

3 "Dirty" Ways to Recharge Your Gut Health December 23, 2013 |

By Dr. Mercola

Could healthy soils hold the key to your good health? According to many experts in soil biology and biological farming, the answer is a resounding Yes.

Daphne Miller, M.D., author of *Farmacology: What Innovative Family Farming Can Teach Us About Health and Healing*, recently penned an insightful article for *YES Magazine*¹ on the importance of soil quality.

"I spend my days in a sterile 8x10 room practicing family medicine and yet my mind is in the soil. This is because I'm discovering just how much this rich, dark substance influences the day-to-day health of my patients.

I'm even beginning to wonder whether Hippocrates was wrong, or at least somewhat misguided, when he proclaimed, 'Let food be thy medicine.' Don't get me wrong—food is important to our health. But it might be the soil where our food is grown, rather than the food itself, that offers us the real medicine," she writes.

Key to Improved Nutrition

Dr. Miller cites research in her article that all point in the same direction—healthy "living" soils make for food with better nutrient content. And by "living," I mean soils that are teeming with microorganisms such as bacteria, fungi, protozoa, and microscopic roundworms called nematodes.

Far from being scourges to be avoided at all cost, microorganisms are an essential component of life. We now understand that it is the *cooperation* between these microorganisms, the soil's biome,

Story at-a-glance

The root ball of a plant acts as the "gut" or intestinal tract of the plant, housing essential microbes, just like your gut does, provided the soil system is healthy

The cooperation between soil microorganisms and the plants' roots is responsible for allowing the plant to absorb nutrients from the soil. Without proper soil biome, the food will lack nutrients that are important for your health

Soil health connects to everything up the food chain, from plant and insect health, all the way up to animal and human health

Health, therefore, truly begins in the soils in which our food is grown

Scientists have discovered that gene swapping takes place between your gut microbiome and the soil biome, as well as with microorganisms from other places in your daily surroundings

One of the reasons for concern about genetically engineered crops is a main characteristic of such plants is resistance to the potent herbicide glyphosate, which decimates soil bacteria

and the plants' roots, called rhizosphere that is ultimately responsible for allowing the plant to absorb nutrients from the soil in which it's grown.

Insects and weeds also have their place in this circle of life. According to soil scientist Dr. Arden Andersen, insects are nature's garbage collectors. Thanks to their specialized digestive systems, which differ from ours, they remove that which is not fit for us to eat—things we cannot digest.

And weeds are nature's way of evolving the soil—it's an intermediate plant that mobilizes nutrients in order to alter the soil, making it more suitable for the next evolutionary level of plants to grow in it.

Once you understand this natural cycle, it allows you to address food quality, weeds, insects, and plant disease at its point of origination, without ever resorting to chemical herbicides, pesticides, fungicides, synthetic fertilizers, or genetic engineering.

As explained by Agri-Dynamics founder [Jerry Brunetti](#) in a recent [interview](#), the root ball (rhizosphere) of the plant is the "gut" or intestinal tract of the plant. It houses microbes just like the human gut does, provided the soil system is healthy.

Soil health then connects to everything up the food chain, from plant and insect health, all the way up to animal and human health. *Health*, therefore, truly begins in the soils in which our food is grown.

Plant 'Gut' Health Is as Critical as Human Gut Health

Old-timers like Weston Price, William Albrecht, Louis Bromfield, and Friend Sykes all found that there's a strong correlation between having good mineralized soils with robust biological activity. According to the featured article:

"Given this nutrient flow from soil microbes to us, how can we boost and diversify life in the soil? Studies consistently show that ecological farming consistently produces a greater microbial biomass and diversity than conventional farming.

Ecological farming... includes many systems (biodynamic, regenerative, permaculture, full-cycle, etc.) that share core holistic tenets: protecting topsoil with cover crops and minimal plowing, rotating crops, conserving water, limiting the use of chemicals (synthetic or natural), and recycling all animal and vegetable waste back into the land.

Much of this research supports what traditional farmers around the world have long known to be true: the more ecologically we farm, the more nutrients we harvest."

Researchers are increasingly starting to recognize gut microbiota as one of your most unappreciated "organs."² It may even be more appropriate to view your body as a "super organism" composed of symbiotic microorganisms. Probiotics are even becoming widely accepted and adopted in the conventional medical community to support health.

