

Dirt Don't Hurt

Analysis by [Dr. Joseph Mercola](#)

July 19, 2024

STORY AT-A-GLANCE

- › When it comes to keeping your children healthy, most parents are cautious, if not hypervigilant, over-sterilizing their environments so their children never get dirty and overusing antibacterial soaps
- › In years past, parents served (and the kids ate) fermented foods containing good bacteria and allowed them to get dirty outside and play with animals on a regular basis, a stark contrast to many kids today
- › Soil-based organisms (SBOs) may help to stimulate your immune system, reduce inflammation and aid in detoxification

Editor's Note: This article is a reprint. It was originally published July 31, 2017.

If you live in the typical American household, dirt of any kind is often avoided at all costs, so much so that hand sanitizer is very probably in the majority of school classrooms, day care centers and even mom's purses if they have a toddler in the house.

But is that really the best thing to do? Microbial ecosystems scientist Jack Gilbert, Ph.D., decided to do some checking on his own regarding the best way to view germs and the risks for children growing up in today's modern culture. One bit of advice might be eyebrow-raising to some, but to harried but savvy parents, he offers this advice, via NPR's Your Health:

"It turned out that most of the exposures were actually beneficial. So that dirty pacifier that fell on the floor – if you just stick it in your mouth and lick it, and

*then pop it back in little Tommy's mouth, it's actually going to stimulate their immune system. Their immune system's going to become stronger because of it."*¹

Gilbert even wrote a book titled "Dirt is Good: The Advantage of Germs for Your Child's Developing Immune System," which addresses parents' questions on the subject, highlighted below.

How to Counteract the Way 'Germs' Impact Children

When it comes to keeping your children healthy, most parents are cautious, if not hypervigilant. One thing modern-day parents have a tendency to do is over-sterilize their environments, so their children won't get dirty, particularly when crawling on the floor or putting objects in their mouths.

An example is when (or if) they go outside to play in the mud, after which many parents strip them down for a bath and even haul out the antiseptic wipes as soon as possible to clean the dirt from their faces.

Gilbert notes that perhaps one of the most important ways to combat sickness, rather than keeping kids out of the dirt, is to simply make sure they eat plenty of colorful vegetables, which contain numerous vitamins, minerals and other compounds that supply what they (and you) need to keep them (and you) healthy.

And do it early; mashed squash and carrots when they're tiny and keep it up through toddlerhood and into school age, resisting the temptation to go the "easy" route with all its hazardous, illness-inducing sugary and/or **chemically treated snacks** (such as cheeseburger-flavored Doritos, about which a Salon article quips, "All the flavor of a hamburger with none of the nutrition"²) and drinks with little to no nutritive value.

Most Frequently Asked Questions About Kids and Germs

Gilbert addressed the fact that kids who get into the dirt in the country seem more robust than kids who've grown up in the city. Is it possible that people are healthier when they get their hands into good soils?

Further, are things like allergies an unintended consequence of trying to protect our kids too much? Sadly, yes. Gilbert explains that in years past, parents served (and the kids ate) fermented foods containing good bacteria and allowed them to get dirty outside and play with animals on a regular basis. These days, however, parents sterilize virtually everything and often shield them from dirt as if from the plague to the point that their systems have become hypersensitized:

"You have these little soldier cells in your body called neutrophils, and when they spend too long going around looking for something to do, they become grumpy and proinflammatory. And so when they finally see something that's foreign, like a piece of pollen, they become explosively inflammatory. They go crazy. That's what triggers asthma and eczema and often times, food allergies."³

Also, should kids be allowed to play with animals, especially the ones outside? Well, there are a multitude of parents who keep their kids away from animals, believing them to be dirty creatures that should stay outside. Maybe the kids can have a dog or cat, but not cows or goats or horses. Gilbert explains, "If they're interacting with a dog, and the dog licks their face, that's not a bad thing. In fact that could be extremely beneficial for the child's health."

What about hand sanitizer? Gilbert says sanitizer is generally not a good idea. In fact, it's "usually bad," adding that it's fine to wash kids' hands if there's a cold or a flu virus going around, but soapy water is fine for cleaning kids up and is less damaging to their overall health than the use of antibacterial alternatives.

