**Glyphosate and Gut Health**

Glyphosate (Round Up) is the most widely used herbicide in agriculture in the United States. It functions as an antibiotic and a dessicant, which dries out crops, and can travel through the air, water supply, and soil.

In fact, glyphosate can survive in the soil for decades before it even begins to degrade. Once it is sprayed onto fruits and vegetables, it enters the cell structure and can no longer be washed off of the produce. For this reason, organic foods often contain just as much glyphosate as their non-organic counterparts.

Glyphosate can trigger various forms of disease and dysfunction in humans by interfering with the bacteria that live inside the gut ([1](http://mbio.asm.org/content/6/2/e00009-15), [2](http://mic.microbiologyresearch.org/content/journal/micro/10.1099/mic.0.000573)). It’s much like taking a low dose of antibiotics on a daily basis.

Normal, commensal gut bacteria like *Enterococcus, Bifidobacteria and Lactobacillus* are especially susceptible to glyphosate, whereas pathogenic bacteria, like Salmonella, Klebsiella, and Clostridia are highly resistant to glyphosate ([3](https://www.ncbi.nlm.nih.gov/pubmed/23224412)). As a result, frequent exposure to glyphosate can shift the microbiome to favor the overgrowth of pathogenic bacteria, leading to gut dysbiosis.

Dysbiosis, an environment in which the harmful bacteria outnumber the beneficial bacteria, increases inflammation in the gut. Once the gut lining is inflamed, it can become damaged, or leaky, allowing unwanted food particles and toxins directly into the bloodstream, where they can trigger an immune response.

**Gut Health Solutions**

If you suspect that you have dysbiosis, there are some steps that you can take to recondition your gut to fight inflammation and increase microbial diversity.

1. Bacillus Spores

One simple way to recondition the gut is to take a probiotic that contains multiple strains of spore-forming Bacillus, like Just Thrive probiotic. The spores found in Just Thrive can crowd out unwanted pathogens via competitive exclusion and increase the production of short-chain fatty acids, which can reduce intestinal inflammation and promote the growth of your friendly microflora.

 2. Prebiotic Fibers

Functional fibers like xylo-oligosaccharides (XOS), galacto-oligosaccharides (GOS), fructo-oligosaccharides (FOS), and inulin can encourage the growth of beneficial bacteria without feeding the harmful bacteria in the gut. These prebiotic fibers can be found in small amounts in foods, but you would have to consume an exorbitant amount of these foods to get an effective dose of these fibers. For this reason, it’s important to supplement your diet with some of these prebiotic powders.

 3. Micronutrients

Vitamin C, vitamin A, vitamin D, magnesium, zinc, and polyphenols seem to help the intestinal cells regenerate after damage from herbicides like glyphosate. Consuming foods rich in these micronutrients can help the body heal and strengthen the intestinal lining.

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| **Gut-Healing Nutrients** | **Food Sources** | **Suggested Supplement Dose for Adults** |
| XOS | Bamboo shoots, fruit, corn, cow’s milk, rice bran, honey | 800-1200mg/day |
| GOS | Whole cow’s milk, lentils, chickpeas, green peas, lima beans, kidney beans | 1-2 g/day |
| FOS | bananas, onions, chicory root, garlic, asparagus, jícama, and leeks | 1-2 g/day |
| Vitamin A | carrots, sweet potatoes, kale, spinach, berries, apricots, papaya, cantaloupe, mangoes, eggs, butter, raw milk and cheeses, cod liver oil and organ meats like liver | 700-900 mcg/day |
| Vitamin C | Guavas, black currants, kiwis, bell peppers, oranges, strawberries, papayas, broccoli, kale, parsley, pineapples, grapefruits, mangoes | 60 mg/day |
| Vitamin D | Tuna, mackerel, salmon, beef liver, cheese, egg yolks | 2000 IU/day for 3 months |
| Magnesium | Spinach, swiss chard, dark chocolate, dried pumpkin seeds, almonds, black beans, avocado, dried figs, bananas | 350 mg/day |
| Zinc | Oysters, beef, lamb, spinach, pumpkin seeds, squash seeds, nuts, dark chocolate, pork, chicken, beans, and mushrooms | 40 mg/day |
| Polyphenols | Red wine, coffee, green and black teas, olive oil, beets, cloves, dark chocolate, berries, black currants, hazelnuts, pecans, artichokes | 500 mg/day  |