Centegra Health System

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Common Food Misconceptions

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What are GMO's ?

GMO stands for genetically modified organisms and is a technology that alters food products at the gene level, usually by transferring a gene from one species to another in a laboratory and not by nature's natural reproductive processes. Many claim that it is a way to quicken what may over time occur naturally through evolution. One example of a common GMO is the use of Bacillus Thuringiensis (B.T.) gene added to maize. B.T. is a natural bacteria that makes a crystal-like chemical that is lethal to insects. GMO corn contains this bacteria in order to reduce the need for pesticides to ward off insects. GMO animals are expected to rise in the future such as pigs that are genetically modified to better digest certain feeds and thus reduce costs and salmon modified to grow at half the rate of an unmodified salmon. The genetically modified salmon is expected to come out in stores before 2015.

What are the Potential Benefits of GMO's ?

Genetic modification was originally designed to help crops grow faster and require less pesticides and herbicides. Over the last few years it is a technology that has grown quickly in its ability and use. Newer genetic modifications focus on improving nutritional value such as rice higher in vitamin A, improving the ability of GMO plants to live in difficult environments, and enhancing the rate at which crops grow. All of those benefits of new GMO's may help to reduce hunger and nutritional deficiencies in underdeveloped nations.

What are the Potential Risks of GMO's

The FDA does regulate GMO's just like other foods and additives. Unfortunately, unlike some other foods, GMO's are not required yet to be labeled in the United States. The many policy debates, lack of research, and the public's mistrust complicate the story behind the safety of GMO's. One new process developed to help regulate the safety of GMO's is *substantial equivalence* which is a method of analyzing GMO foods for potential risks by simply comparing them to similar counterparts that are not involved in GMO processing. Despite these safety standards, studies have shown that GMO's may cause a potential increase in allergies. For example, one study found that GMO peas given green bean genes to protect against weevils caused allergic reactions in a population of mice. Fears exist that GMO's may increase the development of allergies in children. Additional potential risks of GMO foods is that their use overtime may lead to pesticide resistance, soil contamination, insect resistance, and resistant forms of weeds. There is little research on GM foods overall and thus even less on its relationship to cancer. GMO foods are created through a complex processes and then fed into our complex human bodies, and thus its relationship to disease is simply unknown at this time.

Is Soy Safe?

Sources of soy:

- ⇒ Tofu
- ⇒ Miso
- ⇒ Soybeans
- ⇒ Edamame
- ⇒ Soymilk
- ⇒ TVP
- ⇒ Soy Powder

Soy contains a substance called isoflavones that are thought to act as an antioxidant which protects against damage to tissues and disease, and as an anti-inflammatory substance. A variety of studies have found a significant link between soy consumption and the reduced cancer risk, reduced cancer spread, and reduced tumor size. Also, studies found positive results on the benefits of soy for many different cancers including breast cancer, gastric cancer, oral cancers, and prostate cancer. Many people have feared soy because it is called a phytoestrogen and has very similar relationship to estrogen which is a hormone in the body associated with increased risk for hormone based cancers such as breast cancer. However, this myth is not true. Soy is similar to estrogen in structure but that dos not mean that it is estrogen or any type of hormone, or that it works the exact same in the body as estrogen does. In fact some studies show that soy can fight against the negative effects of estrogen especially in the GI tract. Another previous belief about soy in relationship to breast cancer has been changed due to additional research on the subject. This belief was that soy should not be consumed by someone with or at high risk for breast cancer. Today, research does not show any negative effects of soy on breast cancer risk, development, or treatment. Many studies do however produce neutral effects concerning cancer prevention.

Also, many studies with soy are performed using populations in Korea, Japan, and China which have different lifestyle and dietary variables compared to a population in the United States. Research still cannot say that increasing soy will necessarily decrease the risk for cancer but it does support that soy has the potential to either reduce cancer risk or have a neutral impact on the disease. Thus, more successful research is needed to fully support the strong theory that soy can help in the United State's fight against cancer.

Can artificial sweeteners cause cancer?

Artificial sweeteners are the substances used to replace sugar use in foods and beverages. These substances are regulated by the Food and Drug Administration (FDA) and therefore must be approved for safety before they are put on the market. Artificial sweeteners include saccharin, aspartame, acsulfame potassium, sucralose, and neotame. Before approval for consumption, the FDA performed over a 100 studies on each of the artificial sweeteners to search for any health risks or diseases including cancer. None were found. Also, there is no clear evidence from the studies performed on sweeteners that link them to cancer risk. A study performed in the 1970's is known to have linked saccharin to bladder cancer in laboratory animals. In response, the government put a warning label on all products containing saccharin. Many additional studies were performed after the incident. Some did show the same link between saccharin and bladder cancer in rats. However, when studies were analyzed in detail to see how the artificial sweeteners increase cancer risk, it was found that it was an incident that only occurs in rats and would not occur in humans because of the differences between the organisms. In 2000, the warning labels on saccharin were removed by the government due to those newer studies deflating any relationship to bladder cancer. Aspartame was also falsely theorized to be associated with certain cancers, however rat studies associating this were found to have flaws. Also, recent studies performed by the National Cancer Institute found no relationship between human consumption of aspartame containing beverages (such as diet sodas, Nutrasweet, and Equal) and cancer risk or occurrence.