In soil, we have a very similar process. The health of the plants, and those who eat those plants, all stand to benefit from the optimization of soil microbiology.

Optimizing soil biology also strengthens plants against pest infestations without having to resort to chemical warfare. Research shows that there's constant communication going on between plants via the rhizosphere (root ball). Plants "talk" to one another through aerial emissions—the volatile gasses they emit—and also through the mycelial networks in the soil.

This is a major insight that deepens our understanding of the importance of nurturing and maintaining healthy soil microbiome. It also explains why you don't really need synthetic chemicals to grow large amounts of food.

On the contrary, the chemicals used in modern agriculture are *killing* the very foundation of health—the microbiome in the soil. In short, if we support and nurture the microbiome in soil, it in turn will provide us with good nutrition and optimal health through the food grown in it.

The 'Farm Effect'

The featured article highlights another fascinating theory, which suggests that your immune cells might actually be part of a "backup" system to another long forgotten first line of defense, namely your gut microbiome, which is strengthened by—and in large part dependent on—the continuous exposure to *soil microorganisms*.

Modern DNA sequencing techniques have led scientists to make the surprising discovery that gene swapping takes place between your gut microbiome and the soil biome, as well as with microorganisms from other places in your daily surroundings.

As reported in the featured article, European researchers have discovered that children raised on organic farms have far lower incidence of allergy and asthma, compared to those raised on conventional, industrialized farms or in the suburbs. They refer to this as "the farm effect."

"In one study, researchers cultured farm children's mattresses and found a potpourri of bacteria—most of which are typically found in soil," Dr. Miller writes.³ "How soil microbes and other farm microbes protect against allergic diseases is still a matter of debate, but research is increasingly pointing to a new idea which, for lack of a better term, I will call the "microbiome exchange hypothesis."

This is a fascinating hypothesis, originating with French research that found an identical sequence of DNA in two different species of *Bacteroidetes*. One of these species of bacteria lives on seaweed. The other is part of the gut microbiome of Japanese people. The researchers concluded that the bacteria had "hitchhiked their way into the human gut via sushi and other seaweed dishes and passed their seaweed-digesting DNA on to resident microbes of the human host," Dr. Miller writes.

What difference does it make, you may ask? Well, it appears that people raised in areas where seaweed is a dietary staple are given—via this DNA exchange from one bacteria to another—a greater ability to extract nutrients from this particular food, compared to someone who has never eaten it before. Understanding this deep connection with local food staples gives a whole new meaning to the value of eating foods that are native, local, and in season...

Why GMOs Can Worsen Your Health

One of the reasons why so many of us are concerned about genetically engineered crops is because a main characteristic of such plants is resistance to the potent herbicide glyphosate, which *devastates* the soil microbiome. Killing microorganisms is in fact one of glyphosate's primary mechanisms of action, as it is patented as an antibiotic. Besides that, glyphosate is a potent chelator that sequesters valuable minerals, rendering them inaccessible and unusable for the plant.

It ties up minerals like manganese, zinc, and iron, which are essential for the plant's immune system and growth. These minerals are also important for human health. Another problem, which applies to both genetically engineered (GE) and conventional hybridized plants, is that when a plant is altered it may lose its ability to emit the correct signals to warn its neighbors about impending attacks. Hence, they become more vulnerable to infestations.

On numerous occasions, I've stated that the differences between industrial farming and organic farming, using time-tested all-natural methods, are so vast that the foods produced by the former cannot be equated to the foods produced by the latter. Use of genetically engineered plants only deepens the many problems associated with conventional, chemical-heavy farming.

The environmental effects are also 180 degrees opposed, as industrial farming contributes to every form of environmental devastation, while organic farming methods restore the environment and invigorate and support the ecosystem—of which humans are an integral part, I might add. Many equate modern techniques with "progress," when in fact most of our technological advancements are now threatening to destroy us right along with the planet as a whole.

Three Basic Principles of Biological Gardening

"Life" in essence boils down to microbiology—their presence in us and around us, and the benevolent symbiotic relationships that exist between us. If you support the microbiology in your gut, they will support your good health. The same principle applies to the soil in which your food is grown. Take care of it, and it will take care of you.

This is important information, as many nay-sayers will tell you that buying organic produce is a waste of money. From my perspective, understanding the impact soil quality has on the final product, and how chemical fertilizers and pesticides used in conventional farming decimate the microorganisms in the soil, makes for a very strong argument that organic or biologically farmed foods are indeed a healthier choice.

