

Genetically Modified Foods

Written by: Dr. Steve Windley, MD



Genetically Modified Food

Food that is genetically modified may sound like an idea for the science fiction channel. It certainly does not make you think of corn growing in the field, or chips and salsa for that matter. Most Americans probably do not have an opinion on genetically modified foods because they have no idea what they are. They have even less of an understanding that we, in all likelihood, are eating some variety of genetically modified food every day without even know it or what the long-term consequences of that food might be.

Food that is genetically modified means that the original DNA structure has been changed. DNA is basically the blueprint of each living thing. By altering the DNA, the qualities or the characteristics of the living thing, plants in this case, can be changed. Why do this? The goal of genetically modifying plants included the aim to make plants such as corn or soybeans resistant to the herbicides used in the fields. This way the fields would be sprayed with the herbicides, killing all of the weeds but not affecting the actual crops. In theory, this makes a good model for the farmer who is trying to grow more crops and wants to avoid damage from the weeds. Unfortunately, genetically modified foods are not that simple.

Researchers have raised several concerns with the safety of genetically modified (GMO for genetically modified organisms) foods. A big concern is the basic lack of published human studies [2]. In fact, there is almost zero published research concerning the effects long-term or short-term effects on humans [1]. Researchers are concerned what effects might come by affecting the DNA of these crops. What happens to the crops? What happens to the animals and the humans who eat them? Are these plants a problem now? Are they are problem in the future? Can the bacteria and viruses used to alter the DNA in these plants also affect the bacteria in our gut? Frankly, we do not know. Right now we can not predict what would happen with long-term exposure to these crops. Will the bacteria our guts take in start making its own pesticide in our GI tract? Will these plants start making a totally new protein that is indigestible or harmful to us? The crops tend to have much higher levels of herbicide residue. There is a rapidly growing concern that these genetic mutations will lead to more allergies. Indeed, it has been demonstrated that a person who was not allergic to the wild soy plant was allergic to the GMO soy [2]. There is research to say that GMO foods negatively affect the immune system and inflammation in animal studies [3]. One of main scientists commissioned to study GMO crops was Dr. Arpad Pusztai. Dr. Pusztai published research concerning animal studies with GMO potatoes. His work showed precancerous changes in the intestinal tracts of rats along

with other changes to the liver, brain and testicles [4]. The concerns were made known and published [4,5]. Unfortunately, instead of stimulating for research and safety studies, it stimulated a firestorm attack on Dr. Pusztai and his team. Dr. Pusztai has received some exoneration for these previous attacks, but we still lack the data we need to know about the safety of these crops. One of the greatest concerns is that these DNA changes may mutate genetic material in bacteria, plants or perhaps our own bodies that goes unchecked and cannot be reversed. We are all publicly participating as subjects in a study to see what these foods will do to us.

In many countries, concern also comes from the loss of natural seeds that have been used for centuries. GMO crops have to be replanted every year. In many areas, including areas of great poverty, seeds are reused every year and taken from the hardiest, healthiest plants that have acclimated to that climate. If these seeds are lost and replaced with GMO seeds, we may lose several forms of wild plants native to a specific culture forever. We may lose potential plants, nutrients, medication sources and feed for the rest of the food chain in ways that we do not even understand. Many farmers of these rural, and sometimes impoverished, areas may be forced to buy seeds each year instead of reusing seeds that would already be available to them for free (and acclimated to the soil and climate of that area).

How do we avoid GM foods that are now commonplace in the supermarket? The Institute for Responsible Technology puts forward many suggestions to shoppers to help avoid GM foods.

- A starting point is to purchase organic foods or foods labeled as “non-GMO.” The GMO stands for genetically modified organisms.
- Focus the diet on fruits and vegetables as most of these foods are not genetically modified except for the ones listed.
- Buy free-range meats and wild-caught fish. Even though the animals themselves may not be genetically modified, they can certainly be fed GM corn or soy. It makes it that much more important to find grass-fed beef and free-range chicken or turkey. These meats are typically healthier for many reasons in addition to GM concerns.
- Educate yourself. Education is essential for all of us since food manufacturers are not required to say if a food contains GMOs. Review the books by one of the leading investigators in the area, Jeffrey Smith. He has authored the books: *Seeds of Deception* and *Genetic Roulette: The documented Health Risks of Genetically Engineered Foods*. He leads a group called the Institute for Responsible Technology that supports healthy food choices. Among their goals is to educate the public about this basically unknown health concern. The list of GMO foods right now includes corn, soy, canola, cotton (cottonseed oil), Hawaiian papaya, zucchini, crookneck squash and sugar beets.
- Use the website responsibletechnology.org for more information on GMOs.
- Carry a non-GMO shopping guide to know which companies are avoiding GMOs in their products and which ones do use GMOs. This information can be obtained from the site above.
- Let your legislators know this issue is important to you and your health and it can no longer be ignored.

GMO crops are a real issue. We do not have the published data to say these genetic changes are safe. We are participating in what is basically a watch and see situation where we hope nothing bad happens, and that we can hopefully revert if catastrophe begins to take shape. Consumer education and voice will dictate this issue. It has gone unnoticed by the public, but

the public will dictate what the food manufacturers do. If the public refuses to purchase GMO foods, they will be a thing of the past. Let's use our heads, gather more information and focus on more natural methods of crop growth for the sake of our plants, animals and ourselves.

References:

1. Domingo JL. (2007). Toxicity studies of genetically modified plants: a review of the published literature. *Crit Rev Food Sci Nutr*, 47(8):721-33.
2. Yum HY, Lee SY, Lee KE, Sohn MH, Kim KE. (2005). Genetically modified and wild soybeans: an immunologic comparison. *Allergy Asthma Proc*, 26(3):210-6.
3. Prescott, VE, Campbell, PM, Moore, A., Mattes, J., Rothenberg ME, Foster PS, Higgins, TJ, Hogan, SP. (2005). Transgenic expression of bean alpha-amylase inhibitor in peas results in altered structure and immunogenicity. *J Agric Food Chem*, 53(23):9023-30.
4. Ewen, SW., Pusztai A. (1999). Effect of diets containing genetically modified potatoes expressing *Galanthus nivalis* lectin on rat small intestine. *Lancet*, 354(9187):1353-4.
5. Ewen, SW. (1999). Health risks of genetically modified foods. *Lancet*, 354(9179):684.

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