Soils Support Health

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Soil's Role in Human Health

What does being healthy mean? Clean air to breathe, clean water to drink, healthy food to eat, and safe shelter contribute to our health. All of these come from soil. The soil:

exchanges gases with the atmosphere and supports the plants that produce oxygen,
stores and filters water,
supports and provides nutrients to the plants that become our food, and
provides materials for building.

A stable supply of diverse and nutritious food is an important aspect of staying healthy. Healthy soils lead to healthy plants, which lead to healthy animals and healthy people. The healthiest soils are those that have a lot of diverse organic matter returned to them from the aboveground plant community. The **organic matter** serves as food to maintain a healthy and diverse population of microorganisms. A diverse microorganism population reduces the chances of a crop disease taking over the microbial community, resulting in poor harvests and reduced food supplies. Organic matter also returns nutrients to the soil as microorganisms decompose it. The nutrients in soil are passed up the food chain to us. Agricultural production practices aim to increase the amount of organic matter in the soil so that food production is sustainable and food supplies are more secure.

There are mental aspects to health as well as the physical aspects. Having enjoyable outdoor recreational activities enhances our lives by giving us a mental break from studies or work and provides for physical activities. Soil is an important component of a clean environment to enjoy. Soil, especially in wetlands, cleans the water in lakes and rivers, as well as underground reserves, for our use in recreation and drinking water supplies.

If you do get sick, many medicines come from soil. There are medicinal plants and medicines derived from the plants that grow in soil. There are also medicines derived from chemicals excreted by soil microorganisms; for example, the antibiotic, streptomycin which was discovered by soil microbiologists Albert Schatz and Selman Waksman. These microorganisms have developed ways of keeping each other in check. Some of the antifungal and antibiotic medicines we use today are a product of soil fungi and soil bacteria battling each other.

However, this doesn't mean that soil doesn't house harmful pathogens as well. Soil-dwelling parasites, diseases and microbes infect several million people every year. They cause everything from the flu to anthrax. It should be noted that there is a popular theory that these infections are on the rise due to people having fewer interactions with soil as children, which doesn't allow their bodies to build the necessary antibodies to protect them. Some cultures even eat soil – known as geophagy, with little to no adverse effects. This practice is mostly confined to parts of Africa and the Middle East, and isn't recommended.

Soil stabilizes the environment so that the healthy living conditions we know today can continue. It degrades spilled chemicals and filters them from reaching our air and water. It stores heat and water to stabilize the environment between weather fronts. It contains a diverse community of organisms that keep each other in check. Soil even physically filters pollutants out of the environment as described in April's "Soils Clean and Capture Water" guide. Some of the qualities that make soil less than ideal for growing plants, make it great for filtering. So no matter what kind of soil you have – it's probably performing an important ecosystem service.

Recap

Soil supports our physical and mental health. Soil cleans our water and protects us from environmental pollutants. Soil provides the nutrition and water that plants need to become our food, shelter, or medicine. A diverse community of microorganisms provides more services than we can imagine, including degrading pollutants and reducing diseases that could affect us directly or through our food supply.

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