



The Health Nugget

Peanut Butter

Peanut butter was a dietary staple during my childhood and adolescence. Whatever was served for breakfast, be it waffles, pancakes or toast, my sisters and I would slather on the peanut butter. We wouldn't dream of eating a banana or celery stick without peanut butter. And for dessert? Well, something that contained both chocolate and peanut butter of course! When our cousins visited, they would, with repugnance, observe and tease us for our apparent fetish with peanut butter. We were sure they didn't know what they were missing out on.

It turns out that peanut butter is a very nutritious food. It is rich in almost all minerals: manganese, copper, magnesium, potassium, zinc, iron, phosphorous and selenium. It is also a very good source of the B vitamins niacin and folate, as well as vitamin E. Being a legume, peanuts are a great source of protein, including the amino acids tryptophan (needed to produce serotonin) and arginine (lowers blood pressure and homocysteine levels). Peanuts also contain dietary fiber.

Peanut butter is abundant in fat. Yet, due to its high levels of monounsaturated fat—the kind of fat in avocados and olive oil—it is thought to be heart protective.

Peanuts are particularly high in the bioflavonoid, resveratrol. Resveratrol has been found to help prevent the formation of arterial plaque. Because of red wine's resveratrol content it has been labeled heart healthy. It is resveratrol that is thought to be responsible for the low heart disease incidence in France, in spite of the typical high fat diet. Ounce for ounce, peanuts have about half the amount of resveratrol as found in red wine, but have more resveratrol than grapes. The peanut plant produces resveratrol as its own natural antibiotic to fight pathogenic bacteria and fungi.

Studies have shown that even small amounts of peanut products help reduce LDL cholesterol—that's the "bad" kind. Researcher Dr. Richard Mattes of Purdue University studied the effects of chronic peanut consumption on well-known risk factors for cardiovascular disease. Mattes stated, "We wanted to determine the impact of peanut consumption on total diet quality. We found that including peanuts in the diet significantly increased magnesium, folate, fiber, copper, vitamin E, and arginine consumption, all of which play a role in the prevention of heart disease."¹ "We have learned that regular peanut consumption lowers triglyceride levels by as much as 24 percent—even in the group where peanuts were added to regular dietary intake. We also saw no significant change in body weight, despite adding 500 calories of peanuts a day for eight weeks."²

Peanut butter does have a problem though. Remember the peanut plant produces resveratrol in response to fungi such as mold, i.e. aflatoxins. Aflatoxins are produced by certain strains of molds that grow on peanuts stored in warm, humid environments. Aflatoxin B1 is the most notorious of all human dietary carcinogens. Recent research has shown a strong association between long-term dietary aflatoxin exposure in conjunction with hepatitis B and increased rates of liver cancer. Hepatitis B is a viral infectious disease of the liver. The virus can switch off as many as 150 genes that are cancer protective. Hepatitis B is a prime cause of liver cancer. Mortality from liver cancer is 97 percent. We have been taught that hepatitis B is transmitted through sex, from mother to child in delivery, via contaminated needles and blood products. But peanut butter?!

The global exposure to aflatoxin and the

corresponding disease is large. But peanuts cannot receive all the blame. Aflatoxins occur all over the world in fungus infected rice, wheat, rye and other staple grains, as well as nuts and spices. Aflatoxin intake is a very large concern especially in countries where hot and steamy weather occurs. In certain provinces of China, the farmers experience the highest liver cancer rates in the world associated with aflatoxin intake.

“Because of lax or nonexistent regulation, 4.5 billion people in developing countries are chronically exposed to vast amounts of this toxin, called aflatoxin—often hundreds of times higher than safe levels. In places such as China, Vietnam and South Africa, the combination of aflatoxin and hepatitis B virus exposure increases the likelihood of liver cancer occurrence by 60 times, and toxin-related cancer causes up to 10 percent of all deaths in those nations.”³

One of the ways aflatoxin exposure increases cancer incidence is in how it “wreaks havoc on a cancer-preventing gene in humans called p53. Without p53 protection, aflatoxin can compromise immunity, interfere with metabolism, and cause severe malnutrition and cancer.”⁴ The p53 protein is known as the guardian of the genome, preventing the accumulation of mutations. Causing cancer cell death, p53 functions like the body’s own chemo drug.

Thankfully in the United States, we do have fairly strict regulation of aflatoxin levels in food. The U.S. Department of Agriculture (USDA) and Food & Drug Administration (FDA) mandate testing. Following this testing, the Consumers Union investigated aflatoxin contamination in peanut butter here in the U.S. In 1990, the average level of aflatoxin in 86 samples was found to be 5.7 parts per billion (ppb). While this is below the safe upper limit of 20 ppb, it was still a significant amount. Since then, however, the federal agencies have tightened up and the levels of aflatoxin in peanut butter have declined from an

average of 2.7 ppb in 1997 to 1.6 ppb in 2001.

Grown in New Mexico and Texas, Valencia peanuts and peanut butter made from this variety are the least likely to be contaminated with aflatoxin as they are grown in dry hot weather.

It seems silly to be concerned about something as everyday as peanut butter. With so many serious issues in the world, this hardly seems attention worthy. In reality though, exposure to the highly potent aflatoxins, which contaminate dietary staples like peanut butter, contributes to approximately 473,000 new cases of liver cancer worldwide annually. Eighty percent of these cases occur in the developing world. Hepatitis B virus also contributes to this sad statistic. Approximately 350 million individuals have the hepatitis B virus. Together, aflatoxin and hepatitis B work synergistically to create havoc.

While in my opinion those who don’t like peanut butter are missing out on something good, those who are eating potentially contaminated peanut butter are missing out on something that would counteract its potentially deadly effect. This is what we will explore next month.



¹ “Peanut Butter Smooth and Salty.” PEERtrainer. 1/12/07. <http://www.peertrainer.com/DFcaloriecounterB.aspx?id=4516>.

² Patterson-Neubert, Amy. “Eating peanuts helps keep heart healthy without weight gain.” *Purdue News*. 7/31/03. <http://news.uns.purdue.edu/html4ever/030731.Mattes.peanuts.html>.

³ Fitzenberger, Jennifer. “Trigger of Deadly Food Toxin Discovered.” University of California-Irvine. [p://www.uci.edu/features/feature_fungicancer_091021.php](http://www.uci.edu/features/feature_fungicancer_091021.php).

⁴ *Ibid.*