Soil-Based Organisms (SBOs) – A Different Kind of Probiotics

When you think of probiotics, kefir, [yogurt](#), kombucha and fermented vegetables like [kimchi](#) might come to mind. You may also think of probiotics in pill form. All can be

extremely beneficial to optimizing your gut bacteria, but there's another kind of good bacteria on the block.

Compared to the somewhat delicate strains of bifidobacteria and lactic acid that may be found in certain probiotics and **fermented foods**, most of the good bacteria found in plain old dirt are very hardy, even thriving in your gut with whatever it may hold. What are the attributes of SBOs? One interesting study shows certain organisms in dirt can "up" your intelligence and even help make you happy and healthy. Ways they do it include:

- Regulating your immune system
- Reducing inflammation
- Breaking down your food
- Helping with detoxification
- Benefiting your genetic expression

In fact, one type exhibited an 82% to 100% remission rate in patients with irritable bowel syndrome within two weeks, and a follow-up study found the participants were still benefiting a year after going off them.⁴

Therapeutic Landscapes Network⁵ reported a study that "Correlates the high diversity of bacteria and fungi in household dust, soil and farm animals the low likelihood of asthma." A strain known as *Mycobacterium vaccae* releases serotonin, which is where the "happy" comes in. The "smart" part traces back to the healing effects of gardening, as shown by an experiment with 30 participants given 30 minutes of either gardening or reading. Afterward:

*"Salivary cortisol levels and self-reported mood were repeatedly measured. Gardening and reading each led to decreases in cortisol during the recovery period, but decreases were significantly stronger in the gardening group. Positive mood was fully restored after gardening, but further deteriorated during reading. These findings provide the first experimental evidence that gardening can promote relief from acute stress."*⁶

However, every speck of dirt is not beneficial, and it's through gradual acclimation to the soil that releases the healing aspects; children are geared for it, but adults should "[get back to the garden](#)," as it were, gradually.

Your Gut and the Billions of 'Beneficial Bugs' That Call It Home

Scientists and researchers have been buzzing about gut bacteria, aka your microbiome, and how an appropriate balance of microorganisms can make or break your health, impacting everything from allergies to your mood; obesity to autism.

Quick and Dirty Tips from "Nutrition Diva" Monica Reinagel says that even as supplement sales have decreased, probiotics are on the rise. Many people are also getting into their own [veggie fermentation](#), but interest in soil-based critters is also growing.

Outside, they do for soil what probiotics do for humans, breaking food down, providing nutrients and combating "bad" bacteria, to name a few. As mentioned, soil-based organisms are less "delicate" compared to those derived from food. But Reinagel points out that while some are beneficial, others fall into the pathogen category, however:

"Most commercially available products include lots of different strains, the vast majority of which have not been studied in humans, alone or in combination. But how they behave will depend very much on how much you take, which bugs you already have on board, and the health of your gut when you take them. Not surprisingly, people with health problems are more likely to have adverse reactions."⁷

Because soil-based organisms taken as supplements are regulated differently than pharmaceuticals, the U.S. Food and Drug Administration's (FDA) reins aren't as tight. Further, highly respected research is scarce. While there may be anecdotal evidence and testimonials for therapeutic use, Reinagel believes food-based probiotic sources such as kombucha and kimchi are a better bet for [improving gut health](#).

Soil Based Organisms – The 'Drugs' of the Future

In 2012, the National Institutes of Health's Human Microbiome Project,⁸ five years in the making, concluded that humans are essentially superorganisms with microbes that outnumber our own cells 10 to 1. In a fascinating article, The Atlantic⁹ reported that some scientists think health care, in response, will begin focusing "less on traditional illnesses and more on treating disorders of the human microbiome" with targeted microbial species and therapeutic foods for gut health.

"Just as we have unwittingly destroyed vital microbes in the human gut through overuse of antibiotics and highly processed foods, we have recklessly devastated soil microbiota essential to plant health through overuse of certain chemical fertilizers, fungicides, herbicides, pesticides, failure to add sufficient organic matter (upon which they feed) and heavy tillage.

These soil microorganisms – particularly bacteria and fungi – cycle nutrients and water to plants, to our crops, the source of our food, and ultimately our health. Soil bacteria and fungi serve as the 'stomachs' of plants.

