain shows a decreased ability to metabolize glucose. Insulin dysregulation causes Aβ plaques to accumulate, NFTs to form, and glycated ApoE particles fail to deliver cholesterol and fatty acids to the brain. Axons and dendrites recede; synapses are lost. High peripheral insulin levels inhibit ketogenesis and starve the struggling brain of an alternative fuel. The brain upregulates pathways to protect and feed itself. A lack of substrates for these pathways results in widespread neuronal death and overt Alzheimer's disease. Aβ: beta-amyloid; CMRglu: cerebral metabolic rate of glucose; NFT: neurofibrillary tangles; ROS: reactive oxygen species.

Some progressive researchers have suggested that insulin resistance at the blood brain barrier is the brain's way of forcing a slowdown in the metabolism of glucose.

inside the body, but the brain cells are not able to harness energy from it. The parallels to T2D are striking, making the term “type 3 diabetes” apropos.

For non-ApoE4 carriers, diabetes alone is a significant risk factor for AD.¹⁷ The combination of diabetes and carrying an ApoE4 allele increases the risk even further—five-fold over non-diabetic, non-E4 carriers.^{16,17,19} Better glyce-mic control has been correlated to better cognitive performance in type 2 diabetics. Moreover, these same subjects had improved performance on memory tests quickly after an acute dose of 50g of easily digestible carbohydrate, but this was followed by *decreased* performance after an extended waiting period, reflecting the aforementioned observations of acute versus chronically elevated insulin levels and glucose utilization.⁴⁴ The question, then, is whether diabetes plays a causal role in AD. Research does not support this, as not all AD patients are diabetic, and not all diabetics develop AD. Due to the overwhelming evidence of insulin and glucose signaling derangement as the strongest factors in AD, it seems more likely that T2D and AD are different manifestations of the same underlying causes: in T2D, the peripheral muscles and organs are affected; in AD damage is localized to the brain.

DISCUSSION

Like that of many of its complex neurode-generative counterparts, AD research is stymied by the problem of identifying what the first steps are in a vicious cycle wherein an underlying disturbance is perpetuated by the very results of the disturbance. The physiological and bio-chemical changes observed in AD point to a brain that is struggling to maintain its viability. It downregulates the uptake of glucose, upregulates mechanisms to use alternative fuels, and increases production of protective substances.

Many researchers see the accumulation of A β as the triggering event in AD pathology. However, a more integrated view of the innate wisdom of the human body suggests that A β initially serves a *protective* role, just as a fever is a protective mechanism rather than something to be annihilated unquestioningly. Nevertheless, just as a fever spiking too high can create problems of its own, increasing numbers and density

of A β plaques in a hyperglycemic brain can initiate chain reactions of glycation and oxidation that serve to exacerbate mitochondrial dysfunction, decreased ATP production, and cognitive decline.

It is unlikely that A β plaques are a primary causative factor in AD because the effects of reduced glucose uptake in the brain are observed long before the plaques are evident. The plaques more logically result from functional inhibition of IDE due to peripheral hyperinsulinemia. Some progressive researchers have suggested that insulin resistance at the BBB is the brain's way of forcing a slowdown in the metabolism of glucose. This seems illogical if glucose is the brain's primary fuel (assuming a carbohydrate-rich diet). Why would the brain seek to limit the uptake of its main fuel? Several mechanisms are at work, and they all indicate that the brain is protecting its own survival while trying to minimize further damage.

First, high levels of glucose in brain interstitial fluid are glycating. Glycated proteins and cellular structures have altered function, increased vulnerability to oxidative damage, and reduced degradation and clearance.⁶ Slowing the entry of glucose into the brain would delay these processes and possibly give the body's defenses more time to dispose of the AGEs.

Second, glucose metabolism causes a heavy burden of oxidative stress. The running of the mitochondrial electron transport system (ETS) is the greatest source of reactive oxygen species (ROS) and free radicals in the body, and neurons are particularly susceptible to oxidative stress because their metabolic rate is higher than that of other brain cells.¹⁰ Moreover, neuronal membranes are rich in long-chain PUFAs and cholesterol, which are highly vulnerable to oxidation.²² AGEs have been shown to induce lipid peroxidation, so exposure of fragile membrane PUFAs to a hyperglycemic environment can be considered toxic. In an organ that is potentially so highly damaged from a lifetime of dietary and environmental abuse, downregulating the usage of a fuel whose metabolism creates even more damage can be seen as a last-ditch effort just to survive.

Third, the brain could be redirecting its metabolic machinery toward utilization of fuels

other than glucose, such as fatty acids and ketone bodies, which produce less oxidative stress and are, in fact, more efficient fuels.^{14,46,47}

One way in which A β serves a potentially helpful role is that it upregulates production of amyloid- β -peptide-binding alcohol dehydrogenase, an enzyme capable of metabolizing alternative fuels such as ketone bodies and alcohols.⁶ Another possibly protective role for A β is in catalyzing the production of lactate dehydrogenase, which converts pyruvate to lactate under anaerobic conditions.⁶ Lactate is produced in glial cells and sent to neurons, where it is converted back to pyruvate and sent through the tricarboxylic acid (TCA) cycle to produce ATP. Up-regulating lactate production compartmentalized within the brain could be the struggling brain's way of providing a fuel substrate when glucose usage in the brain has been compromised. Here again we have two scenarios in which A β seems to be priming the brain to move away from glucose.

LOW CARBOHYDRATE DIETS FOR AD THERAPY

If AD is primarily the result of a brain unable to metabolize glucose properly, then interventions aimed at preventing or improving this condition should include a transition to a fuel source other than glucose, reducing peripheral insulin levels to restore sensitivity at the BBB, and providing an abundant supply of protective substances. As a model to guide therapy, we can look to what happens during fasting, starvation, or carbohydrate restriction to see the processes by which a glucose-deprived body sustains itself. The major switch that occurs in the absence or reduction of exogenous glucose is that the body transitions to running on fatty acids, ketone bodies (KBs), and small amounts of glucose derived from gluconeogenesis (making glucose from amino acids and other substances).^{48,49}

It is often claimed that glucose is the brain's only fuel, or that the brain requires upwards of 120 grams of glucose per day. This grossly oversimplifies human physiology. Glucose is regularly cited as the "preferred" fuel for the body and brain. However, it is only preferred in the sense that it will generally be used first. It is neither more efficient nor safer than two of the other fuels the body and brain can run on:

fatty acids and KBs. KBs can provide up to 60 percent of the brain's energy, thus sparing what little glucose is metabolized to supply the rest.⁴⁷

KBs are often viewed as toxic, but this is not the case. They are an absolutely normal part of human energy metabolism that preferentially fuel the brain while much of the rest of the body runs on fatty acids during times of carbohydrate unavailability.⁵⁰ The negative view of KBs stems from confusion of benign dietary ketosis (BDK) and diabetic ketoacidosis (DKA). BDK occurs as a result of dramatic reductions in carbohydrate consumption, while DKA is seen in untreated type 1 diabetics, who do not produce insulin, have extremely limited capacity to burn glucose, and therefore are in a constant, uncontrolled state of catabolizing (breaking down) their own muscle and adipose tissue to use as fuel. Despite both conditions indicating that the body is burning fat at a high rate, they are worlds apart in physiological implication. During BDK from carbohydrate reduction, blood ketone concentrations are typically no higher than 4-6 mM, with no change in blood acidity. In DKA, however, blood ketone concentration can reach up to 25 mM—orders of magnitude greater—and blood pH can decrease to fatal levels that overwhelm the body's acid buffering capacity.⁴⁷

Ketogenic diets have a long history of efficacy for disorders of the CNS, most notably epilepsy.^{46,47} KBs are more efficient than glucose and induce less oxidative damage.⁴⁷ Additionally, KBs are brought into the brain by monocarboxylate transporters—independently of glucose and insulin—so their uptake is not hindered when insulin signaling fails.⁵¹

This raises the question, if the brain is struggling to use glucose, why does it not immediately shift to fueling with ketones? The answer is that sufficient ketones aren't available. Due to differing requirements of various tissue systems, the body as a whole runs on glucose, fatty acids, and KBs concurrently to some extent. However, the pathways are largely antagonistic; where one predominates, another is inhibited. Glucose induces insulin secretion, and insulin inhibits CPT-1, an enzyme responsible for bringing fatty acids into the mitochondria to be used. Therefore, when insulin levels are high, fatty acids are not well used as fuel and no significant ketogenesis oc-

Ketogenic diets have a long history of efficacy for disorders of the central nervous system.

curs. (KBs are a byproduct of fatty acid metabolism.) So even though the brain is starving for fuel, KBs will not be produced in sufficient quantity. The end result for an AD patient is that the brain is not metabolizing glucose effectively and no alternative fuels are available. For neuronal cells that have such enormous energy requirements, the consequences of this disruption in fuel supply are devastating.

If ketones are the brain's primary fuel source under conditions of reduced glucose availability, then AD patients should show improvements in cognitive function on a ketogenic diet or with administration of exogenous ketones. This has been demonstrated in randomized, double-blind, placebo-controlled studies. In two studies, oral administration of KBs via medium-chain triglyceride (MCT) drink mixes resulted in improved performance on cognition tests compared to placebo, and this was achieved even in the absence of dietary carbohydrate reduction.

In a study involving dietary ketosis via a low carbohydrate diet (less than 10 percent of total calories), compared to subjects on a 50 percent carbohydrate diet, the low-carbohydrate subjects demonstrated better performance on memory tests, with higher scores being correlated to higher serum KB levels.¹⁴ A study using cultured mouse hippocampal cells showed that addition of the KB β -hydroxybutyrate (β -OHB) to cells exposed to A β resulted in no decrease in the numbers of dendrites or total neurons—two of the noted pathological changes in AD. Addition of β -OHB at a 4 mM concentration—achievable on a very low carbohydrate diet—doubled the surviving number of cells and actually *increased* dendritic growth.⁵² Analyses of brains of people who have aged free of cognitive decline have shown that a loss of neurons can be compensated for by an increase in dendrites of the remaining neurons so there is no net loss of synapses.⁴⁹

If the primary metabolic change that occurs during fasting or a ketogenic diet is a wholesale shift away from glucose and toward fatty acids and ketones for fuel, with the resultant lowering of blood glucose and insulin levels and restoration of insulin sensitivity, then reduced carbohydrate consumption should lead to similar neuroprotective effects.

Moreover, if AD stems from a diet and lifestyle at odds with what our evolutionary history has prepared us for, then an abandonment of refined and chemically altered foods and a return to a more “primitive”-type diet would also likely be protective. Specifically, if the initial pathogenesis of AD comes from peripheral hyperinsulinemia, there is reason to believe that restriction of dietary carbohydrates should be frontline therapy for AD. The therapeutic and neuroprotective effects of ketone bodies are so effective, in fact, that one researcher suggests a drawback of the modern, carbohydrate-heavy diet is that it is “keto-deficient.”⁵³

A classical ketogenic diet—with a staggering 70-90 percent of total calories coming from fat—might not be necessary.⁵¹ Classical ketogenic diets restrict protein as well as carbohydrate, since 48-58 percent of the amino acids in dietary proteins can be glucogenic, thereby undermining the purpose of a diet intended to generate a high amount of ketones and limit glucose as much as possible.⁴⁶ As therapy for AD, however, simply lowering carbohydrate intake to a point where some ketones are generated and hyperinsulinemia is corrected could have positive effects just by easing the metabolic burden on the brain. That is, one could reap the “benefits” of fasting (enhanced insulin sensitivity, reduced oxidative stress, reduced AGE formation) by simply reducing carbohydrate intake to prevent chronic systemic hyperglycemia. Moreover,

THERAPEUTIC INTERVENTION FOR ALZHEIMER'S DISEASE

Current Alzheimer's disease (AD) therapies are typically piecemeal approaches aimed at treating individual symptoms, rather than addressing the underlying causes of the disease. One drug manufacturer created a pharmaceutical drug to inhibit the enzyme that creates A β from the amyloid precursor protein. Phase III clinical trials had to be stopped because results were so damning against this treatment. Measures of cognition and ability to complete daily living tasks were significantly worse for patients receiving the drug than the placebo.⁵⁶ Yet again, here is evidence that A β is not a causal factor. Production of A β is a normal process and there is no evidence that AD patients overproduce it.⁵⁷ It becomes pathological only when—due to peripheral hyperinsulinemia—it is not degraded and cleared as it should be.

Several authors have proposed administering exogenous ketone bodies via pharmaceutical MCT preparations. While this provides the brain with an alternative fuel and has been shown to improve cognitive function, it does nothing to address the myriad other issues attendant with the metabolic derangement that is likely the root cause of AD. The cognitive decline seen in AD is not a disease in itself; it is the result of a lifetime of accumulated dietary and environmental insults, which in older age finally overwhelm the brain's capacity to protect and heal itself. Administration of KBs would neither alleviate hyperinsulinemia nor restore insulin sensitivity at the BBB. MCTs could certainly be a powerful adjunct to a reduced carbohydrate diet, which would reset the metabolic machinery, ease oxidative stress, and reduce glycation. In the absence of dramatic dietary overhaul, however, the administration of KBs is akin to bailing water out of a leaky boat without stopping to patch the hole: you merely manage the effects while the root cause continues wreaking havoc.

a ketone-producing, lower-carbohydrate diet would still allow for consumption of a wide array of low glycemic load vegetables and fruits, which are typically richer in micronutrients, antioxidants, and phytochemicals than their high glycemic load refined grain and sugar counterparts.⁵⁴ This would make this primary avenue for therapy more practical, since the difficulty with sticking to classical ketogenic diets is typically that they're unpalatable and too restrictive. This is also likely why much of the research involving KBs as AD therapy is limited to exogenous ketones and MCT preparations; classical ketogenic diets are extremely challenging to maintain. There is also likely trepidation regarding such a high fat intake—particularly saturated fat—despite mounting evidence even in the medical mainstream that saturated fat intake is not associated with increased risk for cardiovascular disease, and that reductions in carbohydrate intake, in fact, can improve risk for heart disease.⁵⁵ Promising avenues for research in dietary therapy for AD are hindered by an outdated nutritional paradigm.


FUTURE AVENUES

Although the ApoE4 genotype is strongly associated with development of AD, no genetic heritage is a death sentence. Rather, it is the mismatch between this hunter-gatherer genotype and a seemingly inexhaustible supply of inexpensive, readily obtained refined sugars and carbohydrates, that brings about AD in these populations. Similarly, no genetic heritage is a free pass. Groups with other variants of the ApoE gene are not immune to the ravages of the modern diet. Hyperinsulinemia is the strongest known risk factor in non-E4 carriers, and overcomes whatever protection their genes might provide. AD is not a disease of genetics, but one of *epigenetics*—the influence of diet, environment, and lifestyle on how genes are expressed.

That Alzheimer's disease appears late in life does not mean the causative cascade is not started decades earlier. Like other "diseases of civilization," AD builds slowly over time, often with no overt symptoms, until damage is already widespread and, in some cases, irreversible. What we consider the normal forgetfulness of older age might very well be early warnings

that the brain is struggling to fuel itself. Unfortunately, in the absence of clear signs of glucose dysregulation (hypo- or hyperglycemia, obesity, etc.), people have no reason to suspect something metabolically insidious is occurring. Therefore, regular monitoring of pertinent markers—such as fasting blood glucose, fasting insulin, triglycerides, and especially HbA1c—might be the only strategy for early detection.

In cases of AD detected only after cognitive function has deteriorated to the point of interfering with daily life, drastic interventions such as ketogenic diets and supraphysiologic doses of helpful nutrients might be warranted. These are avenues ripe for exploration in future research. Life-long reduction of risk, however, should start early and include a diet low in refined sugar and carbohydrates; rich in omega-3 fatty acids (specifically DHA) and naturally occurring, stable saturated fats; rich in antioxidants and phytonutrients from low-glycemic vegetables and fruits; emphasis on whole, unprocessed foods, and inclusion of stress reduction and muscle-building physical activity.

The plethora of evidence linking hyperinsulinemia, T2D, mitochondrial dysfunction, and glucose dysregulation—all resulting from the refined, chemically manipulated modern Western diet—to Alzheimer's disease suggests that the time has come for a drastic reevaluation of across-the-board recommendations for entire population groups to consume low-fat and low-cholesterol diets, which are, by default, high in carbohydrates. Combined with stressful and sedentary lifestyles, and particularly when complicated by cholesterol-lowering medication, this amounts to nothing less than a blueprint for creating Alzheimer's disease and other forms of neurological degeneration. 

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INVESTORS NEEDED

Let's expose the government's campaign against raw milk farmers! A group of supporters of Wisconsin farmer Vernon Hershberger is doing a documentary about his criminal trial last year, and we need financial and technical support. We've completed a trailer, now on to a rough cut. Contact David Gumpert, david@davidgumpert.com.

To Gluten or Not to Gluten?

Rethinking the Gluten-Free Craze

by Maria Atwood, CNHP

“After a while the young man sat up and looked at the heavens, at the twinkling white stars, and then away across the shadows of round hills in the dusk. ...The dreaming hills with their precious rustling wheat meant more than even a spirit could tell. Where had the wheat come from that had seeded these fields? Whence the first and original seeds, and where were the sowers? Back in the ages! The stars, the night, the dark blue of heaven hid the secret in their impenetrableness. Beyond them surely was the answer, and perhaps peace.”

Zane Grey, *The Desert of Wheat* (1919)

From the book: *Heritage Harvest*

by Richard D. Scheuerman & Alexander C. McGregor

After some years of enjoying delicious grain recipes, I actually got to the point where I was about to toss the grain baby out with the bath water! Why? Well, from many of the friendly Weston A. Price Foundation discussion groups and blogs that I and another WAPF buddy of mine follow, it seems of late that the urgent message to go gluten-free was the last great impetus since man landed on the moon!

I began to see a deluge of recipes featuring alternative flours for baking. Almond flour was the most frequently suggested replacement for wheat flours. This new standard is not only a regular part of many WAPF-friendly blogs, but can be found virtually all over the Internet and is sadly becoming the norm. Additionally, there are the many affirmations that at last, we have finally come to realize (drum-roll) that it was *the gluten* that caused all those health problems! Give up the glutenous poison and a near nirvana state of health would be ours! Who could argue with these claims?

Much of this information has scared the common sense out of anyone who would dare to put a slice of wheat bread in his mouth!

In addition to blogs and the Internet pointing us in the direction of gluten-free baking and cooking, all we need to do is visit any commercial grocery or health food store. The grand proof that we have at last found the latest health panacea of the moment lies in the fact that shelf after shelf groans under the weight of gluten-free foods to appease even those of us who have never been bothered by eating gluten! Further, a sizable library of books, and some written by good doctors newly crowned the super-stars of the gluten-free craze, bolsters the faith of the recently converted. Unfortunately much of this information has served to hurt the wheat industry as a whole, and has also scared the common sense out of anyone who would dare to put a slice of wheat bread in his mouth!

Sensing that there was something wrong with this picture and noting a definite departure from what I'd been used to eating, I, too, came under the spell and found myself at one of those stores looking for a sack of (gluten-free) almond flour! Of course I wanted to be sure I purchased the best organic almond flour I could find! This brazen act was perpetrated in spite of the fact that almonds and other gluten-free flours have some distinct disadvantages when compared to organic grains. So why was I looking to feed my family a wholesale diet of cookies, cakes, breads and numerous other foods made from gluten-free flours while choosing to ignore the nutritious grain recipes in books like *Nourishing Traditions*?

Something inside me asked whether I could also perhaps be succumbing to the message? Just maybe I had not done my homework. It genuinely bothered me to see the proliferation of the gluten-free credo in a good many of the WAPF-friendly blogs and websites. I wondered how we could prevent the situation we recently experienced with the popular Paleo diets which were misunderstood to be a re-interpretation of the WAPF and ancestral diets. My instant conclusion was, here we go again!

Suddenly, I felt I absolutely must investigate this issue further, and a faint sadness settled on me to think that going gluten-free may now also be misinterpreted as being endorsed as part of the diet espoused by the Weston A. Price Foundation. For newcomers that fallacy could be a real

disaster as the diverse diet encouraged by the WAPF is the only diet that I know of that does not condemn any food groups such as meats, fruits, complex carbohydrates, saturated fats, and other foods, *including those that contain gluten*. WAPF encourages us to eat from all the food groups while focusing on the healing of our gastrointestinal system or, as I like to call it, the body's "central processor," so as to be able to enjoy and receive nourishment from all of it!

Yes, I put the bag of almond flour back on the shelf and came home to dig into the gluten-free craze a little deeper. After nearly six months of meetings via email, reading many books, and numerous private phone conversations with some fantastic authors, business owners, and growers of ancient and heritage grains, I respectfully submit to you my findings. After a long absence due to my perceived fear of gluten, I now sit down to a delicious, warm slice of real sourdough bread and homemade butter. Ah, to eat what Grandmother served so frequently, and of which we relished every last bite, always eager to be right there when the fresh loaves were taken from the oven. This in my opinion is the way it should be, and I hope by the time you've read the rest of this article, it will be your opinion also.

THE TRUE GLUTEN-FREE CANDIDATE

Possibly the only true candidate for a totally gluten-free diet is a person who has damage to the tiny, fingerlike protrusions lining the small intestine called villi. Villi allow nutrients from food to be absorbed into the bloodstream. When damaged, the body cannot absorb nutrients properly, leading to malnutrition—regardless of the quantity or quality of food eaten. This is celiac disease and those suffering from it must abstain from gluten in all forms. Unfortunately, celiac disease can be misdiagnosed as irritable bowel syndrome, Cohn's disease, diverticulitis, intestinal infections, iron deficiency, anemia and even chronic fatigue syndrome. It is estimated that about one percent of the U.S. population has celiac disease.

Although this article is not meant to discuss or address celiac disease as such, I am including information about the necessary testing that may determine whether a complete gluten-free diet is even advisable. The results of a blood test can

WHILE WE ARE AT IT, LET'S BUST SOME WHEAT MYTHS

I know I can't digest wheat because I stayed away from it for a full year and then got sick when I ate a slice of bread.

"Use it or lose it" works for enzymes in our gut, too. Stay away from a food for a long time and your body will ramp down the production of enzymes needed to digest that food. So when you're reintroducing any food you've avoided for a long time, start with small amounts and don't eat them every day. Your gut will start producing the proper enzymes if you give it a chance. Disclaimer: There are many cases of people suffering from wheat allergies who do in time lose that allergy; however gluten intolerance in the case of celiac disease is not reversible, although I've recently talked to a learned holistic practitioner who disputes that claim. For the present, always follow your medical doctor's recommendations.

Wheat makes us fat and foggy-brained.

