

Eating To Fit Into Your Genes

October 04, 2011

When was the last time you thought about what you eat? Although we rarely stop to think about our food, our dietary choices significantly influence our health, which is a necessary component of proper function in graduate school. When classes are in session, stress levels are high, hours of sleep are low, eating is generally sporadic, and exercise may be nonexistent. For years, we have been told by authorities such as the U.S. Food and Drug Administration that a healthy diet focuses on grains as the optimal energy source and that fat, particularly saturated fat, is generally to be avoided due to its negative health effects (see www.mypyramid.gov). People have followed these guidelines, eating fewer calories and exercising more. Still, obesity and chronic cardiovascular diseases are highly prevalent in the United States (Joyce, 2010). Interestingly, most of the chronic diseases appeared around the same time as the recommendation to eat a low-fat, cereal-based diet (Taubes, 2007). If these foods are as healthy as they are reported to be, why are so many people suffering from diet-related diseases?

I would like to use this article to present an alternative view on diet and nutrition: Perhaps fat is not as bad as we think, and perhaps grain-based foods are partly responsible for the modern prevalence of diet-related diseases. Though this view is based on medical and anthropological evidence, it is discordant with today's dietary conventional wisdom.

What We Eat Now and How This Food Affects Us

Think about your dietary routine. You awake and eat breakfast: cereal (with plenty of fiber) and skim milk. Then, you have some toast and juice. According to the Food Pyramid, you ate well: low fat, high fiber, and plenty of carbohydrates to keep you full through the day. Three hours later, you feel completely enervated. A sandwich and soda later, you feel better. After a few more hours, you feel like you will collapse unless you eat. Is this an efficient way to maintain a productive academic career, or is your diet hindering you?

Human physiology has not changed significantly over the last 100,000 years, but the majority of foods eaten today bear little resemblance to foods eaten by our ancestors. Most of today's foods are products of the agricultural revolution, which occurred around 10,000 years ago (Larsen, 1995). Thus, there is a mismatch between the foods humans ate during their evolutionary past and the foods they eat today.

Modern foods and dietary guidelines may be responsible for the “diseases of civilization” that are prevalent today. Weinberg (2004) stated: “...the [food pyramid]...may well have played an unintended role in the current epidemics of obesity, ...type 2 diabetes, and metabolic syndromes” (p. 731). Research points to meat and animal fats as the most optimal foods, whereas excess carbohydrates — particularly grains and sugars — are the most detrimental (for a thorough review, see Taubes, 2007; for an entertaining review, see Wolf, 2010). Furthermore, these modern diets do not provide adequate nutrition for healthy human function (Meksawan et al., 2004).

Carbohydrate-rich foods begin a reaction within your body, leading to negative consequences (Taubes, 2007; Wolf, 2010). Beyond the problems associated with consuming excess carbohydrates, gluten, a protein found in most grains (e.g., wheat), and anti-nutrients (e.g., lectins) lead to inflammation and damage of the digestive track, triggering autoimmune reactions (Cordain, 1999). People vary in sensitivity to these substances, but no human is immune to them (Cordain, 1999).

How Does This Relate to Me?

Recall the dietary scenario I described earlier: systematic lethargy that can only be assuaged by a meal. This may appear normal; the food you consumed through the day follows the guidelines of the food pyramid. However, each bite of toast initiates specific hormonal reactions. As Wolf (2010) described, all those carbohydrates end up as glucose (i.e., simple sugars) in your blood, leading to excessive production of insulin, a hormone responsible for nutrient uptake and fat storage. Systematic insulin cycling can lead to unstable energy levels, weight gain, and *insulin resistance* — the inability to sense high insulin levels — which is a precursor to diseases like diabetes. Furthermore, over-consuming carbohydrate-rich foods can suppress the immune system, which may leave individuals more vulnerable to disease (Stanhope et al., 2008).

These oscillations in energy are common among students. I have heard my colleagues complain that they are hungry and tired even though they ate cereal two hours earlier. Are we destined to be victims of these energy oscillations, or is there something we can do? Can our diet facilitate productivity and give us the stamina to tackle even the most brutal rejection letter from the *Journal of Personality and Social Psychology*? Fortunately, the answer is “yes,” and it lies in the history of our species: Eat the foods that allowed our ancestors to thrive, and you will soon feel like you can tackle the African wilderness.

What We Ate Then and What We Can Learn From It

Early humans consumed primarily animal products with some raw vegetation (Larsen, 1995), a diet that continues in modern hunter-gatherers, who are generally free of “diseases of civilization” (Cordain et al., 2005). What would happen if we adopted a diet that is more consistent with our genome? Recent research suggests that consuming natural low-carbohydrate, high-fat foods (including saturated fats) can lead to positive health outcomes, such as reduction of stroke risk (Gillman et al., 1997), alleviation of inflammation (Forsythe et al., 2010), and treatment of obesity (Boling, Westman, & Yancy, 2009).

Grain-based and other processed foods are appealing. They are relatively cheap and come in attractive packages that may appear to say “buy me!” However, we may be better off switching our attentions to processed foods from “buy” to “avoid.” Did our ancestors eat Pop-Tarts? Anthropological evidence has not corroborated that notion yet. Humans evolved to eat whole, natural foods that facilitate proper cellular function. We need to eat to sustain ourselves, and we are composed of proteins and fats, not corn. Below are some easy steps that you can take to improve your diet and lifestyle, which may make those comprehensive examinations a little more bearable.

First, *read the food labels*. Labels tell you everything you need to know about a product. If you cannot pronounce it, or cannot find an ingredient in nature, then you may be better off putting it back. Be aware of herbicide and pesticide residue on vegetation (refer to www.foodnews.org).

Second, *eat your meat*. Protein and fat are essential for optimal human function. Saturated fat does not appear to be responsible for the obesity and cardiovascular disease epidemic as once thought; rather, it is one of the best energy sources for your body. This is why body fat is saturated (Willett, 1998; see Taubes, 2007, for a history of the lipid hypothesis). Be aware, however, of hormones or antibiotics in meat.

Finally, *eat your fruits and vegetables*. They contain vital micronutrients that are essential for human health and function (Sisson, 2009). They are relatively inexpensive and can be obtained at grocery stores and farmer's markets. Be careful because many fruits are relatively high in sugar; favor berries, as they are lowest in sugar (refer to www.thepaleodiet.com/nutritional_tools/fruits_table.html). These steps are small and simple: select carrots instead of chips, eat grilled versus breaded chicken, and enjoy your bacon.

Conclusion

You are what you eat. Every piece of food that you consume affects your body in various ways. Your hormonal levels, mood, and even immunity are all bolstered — or hindered — by your diet. Graduate school is a stressful environment, as papers are due, financial issues are numerous, and sleep is generally scarce. These stressors alone can potentially lead to detrimental effects on your body (Wolf, 2010). Diet should not be another stressor. Although the dietary suggestions that I have outlined appear fairly radical, emerging evidence suggests that we may have to re-evaluate our definition of a healthy meal. Many of the foods currently considered healthy have existed for a brief time relative to the span of human evolution. Consider re-incorporating some of the foods humans evolved to eat. Any interested reader can do a personal experiment — try omitting modern foods (grains, legumes, starchy vegetables like potatoes, and sugars) for 30 days, and see how you feel. As with any living creature (even your advisor), a natural environment, including diet, will lead to a healthier, more productive, and more enjoyable life.