They form symbiotic relationships with plant roots and 'digest' nutrients, providing nitrogen, phosphorus, and many other nutrients in a form that plant cells can assimilate. Reintroducing the right bacteria and fungi to facilitate the dark fermentation process in depleted and sterile soils is analogous to eating yogurt (or taking those targeted probiotic 'drugs of the future') to restore the right microbiota deep in your digestive tract."¹⁰

Nature has provided humans with some pretty amazing tools to fight harmful bacteria. One of them is automatically delivered, no pun intended, when (and if) we come into the world through the birth canal via your mother's vaginal fluids.

You could call it your first inoculation against asthma, allergies and celiac disease, and it's completely natural.¹¹ In addition, many protective bacteria adhere to your skin even through thousands of [showers](#), although the way you wash can influence their makeup.

'Helper' Bacteria Benefit and Balance Your Microbiome

You could call them "helper" bacteria. [Soil-based organisms](#) contain protective "shells" that, once ingested, travel to your lower intestine and "come alive" as the warm, moist environment germinates them. Additionally, they remain there to provide more benefits over time. In fact:

"In 2010, the Human Microbiome Project published an analysis of 178 genomes from bacteria that live in or on the human body. [Ten thousand] different types of bacteria in the human body have been identified, including novel genes and proteins that serve functions in human health and disease. The vast numbers of bacteria discovered appear to provide benefit to the human body, not harm."¹²

As one scientist put it, while some focus on bad bacteria, there are actually many more that are beneficial, which without we'd never survive, but the emphasis should also be placed on balance. But that balance can be altered when antibiotics you take kill off both, and [disease-causing bacteria](#) such as parasites, fungi and yeasts can wreak havoc; *H. pylori*, for instance, can spawn such disorders as ulcers and Crohn's disease.

That balance has everything to do with the aforementioned mood, brain signaling, energy and disease resistance. When we carry soil out to the garden to eat a radish out of the garden, for instance, helpful bacteria are probably clinging to the microscopic bit of soil on its skin. That's the way your ancestors ate all the time, gleaning multiple benefits for health, literally through the soil.

Some scientists believe introducing SBOs to your microbiome may be one of the most important things you can do for your health. One scientist, Hank Liers, asserts that humans carry roughly 99 times more genetic material that's nonhuman, i.e., bacterial, than human.¹³

Benefits of SBOs

Likely essential for human health, Integrated Health Blog¹⁴ lists a number of benefits SBOs could provide:

Improved gastrointestinal health	Prevention of gut colonization by harmful bacteria and fungi
Support for intestinal regeneration	Support for balancing gut microbiota
More balanced colon pH	Increased resistance to harmful bacteria and fungi
Increased nutrient absorption in your intestines	Microflora replenishment in your colon
Overall health and well-being	Better gut metabolism
Normalized bowel function	Reduced gas and bloating
Better immune system function	Improved GI tract barrier function

While you can look for SBOs in supplement form, your best bet may be to simply get outside and put your hands and feet in the soil (in an area that's free from chemical treatments, of course) while gardening, digging or just reconnecting with the earth.

Children do this naturally – provided we let them – and perhaps this is a lesson we adults could learn from too. If you grow your own organic vegetables, you'll also get some exposure to SBOs, especially if you enjoy eating the fruits of your labor right from the vine.

Sources and References

- ^{1, 3} [NPR Your Health July 16, 2017](#)
- ² [Salon February 1, 2015](#)
- ⁴ [Clin Ther. 2005 Jun;27\(6\):755-61](#)
- ⁵ [Therapeutic Landscapes Network 2017 \(Archived\)](#)
- ⁶ [Journal of Health Psychology June 3, 2010](#)

- ⁷ Quick and Dirty Tips April 1, 2014
- ⁸ Genome Res. 2009 December; 19(12): 2317–2323
- ^{9, 10} The Atlantic June 11, 2013
- ¹¹ Cell Volume 124, Issue 4, 24 February 2006, Pages 837-848
- ¹² Enviromedica, What Are Soil-Based Probiotics?
- ¹³ Integrated Health Blog, A New View In the Role Of Bacteria In Health June 11, 2012
- ¹⁴ Integrated Health Blog, The Advantages of Soil Based Organisms for Health September 15, 2014 (Archived)