Ancestral grains and wheat have been part of the human diet for well over ten thousand years, and have supplied valuable nutrients to those who cultivated it. However, the wheat varieties developed since the 1950s as part of the Green Revolution (semi-dwarf wheat and, later, mutagenic wheat), the most common forms of wheat available, are different from earlier forms, and are much more likely to cause a whole host of problems. Please don't blame thousands of years of perfectly healthy grains just because of problematic offshoots that are not being grown organically and which for the most part are only about fifty years old. In addition, although wheat is not genetically modified (not yet!), it is treated with the herbicide Round-Up a few days before harvest. Only recently we are learning that Round-Up is associated with a host of problems, including digestive disorders, gluten intolerance and even autism.

Consider using healthy grain and wheat sources without the modern wheat consequences by sourcing landrace, heritage or ancestral grains. In 2000 Monica Spiller founded the non-profit Whole Grain Connection to promote whole organic grain foods for everyone and particularly to supply farmers with locally appropriate organic wheat seed. She states that organically grown modern whole wheat varieties that have not been treated with pesticides and chemical fertilizers may also be a safe alternative for some. Certainly you would want to test this for yourself.

Modern wheat is bad because it has too many chromosomes.

Some of the oldest forms of wheat, starting with spelt (which dates back to 5000 BC), have the same number of chromosomes as modern wheat. The problem is with a specific fraction of the gluten and suspect proteins in modern semi-dwarf wheat, not the number of chromosomes it has. Cereal grains come in varying genetic complexity. If you believe in eating less complex grains, einkorn, barley, and rye are diploid, with two sets of chromosomes; emmer and durum including kamut are a little more complex; they're tetraploids with four sets of chromosomes; spelt and bread wheat varieties are hexaploid with six sets of chromosomes. All of these are perfectly edible and need not be avoided when your source of ancestral grains and modern whole wheat is carefully chosen.

Wheat was never part of our healthy ancestors' diets.

On the contrary, all grain has been prized in those cultures that grew it. However, up until industrialization wheat flour contained the bran and germ of the kernel; the modern roller mills remove the healthiest parts of the kernel and make modern flours nutritionally deficient. Since neither commercial yeast nor mills to grind the grain without its bran and germ did not exist until the modern era, all grains were eaten in an unrefined state and prepared in ways that not only preserved them but enhanced their nutrition. Long-fermented wild yeast breads (sourdough); sour-leavened flatbreads (like pappadum or pita in India, for example); fermented sourdough noodles; and fermented porridges (kishk and nuruk are both wheat-based) all provided solid nutrition for our ancestors.

Grains are the problem; wheat is just the worst offender.

Grains—including wheat—have been part of traditional diets for thousands of years. Also note that we are part of the first generation or two in which chemically grown wheat treated with pesticides may be virtually the only wheat some of us have ever eaten. Add to this the fact that most are eating foods damaged in one way or another by modern processing overall, such as extrusion to make breakfast cereals (not to mention eating completely new foods and additives). Further, our guts have often been more or less damaged by not just these foods but by courses of antibiotics and other gut-compromising pharmaceuticals. Is it any wonder that so many people have digestive issues that can be exacerbated by a form of wheat that itself is novel before it's even ground into flour?

The disadvantages of many gluten-free flours are similar to those of any refined flour: too much starch, too little fiber, lack of vitamins and minerals.

help detect celiac disease. If a blood test comes back positive for the appropriate antibodies an upper endoscopy may be performed to assess possible damage to the small intestine, more specifically the duodenum. If there is flattening of the villi, those finger-like projections that absorb nutrients, the doctor will work with the patient to create a gluten-free diet. Genetic testing is also helpful for relatives of those with celiac disease, as the disease is hereditary and common among first-degree relatives.

NEWER APPROACH IN DIAGNOSTICS

A fairly new approach that seeks to provide more sensitive, complete and early screening is available from EnteroLab. Their test is based on earlier research which demonstrated that anti-gliadin antibodies appear in the contents of the intestines before they appear in the blood. EnteroLab utilizes stool samples to test for these antibodies in gluten-sensitive individuals with the hope of positively identifying the condition before more extensive damage to the body has occurred.

People with non-celiac gluten sensitivity generally have an unpleasant response to eating gluten. Symptoms can be similar to those of IBS (irritable bowel syndrome): bloating, diarrhea, and flatulence following the consumption of gluten-containing foods. They may also experience headaches or fatigue following the consumption of gluten. Unlike a true celiac sufferer, these reactions may not occur every time gluten is eaten; there is also no correlation with autoimmunity, making this very different from celiac disease.

Wheat allergy—the third form of gluten intolerance—is a histamine response to any of several different forms of protein, including gluten, found in wheat.

GOING GLUTEN-FREE

Some of those going gluten-free may have decided to give up just baked goods like breads or cookies, and other easily recognized wheat-based foods, failing to understand that they are still getting plenty of gluten from other sources. One of the reasons a diet completely free of gluten is so challenging is that gluten is present in many processed foods, not just those whose

main ingredient is wheat, barley, or rye. Just a few of these include frozen vegetables, sauces, soy sauce, many foods made with “natural flavorings,” vitamin and mineral supplements, some medications, and even toothpaste. Of course, this is one more in a long list of reasons to stay away from most processed foods, and focus instead on those you prepare yourself!

According to Dr. Leffler, director of clinical research at the Celiac Center at Beth Israel Deaconess Medical Center in Boston, a true gluten-free diet is time-consuming, expensive, and restrictive. “It’s a gigantic burden for those who have to follow it,” says Dr. Leffler. “Many people with celiac disease are understandably frustrated when they hear in the lay press how wonderful this diet is.”

The potential disadvantages of many gluten-free flours are similar to those of any refined flour: too much starch, too little fiber, and a lack of important vitamins and minerals. Just because something is gluten-free doesn’t mean it’s not refined. Many gluten-free bread and baking mixes have added sugar, and many recipes and mixes require the addition of xanthan or guar-gum to provide the structure found in flours containing gluten. Almond meal, which is currently one of the most widely used gluten-free flours, while rich in protein and other nutrients, is expensive, as well as high in phytates and omega-6.

Coconut flour, which I personally love and use often for reasons other than avoiding gluten, is the only other flour I bake with because it has several desirable characteristics which, according to Dr. Bruce Fife, author of *Cooking with Coconut Flour*, “makes it a promising substitute for those who absolutely must avoid wheat flour. It is a good source of a variety of nutrients, including protein. It contains about 10 to 12 percent protein, which is the same as whole wheat flour. It is an excellent source of dietary fiber, reducing its digestible carbohydrate content thus making it the only truly low-carb flour. Another benefit of coconut flour is its mild taste. You would think that it might taste like coconut, but it doesn’t. It is nearly tasteless. When used in baking you cannot detect any coconut flavor. This is good because it takes on the flavor of the product being made. The primary benefit of coconut flour is its complete absence of gluten.”

Coconut flour is also low in phytates, and has a great fatty acid profile. It does take a lot of eggs to make satisfactory baked goods with it, so baking can get expensive, and there are a fair number of people with egg sensitivities which may make using coconut flour, an otherwise healthy gluten-free flour, impractical for some.

DEALING WITH THE SYMPTOMS

I could write volumes on the dangers of making gluten-free flours your sole source for your baking and cooking needs; however, I wish to proceed to the substance of this article, and introduce ancient and heritage grains and organic whole wheat flour, which far outweigh the nutrient value in all gluten-free flours. (Some also happen to be low-gluten.) How many of the issues we so readily attribute to this recently identified poison called gluten are really issues with overall

digestion or, as happens with many of us, are simply the result of being swept up in the gluten-free craze? Most important, do we understand that it is not necessarily an issue with wheat overall, but a misunderstanding about the types of wheat and grains that were used in a healthy ancestral diet and which very few of us now use?

If you are experiencing symptoms that you believe may be attributed to gluten, and when you've not had your condition diagnosed via the tests I mentioned earlier to determine whether you are in the category of a true case of celiac disease, it may be time to deal with your symptoms by addressing the most problematic issue—that of healing the gut and slowly reintroducing one of the earliest and most healthful foods enjoyed by our ancestors.

You may be pleasantly surprised that you, too, can finally get off the gluten-free craze. Remember that when we stop consuming a food, we naturally stop producing the enzymes that help digest that food. That fact by itself may explain why each time you try to go back to consuming wheat breads or other wheat products, they make you sick. You may be one of the unfortunates who have now lost the enzymatic capacity to digest almost any form of gluten. The sad part for me is that many parents are allowing

HEALING THE GUT: OTHERS HAVE DONE IT AND YOU CAN TOO!

The following are suggestions from Sally Fallon Morell:

1. Get off all improperly prepared grains initially and then slowly re-introduce heritage grains and organic whole wheat properly prepared.
2. Lots of bone broth is needed as the villi rest on a layer of collagen that must be supported. Plus bone broth has numerous other benefits: <http://www.westonaprice.org/food-features/broth-is-beautiful>
3. Learn to make and regularly consume fermented foods and beverages.
4. Take cod liver oil and high vitamin butter and other good fats.
5. Always avoid all improperly prepared grains, such as granolas, muesli, and extruded breakfast cereals.
6. Work with a WAPF practitioner to help guide you.
7. Dr. Thomas Cowan in a recent email suggested the use of a Standard Process supplement called Okra-Pepsin E3 which is gluten-free, along with our nourishing traditional diet recommendations to also assist healing the gut.

From *Nourishing Traditions*, page 493:

Weston Price's studies convinced him that the best diet was one that combined nutrient-dense whole grains with animal products, particularly fish. The healthiest African tribe he studied was the Dinkas, a Sudanese tribe on the western bank of the Nile. They were not as tall as the cattle-herding Neurs groups but they were physically better proportioned and had greater strength. Their diet consisted mainly of fish and cereal grains. This is one of the most important lessons of Price's research—that a mixed diet of whole foods, one that avoids the extremes of the carnivorous Masai and the largely vegetarian Bantu, ensures optimum physical development.

From *Nourishing Traditions*, quoting Jacques Delangre, page 491:

In books on baking and even in nutritional/medical writings, the two techniques (for making bread), natural leaven (sourdough) and baker's yeast, are often mingled and confounded....Baking with natural leaven is in harmony with nature and maintains the integrity and nutrition of the cereal grains used...The process helps to increase and reinforce our body's absorption of the cereal's nutrients. Unlike yeasted bread that diminishes, even destroys, much of the grain's nutritional value, naturally leavened bread does not go stale and, as it ages, maintains its original moisture much longer. A lot of that information was known pragmatically for centuries; and thus when yeast was first introduced in France at the court of Louis XIV in March 1668, it was strongly rejected because at the time the scientists already knew that the use of yeast would imperil the people's health. Today, yeast is used almost universally, without any testing, and the recent scientific evidence and clinical findings are confirming the ancient taboos with biochemical and bioelectronics valid proofs that wholly support the age-old common sense.

The three heritage wheat varieties that are slowly being brought back into use are einkorn, emmer, and some forms of spelt.

this to happen to their children and other family members while not realizing that this may truly create a life-long inability to enjoy wheat products.

Katherine Czapp, in her article (<http://preview.tinyurl.com/nn52agl>) titled “Our Daily Bread,” notes that her father, Vasili, diagnosed with full-blown celiac disease, could eventually eat whole grain sourdough bread, slow-fermented in traditional Russian fashion, with no digestive issues. It is crucial to note that this occurred after nearly two years of very concerted effort to restore his gut health. While this success may not be possible for everyone, this should certainly offer a more sensible direction for us to pursue what may be more sensible than going through the challenging exercise of making gluten-free baked goods from substances like almond, potato, tapioca, and bean flours, which may or may not be necessary for a short period of time while you re-introduce your digestive tract to the high-vitamin, mineral, and fiber-endowed heritage grains such as einkorn, emmer, spelt and even some heritage organic whole wheat or one of our more modern organic whole wheat breeds that are grown without chemical treatments.

ANCESTRAL GRAINS: POSSIBLE CURE TO THE GLUTEN-FREE CRAZE

Landrace, heritage and ancestral grains are best defined as those that originated in one of their native countries such as Iran, Syria, Turkey, or Russia, and have gratefully made their way through history without a complete change in their make-up. The three that are now slowly being brought back into use are einkorn, emmer, and some forms of spelt. Organic whole wheat varieties are best defined as wheat which may or may not be landrace grains, as not all grains that have had an evolution from landrace grains to our modern wheat varieties are to be avoided. What is of critical importance for those of us following an ancestral diet is that our sources of whole wheat are grown organically without the use of pesticides or chemical fertilizers.

A CLOSER LOOK AT ANCIENT GRAINS

Now that we all “know” that even heritage grains (which include einkorn, emmer, spelt, and triticum landrace) and organic whole wheat

varieties, rye, and barley (and maybe oats) contain gluten, let’s look a little closer at the actual structure of grains so we can better understand the differences that make these heritage grains so valuable to our health.

Somewhere in our own history, we discovered the value of the concentrated source of nutrients in every ancestral grain or wheat. Properly prepared (by soaking, sprouting and dehydrating, or leavening with wild yeasts), the nutrients stored within the grains were freed to be used by our own bodies, and use them we did, supplementing the other foods that had nourished us for thousands of years: animal-sourced foods and other plants.

Every kernel of grain has protein, fats, carbohydrate, and fiber, stored neatly in a package protected by a fibrous outer layer called the hull. The bran is the outer layer of the grain. Next is the endosperm. The heart of the grain is the germ. The bran (14.5 percent of the kernel’s mass) is made of protein, fiber, starch, fat, and many B vitamins (all these are lost, of course, when grain is milled, removing the bran). The relatively high fat level in bran means that the grain—once hulled—can quickly go rancid (a good reason to store whole grains in a cool place and use them quickly once ground).

The endosperm is the largest part of the kernel, with 83 percent of its total mass; in wheat, this is the part of the grain that, once the bran and germ have been removed, is milled into white flour. The endosperm nourishes the germ it wraps around until the seed has taken root and started to grow into a new plant. While it is rich in starch, it also contains about 75 percent of the protein plus iron and B complex vitamins.

Finally, the germ, the smallest part of the wheat kernel (2.5 percent of the whole), also contains numerous B complex vitamins and vitamin E. About 8 percent of the protein found in wheat is in the germ.

Minerals found in grain can include calcium, iron, phosphorus (bound up as phytic acid), magnesium, potassium, manganese, copper, iodine, chlorine, sodium, and silicon. One bonus supplied by wheat is betaine, a substance that protects our cells against stress, and stimulates the body’s production of vitamin B₁₂.

EINKORN (FARRO PICCOLO)

With its simple chromosomal structure, high lutein content (which supports eye health), and long history of cultivation (dating back nine thousand years or so), einkorn can be handled by many people who react badly to readily available commercial wheat, and is low (mellow) in gluten content. Emmer, also known as *farro medio*, is another grain known to history even longer than einkorn. Emmer also holds the distinction of having more protein than any other member of the wheat family, a whopping 28 percent. Spelt, the favorite grain of St. Hildegard of Bingen, a mystical healer of the 12th century, is only slightly younger (references to it date to around seven thousand years ago). It is the first of the hexaploid grains but can still be considered ancient. It too is often easier to digest than newer forms of wheat. (Though, in their defense, even bread wheat—soft or hard, red or white—dates back at least six thousand years.) Rye, which does not contain true gluten, can be problematic for celiac sufferers because of the similarity of the protein structures, but often presents no problems for those with sensitivities to gluten.


BREAD WITH BUTTER

One of the mistakes we have made in the modern world is to eat our grains without any fat. Yet good quality fat makes bread more digestible and supplies fat-soluble vitamins so essential for gut health. Arachadonic acid supplied in butter and other animal fats is needed to make tight cell-to-cell junctures in the skin, including the "skin" lining the intestinal tract. So always look for teeth marks in the butter (or ghee, lard or bacon fat) that you are spreading on your bread. If you can't see teeth marks, you are not putting enough on!

PARTING THOUGHTS

My main objective in writing this article is to remind myself and others of the fact that by going too far afield from our ancestral diets we may unfortunately impart to others a fear of eating foods that have sustained mankind for thousands of years. It is unfortunately easier for some just to avoid ancestral foods that we incorrectly indict as the culprit rather than doing the detective work to resolve the real issues with our

digestive imbalances.

Finally, it is wise to remind ourselves that we are in real danger of losing the privilege to enjoy and benefit from these ancient grains grown by enough farmers to supply the demand. My heart truly went out to many small growers I spoke with who struggle to make a living to supply us with one of the most precious commodities known to mankind: ancient grains. Promise yourself some serious consideration of the subject and try making your next step a commitment to heal your gut. Then you may be ready to step back into the time when ancient grains were considered the staff of life. And indeed, they still are. 

Maria Atwood is a semi-retired certified natural health professional (CNHP) and a Weston A. Price chapter leader in Colorado Springs, CO Her website: <http://www.traditionalcook.com> offers 100% lead-free stoneware, Made in the USA~For the best baking ever!, The number one rated grain mill-Wondermill and a 90 Minute DVD-Cook Your Way To Wellness which is now exclusively distributed by Selene River Press. She also blogs for <http://www.seleneriverpress.com> Join their newsletter to follow her "Tips from the Traditional Cook" She kindly requests that you check out this link and pass-it-on <http://www.traditionalcook.com/wapf-appeal.shtml>. Copyright 2014.

RESOURCES

1. Gene Spiller PhD & Monica Spiller: What's with Fiber www.wholegrainconnections.com
2. Victoria Bloch-chapter leader-<http://www.meetup.com/Los-Angeles-Whole-Food-Nutrition-Meetup-Group/>
3. Mandy Finan/Einkorn recipe creator and Weston A. Price chapter leader-NC
4. Marsha Cosentino MA-: *Spelt Healthy*
5. Richard Scheuerman: Harvest Heritage: 2015 Grower rscheuerman@hotmail.com
6. Don Stinchcomb-Consulting: Vita Spelt/Natures Legacy- <http://www.natureslegacyforlife.com/>
7. Brooke Lucy-Blue Bird Farms-Consulting: - <http://www.bluebirdgrainfarms.com/>
8. Rene Grun-Lentz Spelt-Consulting: <http://www.lentzspelt.com/>
9. Carolyn Graff-chapter leader/WI-Shopping Guide Mgr. Shoppingguide@westonaprice.org
10. Comment: Dr. Leffler, director of clinical research at the Celiac Center at Beth Israel Deaconess Medical Center in Boston: <http://www.bidmc.org/Centers-and-Departments/Departments/Digestive-Disease-Center/Celiac-Center.aspx>

VOLUNTEERS NEEDED FOR STUDY ON HEALTHY BABIES

Johanna M. Keefe, MS, MA, AHN-BC, RN, GAPs, certified as an advanced holistic nurse, is seeking volunteers for a PhD research project in transformative studies through CIIS (California Institute for Integral Studies). If you have had a healthy baby using the WAPF dietary guidelines, she would like to hear from you. She would like to interview you by Skype or Facetime, or in person if you are located in New England, Northern California or North Carolina—or at the annual conference in November. Contact: johanna@enhancedwellnessbythesea.com, 978-290-0266.

Know Your Fats

THE BIG FAT SURPRISE: TOXIC HEATED OILS

By Nina Teicholz

This fascinating material is excerpted from The Big Fat Surprise: Why Butter, Meat & Cheese Belong in a Healthy Diet by Nina Teicholz, reprinted with permission of Simon & Schuster. The effort to remove trans fats from the diet has been largely successful; unfortunately, what restaurants, fast food establishments and food processing companies are now using may be much worse. For a review of the book, see page 75.

In late 2012, as I was researching the latest news on *trans* fat replacements, Gerald McNeill, vice president of Loders Crokiaan, which is one of the country's largest suppliers of edible oil, told me something scary. He explained that fast-food chains including McDonald's, Burger King, and Wendy's have swapped out hydrogenated oils and started using regular vegetable oil instead. "As those oils are heated, you're creating toxic oxidative breakdown products," he said. "One of those products is a compound called an aldehyde, which interferes with DNA. Another is formaldehyde, which is extremely toxic."

Aldehydes? Formaldehyde? Isn't that the stuff that's used to preserve dead bodies?

He went on to tell me how these heated, oxidized oils form polymers that create "a thick gunk" on the bottom of the fryer and clog up the drains. "It's sticky, horrible! Like a witches' brew!" he exclaimed. Partially hydrogenated oils, by contrast, were long-lasting and stable in fryers, which is of course why they were favored. And beef tallow, McDonald's original frying fat, was even more stable.

McNeill's company was a subsidiary of a giant Malaysian corporation that sold palm oil, so I wondered at first if he wasn't just vilifying the competition. Then I called Robert Ryther, a senior scientist at Ecolab, the giant industrial cleaning company that services nearly all the major national fast-food restaurants, and he confirmed the "gunk" issue. "It builds up on

everything. It's like paint shellac . . . anywhere from a real hard, clear coating to a thick, gooey material, like a white silicone lubricant that you use on car engines, with a Crisco-type feel to it." The gunk, he said, is the result of a hot oil mist coming off the fryer and then collecting on cold surfaces all over the restaurant—in mixers, ovens, and vents and on the floors and walls. Within a day, it would start building up. "Literally," says Ryther, "we'd go into [restaurants], and people would say that we've been trying to get rid of this stuff for three weeks using sand blasters or hand scraping."

Ryther told me that these unstable products from oils would also accumulate on the uniforms of fast-food workers, which, when heated in clothes dryers, had been known to spontaneously combust. And fires would start in the back of the trucks carrying the uniforms to be cleaned. Even after the laundry was clean and folded, it would sometimes catch fire, Ryther told me, "because the oxidation products are continuing to react in very small amounts. You're never going to get it all out, and they will generate heat." Ryther started seeing this problem in 2007, shortly after restaurants went *trans*-free and converted their frying operations over to regular vegetable oils.

Ryther developed a product called Exelerate ZTF, which converts the shellac-like substance back into oil so that it can be cleaned off. The process is more expensive than previous solutions, however, and also uses stronger chemicals, so it's not a job for untrained employees. And pretty much all restaurants, large and small, are dealing with this, says Ryther. "McDonald's had this problem. Anybody that has a fryer has this problem."*

An obvious health question is whether

*McDonald's and Burger King list these oils as ingredients on their websites but would not confirm the cleaning problems.

One of those products is a compound called an aldehyde, which interferes with DNA. Another is formaldehyde, which is extremely toxic.

these substances might also damage the lungs of patrons and restaurant workers.[†] And in fact, rates of cancers of the respiratory tract have been found to be higher among chefs and restaurant workers in Britain and Switzerland, where the subject has been studied.[‡] However, these studies did not track the type of cooking fat used and were confounded by the fact that the stoves themselves also emit damaging microparticles. Nevertheless, the highest-level report on cancer and heated oils to date, published in 2010 by the International Agency for Research on Cancer (IARC), which is part of the World Health Organization, determined that emissions from frying oils at the temperatures typically used in restaurants are “probably” carcinogenic to humans.

The problem, as we know, is that these regular vegetable oils oxidize easily, and heat speeds up the reaction, especially when heated over periods of hours, as typically occurs when these oils are used in restaurant fryers.

