The Dirt on Dirt





BE OUT THERE™

NATIONAL WILDLIFE FEDERATION®

How Getting Dirty Outdoors Benefits Kids

All the Fuss About Mess

"Don't track mud in the house!"

"Wash your hands before dinner!"

"You can't play with that, you don't know where it's been!"

Parents wear those phrases out like old blue jeans put through the spin cycle too many times. Many have come to see D-I-R-T as a four-letter word. Only two decades ago, kids made forts with sticks and mud, waded up to their knees in streams. How many do that now? Fears about dangers lurking in the muck (microbes, parasites and amoebas, oh my!) and a societal slant in favor of over-sanitization keep families from letting kids do what comes naturally, which is to go outside and get a little messy.



"If your child isn't coming in dirty every day, they're not doing their job."

Dr. Mary Ruebush, immunologist and author of ***Why Dirt is Good: 5 Ways to Make Germs Your Friends.***

But here's a dirty little secret:

Dirt and germs can actually be good for kids. The things small children want to do outside, like building mud castles, splashing around in puddles and rolling down hills until their clothes are irreparably grass-stained—all those things that make mothers reach for hand sanitizer and laundry detergent—may, in fact, be a grubby little prescription for health and happiness.



Unfortunately, boys and girls today spend the better part of their time, seven hours per day on average (Rideout, 2010), indoors, in the sterile company of technology, rather than following their in-born impulses to explore the natural world with their senses. This indoor childhood is damaging to kids. In fact, in the last twenty years as kids spent less and less time outside, childhood obesity rates more than doubled (CDC, 2008), the United States became the largest consumer of ADHD medications in the world (Sax, 2000), 7.6 million U.S. children are vitamin D deficient (Kumar, 2000), and the use of antidepressants in pediatric patients rose sharply (Delate, 2004).

When kids do leave the house, a growing body of research suggests the exact things we do in the name of protecting them from dirt and germs, such as not letting them get too messy and frequently using hand sanitizers and anti-bacterial products, can inhibit their mental and physical health and resilience.



This report reveals how getting down and dirty in the great outdoors — far from being a bad thing — helps children lead healthier, happier lives.

The DIRT on DIRT: How getting dirty outdoors benefits kids

For the Health of It:
How getting messy outside benefits the heart, skin, and immune system

The Joy of Dirt:
How playing outside in the dirt increases happiness, reduces anxiety and enhances learning

Good Clean (Dirty) Fun:
Dirty-hands-on tips for parents and caregivers

For the Health of It

Getting messy outside benefits the heart, skin, and immune system.

Children who don't spend time outside run the risk of serious health issues, such as obesity (CDC, 2008), myopia (Reuters, 2009), and vitamin D deficiency (AAP, 2009). The good news is that outdoor activities kids love, like running, jumping, climbing, playing games with friends, and taking nature walks are a great strategy for keeping children healthy.



In addition, experts say, if we dig a little deeper—literally—there are even more benefits to be found. Playing in the dirt and even ingesting a little along the way, some researchers say, helps children build stronger immune systems. The Hygiene Hypothesis, first put forth in the 1980s, holds that when children are too clean and their exposure to parasites, bacteria, and viruses is limited early in life, they face a greater chance of having allergies, asthma, (Yazdanbakhsh, 2002) and other autoimmune diseases such as multiple sclerosis and type-one diabetes during adulthood (Platts-Mills, 2005).

While no one disputes the wisdom of basic, common-sense sanitation measures, such as washing hands and using hand sanitizer when soap and water aren't available, experts say some exposure to dirt and germs does not hurt children, and may very well help.



According to Dr. Joel Weinstock, director of gastroenterology and hepatology at Tufts Medical Center in Boston, "Children raised in an ultraclean environment are not being exposed to organisms that help them develop appropriate immune regulatory circuits." For their own benefit, Dr. Weinstock argues,

> "Children should go barefoot in the dirt, play in the dirt and not have to wash hands when they come in to eat."
>
> (Brody, 2009)

Dr. Mary Ruebush, immunologist and author of *Why Dirt is Good: 5 Ways to Make Germs Your Friends,* counts letting kids play in the dirt as immune-system-building step number one. "Let your child be a child," she says. "Dirt is good. If your child isn't coming in dirty every day, they're not doing their job. They're not building their immunological army. So it's terribly important."
(CBS News, 2009).



You know the smile on your child's face when he's covered in mud? Doesn't it just warm your heart? Well, it is benefiting his. Dirt, says a Northwestern University study, is good for childrens' cardiovascular health. Analyzing data collected from thousands of children over two decades, researchers have concluded that when children are exposed to germs and pathogens during infancy their risk of cardiovascular inflammation in adulthood, a precursor to heart attacks and strokes, is reduced. The study found that children who had early exposure to animal feces and infectious microbes like those found outside in soil resulted in lower levels of CRP, or C-Reactive Protein, a biomarker for cardiovascular problems, later in life. (Channick, 2010).

Being too clean also can be a liability for kids who get a lot of scrapes and cuts, which is pretty much all kids.



Luckily, dirt's benefits are skin-deep as well.

Researchers at the University of California School of Medicine, San Diego, found that a common bacterial species that lives on skin, Staphylococci, triggers a pathway that helps prevent inflammation, improving skin's ability to heal (BBC News, 2009).



The Joy of Dirt

Playing in the dirt increases happiness, enhances learning.



According to a four-year study that examined approximately two million children under the age of 18, antidepressant use is on the rise in kids, with the fastest growing segment found to be preschool children aged 0-5 years (Delate, 2004). While not a substitute for medication, an increasing number of experts are recognizing the role of nature in enhancing kids' mental health. It's easy to see the effect when you watch children play outside. Kids are different when they're outdoors; free of school pressures and harried schedules, they relax and simply become kids. In fact, according to one study, children's stress levels fall within minutes of seeing green spaces, making outside play a simple, no-cost, and time-efficient antidote for an overstressed child (Kuo, 2004).

