Can Eating Meat Really Cause Cancer?

By Adam Castaldo (NUTRI 340 Student)

The consumption of animal protein has been linked to tumor growth through a hormone called insulin-like growth factor (IGF-1). Scientists found a correlation between high dietary protein intake with an increased level of IGF-1 in the blood. IGF-1 is released by the liver to incite growth in the body’s cells and is typically found in elevated concentrations in the blood during periods of rapid growth like childhood and puberty. However, this existence of high levels of IGF-1 could fuel unwelcome growth, such as tumors, in adulthood; the body is not expecting rapid growth, but the amount of IGF-1 in the blood suggests otherwise.

Maintaining a normal level of IGF-1 in the body is critical, as levels that are too high or too low can both be catalysts for various life-threatening diseases such as cancer, the second leading cause of death in the United States. But studies have shown that increased intake of protein - specifically, animal protein – contributes to the “too high” condition that is conducive to tumor growth. Numerous studies have linked protein intake to IGF-1 secretion, with research showing a correlation between low dietary protein and low IGF-1 production and high dietary protein with high levels of IGF-1. This dietary protein can come from many different sources: red meat, diary...
Cancer and Meat, cont.

product, fish, poultry, soy-based products, and vegetables.

While it is still largely unclear exactly how or which amino acids trigger the production of IGF-1, some research suggests that one of the more significant drivers of IGF-1 secretion is a protein that is especially rich in essential amino acids. While plant sources of protein are commonly missing one or more essential amino acids, soy, as well as animal sources, feature all of them and are thus classified as “high quality.” Typical sources of high-quality protein in the American diet include milk, fish, poultry, and red meat. Among these various sources of “high quality” protein, some seem to be more beneficial than others when it comes to IGF-1. Research shows that a diet high in vegetable protein may lead to an increase in IGF-1, those eating primarily animal sources did not show the increase in IGFBP-1.

While IGF-1 released by the liver seems to be relatively innocuous during normal growth periods like childhood and puberty, it stands to reason that an increase in IGF-1 circulation during adulthood could have harmful results, such as unwelcome growth in the form of tumors. Without a corresponding increase in binding proteins like IGFBP-1, secretions of IGF-1 due to animal protein intake have free reign to ignite unwanted cell division in various locations in the body.

However, some exceptions do appear to exist. Increased protein intake by an athlete will still trigger the production of IGF-1, but in this case, the hormones will be used to build muscle along with the available pool of amino acids. In an alternative scenario, a sedentary individual has no such need for growth and has not established the same demand for IGF-1 to spur muscle growth. It is logical to then conclude that the sedentary individual would then be at a higher risk of two major health issues. One is weight gain due to excess protein being broken down into amino acids and acetyl CoA and then converted into triglycerides. And the second is potential cancerous growths due to the increased concentration of IGF-1 in the bloodstream.

If exercise plays a major role in the body’s use of amino acids and IGF-1 to build muscle, it would be useful to understand the impact of animal protein intake, particularly in someone that exercises regularly. In addition, the mechanism by which IGF-1 is produced in the liver is simply not clear enough to fully understand the link between animal protein and IGF-1 production. More research is needed regarding which, if any, specific amino acids trigger the production of IGF-1. The correlation is there, and logic would have one believe that animal protein can spur cancerous growths, but more understanding is needed to confirm the causation.
At the ends of every one of our DNA structure are protective shields called telomeres. Telomeres like the plastic ends of our shoelaces; known as aglets. Aglets protect our shoelaces from fraying and keep the shoelace functioning as it should, just as our telomeres do for our DNA protein structures during replication and cell-division activities. DNA contains the blueprint and instructions for all functions and guidelines on how cells, genes, organs, and entire bodies are made and grow.

However, as we age our telomeres become shortened with each replication or cell division cycle. Once telomeres are depleted, the DNA strand becomes prone to mutation or the cell undergoes apoptosis (death). Telomeres, therefore, become the time clocks to our lives. The better they are maintained, the longer the DNA remains protected; effectively preventing cells from falling to cancer, disease, or death.

Telomere length is directly and positively correlated with age, but scientists are finding that other factors contribute to the length of telomeres. Oxidative stress and inflammation cause telomere shortening while a cellular enzyme called telomerase repairs, strengthens, and lengthens telomeres. Telomerase has been found to be most active and abundant in people eating plant-based diets due to its ability to promote less oxidative stress and inflammation. The best plants to incorporate specifically for increased telomerase activity have been those high in fiber and high in antioxidants (i.e., beta-carotene, vitamin C, and vitamin E). It is because of their antioxidant and anti-inflammatory properties that work alongside the telomerase to protect telomeres from rapid deterioration as we live and age. This means the DNA would be protected longer thereby increasing the longevity of cells and therefore the longevity of the whole body.