The linoleic fatty acid in these oils starts a snowballing chain of reactions. Linoleic fatty acid comprises 30 percent of peanut oil, 52 percent of soybean oil, and 60 percent of corn oil, and it degrades into oxidation products such as free radicals, degraded triglycerides, and others; in one analysis, a total of 130 volatile compounds were isolated from a piece of fried chicken alone.* And while the IARC report looked only at the effects of particles that were airborne, it

[†]Even though people spend on average only 1.8 percent of their time in restaurants, they get about 11 percent of their exposure to tiny, potentially damaging airborne particles during this time, according to one analysis (Wallace and Ott 2011).

[‡]A team in Taiwan, which includes molecular biologists, toxicologists, and chemists, was formed due to concern about high rates of lung cancer among women living in Shanghai, Singapore, Hong Kong, and Taiwan. The team began investigating the possibility that heated cooking oils might be playing a role, since wok cooking with vegetable oils in unventilated space is common in Taiwan. (Some analyses show that in the United States, too, women who have never smoked have higher rates of lung cancer than do men) (Zhong et al. September 1999; Zhong et al. August 1999; Young et al. 2010).

said nothing about those absorbed into foods fried in these oils. And it seems likely that the impact of these oxidation products is far greater when they are eaten—and digested.

Oil chemists began discovering these compounds in the mid-1940s, when vegetable oils first came to be widely used, and published a large body of work showing that heated linseed, corn, and especially soybean oil were toxic to rats, causing them to grow poorly, suffer diarrhea, have enlarged livers, gastric ulcers, and heart damage, and die prematurely. In one experiment, a “varnish-like” substance was found in the rat feces—which caused the animals themselves to be “stuck to the wire floor” of the cages. The oil in some of these experiments was heated to temperatures higher than those typically used in restaurant fryers, but the “varnish” was likely to have been an oxidation product in the same family as those shellac-like substances turning up in fast-food restaurants of late.

One would think that these disturbing early findings would have generated a great deal more research and discussion, especially since the AHA started recommending these polyunsaturated oils to the public in 1961. However, one of the few U.S. researchers warning authorities not to jump into embracing the oils so quickly was the chemist Denham Harman, a founder of the hypothesis that free radicals cause aging. The scientific literature on the negative effects of these oxidation products was convincing enough, wrote Harman in a letter to *The Lancet* in 1957, that “the present enthusiasm” for these unsaturated oils should “be curbed” pending additional study of the possible adverse health effects of this dietary change.

Yet since then, publications and international meetings on the topic have been rare, even as research continued to turn up worrisome results.

*The unnatural oxidation products of heated oils are still being discovered. In addition to free radicals and aldehydes, these compounds include sterol derivatives, a plethora of products formed from degraded triglycerides, and other oxidized decomposition compounds. There are other unnatural chemical compounds, too, created by processes other than oxidation, including hydrolysis, isomerization, and polymerization (Zhang et al. 2012).

Heated linseed, corn, and especially soybean oil were toxic to rats, causing them to grow poorly, suffer diarrhea, have enlarged livers, gastric ulcers, and heart damage, and die prematurely.

The effect on mice fed acrolein was dramatic: they suffered injuries to their gastrointestinal tracts as well as a whole-body response called “acute phase response,” a dramatic attempt by the body to avoid septic shock.

At a symposium on the topic attended by industry scientists in 1972, for instance, teams of food chemists from Japan reported that heated soybean oil produced compounds that were “highly toxic” to mice. A pathologist from Columbia University also reported that rats fed “mildly oxidized” oils suffered liver damage and heart lesions, compared to rats fed tallow, lard, dairy fats, and chicken fat, which showed no such damage. Most of this research was published in obscure, highly technical journals that nutrition experts rarely read, however; and in the U.S., diet-and-disease researchers were instead focused almost exclusively on cholesterol anyway.

Interest in these oxidation products picked up in the 1990s, when an especially toxic one, called 4-hydroxynonenal (HNE), was identified by a group of researchers at the University of Siena, Italy. This was one of those aldehydes that Gerald McNeill had mentioned to me. Hermann Esterbauer, an Austrian biochemist, is credited with discovering the general category of aldehydes as peroxidation products in 1964, and in 1991 he took stock of the field. His review is considered a landmark, and it is, frankly, a little terrifying to read. Esterbauer goes through the evidence that aldehydes are very chemically reactive, causing “rapid cell death,” interfering with DNA and RNA, and disturbing basic cell functioning. He meticulously lists all the research to date showing that aldehydes cause extreme oxidative stress to every possible kind of tissue, with a “great diversity of deleterious effects” to health, all of which were “rather likely” to occur at levels normally consumed by humans.

Aldehydes are “very reactive compounds,” says the Hungarian-born biochemist A. Saari Csallany, who studied with Esterbauer and is the main researcher of these compounds in the United States. “They are reacting constantly. From one minute to the next, they have decomposed and changed into something else.” In fact, one of the reasons that aldehydes were not more studied until relatively recently is that they were hard to measure accurately, and researchers therefore did not know that they occurred in such large amounts. Csallany refined the ability to detect HNEs and showed that they were produced by a range of vegetable oils, at temperatures well below those regularly used for frying and long

before the oils start to smoke or smell, which are the alarm bells normally employed to signal that the oils are going bad.* Many oxidation products, including HNEs, are not detected by the standard tests restaurants use to monitor their oils.

One of Csallany’s recent projects involved buying fries at six fast-food restaurants in Minneapolis near her office at the University of Minnesota, which led to the discovery that people could easily eat “quite a lot” of these toxic compounds (13.52 µg HNE per 100 grams of fries). She would like to do more studies, but she says the NIH and USDA have shown minimal interest in funding this topic.

The proliferation of research has mostly been in Europe over the past decade. The strongest evidence now points to HNE’s role in atherosclerosis, says Giuseppe Poli, a biochemist at the University of Turin who co-founded the International 4-HNE Club in 2002, which now meets every two years. HNEs cause LDL-cholesterol to oxidize, which is thought to be what makes that kind of cholesterol dangerous. And the evidence implicating HNEs in the development of neurodegenerative diseases like Alzheimer’s is also strong, he says. Moreover, HNEs so reliably create oxidative stress in the body that they are used as a formal marker for the process.

This kind of stress was observed in an experiment on mice fed a type of aldehyde called acrolein, named for its acrid smell when produced by overheated oils. It is also present in cigarette smoke. The effect on mice fed acrolein was dramatic: they suffered injuries to their gastrointestinal tracts as well as a whole-body response called “acute phase response,” a dramatic attempt by the body to avoid septic shock.† Markers of inflammation and other signs of acute infection also went up dramatically—sometimes

*The recommended frying temperature is 180 degrees Centigrade, but a study conducted by a leading biochemist found that restaurants almost always fry at higher temperatures (Firestone 1993).

†While the outward symptoms of the shock are few, significant changes take place inside the body, causing a dramatic increase in pro-inflammatory markers, a rise in some kinds of cholesterol, and a drop in serum total protein and albumin.

by a hundredfold. Daniel J. Conklin, the cardiovascular physiologist who did this work, told me he was “stunned” to find that the dose required to provoke some version of this response was entirely possible from the levels of acrolein typically consumed on a daily basis, especially among people eating fried foods.

Aldehydes have not yet been officially classified as a toxin, but even so, there have been fewer experiments on humans to date.* One exception was a trial in New Zealand on diabetic patients. Those who were fed “thermally stressed” safflower oil had a significantly higher level of markers for oxidative stress than those consuming olive oil. In fact, olive oil has consistently been shown to produce fewer oxidation products than do polyunsaturated oils like soybean and corn. Olive oil, a monounsaturated fat, as you might remember, has only one double bond to react with oxygen, whereas vegetable oils are polyunsaturated, with many double bonds. However, the fats that produce the fewest oxidation products are those without any double bonds: the saturated fats found in tallow, suet, lard, coconut oil, and butter.

In 2008, Csallany presented her findings to her colleagues, mostly industry employees, at a meeting of the American Oil Chemists’ Society (AOCS) in Salt Lake City. “First they were alarmed and then nothing,” she said. And in London, a team of researchers have repeatedly tried to alert people of the problem through the news media and at professional conferences. The team wrote a letter to the journal *Food Chemistry* in 1999 entitled, “Warning: Thermally-Stressed Polyunsaturates Are Damaging to Health,” followed by a paper directed to “alert the foodservice industry” to health problems. Yet they too found little interest. Other researchers in the field are molecular biologists or biochemists, a world away from studying actual food items or making nutrition policy; as Rudolf Jörg Schaur, another of the HNE Club founders, wrote to me

*Determination of a toxin is usually drawn from animal experiments. Human data may come from epidemiological studies, but epidemiologists have yet to study the issue of heated polyunsaturated oils in restaurant fryers, since usage only became common after the FDA enacted its labeling rule in 2006.

when I asked him if scientists were concerned about the increasing use of *trans*-free liquid oils in restaurants, “Since I am not a food chemist, I do not know.”

In 2006, the European Union formed a group of international researchers to understand better these lipid oxidation products and their implications for health. However, ADM’s Mark Matlock told me that there was nothing the industry could do about the production of aldehydes in their oils. Some restaurants were using specialized low-linoleic or high-oleic oils, but regular oil (usually soybean or canola) was still the cheapest option. Kathleen Warner, an oil chemist who worked with the USDA for more than three decades and also directed the committee on heated oils for the AOCS for many years, told me that the best solution was simply to “hope” that restaurants filtered and changed their frying oils frequently and had good ventilation systems. Large fast-food chains also employ sophisticated techniques such as replacing the air over fryers with a “nitrogen blanket” and using micro-electric fields to minimize oxidation products. Warner confirmed that the aldehydes were “toxic,” however, and therefore a problem. Poli, the HNE Club co-founder, said he couldn’t understand why nutrition experts were so preoccupied with cholesterol, a vital molecule for many basic biological functions in the body, while ignoring HNE, a potential “killer” molecule. Another longtime oil chemist, Lars Wiedermann, who worked for many different food companies including Kraft and Swift & Co. from the early 1950s, told me that aldehydes and other toxic products need more mainstream attention: “Someone will surely discover how deadly used frying oils are,” he said.

Mark Matlock at ADM told me that the industry is waiting to see if the FDA takes an interest, since the FDA is the only agency that can formally designate something a “toxin.” So I asked to speak to scientists there. After months of delay, the FDA press office finally responded that while the agency was aware that oxidation products such as “alpha-beta unsaturated aldehydes” can form in heated polyunsaturated oils, there wasn’t yet enough information about their health effects. Is the agency working toward finding more information? Not yet. For now, it appears that the agency isn’t interested in knowing more

In 2006, the European Union formed a group of international researchers to better understand these lipid oxidation products and their implications for health.

From the earliest clinical trials in the 1940s, in which diets high in polyunsaturated fats were found to raise mortality from cancer, to these more recent “discoveries” that they contain highly toxic oxidation products, polyunsaturated oils have been problematic for health.

about the oils that are a principal alternative to *trans* fats in baked and fried foods, billions of pounds of which are consumed by Americans each year.*

However, the FDA *has* been investigating other strange compounds that pop up in vegetable oils during processing: monochloropropane diols and glycidol esters (MCPDs), which are also produced by heat and have been targeted by the European Food and Safety Authority for regulation due to their potential to cause cancer and kidney disease, among other things. Even though they occur only in trace amounts, Matlock told me that companies such as ADM are still working to get rid of them. Sound familiar? We are once more confronted by the unknown health consequences of vegetable oils, a century after they were first introduced into the United States.

From the earliest clinical trials in the 1940s, in which diets high in polyunsaturated fats were found to raise mortality from cancer, to these more recent “discoveries” that they contain highly toxic oxidation products, polyunsaturated oils have been problematic for health. They have nevertheless multiplied in use more than any other single foodstuff over the course of the twentieth century, fueled in large part by expert recommendations to eat more of them.

For more than sixty years, Americans have been told to eat polyunsaturated vegetable oils instead of saturated fats. This advice has been based on the simple reality that vegetable oils lower total cholesterol (and LDL-cholesterol, too, as later discovered). The fact that vegetable oils also create toxic oxidation products when heated and trigger inflammatory effects linked to heart disease, are, it seems, less important to

mainstream nutrition experts, whose focus hasn’t wavered from cholesterol. Most Americans don’t realize that their nutritional advice is based on such a narrow set of health concerns, nor that large edible-oil companies have been contributing funds to their trusted, guiding institutions, such as the AHA, as well as to schools of medicine and public health. And while the scientists at large food manufacturers might understand the problems of unsaturated oils, they have not had alternatives to work with due to the prevailing stigma against saturated fats. Everyone has therefore gotten on board with the advice to use vegetable oils in both the home and industrial kitchens alike.

Our consumption has moved from saturated fats at the beginning of the twentieth century to partially hydrogenated oils to polyunsaturated oils. We have therefore unwittingly been subject to a chain of events starting with the elimination of animal fats and eventually winding up with aldehydes in our food. Looking ahead, it is little consolation that the FDA is poised to ban *trans* fats entirely, which will make liquid oils and their oxidation products even more common. Mom-and-pop restaurants, local cafeterias, and corner bakeries will then follow in the footsteps of the large fast-food restaurants in eliminating *trans* fats but will be less likely to employ rigorous oil-changing and ventilation standards in their operations. Despite the original good intentions behind getting rid of saturated fats, and the subsequent good intentions behind getting rid of *trans* fats, it seems that the reality, in terms of our health, has been that we’ve been repeatedly jumping from the frying pan into the fire.

The solution may be a return to stable, solid animal fats, like lard and butter, which don’t contain any mystery isomers or clog up cell membranes, as *trans* fats do, and don’t oxidize, as do liquid oils. Saturated fats, which also raise HDL-cholesterol, start to look like a rather good alternative from this perspective. If only saturated fats didn’t also raise LDL, the “bad” cholesterol, which remains the key piece of evidence against them. But like so many of the scientific “truths” that we believe but which upon examination start to crumble, maybe the LDL-raising effect isn’t quite an incontrovertible certainty, either. ☯

*The day that the FDA proposed banning all *trans* fats in late 2013, partly in response to a petition by Fred Kummerow, he told me that he knew about the problem of oxidation products produced by heated polyunsaturated oils; in fact, he had done some of the original research on them himself in the 1950s. He said it was “unfortunate” that companies were now using regular oils for their frying operations and suggested that perhaps McDonald’s and Burger King could start broiling their french fries instead (Kummerow, interview with author, November 7, 2013).

Farm and Ranch

THE REAL COST OF REAL FOOD

By Bill Hyde, Happy Farm

Since I was a young boy, I have always wanted to have a farm, even though I have no farming experience or family involvement in farming. Four years ago, nearing retirement, I knew that I was reaching the point of no return: either do it now or it would be too late. So, while most of my friends were contemplating moving to the Southwest or taking up more golf, my wife and I bought seven acres just north of Denver and I began to farm. I learned by doing and by keeping my eyes and ears open. I read a lot. I visited other farms. Immediately I realized I wanted to raise food as naturally as possible. Why put all that effort of morning and evening chores and daytime work into an inferior product?

I also loved giving farm tours to anyone who was interested in coming out to the farm. It seemed a novelty to my friends as well as to me to be doing something so fundamental and yet out of keeping with my business and academic background. Quickly my thinking evolved into more serious consideration of my role as a husband of the soil, plants, and animals on the farm and then onto Wendell Berry, Joel Salatin, and Michael Pollan-type thoughts of principles of sustainability. I gave a few talks to local groups and my thinking evolved further.

KEEPING TRACK OF THE COSTS

There is a huge disconnect between our food and food supply and what we need as healthy people, and it has all occurred in just the last half century. It is so alarming that I feel compelled to share my experience. From the beginning I kept detailed spreadsheets on all farm activities, the

most extensive being my data on producing eggs, the product I started with four years ago. I begin with an overview of our farm and an account of the cost of production and then move to the implications for our future.

All Happy Farm practices promote healthy soil, plants, and animals. Livestock (sheep and goats) live entirely on pasture grazing and are rotated among fields frequently. Pigs and chickens are also rotated from field to field every few weeks. All animals are heirloom varieties.



Chickens on Happy Farm, pre-fox days.

The chickens forage on green fields, eat organic supplement and get plenty of exercise. The egg yolks are Halloween orange, due to the high carotene content from the hens eating greens. Salt and pepper are an affront to both the hen who laid the egg (I presume) and one's taste buds.

THE COSTS OF PASTURED EGGS

I generally have 75 to 100 hens. I buy cohorts of day-old chicks. I keep the hens in groups of 15, 25 or 30 per yard or coop to prevent the confusion and fighting that tends to occur among larger groups. Predators are a major problem which I will elaborate upon later. I use portable corrals and mobile tractors so that the chickens are safe and have fresh, green forage whenever the season allows. I buy supplemental feed in bulk (a ton at a time) which is corn-free, soy-free and organic. No antibiotics, pesticides, or synthetics are used for any plant or animal.

The cost categories for my calculation are the following: the chicken, shelter, mobile tractor, feed, utilities, labor, packaging, transportation, land, and supplies. For all items the calculated

There is a huge disconnect between our food and food supply and what we need as healthy people, and it has all occurred in just the last half century.

Estimating egg laying rates is difficult, and rates vary according to weather conditions and seasons and bird variety.

cost is associated with a dozen eggs. For capital items, the costs are amortized over the anticipated usable life of the property and adjusted for the number of eggs originating from that item. I deliberately used conservative numbers to build a stronger case.

THE CHICKEN

Buying 25- or 50-day-old chicks through a commercial house costs about \$3.20 per chick. As the chick must be raised for six months before it lays its first egg, feed costs for the first six months are part of the cost of acquiring an egg-laying hen. Although a small chicken eats less than an adult chicken, the protein content and, thus, cost per pound, is higher. I calculate 20 pounds at 54¢/pound for a feed cost of \$10.80, a conservative estimate. So, the cost of the chicken is now \$3.20 plus \$10.80 for a total of \$14.

Not all chicks survive to adulthood. Mortality depends upon lots of things and the mortality rate of my chickens is higher than average because of my initial inexperience and ignorance. For the calculations here, I use a standard ten percent mortality rate due to suffocation, fragility and genetic flaws, which brings the cost to \$15.40.

Estimating egg laying rates is difficult, and rates vary according to weather conditions and seasons and bird variety. Commercial bird breeding houses advertise chicken varieties yielding 200, 230 and even 250 eggs a year, but none of my purchases have given such stellar results. In the summer, absent extreme heat, my best egg-layers, Leghorn hens, produce two eggs every three days. Barred Rock lay one egg every other day. Buff Orpingtons lay an egg every three days. Other varieties yield similar rates. Hot weather, cold weather, changing the membership of the group of birds living together or moving them to an unfamiliar setting are examples of stressful situations for them that will reduce egg laying. As the days get shorter and colder, production drops drastically to as low as a third of summer yield.

One winter I used lighting for a few hours a day and kept egg production from falling below 50 percent of summer production. Using lighting more extensively would keep production up even more. The industry standard for “natural”

lighting conditions requires at least six hours of darkness. I have yet to find a farmer who does not use lights for at least some of the night, but it is not natural. Chickens need a rest from laying and need to conserve vitality while molting. If there ever were a case for seasonal pricing, natural chicken eggs would be the perfect choice. Food costs go up during the winter because there is no forage and because the birds need more energy to stay warm. This happens at the same time that egg laying diminishes drastically. Yet I have never observed any seasonal fluctuation in egg prices.

Aggregating all of these ups and downs in laying activity, I estimate that a new, ready-to-lay hen will produce 240 eggs over the next two years. Dividing the \$15.40 cost by the 20 dozen eggs I anticipate to get from the hen comes to 77¢ per dozen. The results are summarized in Table 1, page 60.

SHELTER

Shelter provides chickens with three essential needs: a place to rest and lay eggs, protection from the elements, and protection from predators. Predators are a particular problem where we are: hawks and owls by air; fox, skunk, and raccoon by land; and one two-legged upright night predator that required my placing locks on the yard gates. I have lost over fifty chickens to animal attacks. I suspect a fox and skunk are responsible. It appears that the skunk eats just the heads; the fox snaps the chickens' necks for sport. It is too discouraging and costly to have that kind of attrition, so buildings have to be substantial and foraging has to be well managed. I built maximum security compounds that consist of ten foot by twelve foot sheds using a combination of cinder blocks, lumber and solexx for sunlight and heat penetration. Each shed has a completely enclosed (sides and top) chicken wired yard. Even with this space, a small number of birds will strip the area of any green whatsoever within a few days. To provide fresh forage, I use a combination of portable livestock panels to form temporary corrals and mobile chicken tractors that can be moved daily.

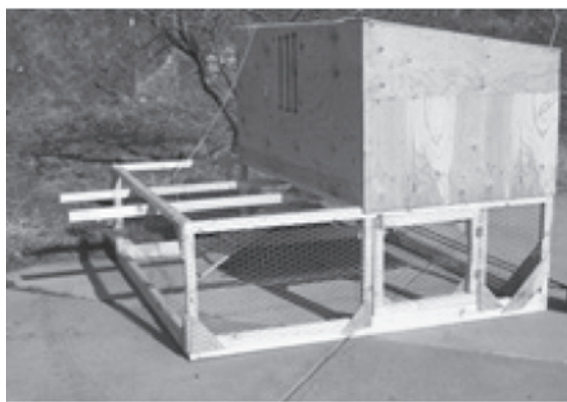
The shed calculation is as follows: Each house and enclosed yard costs about \$6,000 to build, about half for materials and half for labor.

I amortize the useful life over twenty years (although I know that repairs will need to be made before then) and distribute the cost over thirty chickens laying 10 dozen eggs per year. The calculation is $\$6000/20 \text{ years} = \300 per year . $\$300/30 \text{ chickens} = \$10/\text{year}/\text{chicken}$. $\$10$ divided by 10 dozen eggs = $\$1$. So, the shelter cost is $\$1/\text{dozen}$.

CHICKEN TRACTOR

The chicken tractor is my design and can be moved by one person without upsetting the 15 chicken occupants.

There is a chicken wire-enclosed area on the ground with a roosting and nesting area built above it. The cost is about $\$500$ per unit. I estimate a ten-year life (a bit on the financially conservative side as I doubt that the tractors will last ten years



Happy Farm chicken tractor.

without repairs and replacing some parts). The cost per dozen eggs is as follows: $\$500/10 \text{ years} = \50 per year . $\$50 \text{ per year}/15 \text{ chickens} = \$3.33 \text{ per chicken per year}$. $\$3.33/10 \text{ dozen eggs per year} = 33\text{¢ a dozen}$.

FEED

A commonly accepted number is five pounds of feed per dozen eggs. However, I believe that outcome is based on more gentle environments than what we have here in Colorado. Foraging during the summer reduces feed costs by as much as 20 percent but the cold temperatures of winter and lack of forage in the winter more than offset savings from foraging. And the overall greater exercise that my chickens get results in about seven pounds of feed per dozen eggs. At forty cents per pound (which is three to four times as much as commercial corn- and soy-based feed), feed cost is $\$2.80/\text{dozen}$.