Below, I'll list some helpful sources for finding such foods, but you may also want to consider growing your own. [Homemade ferments](#) are another excellent way to boost your nutrition and promote healthy gut flora—and if made with homegrown veggies, all the better! As Dr. Miller writes:⁴

*"Eating fresh-grown food from healthy soil is not an all-or-nothing proposition, and even a daily handful of herbs from a container garden can have a positive impact on our health. Whether it is homegrown or from a local farm, I do mention to my patients that they should **think twice before peeling or scrubbing their farm bounty.** After all, who knows what beneficial bacteria might be coming along for the ride? **By the way, eating fermented farm-fresh vegetables is a great way to get a mega-dose of soil bacteria.**"* [Emphasis mine]

Three basic principles of biological gardening that will make your soil hospitable for beneficial microorganisms, which in turn will allow plants to flourish, are the following. I've previously written about how to employ these principles in your own garden, so for more information, please review the related articles listed in the side bar.

1. Correct nutrient balance in the soil
2. Soil inoculation. This can be done by adding soil probiotics or basic fermentation products such as compost tea. This will generate and support the proliferation of beneficial bacteria much in the same way you can boost the probiotics in your fermented vegetables by using a starter culture
3. Proper food (fertilizer) for the microorganisms to consume and thrive. Note that it's the *microbiome* that you need to feed, not the plant directly. The microbes in turn will then feed the proper nutrients to the plants grown in that soil.

Without these bioorganisms, your plants cannot get the nutrients they need. So what you need is not more chemical soil additives; what you need is the proper balance of beneficial soil organisms. Hence, the better you're able to fertilize the microbes, the healthier your plants will be, and the fewer plant diseases, pest infestations, and weed problems you'll have as well

Whet Your Appetite for Gardening by Growing Sprouts

While you can grow all manner of food, even in [small spaces](#), one of the easiest and least expensive is [sprouts](#). Best of all, sprouts can be grown year-round, regardless of weather, and contain up to 30 times the nutrition of organic vegetables grown in your own garden. They also allow your body to extract more vitamins, minerals, amino acids, and essential fats from the foods you eat, so in terms of growing nutrient-dense food for your family at minimal expense, they're really hard to beat.

During sprouting, minerals, such as calcium and magnesium, bind to protein, making them more bioavailable. Furthermore, both the quality of the protein and the fiber content of beans, nuts, seeds, and grains improve when sprouted. The content of vitamins and essential fatty acids also increases dramatically during the sprouting process. [Sunflower seed and pea sprouts](#) tend to top the list of all the seeds that you can sprout and are typically each about 30 times more nutritious than organic vegetables.

Helpful Resources

"Thinking of a healthy body as an extension of a healthy farm, and vice versa, is a paradigm shift for many of us. But when we consider that all of our cells get their building blocks from plants and soil then, suddenly, it all makes sense. In fact, it is not too much of a stretch to say: We are soil," Dr. Miller states.⁵

Indeed, the finding that your physical and mental health is rooted in microscopic organisms in the soil and in the foods you eat is thought-provoking, to say the least. On the upside, it tells us how to *fix* countless problems—from poor health to environmental issues that plague mankind across the globe. For all of these reasons, I cannot encourage you to support the small family farms in your local area strongly enough. They, and by extension you, are part of the *solution*. Here are some great resources to obtain wholesome food that supports not only you but also the environment:

1. **Alternative Farming Systems Information Center**, Community Supported Agriculture (CSA)
2. **Farmers' Markets** -- A national listing of farmers' markets.
3. **Local Harvest** -- This Web site will help you find farmers' markets, family farms, and other sources of sustainably grown food in your area where you can buy produce, grass-fed meats, and many other goodies.
4. **Eat Well Guide: Wholesome Food from Healthy Animals** -- The Eat Well Guide is a free online directory of sustainably raised meat, poultry, dairy, and eggs from farms, stores, restaurants, inns, and hotels, and online outlets in the United States and Canada.
5. **Community Involved in Sustaining Agriculture**(CISA) -- CISA is dedicated to sustaining agriculture and promoting the products of small farms.
6. **FoodRoutes** -- The FoodRoutes "Find Good Food" map can help you connect with local farmers to find the freshest, tastiest food possible. On their interactive map, you can find a listing for local farmers, CSA's, and markets near you.