What About Pesticides?

Studies have shown that high doses of pesticide can increase cancer risks, however, through our food we only come into contact with small amounts of pesticides if any. The amounts we are exposed to as consumers are far below that deemed safe for our consumption. The Environmental Protection Agency (EPA) and Food and Drug Administration (FDA) regulate and monitor pesticide use and the residues in conventional foods.

Some studies show that organic foods may be higher in antioxidants, vitamin C, and some minerals but the difference is very minimal and unlikely high enough to have any increased health benefits. Interestingly enough, a different type of farming termed sustainable farming uses synthetic fertilizers but little if any pesticides. These crops may have additional flavonoids which are microscopic nutrient in food that can help prevent diseases including cancer and heart disease. If you do choose to purchase organic foods, label reading may be beneficial. The following terms tell you if something is organic or not:

- 100% organic – no pesticides or synthetic fertilizers are allowed by law in the product.
- "Organic" – at least 95% of ingredients were made organically.
- "Made with organic ingredients"—at least 70% of ingredients were made organically and the other 30% come from an FDA list of approved substances.
- "Free-range" or "free-roaming"—the animals had undetermined amount of daily outdoor access. Organic unknown.
- "Natural" or "all natural" –not organic but may not contain artificial flavoring, colors, chemical preservatives, or synthetic ingredients. However, these items are not completely regulated.

Is Organic Better?

Organic foods can prevent any exposure to pesticides because they are required to be grown without use of any synthetic fertilizers or pesticides in order to be labeled "Organic." Also, animals raised organically are not fed foods that have been exposed to pesticides. This doesn't mean that organic foods are not exposed to contaminants at all because natural plant toxins or other contaminations may still be found in the food. Also, natural pesticides are aloud to be used including sulfur, nicotine, and copper. However, there are also strict rules to prevent any harmful amounts of these additional substances to be on the food.

Is Organic Food More Nutritious?

The "Dirty Dozen"

If you are concerned about pesticides in your diet, you can follow the lists to the right to decide which fruits or vegetables to buy as organic. Foods found under the "Dirty Dozen" have higher pesticide residue than foods listed in the "Clean Fifteen."

Dirty Dozen

Peaches	Cherries
Apples	Kale
Bell Peppers	Lettuce
Celery	Grapes
Nectarines	Carrots
Strawberries	Pears

Clean Fifteen

Onions	Kiwi
Avocados	Cabbage
Sweet Corn	Egg Plant
Pineapple	Papaya
Mangoes	Watermelon
Asparagus	Broccoli
Sweet Peas	Tomatoes

What is Irradiation and Is It Harmful?

When radiation in the form of gamma-rays, X-rays, or electron beams is used to treat foods for the purpose of preventing foodborne illness, improving preservation, controlling insects, delaying the sprouting and ripening, and sterilization. The changes that radiation makes to food are extremely minimal and unnoticeable. Irradiation doesn't affect quality of food in any way and it most importantly doesn't make food radioactive. The radiation the food is treated with is long gone before the food reaches the consumer. Yes, it is regulated by the Food and Drug Administration and accepted as safe by the World Health Organization, the Centers for Disease Control and Prevention, the U.S. Department of Agriculture, and the American Medical Association. Foods approved by the FDA for irradiation include beef, pork, poultry, Molluscan shellfish, shell eggs, fresh fruits and vegetables, lettuce and spinach, spices and seasonings, and seeds for sprouting. This doesn't mena that all of these foods are irradiated, just approved for it. If a food is irradiated, it will be labeled with the Radura symbol which is a green circle with a plant in the center, and the statement "treated with radiation" or "treated by irradiation."

What about food additives?

Over 3000 foods are approved by the Food and Drug Administration (FDA) to be added to food in order to improve/conserve its color, appeal, flavor, texture, and convenience. Additives are therefore, any ingredient added to food that influences its characteristics including everyday substances such as sugar, baking soda, vanilla, yeast, salt, and spices. The main roles of food additives are to maintain or improve the food's safety, freshness, nutritional value, taste, texture, and/or appearance. No research shows any danger to our health including any link between artificial sweeteners at the usual consumption amounts found in foods.

Does Sugar Cause Cancer?

Studies have linked sugar intake directly with an increased risk of getting cancer or with increased cancer progression. Except, when a lot of high sugar foods and drinks such as desserts or soft drinks are consumed, it may lead to a lower intake of fruits and vegetables and weight gain over time, both of which are found to increase cancer risk. But lowering sugar consumption can still be helpful for your overall health and thus cancer prevention and treatment. Also, replacing sugary foods with healthy alternatives such as yogurts, nuts, fruits, vegetables, whole grains, and beans is recommended. There is no need to be unusually strict about avoiding sugar, however. Everything can fit into a healthy diet in moderation.

Information Received From:

- Nutrition Cancer Survivors 2010 by the American Cancer Society
- Journal of Politics and Life Sciences 2013
- Journal of Nutrition 2013
- Journal of Nutrition and Cancer 2012
- Abramson Cancer Center of University of Pennsylvania
- The American Cancer Society at www.cancer.org

For More Information Visit:

- www.aicr.org
- www.foodnew.org
- www.cdc.gov
- www.cancerresearch.org