In 2012, scientists at the Department of Chronic Disease Prevention and the National Institute for Health and Welfare in Helsinki, Finland conducted a study of middle-aged men and women on the association of fats, fruits, vegetables consumption, and their telomere length. Their observation was that individuals with shorter telomeres had higher BMI’s and type 2 diabetes. What they found were men who consumed more butter and fewer fruits had shorter telomeres than those that consumed more fruits and less butter and women that consumed more fruits and less butter and women that consumed more fruits and less butter had longer telomeres than those that consumed more fruits than butter had longer telomeres than women who did not. The research did not find significant associations between telomere length and BMI, waist-hip ratio, smoking, physical activity, or education.

Consuming plants high in antioxidants, and

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The idea of menopause produces images of sudden hot flashes, weight gain and waking up with night sweats. Hot flashes are among the most common complaints of symptoms during menopause and referred to as vasomotor symptoms (VMS). It is reported that up to 80% of women will experience VMS at some point during menopause. Hot flashes occur when blood vessels near the surface of the skin suddenly fill with blood and cause a quick and intense feeling of heat. Sometimes chills, trembling and rapid heartbeat can accompany the hot flash. Hot flashes are common and are the result of the hormonal shift that comes with menopause where the level of estrogen drops by 95%. The fluctuation of the estrogen levels affect the blood vessels leading to VMS. But recent studies have found that hot flashes do not occur for many women in other parts of the world. Researchers began looking at differences in menopausal symptoms between women in other countries and the United States and found that the big distinction is their diet.

The benefits of fruits, vegetables and whole grains are well known and repeated often in articles and books, but does it influence hot flashes? A study performed by the Women’s Health Initiative Dietary Modification on 17,473 women over a period of one year found that women who followed the diet that contained more plant foods were less likely to experience or even eliminate hot flashes by the end of one year. It is also reported that consuming more yellow-green vegetables while consuming less processed food and coffee were inductive to fewer incidents of hot flashes. On average, women who followed the plant-based diet lost weight (instead of gaining weight as might be expected with menopause). The study points out that women who lost weight had a reduction in VMS, however, beyond weight loss, those who maintained or even gained weight experienced fewer VMS indicating it was more than weight loss that contributed to the findings.

A Mediterranean diet has long been touted as one of the best heart-healthy diets. The Mediterranean diet has many similarities to a plant-based diet. Both include a large portion of fruits and vegetables, whole grains, legumes and nuts. The Mediterranean diet also emphasizes fats from plant based sources, high fiber intake and using seasonings and herbs to flavor dishes. The Australian Longitudinal Study on
Hot Flashes, cont.

Women’s Health monitored 6,040 women for nine years. They found that women who followed a Mediterranean diet reported fewer hot flashes than the control group. In addition, it was discovered that those who consumed a diet high in fat and sugar reported an increase in the number of hot flashes experienced. The mechanism that is believed to produce these effects is related to estrogen activity. It appears that high fat intake is linked with higher estrogen concentrations, but the high fiber intake along with the Mediterranean diet shows lower estrogen activity.

Another reason may be associated with the glycemic index of the foods. The glycemic index is a measure of how a food affects the blood glucose level. A low glycemic food (common with a Mediterranean diet) means that it is slower to digest, absorb, and metabolize—causing a lower rise in the blood glucose. Whereas, a high glycemic food (seen in a high fat, high sugar diet) is one that is quickly digested, absorbed and metabolize causing a significant rise in blood glucose level. By eating more low glycemic index foods, the blood glucose concentration is less likely to fluctuate and may contribute to a lower risk of VMS. Using this information, a plant-based diet can contribute to help minimize estrogen fluctuation and optimize blood glucose levels.

A plant-based diet consists of fruits and vegetables, whole grains, legumes, nuts and soy. Soy has been suspected to play a role in minimizing menopausal symptoms because they contain phytoestrogens that have properties similar to estrogen. Phytoestrogens exert weak estrogenic activity in the body. In a meta-analysis of 543 relevant studies, it was concluded that the phytoestrogens appear to reduce the frequency of hot flashes. However, it remains uncertain if it is related to the soy or the overall benefit of plant-based foods.