UTILITIES

Utilities consist of heating water during the winter, both the storage tank and the individual waterers, and using heat lamps for developing

chicks during the cold months which run for about five months. Continuing a conservative bias, I exclude the cost of electricity for the heat lamps, which are used only when raising baby chicks, I estimate the electrical cost of heating the water tank and individual waterers in each shed. This requires three 60-watt heaters and one 1200-watt heater, which runs about half of each day. The imputed cost is 11¢ per kilowatt hour for a total cost of $\$273.24$. That divided by yearly egg production comes to 30¢ per dozen.

LABOR

This is a highly contested item. Some people think that I should not include labor at all because it is fun to live on a farm or because the kids collect the eggs or because collecting the eggs can be batched with other chores. I contend, whether a person works on the farm or off the

farm, compensation for work is appropriate. However, calculating a value for labor can be variable. Some chores are easier than others; some require more skill than others. Additionally, there ought to be a premium for someone who can be counted upon to do the chores every day. At times I do the farm chores; at other times, I have a farm hand do them. I give a value of $\$10/\text{hour}$ to that labor, which I think is a modest amount for someone who is dependable, conscientious and doesn't mind walking in chicken poop.

The daily chores require a specific time sequence: (1) first thing in the morning, moving the tractor to a fresh spot of ground, opening the coop or mobile tractor ramp and feeding and watering, (2) collecting eggs in the afternoon, and (3) closing up at dusk. Cutting corners on these chores generally doesn't work. For example, if you collect eggs later in the day when putting the hens away for the night you discover that some of the hens become egg eaters, a very difficult habit to break. The eggs have to be cleaned and boxed. All of these activities take about one hour and a half per day. At the rate of $\$10/\text{hour}$, that's $\$15$.

A commonly accepted number is five pounds of feed per dozen eggs.

For three dozen eggs a day, the cost per dozen eggs is \$5.00.

PACKAGING

Egg cartons in bulk cost about 35¢ apiece, and the price seems to increase with each successive order. Although it is against Colorado law to reuse an egg carton, many customers return them to me. There may be an exclusion for CSA and private sales such as mine.

TRANSPORTATION

Even though we love living in a country setting just twenty minutes from downtown, it takes an hour and two gallons of diesel fuel for me or a farm hand to drive to town once a week to the CSA and deliver the eggs. At \$10 per hour for labor and fuel at \$4.00 per gallon, that’s \$18 for, say, 21 dozen eggs or 76¢ per dozen.

LAND

This is another contested item. Some people say that the land will appreciate on its own or that I get to enjoy the tranquility it offers and shouldn’t include it as a cost. While those points may be valid, it is also true that my wife and I could have chosen a less expensive property with less land and used the extra money for investing or taking a special vacation. I don’t have a definite fix on the value that should be placed on land used for farming, but the fact that farming requires land does need to be recognized. As a very conservative position, almost as a

place holder, I offer the foregone return of the price of an acre of land as a reasonable value.

According to Peter Bane in his permaculture book, a chicken should have about four square feet of fresh ground each day. If the land is allowed thirty days to regenerate before being foraged again, a chicken requires 120 square feet. For 100 birds that works out to about a quarter of an acre. At a valuation of \$20,000 per acre the annual value would be \$600 at 3 percent. For a quarter acre, the cost would translate into 11¢ per dozen eggs.

SUPPLIES

These include, but are not limited to, waterers, feeders, electrical cords, lamps and heaters. The chickens and accompanying mice are adept at destroying all of these things, as is Mother Nature. This amounts to 10¢ per dozen.

Table 2 summarizes these costs. A few things are missing from the table, most obviously (at least to me) and most notably is profit. For a business to continue, most owners need to make a profit. Otherwise, it is not a business; it becomes philanthropy. A five percent profit is modest by most business models. Its inclusion would bring the cost to something approaching twelve dollars per dozen eggs.

THE TWELVE DOLLAR DOZEN

Readers may blanch at the idea of paying \$12 for a dozen eggs. Most people shake their heads in disbelief knowing that they would never pay that amount. Very few nod their heads in agreement. Most individuals in pursuit of the “super” egg that is free of all bad things and loaded with good things and sells at nearly the same price as retail store eggs find themselves bouncing from one vender to another as farmers find their operations too costly and discontinue operations. In Colorado, a family farm with the largest CSA in the state and over 12,000 chickens filed for bankruptcy last year. Another well-established family farm which had sold eggs for decades relinquished its market.

Table 1: Costs per Dozen Eggs

ITEM	COST
Buy chick & raise	\$0.77
Shelter and yard	1.00
Mobile tractor	0.33
Feed	2.80
Utilities	0.30
Labor	5.00
Packaging	0.35
Transportation	0.76
Land	0.11
Supplies	0.10
Profit	??
TOTAL	\$11.52

Table 2: Percent of Budget for Food and Health

INTERNET SOURCES		
	1970	2010
Food	17%	8%
Health	7%	18%
Food & Health	24%	26%
WEEKLY MAGAZINE SOURCES		
	1970	2010
Food	22%	7%
Health	3%	16%
Food & Health	25%	23%

It is easy to think that economies of scale can reduce costs, but they tend to result in inferior food and less humane treatment of the animals. Transportation is the only cost category that is fixed; the other costs are variable and increase as size of the operation increases. Let's hypothesize for a moment. If I had 1,000 chickens instead of 100, the additional requirements for more land, tractors, sheds, utilities, feed, and supplies would increase as the number of chickens increased. Labor would increase as well because the person would have to walk to more places, feed and water more, open and close more, pick up, clean and package more eggs. The only real cost savings is for transportation. Someone has to drive to town to deliver the eggs whether it is to deliver one dozen or one hundred dozen. The cost is almost constant. So, the cost savings might be seventy cents per dozen eggs. Are you ready to pay ten or eleven dollars for a dozen eggs?

Meanwhile, selling the eggs from a thousand chickens is quite different from selling eggs from a hundred. Through a CSA, members subscribe for the season to purchase Happy Farm eggs. During the garden season, all of Happy Farm's egg-producing capacity is absorbed by the CSA. However, once the last week of the CSA season passes, I scramble to find customers to buy eggs. If I had ten times the number of eggs, the transition would be worse. If I turn to retail businesses, they will want to buy wholesale, whatever that means. To me it means selling the eggs for less, and they would want a year-round supply. (And I would have to include a new egg carton with each dozen.) In short, having more chickens is an invitation for me to offer a greater subsidy to customers.

Incidentally, I do not believe my situation is unique. In talking to a variety of small farmers, CSAs, and farm co-ops, I have not found one that did not (1) inherit their land, (2) receive grants, (3) use volunteer labor, (4) have a spouse or partner with a real job, or (5) have a day job themselves. While it shows resourcefulness to patch together whatever is necessary to keep a farm operating, my point is that I don't think it constitutes a viable long-term model for feeding our nation real food.

WHAT WE PAY FOR FOOD

If my example of the cost of producing eggs is even remotely accurate, there is a huge paradox regarding the cost of food in the United States. In the last fifty years the food supply in the U.S. has undergone massive changes, but most people are unaware of the changes and of the huge significance of the changes. In 1970 we spent about 17 percent of our household income on food. By 2010 we were spending only seven percent of our income on food. (See Table 2.) This simple statistic masks underlying changes that have occurred but it is only part of the story. First and foremost, production of food has been largely taken over by large corporations. The practices of these agribusinesses involve using new chemical and biological products. In some instances we know the compounds are harmful to humans. In other instances it is too soon to tell what the effects might be.

We are not just talking about genetically modified foods that contain substances that the body does not recognize and therefore rebels against. It is not just the processed foods in which fats have been transformed into substances unrecognizable to our digestive systems and disruptive to our metabolic processes. It is not just that many nutrients have been stripped out of foods and replaced with synthetics. It is also the treatment of plants, soils, and animals in large, monoculture farming operations that has changed as well. How many times have we bought a beautiful red tomato only to throw it away after the first bite? Little does the color tell us that it is missing many trace elements and nutrients of its recent ancestors. More disguised is the apple, which may look good and even have a snappiness to the bite, but which has been sprayed so many times that you ingest some of those chemicals with each snappy bite. How good is meat that comes from an animal which is meant to graze but is forced to eat grains exclusively? What becomes of an omnivore like a chicken restricted to a vegetarian diet? The ludicrousness of this high-tech food industry is epitomized by the recent oxymoronic product, ultra-pasteurized organic milk. Organic is what we work hard to achieve. Ultra-pasteurization destroys vital enzymes and chemically alters the protein structures so they no longer are totally friendly to the body. Any benefit of being organic is lost through ultra-pasteurization.

The greater affordability of food has come about in part due to these changes and because agribusinesses are not held responsible for soil, air, and water deterioration and pollution that their farming practices create. Neither do they pay for remedying the health problems of farm workers and consumers caused by eating and contacting these so-called foods. Tax policy, in many forms, also favors large agriculture-based corporations.

This food revolution has been successful in large part because the industry has worked hard at concealing its effects from the public, and with every step small farms take to distinguish themselves from large agribusinesses, the food industry grants more concessions to the food supply giants. So while food labeling would be a positive step, food corporations lobby immediately to write the regulations in less restrictive language so that their products are not labelled. Unfortunately the FDA, USDA, and CPA, the three key federal public watchdogs meant to look out for consumers'

interests, work in actuality for corporate agriculture. The consumer's best chance is to follow Michael Pollan's advice: know the person you buy your food from, know your farmer.

FOOD COSTS OR HEALTH COSTS?

During the same period when food costs were decreasing, the percentage of income spent on health increased, offsetting almost precisely the savings from food. Table 2 shows that what we spend for health and food combined is the same now as it was forty years ago.

In sum, we have reached a peculiar place. We have obtained cheap food but it's a false improvement. As food quality deteriorates, health costs increase—not a happy model. (The food industry is quick to blame the health problems on lack of exercise and lots of other things.) While agribusiness may want to continue their type of farming, we the people should ban their unsustainable ecological devastation.

“Real foods,” not those referenced above, are difficult to produce in a large corporate setting. While achievable at the homestead level, they are not sufficient to feed the population. The middle ground of small farms, community gardens, cooperatives, and CSAs represents the growers where there is potential for progress in providing quality foods for larger populations. However, data about food production and costs throughout the world suggest that we in the United States need to alter our thinking and behavior to accommodate a lifestyle of routinely eating high quality foods.

People in the United States pay less for food than any other country in the world. The normal reaction is “This is good.” The slightly cynical person would say, “Isn't it good?” I should rephrase the original statement. People in the United States pay less for food because the cost of preventing destruction of our environment and ourselves is not included in the price of commercial (read corporate farm) foods. The U.S. feeds itself chemicals and additives and highly processed foods that less and less resemble the real food of origin. Other countries prohibit GMOs more than we do or raise their own foods more naturally, caring for the soil, plant, and animal. We spend about 6.9 percent of our household income for food. All other countries pay more. The graph below shows the results for a few countries around the world.

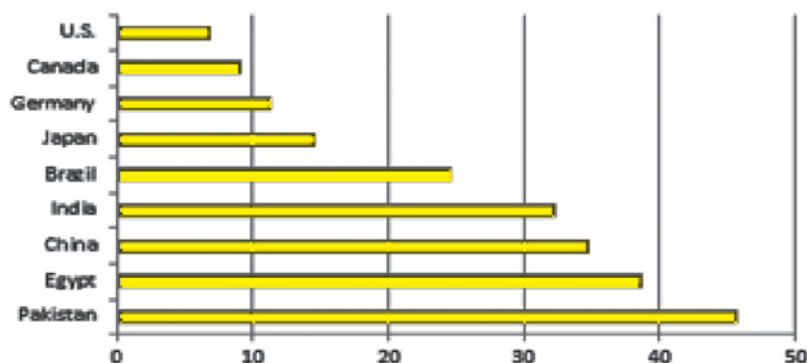
REAL FOOD COSTS MORE

The purpose of this exercise is to make two points. First, even though the Happy Farm data represent just one small example, and could be off by ten, twenty, or thirty percent, the overriding conclusion is valid: real food costs substantially more than what U.S. consumers are currently paying for their food-like substances. Second, we in the United States could eat real food if we were willing to pay what the rest of the developed world pays for its food. For example, the Germans and Japanese seem to lead productive, healthy, happy lives even though they pay a lot more for their food (whether it is real food or not).

Are they malnourished? Do they go without education, health and general welfare? The consensus is no. But they have made other adjustments to their lifestyles to pay for good food. I believe we in the United States need to make adjustments to our lifestyles as well in order for the populace to be able to afford high quality food. We need to reconsider how we house ourselves (average house size has gone up for decades while family size has decreased), how we transport ourselves (we are making some progress although SUVs are still very popular in the U.S.), how we entertain ourselves, how we organize ourselves, and what things we encourage and discourage through tax structures.

There are some people who have made these changes as individuals. As more people convert to this lifestyle, the sacrifices of the few will be distributed more broadly. Only then will financially and ecologically sustainable farming become a reality for our nation. ☺☺

Food as a Percent of Total Household Budget by Country (U.S. Dept. of Agric. 2011)



Bill Hyde is a PhD farmer who speaks and writes about the humorous pitfalls of being an old, new farmer as well as serious issues we all face with the transformation of modern agriculture. He lives at Happy Farm on the outskirts of Denver, Colorado.

Technology as Servant

THE MANY WAYS TO MINE THE SUN: GOING SOLAR THE TRADITIONAL WAY

By John Moody

On a hot, humid, and rainy spring day in Kentucky, it is somewhat ironic to be writing about the sun. But the sun, even when hidden by rain and clouds, is a resource of almost infinite value. Each day the sun bombards the earth with more energy in a single hour than the planet uses in an entire year. The amount of energy that reaches the earth's surface each year is greater than all of the non-renewable energy sources on the planet combined, including nuclear resources.¹

There are many ways to take advantage of the sun and its tremendous power. Even better, many of these means don't require tens of thousands of dollars in sophisticated and complex equipment, but instead have been used by people for ten thousand years or more.

WOOD: HUNDREDS OF YEARS OF STORED SUN

What happens to all that incoming solar energy? Much of it is used by plants for photosynthesis. And a large part of the plant kingdom is trees. Trees are a lovely form of stored solar energy, one that can be used in a variety of ways, from building materials to agricultural inputs to animal bedding to heating.

Wood heat and wood stoves have come a long way over the past few decades. Newer models are safer, more efficient and cleaner burning. With energy costs increasing and storms and other grid-related issues causing widespread outages with greater and greater regularity, more people are considering wood stoves for their versatility, beauty, affordability and reliability.

Wood is one of the most sustainable and efficient home heating options (especially using a high-efficiency wood stove with good thermal mass or to run a radiant heating system). Compared to other methods, it has advantages in terms of fuel storage, safety and infrastructure.

Many other heat sources require special storage and careful handling, involve long distance transport and costly centralized storage, refining, and distribution facilities, and require complex, expensive, and environmentally invasive infrastructure. In the past decade the nearest large metropolitan area to us experienced three grid-decimating weather events, leaving many people without power for weeks at a time, and causing millions in damages.

Also, wood is the only method of home heating that heats you again and again and again: when you fell the tree, when you saw the tree into logs, when you move the logs, when you split the logs, when you stack the split wood to dry, and when you move the dried wood inside to burn. What other fuel source or heating method will warm you six or more times and nullify your need for a gym membership to boot?

The above observation also reveals the biggest drawback to heating with wood: the amount of work required. There is no doubt that using wood to heat your home is work, but it is enjoyable, physically rewarding work. It is work that helps us better understand and appreciate our role in creation. It is work that, when done well and wisely, improves and blesses our farms and woodlands.

WOOD-BURNING STOVES

When choosing a stove, there are a few main considerations. First, if affordable for your family and dwelling, choose a soapstone or cast-iron stove with a cook top. While these are generally two to three times more expensive than steel and fire brick-lined stoves, they are far more durable, generally more beautiful, and also more efficient at heating your home. This is because they hold far more thermal mass than cheaper stoves, so that hours after the fire has died down the house still stays warm. We know several families who

There is no doubt that using wood to heat your home is work, but it is enjoyable, physically rewarding work.

The sun is a powerful, safe disinfectant as well as a natural bleacher.

heat with wood, and those with the better quality stoves get more sleep at night (or get to sleep in later) than their peers and use less wood because of the greater thermal transference. It is good to realize that that greater thermal mass also means the stove does take longer to heat up and radiate heat into the surrounding environment.

Second, make sure the stove is properly installed. It is worth paying someone to do it if you lack the necessary skills and expertise. Proper installation is key to your and your loved ones' safety. Last, make sure you inspect and when needed clean the chimney regularly. Again, if you are not able to inspect and clean it yourself, it pays to have a competent professional do it for you.

DO-IT-YOURSELF CLOTHES DRYING

An even more direct way to mine the sun is by drying laundry *en plein air*. Of course that method was the default choice for humans for millenia. The advent of the modern economy and the expert salesmanship of the 1960s pushed most Americans into a veritable avalanche of machines for their homes: away from the outdoors and into the TV, away from the dinner table and off to the diner and drive-thru, and away from the sunny laundry line and into the dark laundry room. Those monumental lifestyle changes came with some often unrealized costs.

ENERGY AND ELECTRICITY

Anywhere from 6 to 12 percent of a home's total electricity usage per year is expended on drying laundry. The bigger the family, the greater the cost (and the more hands potentially available to help hang laundry to dry instead). Depending on how efficient you are at hanging laundry and your gas or electric rates, line drying in energy savings alone can equal around seven to ten dollars per hour for your labor. Another way to look

at the numbers is the cost of the dryer plus electricity, which ranges from fifty to seventy cents or more per load plus any other things added to the system like dryer sheets or wool balls.

CLOTHING LIFESPAN

See all that lint in the lint trap? That isn't lint, that is *your clothes*, one small piece at a time. Especially if you are spending extra money to get truly natural, clean, quality clothing (organic cotton, wool, and the like), the extra wear and tear of machine drying reduces the life and look of clothing by 30 to 60 percent. So take your clothing budget and add fifty percent to it to get a feel for how much every year machine drying adds to the bill.

DISINFECTANT

The sun is a powerful, safe disinfectant as well as a natural bleach. Sunlight and fresh air are a great way to remove all sorts of nasty smells and many stains from clothing naturally. (The combination of an oxygen-based bleach in the wash plus hours drying in bright sun can produce dazzling results.) Sunlight even helps kill off the dreaded MRSA bugs and other dangerous pathogens. If you are struggling with certain bugs or superbugs, essential oils in your laundry coupled with full sun line drying can be an effective part of cleansing your environment and home.

SAFETY

Machine dryers present two major safety risks. First, the chemicals used to soften machine dried clothes (dryer sheets and liquid fabric softeners) are a veritable can of carcinogens and poisons that coat clothes and then migrate through your skin into your body and are inhaled by hapless passersby who are within a block of your dryer vent pipe, as well as by anyone wear-

CLOSING IN ON CLOTHES PINS

One of the less enjoyable aspects of line drying is modern shoddy clothes pins. Generally, the plastic models don't work well and don't last very long; the wood versions have weak springs that fly apart in pieces when your sheets are flapping in the wind. Henrick Kimball, who also created the Whizbang chicken plucker and a number of other innovative do-it-yourself helpful tools for farmers and homesteaders, has created REAL clothes pins, the kind that haven't been seen in a generation or more. These are not only beautiful, but functional, made with an industrial spring and from real hard wood. You can order them online, <http://classicamericanclothespins.blogspot.com/>

ing or near the dry clothes as they outgas that noxious stuff.

Thankfully, wool dryer balls are safe replacements at times when machine drying is the only option or preferable to the outdoors, such as when it's raining for a week. You can either purchase wool balls or make your own.²

Dryers themselves also pose a significant hazard, since people often do not properly maintain and clean them. Clothes lint is an amazingly flammable substance. Dryers are one of the most common causes of home fires, accounting for just under five percent of all home fires each year; that's around fifteen thousand fires!

SEE THE SUN

One of the best parts of hanging laundry is that it gets people outdoors, in the all-important sunshine and fresh air. The average person generally takes far too little exercise and spends too many hours indoors. When you realize that hanging clothes saves money while also providing gentle, contemplative exercise and an opportunity to get grounded (we love to hang clothes barefoot around here!), the total benefits of clothes hanging begin to build up beyond the small environmental and economic savings.

IMPROVEMENTS IN LINE DRYING

For those who decide to go outdoors to dry their clothes, the past decade has seen some real innovations and improvements to the traditional line drying method. Rotary clothes dryers from companies such as The Breeze Dryer allow more

clothes to be hung in smaller spaces more quickly, while also helping them dry faster and more evenly through their ability to spin.

WHAT TO DO IN WINTER?

One reason I am covering both wood stoves and line drying in a single article is to demonstrate how these two technologies complement each other. One drawback to wood heat is that it dries out indoor air, reducing the humidity to uncomfortably low levels. A drawback to outdoor drying in winter is uncooperative weather in many parts of the country, although it can be done. Winter weather can be bright and very dry, so while laundry may freeze into boards at first, it *will* dry and even soften in the wind. The bonus is clothes and bedding with a heavenly fresh scent.

For our family, wintertime dry air is addressed by moving our laundry drying operation indoors. The damp clothes provide much needed moisture to the indoor air. The heat and dry air from the stove result in laundry drying times that rival the most efficient of machines. Best of all, the newer style drying racks allow multiple loads of laundry to take up only a few square feet of floor space.

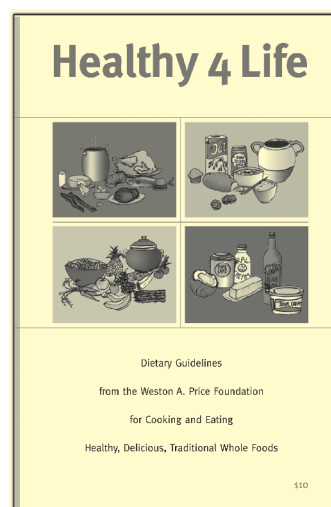
Indoor clothes drying is *not* recommended during warmer seasons, especially in locations with already high humidity. Indoor drying can create air quality problems unless you have a way to dehumidify the air of the excess moisture from the clothes. If not, you risk causing the proliferation of mold and other indoor air contaminants. ☺☺

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2. <http://healthylivinghowto.com/1/post/2013/04/how-to-make-wool-dryer-balls.html>

MORE INFORMATION

- <http://gcep.stanford.edu/research/exergycharts.html> and <http://www.nature.com/nature/journal/v443/n7107/full/443019a.html>
- <http://healthylivinghowto.com/1/post/2013/04/how-to-make-wool-dryer-balls.html>



HEALTHY 4 LIFE: DIETARY GUIDELINES AND RECIPE BOOK
Our colorful 84-page guidelines booklet with recipes is available. Instead of complicated formulas involving calories and grams which most people don't understand, we simply recommend including high-quality foods from four food groups in the diet every day. The good groups are:

- Animal foods, including meat, dairy, seafood, and bone broths;
- Grains, legumes and nuts—properly prepared;
- Vegetables and fruits, including lacto-fermented products;
- Healthy fats and oils, including butter, lard, coconut oil and cod liver oil.

