Fu Ling: Alternative Nutrition Therapy

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Allopathic medicine predominates medical practice today. The use of pharmaceutical drugs for symptom mitigation does not address the root cause of illness, and may have negative repercussions later in life. The use of foods as medicine is gaining interest among researchers. Functional foods—foods that may provide health benefits in addition to nutrients—have a rich history throughout cultures, and may help supplement the standard allopathic model of healing. In particular, Fu Ling—a mushroom used in traditional Chinese medicine—may help treat multiple diseases. Specifically, positive results have been shown with the use of Fu Ling for the treatment of cancer, diabetes, and renal disorder.

The scientific name for Fu Ling is *Wolfiporia extensa*. It is a wood decay fungus (mushroom) that digests moist wood causing it to rot. It is most commonly found in pine forests, though it can feed off of many different types of wood and it can grow on every continent except Antarctica. Fu Ling is known by many different names including hoelen, poria, Tuckaho, China Root, and Indian Bread, just to name just a few (Halpern, 2007).

The fungus grows almost entirely underground—except for small fruiting bodies that are visible to mushroom hunters—and can grow to be as large as 20 pounds. The usable part of the mushroom is called the sclerotium—the large, hardened portion of the fungus found underground resembling a coconut.

Fu Ling is best known as an important Traditional Chinese Medicine “herb” (in Chinese Medicine, an “herb” is a natural plant or even animal substance that has medicinal value). In the 2,000-year history of Traditional Chinese Medicine, the fungus has been used to treat a broad array of ailments. In the parlance of Chinese Medicine, Fu Ling “promotes urination” (is a diuretic), “drains dampness” (relieves water retention), “harmonizes the middle jiao” (the midsection of the body responsible for digestion), “quiets the heart and calms the spirit”
(provides a tranquilizing or calming effect), and is an overall “yin tonic” that can aid the body in recovering from disease or illness (“Fu Ling – Chinese Herbal Medicine,” n.d.). These claims are currently being substantiated in the allopathic realm through scientific study on its effectiveness in fighting cancer, diabetes, and other common diseases.

In Chinese Medicine, herbs are most often used as part of an herbal formula, which is a combination of two or more herbs. These herbal formulas are either sold in concentrated pill form or can be packaged as raw, generally unrefined ingredients that the patient then decocts at home. Herbal decoction generally involves boiling the herbs with a specified amount of water until reaching a specified final volume. The herb-infused liquid is then consumed like a tea. Fu Ling is available as dried mushrooms, in capsule form, or as decoction formulas.

The typical dose of Fu Ling in Traditional Chinese Medicine is 10 to 15 grams of dried herb (Rios, 2011). This general dosage, like many dosages and treatments from Chinese Medicine, appears to have remained largely unchanged since pre-modern times. When Fu Ling is used as an ingredient in an herbal formula, the dosage amount varies but less is typically used.

There are thousands of herb formulas, hundreds of which are commonly used clinically in Chinese Medicine. Fu Ling, due to its low cost and versatile medicinal value, is one of the most common ingredients in popular herbal formulas. For example the herbal blend Ba Zhen Wan is used to treat anxiety with the aid of Fu Ling’s calming properties. In addition, many devotees of Chinese Medicine never leave home without the pill form of Bao He San, a formula utilizing Fu Ling to aid digestion after overeating. Bao Ji Wan, another formula containing Fu Ling, gained popularity amongst college students thanks to its purported ability to aid the body and mind in recovery from excessive alcohol consumption (“Fu Ling – Chinese Herbal Medicine,” n.d.).

Throughout history, Fu Ling has been used by more than just the Chinese culture. Many
Native Americans tribes harvested it as a food source, especially in times when access to food was limited. When dried, the mushroom can be pounded or ground into what resembles wheat flour, and can then be made into bread. Early European settlers who witnessed the Natives digging up the often-large mushrooms called it “Indian potato,” and named the resulting bread-like food “Indian Bread”. African slaves in North America—likely learning how to find and harvest the mushroom from Native Americans—were also known to use Fu Ling as a food source in times of scarcity (Halpern, 2007).