More studies are needed on diet and managing the symptoms of menopause especially around plant-based diets. However, many research studies have shown that there is a correlation between hot flashes and diet. At this point, there is no harm in including plenty of fruits, vegetables, whole grains, nuts and legumes, or adopting a plant-based diet, to the minimize the level of hormone fluctuation that brings on the symptoms (and their intensity) of menopause.

What Changed for Me – From a CRC Student
By Claudia Yost, NUTRI 303 Student

Growing up, my family and I were very close, but we were far from healthy. We were the type of family to eat what was the easiest, cheapest and available at the time, and assumed that healthy food was too expensive. This was carried through three generations, given that we were not the wealthiest family, and we were influenced to eat whatever was openly accessible to us. To begin with, my grandmother’s childhood was full of struggles and hurdles, and through her teenage and adult years, there was a long winding journey through addiction. We began to nurse her back to health, and to surround her with the love she desperately needed to heal from her hardships.

One way that we expressed our love for my grandmother was through our homemade meals. My mother made the best tasting burgers and chicken dishes, lots of deep-fried food and we ate loads of ice cream. Now I know that this food was actually subtracting years from our future lives with every bite we took. Before long, my grandmother was diagnosed...
What Changed for Me - continue

with diabetes, and needed to inject insulin nightly.

My mother lacked energy, and her and I both carried excess body weight. This happened to be occurring during my teenage years, when I was insecure about every bit of myself. I fell into a cycle of wanting to be thin, losing track of what it even meant to be healthy. I wanted to change, but I didn’t know how. Through a process of unhealthy trial and error and failed attempts of restrictions and dieting, I lost the love that I once had for myself. In 2016, I decided to try out a kickboxing class at the local UFC Gym, and fell in love! These classes sparked an interest in taking good care of myself that I had lost years earlier. I began to wonder what else I could do to improve my health. As fate had it, I enrolled in NUTRI 303 Plant Based Nutrition course at CRC, taught by Timaree Hagenburger. I found it incredibly inspiring that a plant-based diet can not only prevent and reserve many diseases, but it can also improve mood and clarity.

While I was excited to get started, my main concern was out weekend family dinners and missing the foods that I thought were delicious. I soon found out I could still enjoy my family’s taco dinners and it wasn’t too long before the rest of my family joined me on this incredible journey.

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Jackfruit and Walnut Tacos

~Claudia Yost~

Ingredients
20 oz can of unripe “young” jackfruit canned in water (available at Trader Joe’s); drained & rinsed

3-4 cloves of garlic, minced
1-2 tsp chipotle in adobo (optional)
¾ C red onion, diced small
1 tsp garlic powder
1 tsp smoked paprika
1 tsp oregano, dried
1-2 tsp chili powder
2 tsp ground cumin
¾ C walnuts, chopped small
1 Tbsp reduced sodium soy sauce or tamari
1-2 Tbsp fresh lime juice
Favorite toppings for tacos such as grated carrots, shredded cabbage, cilantro, avocado, salsa

Procedure
In a pressure cooker or on the stove, combine the jackfruit, garlic, chipotle and 1 cup of water and cook until tender (30 minutes in pressure cooker or up to an hour on the stove). In a saucepan over medium heat, cook the onions for several minutes until they begin to soften, then add the spices and walnuts, ensuring they are mixed well. Once the jackfruit is tender, use a fork or slotted spoon to transfer the pieces to the pan with the onion mixture. The jackfruit will easily shred with a fork. Add the soy sauce or tamari and lime juice, ensuring the filling ingredients are thoroughly combined.
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Not only did my grandmother’s HgbA1C level drop, her doctor discontinued her insulin! Currently, she is a happy, plant-based woman, and her doctor no longer considers her diabetic!

My mom had an easier transition. “Once I hit the age of forty, I started to really think about the way I was eating, and how it can either impair or empower my way of living. I reflected on how my mother and father, and even my extended family, have had to suffer with all different types of diseases; heart disease, breast cancer, prostate cancer, obesity, high blood pressure, and diabetes. Once I learn these can be prevented, and even reversed by foods, I was inspired to make the transition. It was so liberating to discover that most cancers are not determined by our genes. Heart disease and obesity don’t have to be ‘passed down’ through our families!”

Although I am the youngest of three generations, I have found a love for myself again, through loving the foods that love me back. I no longer feel unhealthy or insecure, physically, mentally or emotionally. Knowing that my influence on my family may have added quality years to their lives brings me immense joy. Our lovely family dinners shall continue with all plant-based options, to unite us as a strong, happy and healthy family for years to come.