A Brief History of Inflammation and Nutrition

OR: HOW FAR MARKETING LAGS BEHIND SCIENCE

By Barbara Mack, MD

In the 1980s, cholesterol was a known component of the atherosclerotic plaques that were found in heart attacks and strokes. Thus, it was assumed that cholesterol caused heart attacks and strokes. Guilt by association. Doctors told their patients to avoid butter, meat, and all food with cholesterol. Margarine and many processed foods were advertised as “cholesterol free” and, by implication, healthy. However, did you know the majority of people with heart disease do not have high cholesterol? What else could be the culprit?

Even two decades ago, we knew our cell membranes are made from the fats in our diet and also contain cholesterol as a vital functioning part. The cell’s powerhouse, the mitochondria, where the food is turned into energy, rely on cholesterol in their membranes. Without optimal functioning of your mitochondria, no matter how much fuel you take in, you might feel tired and not function as your best.

It was an exciting time: The endocrine system and all its fascinating hormones were just beginning to be understood. So far, we knew that many of the hormones, for example the sex hormones, are made from cholesterol. We also knew that our brains are about 65 percent fat, and absolutely dependent on cholesterol (which is a special form of fat).

FAT IN THE DIET

At that time, I was a pre-med student in Boston, and as an avid runner, I was fascinated by nutrition and was very fortunate to be able to spend time with pioneering research scientists in nutrition and exercise physiology at BU and MIT. In their labs, lectures, and casual meetings, we had lively discussions on the topic of cholesterol and fat in the diet. I knew, as a chemistry major, how vegetable oils were changed to make them have a consistency more like the melt-in-your-mouth experience of butter that people loved. Part of the chemical result of this change from vegetable oil to a butter-like fat was a mirror image of the fat molecule that nature assembles: a fat that never occurs in nature—trans fat. It is analogous to your right and left hand. Trans fats also provided a long shelf life. (That should be a clue—if bacteria don’t want it, why would we?)

Trans fats finally became part of public awareness 20 years after I first sat with the elite scientists at BU and MIT who were debating the potential problems with trans fats. It was still another 10 years before mainstream medicine accepted this, but by then public pressure, not the medical community, had forced changes in the food industry. A similar process is happening now with cholesterol.

As I stated at the beginning of this article, cholesterol has long been considered the cause of strokes and heart attacks. However, research is now elucidating the underlying cause of the plaques that build up in the small arteries that supply all our organs: Inflammation.

Inflammation, a cascade of reactions occurs in the small arteries, resulting in plaque formation, and cholesterol is actually your body’s attempt to quell the inflammation! Just as it took most medical doctors about 20 years to see that trans fats were not healthy, it will take a long time for the general medical population to understand that inflammation, not cholesterol, is the important underlying cause of atherosclerosis.

SOURCES OF INFLAMMATION

Where does inflammation come from? The trigger can be from a virus, bacteria, or fungus, or from a chemical, toxin, foreign protein, allergens, cold, heat, stress, or physical trauma. And as we have recently learned, fat cells, especially visceral fat cells—even the few extra pounds you may carry about your midsection—are highly inflammatory. This kind of inflammation is most closely linked with heart disease risk.

Determining your body composition, your percentage of fat mass versus your muscle mass, can help you determine how much risk you are carrying. The number on the scale is less important than the composition of your weight. While you may not be overweight, you may be over-fat. In other words, increasing your muscle mass and decreasing your fat mass may not only make you look more buff, it could save your life.

So what factors cause unhealthy body composition? Often it is improper calories for metabolic requirements, too much or too little. Determining your basal metabolic requirements can answer this for you. Other factors include a combination of lack of physical activity, high-fat/high-sugar diet, excess alcohol intake, hormonal imbalance, and even certain medications.

In several recent studies, it has been shown that a therapeutic lifestyle prescription of a low-glycemic index Mediterranean diet, appropriate physical activity and stress management can measurably change your body composition and reduce cardiac risk factors without medications. In three independent university studies, this therapeutic lifestyle prescription produced cardiac risk factor reduction equal to or better than medications. Learning your basal metabolic caloric requirements, tailoring your food plan to maximize muscle and then monitoring your body composition analysis is the key to achieving the healthy lifestyle that will help you be active into old age.

Dr. Mack is a nationally-ranked Ultramarathon athlete who is certified in Age Management Medicine. She and Dr. Joanne Pizzino, of Whole Health Solutions, have extensive training in Integrative Medicine and approach healing through integrating body, mind and spirit with therapies from around the world.

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Body Composition Analysis

Whole Health Solutions will provide a free body composition analysis to all who register for their Reducing Heart Disease Risk Factors class on February 22 at Earth Fare Market in RTP. For other dates, call their office to arrange for your free body composition analysis.

Understanding the Impact of Nutrition and Lifestyle

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