Fu Ling appears to be a good source of many nutrients. Many supplement retailers claim the nutrient content of Fu Ling is as follows: 100 grams of dried Fu Ling contains 1.2 g protein, 0.5 g fat, 80.9 g carbohydrates, 1.7 g cellulose, 4.27 mg vitamin E, and 12.6 ug selenium (“Poria Cocos Extract,” n.d.). Though these claims lack references to the data, they are relatively similar to other Asian mushrooms with available nutrition data, such as dried shiitake (“Nutrition Facts and Analysis”). Though macronutrient distribution is unclear, Fu Ling’s abundance in many micronutrients (potassium, magnesium, sodium, iron, manganese, and zinc) has been verified. (Hu, Hu, Li, Jiang, & Cheng, 2011). Additionally, the metabolite constitution of the herb is: 6.9mg/g of polysaccharide, 10.1mg/g triterpinoids (potential anticancer agent), 4.3 mg/g flavinoids (phyochemicals), 28.7mg/g, saponins (may lower cholesterol) and 64.2mg/g, mannitol (a sugar substitute and diuretic), depending on the location where the mushroom was foraged (Wang et al., 2012).

As is the case for many alternative, naturopathic, holistic, and traditional medicine treatments, the science is still far from completely verifying or refuting the numerous medicinal claims for Fu Ling. Modern science has, however, made strides to investigate the usefulness of this fungus.
The most well established medicinal use of Fu Ling is as a diuretic. In fact, a study just published in recent weeks in the Journal of Ethnopharmacology concludes that the “ethanol extracts of the epidermis of Poria cocos [Fu Ling] presents a remarkable diuretic effect” (Zhao et al., 2012). Diuretics increase the rate of urine production and excretion. They are useful when treating renal disease, as they help mitigate the effects of lost kidney function—the kidneys being the organ regulating urine production and filtering the blood. The diuretic function of Fu Ling can be used to decrease protein excretion in the urine (which is common for renal disease) (Nakagawa et al., 2007). Fu Ling works on water channels (aquaporins) in the collecting ducts of the kidney nephrons (the kidney’s functional unit). This action inhibits aquaporin 2 channels that reabsorb water into the body, thus reducing hypertonic stress (highly concentrated urine) and inhibiting renal disorders (Lee et al., 2012).

Recently, researchers have studied Fu Ling’s effectiveness in diabetes maintenance. The first serious scientific investigation of Fu Ling’s effectiveness as a diabetes treatment was published in 2011, and the results were encouraging. The study showed that with mice, compounds in *Wolfpora extensa* called Lanostane-type triterpenes provided a significant anti-hyperglycemic effect. Blood sugars were lowered and insulin sensitivity was enhanced in diabetic mice that were administered Fu Ling extracts (She et al., 2012). (Just months later in May of 2012, a new study was published revealing the existence of three new Lanostane-type triterpenes, doubling the known number in Fu Ling.) The new compounds have not yet been studied for their efficacy against any ailments (Li, Hou, Chang, & Yang, 2011). Additionally, Fu Ling exhibits anti-diabetic effects due to anti-glycation properties. This means that the herb can help prevent the binding of glucose to hemoglobin, a process that is indicative of high blood sugar, and that has been associated with higher risk of microvascular disease (Xi et al., 2008).
A meta-analysis conducted at the University of Valencia in Spain concluded that Fu Ling and the compounds that it contains appear effective as anti-inflammatory agents (in both acute and chronic inflammation). It can also enhance secretions of immune stimulators and inhibit the secretion of immune suppressors (therefore potentiating the body’s immune response). Finally, perhaps most exciting, Fu Ling can provide antitumor activity by inhibiting angiogenesis (the growth of new blood vessels that cancerous cells need in order to grow) (Rios, 2011). Additionally, the herb may reverse multidrug resistance—common in cancer patients—due to the triterpenoids present in the mushroom (Shan et al., 2012).

Still, further studies are needed to confirm Fu Ling’s effectiveness for treating other diseases and ailments that it has long been used for in Chinese Medicine. The scientific understanding of Fu Ling’s medicinal value may still be in its relative infancy, but it should be noted that no adverse side-effects of Fu Ling consumption have been documented (“Dietary Supplements Labels Database,” 2012). This is in part due to insufficient human testing. Fu Ling is generally regarded as safe by the American Herbal Products Association. However, it may interact negatively with antidiuretic drugs due to its diuretic properties, and may too greatly enhance the effects of diuretic medications. Women who are pregnant should refrain from using Fu Ling, and a licensed herbalist or medical doctor versed in herbal medicine should be consulted before this herb is used for therapeutic purposes.

Throughout history, Fu Ling has proved its value as an herbal medicine in Asian cultures. With expanding research upon its disease fighting mechanisms, the herb is gaining popularity in Western societies as well. The effectiveness and potential harms need further study, however Fu Ling seems promising as a therapy for diabetes management, cancer treatment, and renal disorder inhibition.
References