The reaction to this publication has been very positive. It is suitable for use in schools and other programs. To order online, go to westonaprice.org. Booklets are \$10 each or \$6 each for orders of ten or more.

Homeopathy Journal

BRUNHILDE, THE BLUE-HAIRED BELLE OF THE BALL

By Joette Calabrese, HMC, CCH, RSHom (NA)

Every stage of life presents its own particular trials, hurdles and tests of character and constitution. Successfully navigating the stream of life confers many rewards, not the least of which are robust health and endurance. From newborns to octogenarians and beyond, homeopathy offers the perfect key to provide help and support that transcends generations.

Imagine Brunhilde, known as Hilde, an eighty-seven-year-old great-grandmother. She lives in a senior community and not only breaks the age rules, but redefines them. Her husband died in his sixties and she lives alone in her tiny apartment. Yet Hilde is never lonely. There are over two hundred residents in her community and she is the most popular tenant there. She plays piano during Friday night events, brings her homemade sauerkraut to lunch gatherings, and is as robust, curious, eager and sparkling as her great-grandchildren. The men in the community twinkle and flirt when she walks into the social hall. The women long to befriend her. Even the administrative staff admires her. Hilde is an all-around winner.

HOMEOPATHY: A FAMILY TRADITION

Brunhilde was born and raised in Austria to accomplished and erudite parents. Her mother was a homeopathic physician while her father was concert master with some of the finest symphonies in the country. Hilde travelled and performed on the amateur classical pianists' circuit in Europe as a young woman until the time of her first child's birth.

Hilde lived a well tailored life in which culture and homeopathy interfaced seamlessly. When she contracted scarlet fever as a little girl, her mother administered *Belladonna* 30 thrice daily for a week to her and her sisters. She was up and practicing her piano lessons by the third day. Her sisters' recoveries followed suit.

When she developed an ear infection after a

riding accident her mother dosed Hilde with *Arnica* 200 and *Hepar sulph* 6. These two remedies made short shrift of her pain and fever.

Hilde recalls her mother using *Pulsatilla* 200 when she entered puberty during a trying jump-start of her menarche. Her entire family depended wholly on her mother's homeopathy skills so that their lives were much simplified and unhampered by chemical drugs.

Homeopathy and Hilde's physical and emotional well-being were one and the same. Nevertheless she took no notice of her mother's remarkable achievements in bolstering the family's health until she had her own children. It was during her second pregnancy when her baby presented in breech position close to delivery that she began to pay attention. Her mother assured her that the baby would turn in short order with homeopathic medicines. The conventionally trained doctor who was also caring for Hilde didn't believe it. Hilde obediently took *Pulsatilla* 200 for a few days and sure enough, her breech baby turned like a finely tuned timepiece in less than forty-eight hours.

This watershed event focused and galvanized Hilde's attention from then on. She became a faithful devotee of homeopathy.

CARRYING ON THE LEGACY

Today a personal library bulging with her mother's homeopathy medical books and professional notebooks comprises her décor of choice in her small apartment. The residents in her community have come to count on what appears to be Hilde's inborn knowledge of how to cure their various ills. The word has gotten out that her skills lie in the area of geriatrics, but that isn't the entire truth. Hilde has simply learned to accommodate her knowledge and expertise to her experiences in each decade of her life.

For example, as a younger woman while raising her family, her forte was childhood dis-

From newborns to octogenarians and beyond, homeopathy offers the perfect key that transcends generations.

HILDE'S TOP HOMEOPATHIC MEDICINES FOR OCTOGENARIANS (AND OTHERS)

1. *Ignatia* 200. This is a personal favorite because it raised Hilde out of the crippling grief she endured after the loss of her beloved husband. She has also seen it move her friends from tragedy to triumph following other inevitable losses in life. She instructs her friends to take this remedy daily for weeks or months after significant disappointment, grief or sadness. It has protected many from the tempestuous days of sorrow. One friend who lost her son in an auto accident collapsed emotionally and physically so that she was unable to rise from her bed. On the day of her son's funeral she was unable to dress herself. Hilde was called in and after a few doses of *Ignatia* 200, Helen was able to attend the funeral. Days later, after many more crying jags and corresponding doses of this most miraculous remedy, Helen brought Hilde a lovely corned beef dinner thanking her for saving her life. Hilde takes this recognition in her stride.
2. Hilde has several bottles of *Rhus tox* 30 and 200 for her friends with arthritis. But she finds that fewer and fewer of them need her help with this since it works so well. She's repeatedly witnessed that over time, it becomes unnecessary. Indeed, she too suffered from arthritis but it melted away after increasing her fermented vegetables and coconut oil and employing *Rhus tox* 30 daily for a few months. She calls this combination of WAPF-inspired diet plus homeopathy the dynamic duo.
3. Unfortunately, many of the residents in Hilde's complex are taking prescription medications—an all-too-typical state of affairs for most of that age group in America. The typical side effects of these drugs give rise to constipation, irritability, insomnia, and many more complications which erode the quality of life, and are too many to list. In these circumstances Hilde recommends *Nux vomica* 200 or *Coffea* 200. These remedies help them become more comfortable with the inevitable side effects of drugs such as blood pressure-lowering agents and steroid pain medications. Then she gives them a good scolding for falling into the clutches of chemical medicine shenanigans. In spite of the upbraiding, her friends still adore her.
4. While many of her generation complain of memory problems and some are lost in dementia, Hilde has recently employed a new secret homeopathic remedy that is girding her and her keen friends. It is a remedy I taught her from having worked in the Banerji Homeopathic Research Foundation in Calcutta, called *Helleborus* 30. Certainly, her mind is well-oiled since she regularly consumes cod liver oil, lard and fermented foods, but for those who are not able or willing, *Helleborus* 30 is the remedy she uses to help with the aging minds of her contemporaries. She reports to me that that she seems to be able to keep them at a non-degrading level. (This has certainly been my experience as well.)
5. For even more extreme conditions such as Alzheimer's disease, *Helleborus* 30, twice daily can often halt a further decline in mental capacity. Generally speaking in the world of homeopathy, other than prophylactics to infectious disease, we treat the presenting illness instead of treating in advance. That's where a diet low in processed carbohydrates and high in saturated fats comes into play as sound prevention.
6. *Arnica montana* 30 before bed is one of Hilde's favorite medicines for her own occasional insomnia, but many of the residents tell her that *Arnica* sometimes works irregularly. This is when she goes to her next favorite insomnia selection.
7. *Coffea* 200 is that second choice for insomnia, particularly when her mind is what she calls "stepped-up" at bedtime. Just as coffee can cause over-stimulation and sleeplessness, its homeopathic version allows the restless to drop off to sleep. Hilde has often been heard admonishing her friends, "Hands off the coffee and chocolate doughnuts at church!"

These remedies are equally useful for those on either side of the eighties.

eases. Even today, she enjoys recalling the way she handled whooping cough in her suburban neighborhood, secretly annoying a local pediatrician, yet delighting those willing parents with her homeopathic medicines that protected many children and cured others. Later, during menopause, her friends counted on her for relief from their hormonal maladies. And so her reputation grew.

Hilde considers her most important work to be what she is doing now. And she will admit that she has professed the same opinion for every decade and stage of her life.

Today, Hilde owns over eight hundred homeopathic remedies, many of which have dates on them that precede her birth and are those she inherited from her mother's practice. When she occasionally uses those old bottles (more for dramatic effect than anything else), she takes pride in prying off the dry, brown cork from the amber bottles and popping the contents into her "patient's" mouth. She has noted that these old pills are just as potent as the day they were manufactured nearly ninety years ago.

Her collection includes medicines for the most common sufferings of her age group, with emphasis on food intolerances and allergy remedies. Undeniably, these remedies of hers have treated arthritis, hip injuries, digestive bloating, memory loss, confusion, anxiety, grief, sinus headaches and rashes. Yet she also instructs her young granddaughters in the ways of curing their families and encourages them to keep it simple with only a few books and a hundred-remedy kit to begin. She directs them with her topmost recommended remedies for their age group. Each period in life has its best remedies. But remember, these remedies are equally useful for those on either side of their eighties.

Today Hilde's hair is bluish-silver and somewhat thinner but her devotion is prodigious. Homeopathy and its empowerment have given her an enviable life that she loves: one filled with mastery, pride, and fulfillment.

Can you influence your generation? Hilde would answer with a resounding "yes!" And I would add that there is no other choice in today's upside-down healthcare environment. Indeed you are the operative generation; this is your role and now is the time. Homeopathy is a medical

strategy that is over two hundred years old, one that can be easily learned. It is supported by ample double-blind and clinical studies proving its efficacy and safety, published in international medical journals. Yet the most telling proofs are the personal accounts of lives emancipated from illness and suffering by this commanding medicine.

Set your own legacy in place and learn to treat your family, friends and community, just as Hilde does. Once you have a few homeopathic medicines under your belt, instead of pop culture synthetic treatments, you too, can become the compelling personality that has distinguished the likes of Brunhilde, the blue-haired *belle dame*.



Joette Calabrese, HMC, CCH, RSHom(Na) is a homeopath who melds homeopathy with WAPF principles. The Hilde story is a compilation of many of Joette's students who have studied with her over the years. For a FREE download of homeopathic medicines specific to seniors, how to find and use them, go to www.JoetteCalabrese.com and click on "Best Remedies for Seniors." Learn today and use tonight. See if homeopathy is a fit for your family's health strategy with a free fifteen-minute phone conversation with Joette at (716) 941-1045.

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All Thumbs Book Reviews

***Your Personal Paleo Code:
The 3-Step Plan to Lose Weight, Reverse
Disease, and Stay Fit and Healthy for Life*
by Chris Kresser
Little, Brown and Company, 2013**

I would have preferred that Chris Kresser's recently published first book not have the "P" word in its title. Though still unfamiliar to many, the term "Paleo" in connection with diet has been around, and has been controversial, for decades. "Eating Paleo" is defined differently amongst its adherents and is constantly debated. However, Paleo in the title will certainly promote book sales as this lifestyle continues to gain popularity. Kresser obviously considers his perspective to be firmly anchored in its tenets, but his opinions differ significantly by including foods a strict Paleo canon excludes.

In his book he outlines how to customize the "standard" Paleo diet for the individual, using its principles as a template, rather than as doctrine. I submit that the term "ancestral" would better describe his approach.

As an example, Kresser considers dairy products an appropriate, nutritious food for humans if well-tolerated by the individual. He points out that approximately one third of the global population has undergone a genetic mutation to produce lactase into adulthood. That dairy was not consumed by our Paleolithic ancestors is not reason to reject it. However, he generally does not recommend drinking milk due to its not being well-tolerated by most people. (His position on raw milk is clearly outlined in his series "Raw Milk Reality" on his web site.) "Pastured-animal, full-fat dairy products" come under the heading "Superfoods." He also includes grains and legumes if well-tolerated, properly prepared, and in modest amounts that "should never displace more nutrient-dense foods like meat, fish, vegetables, nuts, seeds and fruits."

I am pleased that "diet" is not in the title. *Your Personal Paleo Code* is so much more than

what to eat, what to avoid, and the "why" for both categories. It is an all-encompassing handbook on how to transform your life towards optimal health using not only what is known from anthropological evidence of how ancient humans lived, but also what is known from modern scientific study. Kresser possesses the knowledge and analytical ability to discern the worthy from the meaningless in medical literature. He also has the knack of making complex concepts understandable to the layperson and inspires us towards positive change in our lives.

Your Personal Paleo Code is divided into three steps: Reset Your Diet, Rebuild Your Life, and Revive Your Health. Kresser developed this format to save his own life. His decade-long struggle with a debilitating, complex illness, led him to study Chinese medicine, ultimately becoming a certified practitioner. But it wasn't until he happened upon *Nourishing Traditions* that he finally began to heal. Eating the recommended foods made him feel better immediately, and he soon discovered what foods worked for him and those that did not, even if properly prepared. Without knowing it at the time, he was formulating his own personal Paleo code.

After his recovery, Kresser began helping others suffering from chronic illness. As a clinician, he found that the method he used to treat his own condition proved to be useful in treating his patients, and I enjoyed reading some of their success stories. The fruit of his personal and professional experience is this book.

Step 1: "Reset Your Diet" is a thirty-day plan designed to discover hidden food sensitivities, improve digestion, burn fat, reduce inflammation, and regulate blood sugar along with promoting other health benefits. Foods are divided into three categories: Eat Liberally, Eat in Moderation, and Avoid Completely. I think Dr. Price would be pleased to find meats, organ meats, bone broth soups, fish, eggs, fermented foods, and traditional fats in the first category. Potentially problematic foods, including dairy,



Kresser outlines how to customize the "standard" Paleo diet to the individual, using its principles as a template, rather than as doctrine.

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Gluten is the only substance for which Kresser advises a ninety-day (rather than thirty-day) abstinence before "performing a gluten challenge."

grains and legumes, are eliminated during this "reset" phase, as are non-nutritious and harmful foods such as those that are heavily processed, sweetened either naturally or artificially, and industrial seed and vegetable oils. Special conditions are addressed for those who have been diagnosed with certain conditions requiring further modifications. Step 1 contains a wealth of information about how to maximize nutrition and minimize toxins.

The discussion of gluten in Chapter 4 is concise yet thorough. It is the only substance for which Kresser advises a ninety (rather than thirty) day abstinence before "performing a gluten challenge," a careful reintroduction to determine tolerance. Although he acknowledges that Dr. Price documented cultures that consumed gluten and maintained excellent health, Kresser cautions us nonetheless. Even if there are no apparent adverse effects, "considering the seriousness of the conditions that gluten sensitivity can cause, the fact that there is no need for gluten in the human diet, and the low nutrient density and bioavailability of gluten-containing grains," he "still recommend(s) avoiding it. . .because of its potential to cause harm and our uncertain understanding of what shifts people from tolerance to intolerance." This is sound and sensible advice.

Chris does not tell us to choose lean meats, although those two words do appear together more than a few times in his book. In Chapter 5 under the heading Saturated Fats, his list of main dietary sources includes "Fattier cuts of beef, lamb and pork," with the verdict: eat liberally. Chapter 9, a favorite of mine, encourages us to "return to the practice of our ancestors and eat 'nose to tail.'" There is a synergy of nutrients when "eating not only the lean muscle meat...but also the organs, skin, cartilage, bones and fattier cuts."

Step 2: "Rebuild Your Life" begins with a method to reintroduce gray-area foods one at a time while keeping track of any negative reactions with a food diary. If you feel great after

the thirty-day reset period and are not feeling deprived, there is no need to reintroduce these foods as they are not "mandatory" for good health.

Each of the remaining chapters in Step 2 has a quiz to determine your "score" in lifestyle aspects essential for health, such as sleep, play, social connection and stress management. Clues for rebuilding come from how our ancestors lived: they played outdoors in the sun, moved frequently, slept longer and in darkness, and lived communally, deeply connected to others. Good health requires much more than a proper diet.

For instance, Chapter 12 reveals the importance of movement: "Regular physical activity is one of the best predictors of long-term health and survival...Your fitness level ... has been shown to be a better predictor of how and when you'll die than age, body mass index, or even cardiovascular risk factors." Warning us of the dangers of too much sitting, Kresser took his own advice and fashioned a stand-up desk with a treadmill beneath it and logged thousands of miles as he wrote his book. He cites a large study that found "those who sat for more than six hours a day had up to a forty percent greater risk of death over the next fifteen years than those who sat for less than three hours a day regardless of whether the participants exercised." Fascinated by this information, I went to his website and became a "community member" to access chapter notes. I found ten references for this one page! If a reader wants them, there are guides, worksheets, action plans, a dozen bonus chapters, a forum, meal plans and recipes and more online.

Step 3: "Revive Your Health" examines macronutrient ratios with an emphasis on food quality and customization to individual circumstances. Well-being is possible by eating widely differing daily caloric percentages of protein, carbohydrates and fats. After all, hunter-gatherers "thrived on a variety of diets." Kresser suggests we experiment with carbohydrate intake, noting that most of his patients do

All Thumbs Book Reviews

***Solving the Paleo Equation:
Stress, Nutrition, Exercise, Sleep***
By Garrett Smith, ND and Matt Stone
Victory Belt Publishing, 2014

Solving the Paleo Equation is a multifaceted book. The two authors cover four primary topics: stress, nutrition, exercise, and sleep and recovery, as well as a number of subtopics that relate to the main points of discussion.

The information on sleep, exercise, and stress is generally very good. In a sense, stress is the framework for defining the remaining three topics, since if you are not getting good nutrition, proper exercise, and sound sleep, you will be creating significant stressors for your body.

The exercise section, written by Dr. Smith, is a wonderful counterbalance to the exercise mania that at times sweeps up people getting into health and nutrition regimes. He points out the many dangers of the modern obsession with hardcore exercise and self injury that has somehow become the hallmark of American-style fitness programs.

The section on sleep primarily covers grounding, the importance of being in nature (forest bathing, getting yourself outdoors), and the deleterious effects of EMF exposure. Thus, in some ways, there is little to do with sleep

proper and a lot to do with lifestyle issues that affect how we sleep and how we live in general and the resulting effect on our overall health.

Packed in the midst of all this material is a lengthy section on nutrition containing a great deal of information, much of it very good. Stone warns about the dangers of cruciferous vegetables and other metabolically meddlesome foods, the importance of salt and carbohydrates, the ridiculous recommendations regarding high amounts of water consumption, and more.

Regarding the Paleo diet, his views are best summed up by this zingy one-liner, "To be frank, to solve the Paleo equation, you must first subtract the Paleo diet" (page 41). Stone follows this assertion with five points refuting certain Paleo-associated dicta, such as the Paleo movement's dismissal of grains and dairy products. His section on fats again takes to task the idea that grains and dairy are the cause of obesity, food sensitivities, and other modern degenerative conditions, pointing to the abandonment of traditional animal fats as perhaps the major culprit in modern health issues. He also makes the interesting observation that what may cause some people to do better on a Paleo diet is how our improper fat consumption has predisposed some to become sensitive to the Paleo no-nos of grains, legumes, and dairy (page 1).

The section on fats is in many ways the heart



Stone is very pro-saturated fat.

Personal Paleo Code, continued from page 70

best between fifteen and thirty percent of total calories. His application of the Paleo diet is not inherently low-carb. Many factors influence optimal range including genetics, activity level, season and goals. Other topics often discussed in the Paleo community are found in Step 3, including intermittent fasting, eating on a budget, the "80/20 rule," and getting the entire family on board and finding support for this new way of eating. The final personalization covers specific, often serious, health conditions one must take into account in order to achieve success.

I am happy to report there is no evidence of fat-phobia in the recipes in the book, and many have lard or "traditional fat of choice" on the ingredient list. His inclusion of "extra-light" olive oil in a vinaigrette might be a mistake, as otherwise this oil only appears in a discussion of fats and oils used for cooking and a chart of smoke points. I would like to have seen "unrefined" as a descriptor for sea salt.

When I first opened *Your Personal Paleo Code*, I was struck by the heading in the introduction: "This Book Can Save Your Life"—a powerful statement which, after reading the book, I don't consider to be hyperbole. I believe it can. Although aimed at an audience searching for answers, you don't have to be suffering to find value in its pages. Both of my thumbs are up for the gift of life this book might give many of its readers.

Review by Lynn Wright

All Thumbs Book Reviews

of the nutrition section and the longest chapter in the book. The section has many good aspects, yet is also what prompted my desire to speak with Stone directly. The section contains ten recommendations for making sure your fat consumption doesn't sabotage your health. The first four in particular caught my attention:

1. Choose red meat or wild-caught fish over pork and poultry.
2. If you do occasionally eat pork...choose lean cuts like loin and tenderloin; bacon, sausage, and ribs contain the bulk of the AA [arachidonic acid] found in pork.
3. When you eat poultry, don't eat the skin (or if you do, eat it only occasionally).
4. Don't eat whole eggs every day; try them once or twice a week as an ingredient in your baked goods.... If you go to great lengths to obtain eggs from wild-fed, pastured hens, you can probably consume eggs more frequently, as the fats in the yolks are much more balanced.

Now, before I comment on these recommendations, context is important. First, Stone is very pro-saturated fat. Second, a few paragraphs earlier, he discusses the unnatural diet of modern factory-farmed animals, specifically addressing soy and corn and their negative effects on the fatty acid composition of the animals and their overall healthfulness (pages 82-84). To some extent, we would concur with his assessment and warning about consuming large amounts of such animals. If the only pork or chicken you have access to is CAFO-raised, with the accumulation of not just poor quality fat in the tissues but a host of toxins, avoiding their fat and skin is surely prudent as is minimizing your overall intake of such animal foods.

But as a general dietary recommendation, Stone's conclusions are worrisome. As WAPF readers know, pork fat is a wonderful source of vitamin D—for inland people, a crucial source, especially given the impracticality of large numbers of people choosing wild-caught seafood as a dietary staple to replace chicken and pork. Many foods that are higher in linoleic acid and arachidonic acid are also important sources of various vitamins, minerals, and nutrients. In traditional diets, the varied components and overall low intake of polyunsaturated fatty acids as a percentage of calories appear to protect against any ill effects.

Stone's dietary recommendations are driven by his concerns about the arachidonic acid content of these foods. Chris Masterjohn and others have written on this subject pointing to AA's complex role and relationship to inflammation in the body, a view that differs from Stone's in important ways and one I encourage readers to read and review in Masterjohn's various articles, such as "Precious and Perilous" from the Fall 2010 issue of *Wise Traditions*.

The final dietary section (page 94), gives a practical exhortation to "eat it off your plate..." which here means to eat food you actually make from things that are actually food. This is dietary advice that all camps can whole-heartedly support and encourage. Since *Solving the Paleo Equation* emphasizes eating wild-caught seafood for those that can afford it, there should be little risk of insufficient fat-soluble vitamins in their diet. However one wonders if the lack of other balancing foods and nutrients in certain types of foods will itself create problems that a more robust and diverse diet that does not unnecessarily shun properly raised animals would avoid.

Garret and Stone's book receives one thumb up for getting so many things right and covering so much good ground, with a caveat about their views on arachidonic acid and how they then play out in the dietary recommendations. Given that chicken consumption has increased almost ten-fold since the early 1900s, there is no doubt that most Americans can and should dial back their cluck affair. And there is also no debate that CAFO-raised pork and poultry are disasters for the eater, the eaten, and the environment. But nutritionally and environmentally, chicken and pork when properly raised are vitally important foods, especially their fats, and they are also ecologically and economically important species for small farms.