Studies now also show that going beyond seeing green spaces to touching them has a powerful and positive effect. Making direct contact with soil, whether through gardening, digging for worms, or making mud pies has been shown to improve mood, reduce anxiety, and facilitate learning.

In a study by Bristol University, Mycobacterium vaccae, or M. vaccae, a "friendly" bacteria found in soil, was shown to activate a group of neurons that produce the brain chemical serotonin, enhancing feelings of well-being, much in the same manner as antidepressant drugs and exercise. Interest in the study arose when patients treated with M. vaccae for another health issue reported increases in their quality of life (Lowry, 2007).



"The typical human probably harbors some 90 trillion microbes. The very fact that you have so many microbes of so many different kinds is what keeps you healthy most of the time."

Dr. Mary Ruebush, immunologist and author of ***Why Dirt is Good: 5 Ways to Make Germs Your Friends.***

The results, "leave us wondering if we shouldn't all be spending more time playing in the dirt," says the study's lead author Dr. Chris Lowry.



Beyond raising mood, time kids spend in the dirt may be the best preparation for the classroom, according to researchers at The Sage Colleges in Troy, New York. They wondered whether, in addition to its antidepressant effect, M. vaccae may also have an effect on schoolwork. "Since serotonin plays a role in learning, we wondered if live M. vaccae could improve learning in mice," says Dr. Dorothy Matthews who co-authored the study. What they found was the bacteria did, in fact, significantly improve learning, and, in addition, the mice demonstrated fewer anxious behaviors.



"This research suggests that M. vaccae may play a role in anxiety and learning in mammals," says Matthews. "It is interesting to speculate that creating learning environments in schools that include time in the outdoors where M. vaccae is present may decrease anxiety and improve the ability to learn new tasks." (Science Daily, 2010).

Good Clean (Dirty) Fun

Dirty hands-on tips for parents and caregivers.

Getting messy is a win-win for children, because it's also FUN. Here are some wonderful ways to get started.



Be an Artist

- Give your child a stick and a muddy surface to draw on. Mistakes are no problem; mud is a very forgiving medium. Just smooth them over and start again!
- Mud prints are fun too. Your child's muddy hands and/or feet can stamp cool patterns onto a sheet of paper. If you prefer to keep it simple, the sidewalk is another canvas.
- And then there's sculpture. Mud balls can become out-of-season snowmen or abstract sculptures. If your child's creation isn't sticking together, just add more water.

Be a Builder

- Your children can make buildings of all shapes and sizes if they use sticks to create a frame and pack mud on to it. Houses or forts perhaps, a castle with a moat, a stable to put toy horses in.
- If they also like the idea of large-scale public works, have them make a river by digging a trench in the mud or dirt. Then, add water as needed. Most importantly, build a dam to protect the town!



For more wonderful outdoor activities visit: www.BeOutThere.org/ActivityFinder

Be a Biologist

- Take a walk through your neighborhood or a local park so your children can learn which animals go under cover during rain and which come out in this type of weather. You might not have pigs nearby, but some dogs will happily wallow in a mud puddle if they have a chance. You may also see birds swooping down to take a bath.
- This is also a fine time to study worms that surface to breathe when their burrows fill with water. Supply a magnifying glass so your children can get an even closer look. Then, enlist the kids in a Worm Rescue Squad. Ask them to move any worms they find on the sidewalk back to the dirt so they don't dry out.
- Now, help them build a worm hotel.

Be a Chef

- If you're going to play in the mud, why not make some mud pies? If you have some old cake or pie tins, great. Otherwise, shallow plastic containers work just fine. Once the pies are "baked," it's time to make them beautiful! Encourage your children to scour the yard for pebbles, petals, and leaves that will make perfect decorations on top.
- Collect dirt, grass, leaves, twigs, and acorns in a large container, and you have a bountiful nature salad. Add some water, and it's mud stew! (Remind small children to play with their dirt food, not eat it!)



Note: If there are concerns about toxins in your neighborhood soil, or if you don't want to dig up the yard, you can purchase an organic potting soil from a local gardening or landscaping shop and let kids play in that.

Be a Gardener

- Little hands love to garden! Get some kid-size gardening tools and let kids help mom and dad plant vegetables—it's so exciting to watch them grow and it just might help kids eat more of them.
- Read *Growing Vegetable Soup,* by Lois Ehlert for inspiration.
- Let kids choose and plant flower seeds or bulbs. See if they can remember what colors they planted come spring.

Got Galoshes?

All you need for these filthy-fun activities are clothes you don't mind getting dirty and some mud! If it hasn't rained in a while, you can mix up your own with water and dirt. Remember to have clean clothes and some towels ready—and for heavy mud stains, rinse first outside with a hose before washing in the machine.

Grime is Good

The last word on dirt.

Who would have thought something we spend so much time wiping, sweeping, and mopping away could be so good for kids' health? Spending time outside is great for kids, and studies show that getting dirty while they're out there might be even better. With benefits to immune systems, hearts and skin, as well as kids' emotional wellbeing and learning skills, doctors may well soon prescribe:



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Join the Be Out There movement



National Wildlife Federation's (NWF) **Be Out There** is a national movement to give back to American children what they don't even know they've lost – their connection to the natural world.

With a wealth of activities, events, and resources, Be Out There reconnects families with the great outdoors to raise happy, healthy children with a life-long love of nature.

Join us and take the pledge to Be Out There

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