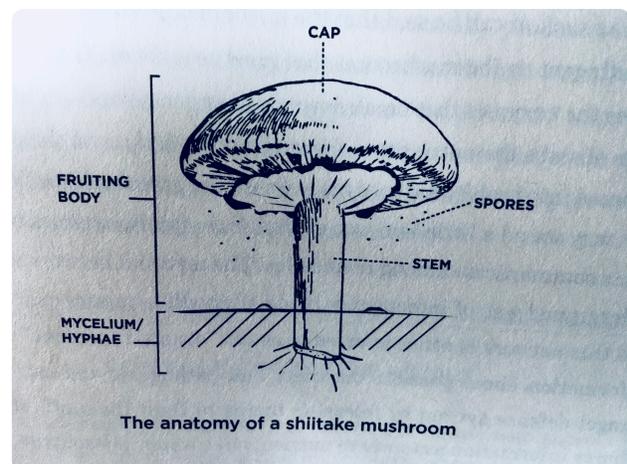


AMAZING MUSHROOMS

1. Mushrooms are not plants. Genetically, they are actually more similar to animals than plants. They are fungi and part of the Fungi kingdom (there are six kingdoms including animals, plants and bacteria). Other fungi include molds (like penicillin and those found in cheese) and yeast (like those used to make bread). There are estimated to be more than 1.5 million different fungi. Some everyone is familiar with like portobello, shiitake or white button mushrooms. Some more exotic ones have names like chaga, lions mane, oyster and reishi.
2. Fungi, like animals, do not generate their own food sources. Plants generate their own food through photosynthesis. Fungi need external food sources, mostly from dead and decaying organisms.
3. They are known as the “cleanup crew” of nature. One type of mushroom can breakdown plastics and other environmental garbage, even neutralizing them making them safely edible. They remove chemicals and pollutants from the environments they live in and even neutralize nuclear waste.
4. Fungi, like mammals, breath oxygen and generate CO2.
5. There are 2 kinds of mushroom. Most people are familiar with the mushrooms which grow on the ground. Actually, the majority of these types of mushrooms are under the ground. The second kind of mushrooms actually grow on trees, both alive and dead. They get their nourishment from the trees. These tend to be more medicinal type mushrooms and fewer of them are poisonous.
6. Although most plants get their nutrition solely from the sun, some, especially trees, must get additional nutrients from the ground. There is a recent microscopic type of fungi that has been identified which connects vast numbers of trees and supplies them with nourishment. These tube-like fungi are everywhere forming a massive underground communication system between even different kinds of trees. In a small pinch of earth, there can be as much as 7 miles worth of these fungi.
7. 92% of plants depend on mushroom mycelium (their massive root system) for survival.
8. Fungi make up 25% of earths biomass and they can hold together 30,000 times their weigh in organic matter around it.
9. Mushrooms and humans share 85% of ribosomal RNA and 50% do DNA which makes them very bioavailable for the human body (and more related to us than to plants).
10. 40% of drugs contain fungi in some form. 10 of the top 20 used medications worldwide contain fungi.
11. Mushrooms should be cooked. They contain compounds called chitins (which crustaceans have in their shells) which are hard to digest. Using heat along with oil and/or alcohol helps with breaking these compounds down and help with absorption.
12. Fungi contain polysaccharides called beta glucans which provide most of their health benefits. Although there is a lot of this compound in the caps of mushrooms, there is a higher concentration in the stem so always include the stems when you cook them.



ANATOMY OF A MUSHROOM

MYCELIUM. This is the root system of the mushrooms. It can be thought of as Mother Nature’s Internet. One square inch of soil can contain

up to 8 miles of interconnected mycelia tubes. The area that the root system can cover can be massive. The largest one known for example spans 2400 acres in Oregon and is estimated to be more than 2000 (some say 8000) years old. It is the most environmentally important part of the mushroom as it is where the decomposing of toxins and nutrients occurs. It is also thought to be how many plants around it, even completely unrelated ones, communicate and even share nutrients.

FRUITING BODY. This is the part we see and traditionally think of as a “mushroom”. It typically grows once a year continuously and is the edible part (at least the non-poisonous or hallucinogenic varieties). Although they can be picked, it is always good to leave a few behind to provide spores for future growth. Although traditionally discarded, the stems actually have higher concentrations of beneficial nutrients called beta glucans so don’t just compost them.

SPORES. Also called fungal seeds, these are the asexual reproductive units of the mushroom’s fruiting body that is released from the gills. A fruiting body can produce from thousands to trillions of spores per day. Only a small fraction germinate though. They are everywhere since they are airborne. Made of chitin, they are among the hardest naturally occurring substances and are released with extreme force (10,000 more g forces than air force pilots experience) and attain incredible speeds.

MORE ABOUT MUSHROOMS

Fungi are **SAPROTROPHS** (feed on dead and decaying matter) and they often grow on dead and rotting trees, recycling their nutrients. Their ability to break down waste and dead material leads to an interesting use; in funeral clothing to help decompose dead bodies! They also break down the toxins accumulated in our bodies over our lifetime.

They are **EXTREMOPHILES** since they are able to survive in various extreme conditions. Some examples are in space, extreme cold like the North or South Poles and near nuclear disaster sites like Chernobyl. As mentioned above, they adapt to their environment and break down all kinds of toxins including some extreme man-made ones like VX nerve gas and sarin gas.

Mushrooms are **ADAPTOGENS**, naturally occurring substances that protect the body by optimizing physiologic functions. They “adapt” their healing properties to whatever your body specifically needs at that time.

They also act as **IMMUNOMODULATORS**. They up-regulate our immune system making it more efficient and robust. They also make cancer cells more identifiable by our own immune system which can then target and destroy them.