One hopes that continued research into the issues that Stone and others raise about possible dietary imbalances that result from eating improperly- raised animals will help us better understand how this part of the equation affects human health. This knowledge can help guide each of us to tailor dietary principles so we can best reach our potential of vibrant health.

Review by John Moody

All Thumbs Book Reviews

***The Small-Scale Dairy:
The Complete Guide to Milk Production
for the Home and Market***
by Gianaclis Caldwell
Chelsea Green Publishing, 2014

This how-to book starts off with a short history that explains how milk came by its reputation as a killer. When cows are fed garbage from distilleries, as they were in the nineteenth century, it should not come as a big surprise that trouble would follow. Infant deaths in the 1880s numbered around ninety-five thousand per year in the U.S. Like any other food, milk, when mishandled or incorrectly produced, can be dangerous.

Intelligent solutions to the dilemma were recognized at the time and even implemented for a while, but as big industry began to dominate the industry in the 20th century, intelligent solutions were displaced by corporate sledgehammer approaches. The intelligent solution is to feed and treat cows properly and handle the milk in clean, sanitary and hygienic ways. Large corporations prefer not to do that and mask the resulting toxic swill with pasteurization. Before pasteurization, things like formaldehyde and boric acid were tried. Anything to avoid immediate, unpleasant consequences like death, even if those consequences are only delayed. Many others have repeated before me that murder in this country is legal if you do it slowly enough.

The rest of the book helps potential small dairy operators think through the decisions that need to be made before you get yourself in trouble. Are you planning to produce milk just for yourself, for your neighbors, or the local community? What kind of animals do you want to work with—cows, goats, sheep, camel, yak? Those last two aren't very popular here but camel milk does exist in the United States. Different animals have different advantages and disadvantages. How much land do you have? How much help will you have? What are you going to do

with excess animals? Caldwell covers business plans and the importance of an exit strategy. This is not something you can just drop in a dumpster and walk away from.

There is an entire chapter on the microbiology of milk for understanding the necessary safety and handling protocols for milk production. Understanding the nature of microbes in milk explains why it needs to be cooled quickly and kept cold and what happens if you don't keep it cold. Environment, treatment, stress, and nutrition can all affect microbial composition and therefore the quality of the milk. After that comes advice on barn and shelter design, pasture layout and fencing. Barns need good ventilation and clean air. Keeping fences well-maintained is a job that never ends. Water must be kept clean.

Follow-up chapters highlight milking parlor setup and equipment. The milking parlor, especially the areas where the final stages of packaging the milk are done, must be clean and easy to clean. Backup equipment is a must. Sooner or later, things break and you will lose a lot of milk if you are disrupted for a long time trying to fix or replace something.

Caldwell carefully discusses testing and risk reduction, which are important topics. Some people casually read our information about the safety track record of raw milk and get the impression that if you sneeze in the milk or some of the equipment isn't quite clean, that's okay. No, it's not. There is potential risk with any food including milk if not handled carefully. The fact that raw milk is a controversial subject makes it even more critical not to give the enemies of real milk or real food any ammunition.

The ubiquitous Diet Dictocrats will be stressed about all this raw dairy but a little cod liver oil and a few spoonfuls of butter should make them feel much better. The thumb is UP.

Review by Tim Boyd



The fact that raw milk is a controversial subject makes it even more critical not to give the enemies of real milk or real food any ammunition.

All Thumbs Book Reviews



***The Blood Code:* *Unlock the Secrets of Your Metabolism* by Dr. Richard Maurer**

The *Twilight* series of fantasy romance novels seems to be popular with the younger crowd so I want to be clear about one thing right from the beginning. There is not a single reference to vampires in this book. *The Blood Code* approach to health starts with blood panel results used to analyze where you are and where you need to go. Course corrections are accomplished with diet and lifestyle changes, not drugs. As the title suggests, metabolism issues are carefully addressed. Many people are having metabolic issues these days including jeans that are getting too tight. There is a widespread habit of blaming genetics but you can't blame genes or jeans. Genetic expression is not carved in stone; it depends on lifestyle and diet. Dr. Maurer outlines a six-step process:

1. Blood panel
2. Skin fold measurements
3. Interpretation of results
4. Adjusting the diet
5. Exercise and lifestyle adjustments
6. Nutritional supplements

Many pages follow explaining blood panel results, normal ranges, etc. Those pages are understandably not very exciting, but very informative. The book is a combination of educational text and reference book. As with a dictionary, no normal person would read it from front to back, not that there is any such thing as a normal person.

Skin fold measurements are made in four places: triceps, biceps, back, and hip. Each area reflects different details of your overall condition. Triceps, for example, reflect the tone of your extremities—both arms and legs. Other positions and combinations are further explained in the book.

There are some good quotes among the dietary recommendations. Fran Lebowitz reminds us that food is an important part of a balanced diet. I think that's a good thing to keep in mind when wandering the aisles of a typical supermarket full of food-like items which should be labeled "Not to be taken internally." Erma Bombeck warns you never to order food in excess of your body weight.

Dr. Maurer makes some interesting points. One that may catch many people's attention is that the glycemic index doesn't work. He lists three reasons. The first is that fiber and fat lower the index of carbs.

Dr. Maurer comes down hard against the delusion that saturated fat is going to kill us all. One chapter subheading is "The Low-Fat Diet is Dead." Several major recent studies are cited to back up that fact. Hard on the heels of that is the section on cholesterol in which Maurer captures how the pharmaceutical scam works so well. While the patent is still active for a drug, the pharmaceutical companies do a brilliant job of manipulating statistics to make the drug look good. By happy coincidence, just after the patent expires and the drug goes generic, negative studies start leaking out. He illustrates with the example of Lipitor, the most popular drug ever. It went generic in January 2012. Starting in February, WebMD began publishing articles which suggested Lipitor wasn't so great after all. Maurer lists six articles from 2012 to 2013 connecting statin drugs to memory loss, diabetes, fatigue, cataracts, muscle weakness, musculoskeletal injuries, and more.

The discussion of supplements, in particular fat-soluble vitamins, is not complete. However, as implied by the quote about food being an important part of a balanced diet, supplements are not the most important factor in the diet and should not be depended upon at the expense of food.

Maurer's exercise advice doesn't exactly follow conventional wisdom either. The best

Six studies from 2012 to 2013 link statin drugs to memory loss, diabetes, fatigue, cataracts, muscle weakness, and more.

All Thumbs Book Reviews

The Big Fat Surprise: Why Butter, Fat and Cheese Belong in a Healthy Diet
By Nina Teicholz
Simon and Schuster, 2014

Nina Teicholz has a knack for discovering long-lost research and teasing out the spoilers in what is considered accepted advice. In the first chapter of her very readable book on American dietary policy, she presents us with information none of us have heard of—but should have. Aleš Hrdlička, a physician turned anthropologist and precursor to Weston Price, studied the native Americans of the Southwest between 1889 and 1905, writing up a four hundred sixty-page report for the Smithsonian Institute. The Indians he visited consumed a diet predominantly of meat, mainly buffalo; Hrdlička observed them to be spectacularly healthy, living to a ripe old age. According to the 1900 U.S. Census, the incidence of centenarians among them was 224 per million men and 254 per million women, compared to only three and six per million among men and women in the European population. Among the elderly he met, “not one of these was either much demented or helpless.” Hrdlička noted an almost complete absence of chronic disease among the entire Indian population he observed.

Fast forward to the early 1950s, when Americans began taking a strong interest in diet and health. Most researchers believed that Americans had a pretty good diet—too high in sugar, perhaps, but otherwise rich in nutrient-dense foods like eggs, butter, cream, cheese and meat—and

for the first time in history, widely available to all, not just the elite. But during this period, the hypothesis that saturated fat causes heart disease came to the fore, an invention of the villain of the piece, Ancel Keys, a biologist and pathologist at the University of Minnesota. By cherry-picking data and bullying himself to the head of prominent committees, Keys pushed forward the notion that animal fats, which had been part of diets worldwide forever, were suddenly causing heart disease and other ailments. Co-workers reported him to be brash and arrogant. When Teicholz asked a surviving colleague why Keys never studied the French, he replied that Keys didn’t like to travel in France (or Switzerland or Austria). He preferred warm countries for research gambits and international conferences and ended up owning a villa on the sun-drenched Adriatic Sea. Yet even while enjoying the local cuisine, which included fatty foods like goat cheese and prosciutto ham, he insisted that the “Mediterranean” diet was low in saturated fat. In fact, his key study only looked at the Italian diet during Lent. (He and his major collaborator, Jeremiah Stamler, were once spotted at a conference eating scrambled eggs and lots of bacon, but Keys insisted that such food was not for the masses, only for the likes of himself.)

Keys prevailed and the premise that saturated fats are bad became U.S. dietary policy. Officials promised that replacing butter and lard with margarine and cooking oils would solve our health problems—and rates of chronic illness went through the roof. If insanity is defined as



Keys prevailed and the premise that saturated fats are bad became U.S. dietary policy.

The Blood Code, continued from page 74

exercise option is what the Swedish call *fartlek*. As you might guess, that is not the ideal name for an exercise protocol in an English-speaking population. More familiar terms for us would be cross-training or interval training which indicate short bursts of more intense activity interspersed with recovery periods. Maurer points out that

even big, clumsy, authoritative organizations like the American Heart Association agree with that. He also points out that too much aerobic exercise will actually reduce muscle mass—not something you ever want. I’m sure someone out there will get flustered about this, but his advice on stretching before exercise is—don’t. He does say why and if you want to know more, that is good reason to buy the book. Another reason is because my big, clumsy thumb is UP.

Review by Tim Boyd

All Thumbs Book Reviews

The worst vitamin deficiencies occurred on the lowest-fat diets, even when protein intake was adequate

doing the same thing over and over again and expecting different results, this policy meets the definition of insanity. When science confirmed the fact that industrial oils—whether liquid or hardened—are bad news, the bureaucrats switched gears and told us not to eat any fats at all.

The hero of Teicholz's story is Fred Kummerow, working at the University of Illinois with independent funding but little moral support. Fred's research—research that no one else dared to do—pointed the finger at *trans* fats. Mary Enig figures large as well—she is remembered for making policy hacks uncomfortable by asking pointed questions.

Now that Fred and Mary have been vindicated, and manufacturers are taking *trans* fats out of processed food, we are left with only liquid vegetable oils, which are arguably more toxic than *trans* fats (see page 53).

The greatest victims of this anti-saturated fat folly are women and children, who need the components of animal fats for fertility and growth. The only replacement for fats in the diet are carbs, and that's what Americans have done. They are eating more and more cereals, bread and sugars, and obesity has followed. School lunches and food stamp programs no longer provide nourishing foods like whole milk and eggs.

In 1989, Fima Lifshitz, then a professor of pediatrics at Cornell University, published a paper describing a number of cases where a father or mother had received a diagnosis of heart disease, resulting in a drastic reduction in dietary fat in family meals—exactly the kind of dietary changeover recommended by the Diet Dictocrats. Said Lifshitz: “The overzealous application of a lowfat, low-cholesterol diet” was leading to “nutritional dwarfing,” insufficient weight gain and delayed puberty. The worst vitamin deficiencies occurred on the lowest-fat diets, even when protein intake was adequate. . . which, by the way, describes the recommendations made by some bestselling Paleo authors—high in protein but low in fat.

But very few Americans actually eat lowfat diets, even if they think they do. No, they are consuming hidden vegetable oils in processed and fried foods, and spreading “low-*trans*” spreads on all that bread. Industrial seed oils are to present-day America what lead pipes were to the Romans—an unrecognized poison that is killing us slowly but surely, which will wipe out our civilization unless we come to our senses. *The Big Fat Surprise*—well written and hard to put down—should help Americans wake up—certainly a few, and hopefully a great many—before it is too late.

Review by Sally Fallon Morell

THE GOURMET BUTCHER'S GUIDE TO MEAT by Ward Cole

This book is made for meat lovers! Subtitled “How to Source It Ethically, Cut It Professionally, and Prepare It Properly,” Cole Ward's tome on meat is a treasure trove of information and advice. He begins with a chapter on butchers, then follows the trail of how meat gets to our tables and delves into the particulars of how the meat industry works.

You will learn the names of different cuts of meat and how to carve up a whole side of beef, pork or lamb. There's advice on preparing poultry and a great chapter on preparing sausage.

Best of all, this book offers no apologies, and does not insist that meat be lean. Lots of fatty cuts appear in the photos.

The Gourmet Butcher's Guide to Meat is a source book and encyclopedia and belongs in the kitchens of chefs and amateur cooks alike. Thumbs UP.

Review by Sally Fallon Morell

All Thumbs Book Reviews

The Farm as Ecosystem: Tapping Nature's Reserve—Biology, Geology, Diversity

Jerry Brunetti

Acres USA

Mycorrhizal fungi are mutualistic fungi that grow among the root systems of plants. This mutualistic association provides the fungus with relatively constant and direct access to carbohydrates, such as glucose and sucrose, translocated from their source (usually leaves) to root tissue and on to the plant's fungal partners. In return, the plant gains the benefits of the fungi's higher absorptive capacity for water and mineral nutrients due to the comparatively large surface area of the fungal filaments, thus improving the plant's mineral absorption capabilities.

In 2013, researchers at the University of Aberdeen discovered an amazing communication phenomenon amongst plants that are symbiotically partnered with mycorrhizal fungi. They found that beans whose root systems were "wired" with a vigorous network of mycorrhizal fungi were able to mount a defense against predators, synthesizing repellents against aphids and sending out volatile emissions as signals to

predatory wasps, calling in an air strike against the wasps' favorite prey, the aphids. Beans not connected to plants via fungal hyphae that were challenged by aphids did not get an early warning of the impending pest and thus became easy prey to the aphids.

Mycorrhizal fungi are a major player in *The Farm as Ecosystem*. Brunetti focuses on practices that encourage the growth of mycorrhizae, thus helping plants defend themselves, and lowering the need for pesticides. And if a plant does have a problem with predatory insects or soil-bound parasitic nematodes, Brunetti offers a wide range of natural solutions, most of which work to strengthen the plant's immune system.

Soil science is a complicated subject but Brunetti's systematic discussion of the three aspects of healthy soil—structure, mineral content and biodiversity—make it easy to understand. Topics covered include soil testing, trace elements, compounds that help plants protect themselves from pests, foliar nutrition, earthworms, water, pollinators, predators and cover crops. Brunetti ends with a vision of what agriculture can be like once it is wrested from the clutches of the corporate, chemical mentality. Highly recommended!

Review by Sally Fallon Morell



Mycorrhizal fungi are a major player in *The Farm as Ecosystem*.

THE HEALTHY HOME ECONOMIST GUIDE: GET YOUR FATS STRAIGHT by Sarah Pope

Our favorite blogger, Sarah Pope of thehealthyhomeeconomist.com, knows what mothers are dealing with these days—lack of time, lack of resources, family stresses and frequent and recurring health problems in their children. These moms don't have the time to do research on diet and health. They need answers, practical answers, and right away. What should they do first? Buy organic? Go on a diet? Detox?

It's none of these, says Sarah. The most important first step is to get your fats right. That means getting the three most important fats in your diet right away: butter, coconut oil and cod liver oil. Then include all the delicious high-fat foods in your diet, such as egg yolks, whole milk and fatty meats. Make your own salad dressing with olive oil.

Sarah makes it practical, simple and easy to understand. She addresses the common fears, such as weight gain, effects on the gall bladder and inflammation, as well as concerns about cost. All of this is spelled out in short chapters that can be read at a soccer match or piano lesson.

A bonus is some great kid-friendly, easy-to-prepare recipes that provide lots of healthy fats and fat-soluble vitamins for your family.

Get Your Fats Straight is a great contribution to the literature on fats and oils, scientifically accurate yet geared to the layperson. It is available at Amazon as a Kindle eBook and in print both online and in major bookstores. This will make a great addition to your collection of books on diet and health. Thumbs UP.

Review by Sally Fallon Morell

Tim's DVD Reviews

Take Back Your Power

Josh del Sol

Big Pitcher Films

Smart meters are spreading across not just the United States but the world like a swarm of locusts. So, are these good locusts or bad locusts? That depends on who you listen to. On one side you have the power companies. On the other side you have just about everyone else who has studied the subject at all.

The power companies claim the meters are safe, more accurate, will save money, power, and the planet. They have spent a lot of money producing studies to support those claims. Some might suspect that the industry that stands to make a fortune from these things might be a bit biased. Some might call the studies propaganda. The power companies also claim the meters won't compromise your privacy. . . that much. I don't think they even pretend to have studies that can back that statement up. Logically there is no way to prove the case, and people will never stop arguing about how much compromise is acceptable. A congressional research report essentially concluded that smart meters do violate the Fourth Amendment. They constitute a persistent universal wiretap.

On the subject of safety, radiation is the big concern. The industry, once again, is not concerned. Eighty-two percent of their studies say smart meters are safe and the remaining 18 percent can safely be ignored. According to Dr. Henry Lai of the University of Washington, 70 percent of non-industry studies say smart meters are harmful. Shots of dark field microscopy show no effect on red blood cells when exposed to an old-fashioned analog power meter. The same tests show significant negative effects when red blood cells are exposed to a smart meter. Other tests have shown that any radiation above $1\mu\text{W}/\text{cm}^2$ can cause measureable physiological effects. At $6\mu\text{W}/\text{cm}^2$, DNA damage occurs. The Electrical Power Research Institute measured

smart meter radiation at over $7\mu\text{W}/\text{cm}^2$. The official "safety limit" in the U.S. and Canada is from 600 to $1000\mu\text{W}/\text{cm}^2$. So when the power companies state emphatically that their meters meet the safety standards set by the government, it's good to know those standards are so carefully considered. In some areas where smart meters have been installed, fire chiefs have seen enough fires caused by the meters to recognize them instantly.

Do they save money? Many have noticed quite the opposite. Their bills skyrocketed and when they questioned their power companies, the companies said there was nothing wrong with the meters. In fact, they were more accurate. Right. Do they save power? The numbers from already converted areas say no power is being saved.

Older analog meters have no digital interface and can't be hacked. New digital meters definitely can be, and those new meters along with the smart grid will create that wonderful "kid in a candy store" experience for every power hacker in the world. It will be a security nightmare.

There is nothing smart about smart meters. Smart meters may be smart compared to the people who are trying to ram them down our throats, but by any more rigorous standard they are a stupid idea on every level. This is, however, a smart video and it gets a thumbs UP.

Betting the Farm

Produced and directed by

Cecily Pingree and Jason Mann

In 2009, ten dairy farms in Maine were dropped by their milk company, H. P. Hood, because they were too far away. They were unable to find anyone to buy their milk. The dairies were on the way out of business without a company to sell to, but of course, large companies don't care. So the ten started their own company, called Maine's Own Organic Milk, or MOO Milk. The plan was for 90 percent of the profits to go to the farmers and they would control the price. As you

A congressional research report concluded that smart meters do violate the fourth amendment. They constitute a persistent universal wiretap.

Tim's DVD Reviews

may know, things don't always go as planned.

The startup date was delayed six times before MOO Milk launched in 2010. Several problems set them back. It was mostly equipment problems that delayed startup, then leaky cartons forced them to destroy a lot of milk. Sales did not go as well as hoped, and after two years of losses, some of the farmers had to drop out. Finally after more than two years they found an investor with a lot of money who allowed them to expand their market and there is hope that things are going to work out. MOO Milk is available in two hundred stores in New England and new farms are being added.

All of the customers shown on camera seemed to think this milk was the best thing since non-scarring toilet paper. I couldn't help but notice in close-ups of the cartons that the product is one percent pasteurized milk. Organic and local or not, I can think of some easy options to make it taste even better. That would mainly involve not removing key nutrients that make it healthier as well as better tasting. And I would not give them a thumbs up for what they were eating during their many meetings to discuss how to survive. Those meetings might have gone better if they were feeding their brains and bodies something a little better than Coke and Oreos.

I will give the video a thumbs UP for taking a straight-up, hard, honest look at what it takes to make it in the milk business. Banding together was probably a good idea but even then it was almost impossible for the dairy farmers to make it work. They didn't wear watches because quitting time was not a set time of day, it was when they got the job done. They probably would have failed without the help of the large investor. This issue is bigger than farms and livelihoods coming and going. In a world descending into the darkness of corporate madness where financial profit is more precious than life itself, the last embers of sanity must find a way to survive. This is one option to keep in mind.

Grounded

**Produced, written, and directed by
Steve Kroschel**

The old-fashioned custom of maintaining close contact with the earth is gaining new interest. A group of people in Haines, Alaska, have been experimenting and getting positive health results. There are many anecdotal accounts of health improvements. A firefighter who had back pain for twenty years is now pain-free. A friend who snored explosively now sleeps quietly through the night.

Some experimental results with cut flowers put in water show that the ones that are connected to ground by wire last longer than ungrounded flowers. Lab tests revealed that red blood cells move faster when grounded than ungrounded.

The theory is that not just our bodies but all living things work more efficiently and inflammation is reduced when electrically grounded to the earth. These observations have caught the interest of well-known alternative health professionals like Dr. Mercola and Dr. Stephen Sinatra, who appear in the movie. Also making an appearance are former astronauts Edgar Mitchell and Charlie Duke.

The viewer is treated to many spectacular scenes of Alaska which give the film great visual appeal. Watchers can decide for themselves what to think of the idea but I don't find it surprising that regular contact with the earth we come from is good for us. The thumb is UP.

Last Call at the Oasis

**by Jessica Yu
Docurama Films**

We start the show off by taking a quick tour around the world and looking at a few key water bodies. The Aral Sea is now about one-tenth its original size. Australia is in a ten-year drought. The reservoir feeding Las Vegas is about forty percent full. The water level at Lake Mead has

I don't find it surprising that regular contact with the earth we come from is good for us.

Tim's DVD Reviews

dropped as low as 1086 feet or lower, and the general trend is down. At 1050 feet, Hoover Dam stops generating power. That could happen in a few years. Water bodies that feed California's Central Valley are at all-time lows. An almond farmer in that area was interviewed in the movie. He had to shut down his farm permanently due to lack of water. The central valley produces 25 percent of the food in the United States. You don't need advanced math to sense a potential problem brewing.

In addition to an increasing scarcity of drinkable water, it is increasingly contaminated. We see some fun pictures of the Cuyahoga River catching fire in Cleveland but, in all fairness, that was in 1969, and it is much better now. However, we also see a video of someone setting tap water on fire. That was not in 1969 but very recently. I'll leave it to those who doubt how much control industry has over government to explain how the gas, oil, and fracking industries have gotten themselves exempted from the Safe Drinking Water Act.

It is becoming well-known that drugs are getting into the water supply of many major cities. Some may argue that they are not in high enough concentrations to have any effect but I doubt they have any studies to back that up. If high-powered drugs are getting into your water you may very well notice, although if it is something like Churchill Downer horse tranquilizers, you may not care. Yes, I've been watching "The Simpsons" again.

There is the usual controversy about who or what to blame—overuse, mismanagement, overpopulation, climate change, or George Bush. There are a number of solutions being considered. Many try to avoid contamination by using bottled water but that may be causing more problems than it solves. Labels lead one to believe the water is fresh from the mountains of some heavenly exotic place when a large percentage of it is just bottled tap water from no place special. Large corporations like Nestlé affix themselves to local aquifers like giant vampires and deplete the local water supply to resell it for more than the price of gas. Large islands of floating plastic accumulate in oceans.

I'm pretty sure efforts to sell recycled water under the label of "Porcelain Springs—the most peaceful place on Earth" is a joke, but the idea of selling recycled water is being seriously promoted. Obviously the yuck factor is a major obstacle. The movie does a good job of raising awareness and rates a thumbs UP.

Multiple Chemical Sensitivity—A Life-Altering Condition **Produced and directed by Alison Johnson**

We have inundated our environment with thousands of chemicals, many known to be toxic and many more never tested, and we still think

we are the most intelligent life form on the planet. Many people brush off this state of affairs as not important or dangerous, but more and more people are learning the hard way that it is. It has reached the point where at least some local governments are starting to take action.

Sensitivity to air fresheners forced a cab driver in New York to quit. New York City has since banned air fresheners in cabs. Pesticides, chemicals from new carpets, paint, and perfume affect a lot of people. Petroleum products and mothballs are also high on the list of items that trigger life-threatening sensitivities.

Symptoms can vary widely and include headaches, migraines, fatigue, muscle pain, joint pain, insomnia, difficulty concentrating, irregular heartbeat, asthma, sinus discomfort, depression, eczema, rashes, bloating, nausea, intestinal upset and seizures.

The condition of our Gulf War veterans is particularly bad. One third of them are sick. One victim describes the scene in Kuwait where all the oil well fires burned. Everything was covered in oil or smoke. There was not enough water to clean anything. They didn't see the sun for more than a month. Not surprisingly, they are all very sick. The Veterans' Administration seems to be mostly in the business of rejecting disability claims.

Volunteers who helped clean up the mess after the buildings fell in the 9-11 attack are now suffering severe lung damage, probably from asbestos and other toxic material filling the air at the time. We have a lot of cleaning up to do if we, as the most intelligent species on the planet, want to avoid exterminating ourselves. The thumb is UP. ☺☺☺

Soy Alert!

SOY-LING CHEERIOS

By Kaayla T. Daniel, PhD, CCN



Cereal sales have been slumping and so have sales of soy. What to do? If you are General Mills, you come up with a “breakfast option” that promises to “deliver long-lasting energy with taste that kids can enjoy.”

That new product is Cheerios Protein.

PROTEIN IS IN!

The word “protein” in the product name is no accident. Tom Vierhile, Innovation Insights Director at Datamonitor Consumer, reports, “Interest in protein has grown faster than interest in almost any other nutrient or ingredient.” NPD Online Research Group adds that at least half of American adults are consciously trying to add more protein to their diets and are receptive to the idea of buying protein-packed products that could help them get healthy or lose weight. For Matt McQuinn, senior marketing manager for new products at General Mills, all this buzz about protein represents “a significant opportunity in cereal.”

What kind of protein? Cheap, plant-based protein, especially soy. GMO soy. According to McQuinn, soy is ideal because it’s a “complete vegetarian protein” with a “taste profile” that “works best in cereals to deliver the protein that consumers want.”

Cheerios Protein packs seven grams of protein in each 1 1/4 cup serving. The oats and honey flavor takes its protein from soy protein and lentils, the cinnamon almond flavor from soy protein isolate, soy flour and almonds. Seven grams of protein appears to be four grams more than the three grams found in a serving of regular Cheerios, and about five grams more than found in flavors such as Honey Nut, Yogurt Burst and Dark Chocolate Crunch Cheerios. I use the word “appears” because serving sizes for General Mills cereals range from 3/4 cup to 1 1/4 cups, depending on how the company hopes to fool consumers or where it wants its advertising emphasis to lie. In the case of Cheerios Protein,

it clearly wants us to think protein. Consumers impressed with seven grams might respond far less favorably to 5.6 grams per serving, the calculation based on a one-cup serving.

AND SUGAR IS IN

The obvious question is, Can a bowl of Cheerios soy-led with “crunchy granola clusters” possibly taste good? Well, General Mills thinks it has that problem handled! The answer is sugar. Cheerios Protein contains 16 or 17 grams of sugar (4 teaspoons) per 1 1/4 cup serving (or about 13 grams per one cup serving). By comparison, a one cup serving of regular Cheerios has but one gram (1/4 teaspoon) sugar. Even obviously sweet Cheerios flavors (such as Honey Nut, Chocolate or even Frosted Cheerios) contain significantly less sugar than Cheerios Protein. These other flavors come in at nine grams of sugar per 3/4 cup serving (12 grams per one cup serving). In fact, sugar would be the number one ingredient in Cheerios Protein if it didn’t appear under so many different names. Sugarcoating the bitter, beany taste of soy are sugar, brown sugar, corn syrup, molasses, caramelized syrup and something called “Refiner’s Syrup,” which is apparently a byproduct of cane sugar manufacture.

General Mills expects boxes of Cheerios Protein to “sit comfortably in the mainstream breakfast aisle” right alongside boring, old, yellow-box Cheerios. Keeping it company will be its thirteen high-sugar siblings Honey Nut Cheerios, Honey Nut Cheerios Medley Crunch, Multi-Grain Cheerios, Multi-Grain Cheerios Peanut Butter, Dark Chocolate Crunch Cheerios, Apple Cinnamon Cheerios, Frosted Cheerios, Banana Nut Cheerios, Chocolate Cheerios, Cinnamon Burst Cheerios, Dulce de Leche Cheerios, Fruity Cheerios and Yogurt Burst Cheerios.

IT'S ALL IN THE NAME


Cereal names like “multi-grain,” “honey nut” and “yogurt burst” in the lineup make it clear that

Whether Cheerios Protein will appeal to consumers and achieve “high penetration” of the 10.1 billion dollar cereal market remains to be seen.

Cheerios Protein is not the first “health washed” product rolled out by General Mills. But it’s the first Cheerios product to emphasize protein. In contrast, Yogurt Burst Cheerios—marketed as a “memorable breakfast sensation”—contains only 2 grams of protein per $\frac{3}{4}$ cup serving (about 2.7 grams per cup). It gains its healthy halo from yogurt, which the ingredient list reveals to be a “naturally yogurt flavored coating” consisting of sugar, fractionated palm kernel oil, dextrose, corn starch, dried strawberries, dried nonfat yogurt (heat-treated after culturing) (cultured nonfat milk), color added, soy lecithin, nonfat milk, natural flavor and maltodextrin. Hard to believe, but there’s less sugar in there than in the newbie that has been deceptively named Cheerios Protein.

MARKET PENETRATION?

Whether Cheerios Protein will appeal to consumers and achieve “high penetration” of the 10.1 billion dollar cereal market remains to be seen. The product was just rolled out in May, after all. Although General Mills, Kellogg and other big companies whine about plateauing profits, 91 percent of American households still eat cold cereal—though more and more stressed-out families on the run seem to be switching to the portable cereals known as “breakfast bars.”

Right now Cheerios is trying to create buzz for its new product with questions on its website and in social media like “How do you fuel your family?” They’d even like you to tell on Twitter how you get your family going with #Cheerios Protein. Let’s let them know what we think! 

COOKING KIDS CONTEST IN SLOVENIA

The Weston A. Price Foundation is proud to be a sponsor of the Cooking Kids contest in Slovenia, a partnership arranged by our own Sylvia Onusic. The contest teaches school children to prepare traditional Slovenian foods. Pictured below is the 2014 grand finale for the young cooking experts at Ljubljana Castle.

About fifteen of the best groups from different Slovenian regions took part in the finale: from Vipavska Valley periphery Karst, Dolenjska Kozjanski, Gorenjske, Styria, Ljubljana and its surroundings, Prekmurje and Prlekija, Savinjska Valley and Zasavja. They were judged by an expert committee composed of Janez Bratovž, Svetozar Raspopovi -Pope, Damijan Fink, Uros Štefelin, Nace Reich and Sarah Kokolj Prosecco .

Unlike efforts to restore traditional foods in the U.S., the Slovenian Cooking Kids contest received front-page publicity, with a press conference and speeches by project manager, Anke Peljhan, chef John Bratovž, the mentor of the project in the field of gastronomy, Marjan Hribar, director of tourism, Tanja Strniša, secretary of state and the Ministry of Agriculture and Environment, and Dr. Bartholomew Pikalo, the minister of education, science and sport . All spoke of the need for and importance of local foods for the health of growing children and the economic prosperity of the regions.



Project manager, Anke Peljhan and Sylvia Onusic watch as kids cook up traditional Slovenian fare.



Cooking Kids put the final touches on their presentations. Note the WAPF logo on their caps!

A Campaign for *Real Milk*

DOUBLE STANDARD

David Gumpert

*From thecompletepatient.com, June 1, 2014.
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In official reports, you'd never know it was pasteurized dairy making people sick. It seems that almost any outbreak of illnesses potentially involving raw milk products prompts hand-wringing by the media, the U.S. Centers for Disease Control (CDC), and U.S. Food and Drug Administration (FDA), not to mention state and local public health agencies. I have yet to see a mainstream media article about raw dairy that doesn't include warnings from federal or local public health officials about its dangers.

Yet when people get sick from pasteurized dairy products, it's a whole different ball game. We saw that in the article discussed following my previous post, about illnesses from bad milk among children at a Henrico County school in Virginia (see below). There wasn't even a mention that the milk was pasteurized. And can you imagine any media reporting on illnesses from raw milk, that the victims "exhibited 'mild gastrointestinal symptoms' that passed quickly"? Certainly if I said it, I'd be excoriated by raw milk opponents as totally insensitive and biased, especially since it was children who were sickened.

This minor example of the reporting double standard turns up repeatedly. I just examined

official government reports (one from CDC and the other from FDA) on two of the most recent pasteurized-dairy outbreaks, involving cheese, one from a Wisconsin producer and the other from a Delaware producer. Here are a few things I noticed:

- The reports never mention pasteurized milk. It's just cheese that got the people sick. At the end of one of the reports, it mentions potential problems in the production facilities that could have led to the contamination.
- The illnesses, all from *Listeria monocytogenes*, were very serious. In the case of the Wisconsin illnesses from Crave Brothers Farmstead Cheese, each of the six people sickened was hospitalized, and one of them died. In the case of the Delaware cheese illnesses, from Roos Foods, seven of the eight people made ill were hospitalized, and one died. Gee, two deaths in two pasteurized dairy outbreaks within the last year, and very little fuss. And outbreaks in which more than 90 per cent of those made ill wind up in the hospital is highly unusual.
- They downplay illnesses involving children. The description of the Roos Foods outbreak from the FDA is particularly interesting in its wordsmithing. The reality is that three



A Campaign for *Real Milk* is a project of the Weston A. Price Foundation. To obtain some of our informative *Real Milk* brochures, contact the Foundation at (202) 363-4394. Check out our website, www.RealMilk.com for additional information and sources of *Real Milk* products.

PASTEURIZED MILK SICKENS SCHOOL CHILDREN

"Milk sold to Henrico schools spoiled early" is the headline describing an outbreak of illness in a Virginia school district. The article (*Richmond Times-Dispatch*, May 30, 2014) dances around critical information. It assures readers that the students exhibited "mild gastro-intestinal symptoms," which passed quickly. How many children got sick—the article doesn't say. Anyone hospitalized? No information on that. In which school did the outbreak occur? That information is withheld.

And here's the kicker: Anyone affected by the tainted milk is instructed to phone the dairy! Not the FDA, not the CDC. Only the dairy seems to be keeping records of this one.


And why did the kids get sick? "Simply put, the milk spoiled before we expected it to," said a company spokesman. State and local health inspectors were at the plant, not to shut it down, but to "investigate the issue."

infants became very sick, but here is how the FDA describes the eight illnesses: "Five of the illnesses were related to a pregnancy; two of these were diagnosed in two mother–newborn pairs, and one in only the newborn. The three other illnesses occurred among adults. One death was reported in California." So two illnesses in newborns are air-brushed as occurring in "mother-newborn pairs." And how old was the individual who died? No word on that, so I suppose you have to use your imagination; my guess is that if it had been an adult, FDA would have said so.

One other thing: there's no mention at all that illnesses from listeria in raw milk cheese are quite rare. And there hasn't been a listeria illness from fluid raw milk in at least a decade.

And can you imagine if there had been two deaths from raw dairy products within the last year? Why, you'd never hear the end of it.

Now, Real Raw Milk Facts, the anti-raw-milk web site, to its credit, breaks out illnesses and deaths from pasteurized dairy products. The Crave Brothers and Roos Foods outbreaks have pushed pasteurized cheese illnesses since 1998 to over 600, and total pasteurized dairy deaths to ten. Not exactly the safety guarantee we have been led to expect.

All goes to show that you have to read the media and government reports on raw and pasteurized dairy much differently. I think it's called a double standard. 

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FEDERAL – RAW MILK FREEDOM BILLS

On March 26 Representative Thomas Massie (R-KY) introduced HR 4307 and HR 4308, bills that would respectively repeal and modify the federal ban on raw milk for human consumption in interstate commerce. HR 4307 would allow the shipment of raw milk and raw milk products from one state to another state regardless of whether the sale of raw milk is legal in either state. HR 4308 would allow the shipment of raw milk and raw milk products from one state which by law, regulation or policy allows them “to be distributed for direct human consumption by any means, including any form of retail sale, direct farm to consumer distribution or cowshare” to another state that allows the distribution of raw milk and raw milk products by law, regulation or policy “irrespective of whether the applicable laws of such state are identical to the laws of the state of origin.”

Ron Paul had introduced bills similar to HR 4307 and HR 4308 in prior sessions of Congress but none of the legislation he introduced had close to the number of co-sponsors that Massie’s did. HR 4307 had 12 co-sponsors while HR 4308 had 23; there were Democrat co-sponsors for each bill.

In a press release announcing the bills, Massie stated, “[The] bills would make it easier for families to buy wholesome milk directly from farmers by reversing the criminalization of dairy farmers who offer raw milk. The federal government should not punish farmers for providing customers the foods they want, and states should be free to set their own laws regulating food safety.”

Co-sponsor Chellie Pingree (D-ME) added, “Given how many food scares there have been involving large-scale producers, it just doesn’t make sense to spend money cracking down on small, local farmers who are producing natural raw milk and cheese. The enforcement of raw milk regulations has been overzealous and needs to be reined in.”

The mainstream media was alarmed by the amount of support the bills received. Shortly after the introduction of HR 4307 and HR 4308, Bloomberg News, Reuters and *The Washington Post* all ran hit pieces on raw milk; their fear-mongering ignored the fact that since 2007 five deaths have been attributed to the consumption of pasteurized cheese and three to the consumption of pasteurized milk while none during that time have been attributed to either raw milk or raw cheese.

HR 4307 and 4308 have been assigned to the House Committee on Energy and Commerce; it is not likely the bill will have a hearing this session of Congress but their introduction has generated momentum that should carry over to their reintroduction next year. There could be companion bills introduced in the U.S. Senate sometime this summer.

ILLINOIS – ATTEMPTED RAW MILK BAN

One of the more underhanded attempts to ban raw milk took place in the last session of the Illinois Legislature. In January, Rep. Daniel J. Burke introduced House Bill 4036 (HB 4036), a bogus bill to amend the “Restroom Access Act” by replacing the word “the” with the same word “the” in one line of the current statute: “This Act may be cited as the Restroom Access Act.” On March 14, Burke filed Amendment #1 to change the language of HB 4036 to ban the sale of raw milk in Illinois.

The current Illinois dairy statute states, “After the effective date of this Act, no person shall sell or distribute, offer to sell or distribute any milk or milk product for human use or consumption unless such milk or milk product has been pasteurized and has been produced and processed in accordance with rules and regulations promulgated by the Department.”

The term “sell or distribute for use or consumption” means “to sell or distribute to a person for human use or consumption and not for processing or resale in any form. The pasteurization requirement of this Section shall not be applicable to milk produced in accordance with Department rules and regulations if sold or distributed on the premises of the dairy farm.”

Burke’s amendment eliminated this last sentence, turning dozens of Illinois raw milk producers into outlaws. Amendment #1 went unnoticed by raw milk supporters until the day before a March 26 hearing on HB 4036 for the House Human Services Committee. When Wes King, executive director of the Illinois Stewardship Alliance, sent out the alert on the bill, hundreds of raw milk consumers submitted “witness slips” in opposition and sent emails to committee members but the bill still passed out of committee.

The opposition to HB 4036 was so great, however, that the House leadership sent the bill back to the Human Services Committee for further amending. HB4036 eventually died in committee. Burke completely changed his position, stating, "I am convinced of the virtue of the thousands of communications I've received, that natural dairy should continue to be made available to our society. If people believe this product is beneficial, I am not going to interfere with that."

According to Burke, an official from the Cooke County Health Department asked him to introduce the bill. The effort was backed by an organization called the Northern Illinois Public Health Consortium (NIPHC) which consists of local health departments including Cooke County. The NIPHC distributed a "fact" sheet on raw milk that reportedly convinced a majority of the House Health Services Committee to vote for HB 4036.

Since 2012 the Illinois Department of Public Health (IDPH) has been drafting burdensome regulations to govern the production and sale of raw milk. IDPH has been claiming that it didn't want to ban the sale of raw milk, just regulate it to protect the public health. Whether IDPH was working with NIPHC to push the bill, at a minimum IDPH knew about HB 4036 and did nothing to stop it. The HB 4036 debacle has further eroded what little trust raw milk supporters had in the department.

MAINE – DAN BROWN CASE BEFORE SUPREME COURT

On May 13 Blue Hill Dairy farmer Dan Brown had his case heard before the Maine Supreme Court. Farm-to-Consumer Legal Defense Fund General Counsel Gary Cox argued Brown's case before the court.

Brown was appealing a lower court ruling finding him guilty of selling raw milk without a license, selling raw milk without labeling it as such, and operating a retail food establishment without a license. Brown and his wife Judy sold raw dairy products and other foods at the couple's farm stand. In 2011 the town of Blue Hill passed a food sovereignty ordinance allowing the direct sale of food from farmer to consumer without licensing or inspection requirements. Later that year, the Maine Department of Agriculture, Conservation and Forestry (DACF) filed suit against Brown in a challenge to the food sovereignty ordinance seeking an injunction against the farmer as well as fines for violations of the state food and dairy code. In April of last year, Hancock Superior Court Judge Ann Murray fined Brown \$1,000 and enjoined him from further violations of the laws she found him guilty of violating.

During the hearing, the Supreme Court justices did not spend any time on the issue of whether a local food ordinance controlled over conflicting state laws but rather focused on a change in the state policy on raw milk sales. Until 2009, the state allowed the unlicensed sale of raw milk on the farm as long as the farmer did not advertise. That year, DACF required those selling on the farm to get a Milk Distributor Permit even though the laws on the books had not changed. Before 2009, the term "milk distributor" had never been applied to a raw milk producer selling on the farm.

During the hearing, Cox argued that the state was estopped [prohibited] from changing the law when there hadn't been any change in Maine statutes and regulations because Brown had relied on the state policy in effect when he had started up his operation in 2006. The attorney claimed that it would have cost the farmer up to \$62,000 to be in compliance with the licensing requirements and that Brown should not have to spend that money since he only started up a dairy due to the state allowing unlicensed on-farm sales of raw milk. Both Brown and his wife had quit their jobs to start up the dairy farm.

Maine Assistant Attorney General Mark Randlett spent most of his time arguing before the Supreme Court that Brown needed to get licensed to protect the public health and that the public health interest controls over any detriment Brown might have suffered in relying on a policy the state had for 30 years. Justice Joseph Jabar responded to Randlett's argument by asking, "So the government never has to stand good by its stated policy, as long as it has a legitimate interest?"

Brown no longer has the dairy and has shut down his farm stand. He deserves credit for seeing the case through to the end; it's an important one for the right to buy direct from unlicensed, unregulated producers without government interference. The Supreme Court could be issuing a ruling on the case sometime this summer.

For the latest developments on raw milk issues, go to www.thecompletepatient.com. If you have not joined the Farm-to-Consumer Legal Defense Fund we encourage you to do so. Membership applications are available online at farmto-consumer.org or by calling (703) 208-FARM (3276); or by mail: 8116 Arlington Blvd, Suite 263, Falls Church, VA 22042.

Healthy Baby Gallery



Charlie Anne at five months enjoying her egg yolk with grated raw liver. Charlie's mom has followed WAPF guidelines for years and is grateful for another delightfully good-natured, happy, healthy baby.



The parents of Glenn Maximillian Barritt are constantly complimented on his bright eyes and strong body. They credit his robust good health to the good food his mama ate and passed on to him *in utero* and now via breastfeeding. Thank you to the WAPF community for the knowledge and support thus far.



This is Grace Maren Zundel—the surprise caboose baby that benefitted from the sound Weston Price principles her mamma discovered after she delivered her other children and struggled so. Grace's mom enjoyed less morning sickness, as well as good health and spirits as she ate a nourishing pregnancy diet of eggs and raw dairy (lots of dairy!), as well as fresh fruits and veggies from their family's backyard homestead. Grace came out strong for mamma's first home-and-water birth at twelve pounds six ounces, with a wide palate, strong bones and muscles as well as a sweet, sweet disposition. Even with such a big baby, mamma didn't tear a bit—can anyone say bone broth?! Many people ask whether mamma had gestational diabetes with a baby that large but mamma smiles and says, "Here, read this book; it's called *Nourishing Traditions*. Let me know if you have questions." Grace may have been a surprise addition to the Zundel family but they couldn't imagine life without her—thank God for sweet surprises!

Pictured on his first birthday, Sylvan Orion who was born at home in April 2013. He has a beautiful smile, strong teeth, bright, intelligent eyes and a sweet nature. His parents both ate a WAPF diet for several years preceding conception and through pregnancy and breastfeeding. They are so thankful for the health and vigor of their beautiful boy. People always comment on how good natured and engaged he is—curious, lively, and so much fun. His favorite foods today are homemade sauerkraut, eggs from our own flock of pastured chickens, raw cheese, any kind of meats and veggies, raw milk, and breastmilk. He has taken fermented cod liver oil and butter oil daily since four months of age and has never had a cold.



Please send photos of healthy babies to Liz Pitfield at liz@westonaprice.org. Photos must be labeled with the baby's first and last name and accompanied by an email with text.

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WAPF MOMS GROUP

The San Diego/Encinitas Chapter, under the leadership of board member Kim Schuette, has organized a group of WAPF moms. In less than three months, the group has one hundred seventy-five members. The get-togethers give moms a place to connect and get questions answered. This is a great activity for local chapters as young mothers are needing camaraderie, information and a safe place to learn.

Pictured here (left to right) are Evan Duft, Stephanie Pena, Kim Schuette, Cassandra Mayer (group coordinator), Marci Tarvin and Lauren Meeh, plus a bevy of beautiful children!



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CHAPTER RESOURCES

Resources for chapter leaders can be accessed at <http://www.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 Pennsylvania, for administering the local chapter chat group. New chapter leaders can sign up at <http://groups.yahoo.com/group/wapfchapterleaders/>

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Lafayette, Georgia Chapter Leader Sherry Miller, Stephen Ortego (the representative from Carencro who sponsored the raw milk bill) and Daphne Olivier, a registered dietician and WAPF member.

RAW MILK ACTIVISM IN LOUISIANA



Son and daughter of Louisiana goat farmer, Sierra Majors.



WAPF-inspired activists who showed up for the Agriculture Committee meeting in Baton Rouge. The committee passed the raw milk bill by a vote of nine to six.

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of that number 464 serve every state in the United States
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WAPF EXHIBITS AT THE PENNSYLVANIA ASSOCIATION FOR SUSTAINABLE AGRICULTURE CONFERENCE

Chapter leaders Maureen Diaz and Amelia Martin staffed an exhibit booth at PASA's Farming for the Future Conference. Amelia is shown answering questions of a conference attendee. In spite of bad weather keeping attendance down, many turned out for the conference and showed great interest in our booth. We gained new members, and made many converts!



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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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 Land of the Lakes: Tim & Maighread Axe (780) 853-6046, tandmaxe@mcsnet.ca
 Peace Country: Mary Lundgard (780) 338-2934, plundgard@telus.net or Levke Eggers (780) 568-3805, levke@telusplanet.net
 Red Deer: Jem Mathieson (403) 347-3047, jemlivewell@yahoo.com
- BC** Burnaby-New West: Marianne Lightfoot (604) 420-6185, maryan24@telus.net
 Interior of British Columbia: Jasmine Schellenberg (250) 394-4010, jasmin@pasture-to-plate.com
 Kamloops: Caroline Cooper (250) 374-4646, info@eatkamloops.org, www.eatkamloops.org
 Nanaimo: Kelsey Botting (250) 585-6835, kelseybotting@hotmail.com
 Nelson: Lorraine Carlstrom (250) 919-8496, (509) 563-4463, lorrainer61@gmail.com, www.freshhealthycooking.com
 Powell River: Dirk & Ingrid De Villiers (604) 489-0046, dirkdevilliers@shaw.ca
 Vancouver Island: Linda Morken (250) 642-3624, wapfwestshore@shaw.ca, www.facebook.com/wapfvancouverislandchapter, <http://chapters.westonaprice.org/westshorebc/>
 Vancouver, North: Barbara Schellenberg (604) 988-6280, info@ethickitchen.ca, <http://www.meetup.com/Vancouver-Whole-Foods-Meetup-Group/>
 Victoria: Jim & Maia Pine (250) 588-9533, wapfvictoriabc@gmail.com
- MB** Winnipeg: Adrienne Percy (204) 478-8154, adrienne@nourishedroots.ca & Sherry Rothwell (204) 417-8073, sherry@domesticdiva.ca, traditionalwisdommodernkitchen.com
- NS** Annapolis Valley: Shirley Scharfe (902) 847-1736, glscharfe@eastlink.ca
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 Halifax: Krista Butler (902) 440-4844, Krista_butler@hotmail.com & Heidi Ship headship@hotmail.com
- ON** Petoskey/Mancelona: Rajiv Kumar (231) 360-1435, service@indiahealthtoday.com
 Brantford & Brant Counties: Valerie Clement (519) 717-0249, brantwapf@hotmail.com
 Burlington and Oakville: Angela Kang (905) 582-3693, angelakang7@gmail.com
 Grey-Bruce: Elisa Vander Hout (519) 369-3578, csf@bmts.com
 Hamilton: Ken & Claire Dam (905) 580-1319, kenandclaire@gmail.com
 Kingston: Sue Clinton & Bob Clinton, DDS (613) 376-6652, sue@doctorbob.ca, wapfkingston.org
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 Minto/North Wellington: Margo McIntosh (519) 338-2683, info@rawmilkconsumer.ca
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 Tillsonburg: Crystal and Stephane Laverdiere, DC (519) 688-4175, laverdieres@rogers.com
 Toronto (Downtown): Patricia Meyer Watt (416) 653-7112, TorontoWAPF@gmail.com
 Toronto Area-West: Corey Evans, (905) 608-9314, info@healthisfreedom.net, www.healthisfreedom.net
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National forum: www.westonprice.nl

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Tauranga: Jane Powell 64 7542 2257, blissfulbubbles@xtra.co.nz

Wellington: Ian Gregson 64 04 934 6366 wapf@frot.co.nz & Deb Gully (04) 934 6366, deb@frot.co.nz, www.wapfwellington.org.nz

NZ Resource List: Ian Gregson and Deb Gully, www.frot.co.nz/wapf/resources.htm

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Herefordshire: Sally Dean 01432 840353, sally@aspenhouse.net
Hertfordshire: Philip Ridley 01442 384451, philridley@hushmail.com, <http://chapters.westonaprice.org/londonuk/>
Kent: Keli Herriott-Sadler 01732 354 527, keli@herriott-sadler.co.uk
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www.westonaprice.org/london, www.meetup.com/westonaprice-london
East London: Deborah Syrett 020 8518 8356, medical.herbalist@ntlworld.com
Sussex: Gavin Bluhén 07765 528 528, gavin.bluhén@natureprovides.com, Rachel Kelly 7738 222 425, Rachel.kelly@me.com
UK resource list: www.naturalfoodfinder.co.uk

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Edinburgh: Frances Bavin 07505 053333, frances.bavin@gmail.com, <http://www.meetup.com/westonaprice-edinburgh>

WALES

North Wales: Ben Pratt 07952 555811, info@naturalfoodfinder.co.uk, www.naturalfoodfinder.co.uk

The Shop Heard 'Round the World

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CO

100% grass-fed, grass-finished beef. On pasture year-round. Production practices detailed on our website. Raised on the family ranch in Wyoming. Farmers markets and some delivery in northern Colorado. (307) 534-2289, www.meadowmaidafoods.com.

DC

CSA: Hi-Brix, nutritionally dense, biodynamically grown kitchen vegetables, grass-finished beef, pastured pork, broilers & eggs. Openings for 2014 season in DC Metro area. Contact Allan Balliett, info@freshandlocalcsa.com (304) 876-3382, www.freshandlocalcsa.com.

FL

100% grass-fed dairy and beef. Soy-free woodland pork. Soy-free pastured broilers and eggs, fermented foods, info@marandofarms.com.

IA

Yoder's Natural Farm (Iowa): We have available grass fed beef, pasture raised pork, pasture raised chickens, eggs, and duck. Also, raw goat and cow dairy (for private membership only) and butter available. (641) 664-2060.

IL

Milk from 100% grass-fed Jersey cows, also a variety of raw milk cheeses, grass-fed beef, pasture raised broilers, no-soy eggs, no-soy pork, honey and a variety of fruits & vegetables seasonally. Roodhouse, IL. Steve & Cindy Mansfield (217) 589-4554.

Nadig Family Farm, DeKalb/Cortland, IL. We sell raw milk from pastured Guernsey Cows, grass-fed beef, grass-fed lamb, pastured chicken, pastured turkey, and pastured chicken eggs. Also, organically fed pork and rabbit. We have wool, angora, and yarn from our farm. Visit our web site at www.nadigfamilyfarm.com or call John or Charlotte at (815) 748-3782.

KS

Farm Shares! Old Order Anabaptist family seeking up to 15 families/individuals. We tend the open-pollinated garden and fodder and whey-fed heritage-breed livestock. You receive a "share" of fresh eggs, heirloom vegetables and raw cultured dairy products weekly. Our goal is to provide affordable nutrient-dense foods as well as a traditional agricultural experience through our monthly "Farm Days" and Work Bees". \$1 per pound live-weight whey and fodder-fed hogs in season. Please contact Old paths Heritage Farm at (785) 388-2107.

MA

Many Hands Organic Farm in Barre, MA. Produces certified organic lard from pasture raised pigs fed Nature's Best Organic Feeds, whey and pasture. \$20/quart in yogurt containers. **We ship** in the U.S. Order at <http://mhof.net/meat/index.php>. (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 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 Thurs-Sat 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

Grass-fed Angus beef (no grain), free range eggs, pastured chicken & turkey. Liver, chicken feet, organ meats & bones, food grade heritage grinding corn. Pick up Potomac or Buckeystown. Our cattle & poultry are always on organic pasture & receive all organic feed, no hormones, antibiotics, or animal parts. We grow our own hay & grains & grind our own poultry feed. Quality organic products since 1979. (301) 983-2167, nicksorganicfarm@comcast.net, www.nicksorganicfarm.com

MN

Farm On Wheels offers animals raised Green Grass-fed & Certified Organic. Nutrient dense beef, lamb, chicken, eggs, turkey, goose, duck, pork, lard, butter. No corn or soy. Farmers Market year around in St. Paul, Prior Lake, Northfield, Just Food. Linda (507) 789-6679, www.cannon.net/~farmonwh

OH

Sugartree Ridge Grassfed. Openings in a 100% grassfed herdshare with 9 delivery sites in the Cincinnati area. No-grain, no-silage. Eleven cows (cross between Jerseys, Guernseys, Brown Swiss and British White) grazed year-round on sixty acres rotating through thirty paddocks (which are allowed to grow for sixty days between grazings and are spread with organic, Albrecht-based mineral supplements). Nutrient-dense milk, family-friendly farming and holistic stewardship. 6851 Fair Ridge Road, Hillsboro, OH 45133 or Cincinnati area: Bill & Marylou Wilson (513) 583-9393.

Three Moon Farm, Williamsport OH. We raise grass-fed beef, pasture raised chicken, turkey & eggs. We also offer raw honey from our hives. For more information please check us out at www.threemoonfarm.com or call Kelly at (740) 253-9029.

OR

Dairy Goats within city limits of Corvallis, Oregon: Nubian and Oberhasli dairy goats. Occasional animals and animal products available. Contact herd owner by e-mail for more information. Raspberry@iinet.com.

PA

Three-year aged cheddar from 100% grass-fed Jersey cows. Limited supply. One-year aged cheddar from grass-fed Jersey cows fed some grain. \$7.00 per pound. **Free shipping** over 20 pounds. (717) 768-3652 .

Bareville Creamery 100% grass-fed. We offer raw traditionally cultured butter from our grass-fed cows. **We will ship** to you or visit our farm to pick up. Daniel & Katie Zook, Leola, PA (717) 656-4422.

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Freedom Acres Farm located in Honey brook, PA. Raw milk and dairy products from 100% grassfed Jersey cows, pastured, GMO free chicken, turkey, eggs, and pork. 100% grass-fed beef Samuel and Esther Fisher, (610) 273-2076, sam.freedomacres@gmail.com

Fresh grass-fed raw milk, cream, butter, yogurt & cheese - veal, soy-free poultry, free range eggs, grass-fed beef and lamb. Frozen meats also available. We **will ship**. You are welcome to stop in or give us a call. Mark & MaryAnn Nolt (717) 776-3417.

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, www.CreswickFarms.com.

Grass-fed lamb, pastured Tamworth pork & piglets, pastured chicken, honey, Sheep Camp, farm tours, Adopt-A-Sheep & more. Visit Owens Farm Sunbury, PA, www.owensfarm.com (570) 286-5309, info@owensfarm.com.

Grass-fed organic raw milk and dairy food: 100% grass-finished beef and lamb, pastured pork, chicken and turkey, wild Alaskan salmon, fermented vegetables, raw honey, maple syrup and more. Long Island drop. Paradise Pastures, Paradise, PA (717) 687-8576.

Naturally raised grass-fed beef available. Whole beef, half or quarter beef, available in Oct. or Nov. Also ground beef & limited cuts available anytime. No chemicals or hormones are used on our beef. (717) 789-4602 ext. 2 leave message please.

Raw milk cheeses from organically managed, 100% grass-fed Jersey cows. Retail & wholesale. Prices start at \$5.00/pound, **mail order** cheese. Raw milk & pastured eggs available. Eastern PA, 15 minutes N of I78, Hilltop Meadows Farm, 153 Martins Rd. Pine Grove, PA 17963 (570) 345-3305.

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

Cow/Herd shares available, with Member in Local Kine (M.I.L.K.) Project in Fauquier County at Western View Farm, 2028 Laws Ford Rd., Catlett, VA 20119. For information call Martha Bender (540) 788-9663.

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.

WY

100% grass-fed, grass-finished beef. On pasture year-round. Production practices detailed on our website. Raised on the family ranch in Goshen County, Wyoming. Farmers markets and delivery to local region. (307) 534-2289, www.meadowmaidafoods.com. Cindy Ridenour.

CRAFTS

100% sheeps wool throws, made with wool from organically managed sheep, natural colours, no dyes or chemical cleaners used. 48" by 72" throws. We also have raw wool. Call for more info. **Will ship**. Daniel Stoltzfus (717) 768-3437 ext 1.

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 Megan Pisciotta Greene; 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.

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 **Free shipping!**

The greatest fine art of the future
will be the making
of a comfortable living
from a small piece of land.
Abraham Lincoln

Share your passion for food with friends and family! The Diet for Human Beings affirms our human requirement for fats, with less emphasis on starchy carbs. "An Hour To Watch - 30 Days To Try - Your Life Will Never Be The Same" www.ondietandhealth.com.

EMPLOYMENT OPPORTUNITIES

Organic Deli & Bistro in northern Minnesota is looking for a dedicated, creative, WAPF-inspired cook/chef. Gluten-free cooking skills are also required. Employment or leasing option. Please e-mail resume to: evergreencottage@frontiernet.net or call (218) 365-2288 for more information.

Rewco, Inc. is seeking people with a passion for health and wellness also possessing a strong work ethic. We have two full time positions providing educational and support services to supermarkets located in Maryland and New Jersey. Ideal candidate location is Princeton, NJ or Columbia, MD. Responsibilities include a leadership role at new store setups and providing product training. Requirements include knowledge of natural and organic food, presentation skills, reliable vehicle, self-motivation and ability to travel overnight occasionally. Annual salary of \$30,000, full benefits package and reimbursement for business mileage. Interested qualified candidates can send resume and cover letter to Carol.Poliner@rewco.com.

SALES REP WANTED for award-winning VitaClay® products (www.vitaclaychef.com). Are you a passionate cook and familiar with nourishing traditions? Share VitaClay's ancient cooking secret --unglazed clay and earn up to \$2K to \$20K monthly. Please e-mail resume to michelle_liu@essenergy.com, or text to (408) 621-6187.

Seeking Farmer & Property Manager in La Plata, MD: Newly built two-story tenant house with 2 bedrooms, 1.5 baths on site and available for occupation. Approximately 50+ acres of farmland available for agricultural use (holistic farm projects welcomed). Property management would include basic maintenance of farm owner's non-agricultural land (approximately 12 acres). Call (504) 451-5625 for details.

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Semi-retired couple seeks caretaking positions and/or to relocate to a farming community. She writes and teaches about women's health; would love to teach reading and writing to teens who farm part of the day. She is also an excellent cook. He prunes trees, repairs drip irrigation. Need distance from cell towers and WiFi. Ideas? Please phone (505) 820-0773.

A small group of WAPF members is launching a real-food restaurant chain, with the first location in Dallas, TX. To be added to our mailing list, please email Katharine Spehar at kspehar@barefooteatery.com

HEALTHY PRODUCTS

LACTO-FERMENTED VEGETABLES, cultured, 100% organic, by Immunitrition. Three delicious, raw blends – Garden, Sea & Sunshine. **Will ship** throughout USA via UPS. Available in 32 oz. jars or try our Cultured Veggie Taste Tester with bonus pumpkin oil & sea salt. (877) 773-9229, www.culturednutrition.com.

Do you love organic products? NYR Organic, of U.K.-based Neal's Yard Remedies, offers award-winning, luxurious organic skin care, beauty and well-being products and a profitable home-based business opportunity. To learn more, email diana.gwen.gibson@gmail.com or visit <http://us.nyrorganic.com/shop/DianaGibson>.

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VitaClay Chef Smart Organic Multi-cooker. No lead, no aluminum, no chemicals. Makes perfect germinated rice, quinoa, savory stews, soups and nutritious bone broths or steamed fish or veggies. Plus Bonus low temperature yogurt maker! www.VitaClayChef.com Visit us online or call (888) 808-2015.

HOMES & LAND

200 acre KY farm. near Owenton, 4BR, 31/2BA house built 1996. Pond, pier, dock, spring-fed creek, stock pond, pasture, woods, roads. Excellent hunting: deer, turkey, rabbit, squirrel. \$599K. Call Mike (859) 743-6551.

32+ acres diversified farm. Sustainable 20+ cow, Herd Share Dairy business. Beautiful home and cabin on property. Beginning of a fodder system. Small orchard & garden spot. Lovely view of cascade mountains, Grizzle mt., Ochoco range, & Powell Butte. Oregon, (541) 306-1495, windyacres26@gmail.com, www.windyacresdairy.com.

Beautiful ten-acre Clarkston, Michigan 2,983 sq. ft. farm, 4 BR, 4 bath, great room with built in 300 gallon fish tank, LR, DR, full basement with small apartment and recreation area. Large glass greenhouse attached to Master BR. RO water in kitchen. Large 2 story barn, chicken coup. Land fenced off for pasture, fruit trees and small garden. Many upgrades to house. Call Roland (248) 872-8910, randg-cantu@aol.com.

Central Oregon, profitable 32+ acres irrigated farm with expanding whole milk, butter, cheese, cream, yogurt, kefir, sour cream and growing market. Six cow pipeline parlor, 20 plus sustainable cow herd, swine, sheep and poultry. Have a garden, small orchard and green houses. Three bedroom 2.5 baths home plus small cabin, all with amazing views. windyacres26@gmail.com, www.windyacresdairy.com.

Lease RV/Camper space short or long-term. Very wooded, private fenced and gated. Some farm work available. Located in Southwest Pa. Call noon to 8, (724) 447-2726 Off season storage as well as deer hunting available.

Room/house share rent with possible exchange for 4-6 weeks child care. Large yard with space for gardening. Simple quiet lifestyle. 629 Weller Rd, Elyria OH, 44035 (440) 935-1391 Arthur Cady.

Virginia River Front - Brand new A frame chalet with 2 1/2 acres on the Shenandoah River. \$419,000. Farms also available. Call Keith Hartke 703-932-6501. Member WAPF and Realtor w/ National Realty.

INTENTIONAL COMMUNITY

Are you interested in retiring in a healthy environment that follows the dietary principles of Weston Price? We are starting a long term inter-generational care facility on a ranch and are seeking 3-4 more seniors. www.arcadiaranchcommunity.com email arcadiaranch@gmail.com or call (250) 672-1913.

Do you observe kashrut as well as follow a WAP lifestyle? Seeking others with whom to share the discoveries and challenges in the intersection of these choices. Anita Schubert Manchester, CT (860) 432-3131 anitaschubert@cox.net.

Eco Farm: Small, farm-based community located near Tampa FL with a mission of sustainable living. WAPF friendly looking for others for direction and help, especially with our small pasture based dairy operation. This year we have reached 400 PPM CO2 in our atmosphere, which makes our chance to prevent climate break-down close to zero (New York Times 5/11). Small, local, farm-based communities may be our only hope; it's ours at www.eco-farmfl.org, (813) 754-7374.

INTERN/APPRENTICESHIPS

Vermont Farm seeks helpers for 2014. We integrate American Milking Devon cattle, pigs and chickens with growing and fermenting six tons of vegetables. Our grain-free cows support raw milk sales plus butter and cheese making. We focus on selling nutrient-dense foods while eating well ourselves! Learning opportunities include milking, biodynamics, natural livestock care. Positions available April to November, short and long-term. Cabins, food, laundry, Internet access and lots of education. Call Doug Flack, (802) 933-7752, Flack Family Farm, www.flackfamilyfarm.com.

INVESTORS NEEDED

Should your health insurance cover holistic methods? Integrity: www.myholisticapproach.com is building a bridge between your health insurance and the holistic methods you use. we need your help to make this happen. It's your money, your healthy, your choice! #myholistic #holistic

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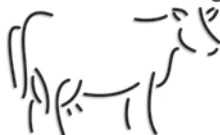
WAPF RESEARCH

STUDY ON HEALTHY BABIES: Johanna M. Keefe, MS, MA, AHN-BC, RN, GAPS, certified as an Advanced Holistic Nurse, is seeking volunteers for a PhD research project in Transformative Studies through CIIS (California Institute for Integral Studies). If you have had a healthy baby using the WAPF dietary guidelines, she would like to hear from you. She would like to interview you by Skype or Facetime, or in person if you are located in New England, Northern California or North Carolina—or at the annual conference in November. Contact: johanna@enhancedwellnessbythesea.com, (978) 290-0266.

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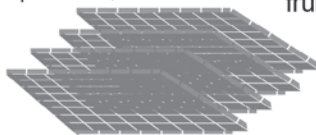
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This manual by Anore Paniyauraq Jones is the second in a series of three detailing the traditional foods of the Inupiat. The first book in this series about Inupiat foods was *Nauriat Niginaqtuat*, *Plants That We Eat*, an ethno-botanical manual, long out of print but due to be re-printed in the fall of 2009 by University of Alaska Press. It is 150 pages with black and white photos and sketches.

The second manual, *Iqaluich Niginaqtuat*, *Fish That We Eat*, provides information regarding the traditional use of fish, their processing, recipes and eating enjoyment. It was compiled from the local traditional fish knowledge of northwest Alaska and was partially funded and placed on the web by the U.S. Fish and Wildlife Service.

The third manual in this series will similarly detail the traditional Inupiat processing techniques and recipes for sea mammals.

Presently there is no funding to support this work. Any suggestions would be welcome. The web link to *Iqaluich Niginaqtuat*, *Fish That We Eat*, is below. The report is located under the U.S.F.W. Northwest AK section. From here you can read it and/or download and print it. It should be printed double-sided due to the length (341 pages), including 100+ color photos, sketches.

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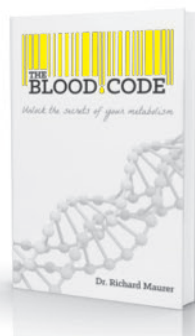
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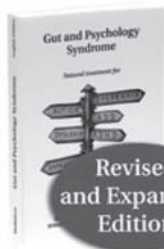
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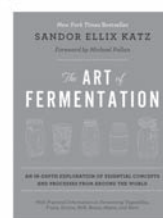
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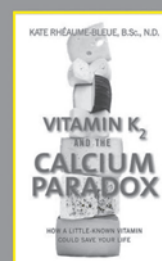
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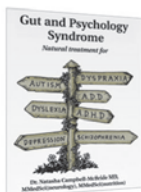
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