

**Acupuncture Today**

**January, 2009, Vol. 11, Issue 01**

## **A Unified Field Theory for Cancer and Heart Disease**

### **The wonder of essential fatty acids**

**By Andrew Rader, LAc, MS**

Eat real food, which humans have eaten for hundreds of thousands of years, and not too much.<sup>1</sup>

Cancer and heart disease were not major diseases in human history until the past 40 to 50 years. True, there are many factors that did not exist before this time, such as radiation, new chemicals and toxins. Now, a re-examination of a doctor's work in the 1930s gives us a plausible theory that explains how our diet, specifically the rise in carbohydrate consumption and the distortion of essential fatty acids, are the primary causes of cancer and heart disease, while the other factors are secondary in nature.

In *The Hidden Story of Cancer*, written by Brian Peskin and Amid Habib, the authors outline the incredible work of Dr. Otto Warburg, a German scientist in the 1930s who realized that hypoxia (lack of oxygen) was the fundamental reason cells became cancerous. The technology of biochemistry was not sophisticated enough at that time to know the actual mechanisms, but now there is enough evidence to know exactly what is going on and how it connects to heart disease, in addition to a host of other health problems.

I was fortunate enough to hear Brian speak in Marin County, Calif., this summer. I will try to summarize the main points from his presentation in this article.

### **The Cell At Work**

Some of the most critical ingredients for our cells' metabolic needs are the essential fatty acids. Most of the metabolic work happens in the cell membrane or the organelle membranes; most significantly the mitochondria. Membranes are made up of lipid bi-layers. Embedded into this lipid bi-layer are the proteins and carbohydrates that control what comes and goes into and out of the cell or organelles. The proper function of the membrane depends greatly on the particular fatty acids that make up the lipid bi-layer. Saturated fatty acids are structurally more rigid, while polyunsaturated fatty acids are more flexible.

The nature of the membrane's rigidity or flexibility will determine how well the cell performs basic metabolic tasks such as respiration; i.e., the process by which oxygen is transformed into adenosine triphosphate (ATP), the chemical currency of energy for all life on this planet. If the cell can't utilize the oxygen efficiently, it will convert from respiration over to fermentation in order to produce energy. This is much less efficient, and the cell's intelligence is also lost in the

process.

This is how a normal cell turns into a cancer cell, according to Dr. Warburg, the Nobel Prize-winning scientist. His later work confirmed that the mechanisms were particular to essential fatty acids. It is important to note that it is the cell's ability to incorporate oxygen that is lacking, rather than the oxygen itself. Thus, there can be lung or blood cancer developing in the presence of oxygen because the cell has lost the ability to utilize that oxygen for respiration.

What is critical to understand is the differentiation between real, pure, unadulterated oils and those oils that have been disturbed in some way. Processed oils will alter their ability to function properly in the cell. They may provide a longer shelf life or become a solid at room temperature so that one can bake better cakes with them, but they are not what nature intended. These adulterated oils have been inserted into the food chain most aggressively post-World War II and have made their way into our cell membranes. We know them mostly as trans fats or hydrogenated fats, but these are not the only names used or ways to modify these oils.

When the cell incorporates altered omega-6, i.e. linoleic acid (LA), into its membrane it alters its ability to utilize oxygen. When a cholesterol molecule binds to a modified LA, it becomes the plaque that blocks arteries. Cholesterol that binds unadulterated omega-6 fatty acids does what it is supposed to do, which is to help repair damaged tissue.

Cholesterol itself is not the issue; the oxidized LA to which the cholesterol binds is the issue. Going after cholesterol is like going after the cab driver who was unwittingly transporting the bank robbers. Or more accurately, going after all cab drivers to stop all bank robberies.

This may come as a big shock. Fish oil is not a good source of omega-3. Here is the reasoning. There is an important distinction between parent omega-3 fatty acids and their derivatives. Alpha-linolenic acid (ALA) is the parent molecule that gets transformed into DHA and EPA, the derivative molecules that are commonly referred to as omega-3 oils and the main constituents of fish oil.

The problem is that only a very small percentage of the parent ALA gets converted. Most of it stays unconverted. So we overdose on the derivatives when we take fish oil, at the expense of not getting the parent oil. There is more to the fish oil story, and I will refer the reader to Brian Peskin's articles, which can be found at [www.brianpeskin.com](http://www.brianpeskin.com), for additional information on the subject.

When a cell doesn't get enough oxygen, due to the lack of proper essential fatty acids (EFAs), the cell shuts down respiration and starts fermenting sugars. This explains how carbohydrates feed the cancer. Fermenting cells need sugars, instead of protein or fat for fuel. This is another

explanation of how the modern diet, with its exponential consumption of sugars compared to our evolutionary history, fuels cancer.

The mechanism for heart disease and stroke was alluded to above. Cholesterol molecules form esters with EFAs. If the EFA is adulterated or oxidized, it does not perform its normal function and instead becomes the main building block of plaque that clogs arteries and causes inflammation. In addition, glucose sticks to proteins in the blood (glycosylation). These glycosylated proteins are sticky and slow down the blood flow through the capillaries and veins, preventing oxygenation. It has been shown that people with diabetes have higher rates of cancer and mortality due to cancer, as compared to those without diabetics. The strongest correlation was for pancreatic cancer. Notably, it has been found that the higher the fasting glucose one has, the higher the risk for cancer.

There is more. The role inflammation plays in both cancer and heart disease is prominent and EFAs are also at the root of it. Linoleic acid is the source building block for the powerful anti-inflammatory prostaglandin E (PGE). Linoleic acid is also the building block of prostacyclin, an anti-aggregatory agent or blood thinner. It is also one of the body's natural steroids.

Of course, one solution is to stop ingesting the bad oils and begin eating the oils we do need. Without going into the details, the ratio of omega-6 to omega-3 is roughly 1-2.5:1. This depends on the individual circumstances. One can use cold-pressed, organic, raw safflower, sunflower or sesame for the LA and flaxseed oil (also cold-pressed, organic and unprocessed) for the ALA. Peskin doesn't like olive oil (oleic acid) because it can overpower the good oils when processed LA is present. Warburg also emphasized consuming enough minerals and protein to ensure enough functioning hemoglobin to carry oxygen to the cells, in addition to the proper EFAs and low levels of glucose.

In conclusion, the work of Warburg as explained by Peskin and Habib offers a cogent and powerful perspective on the mechanism of cancer, heart disease and inflammation. It cannot be ignored in light of the abysmal progress that has been made the past 40 years on these conditions. The hypothesis is simple and fundamentally sound, and must be reconsidered.

### **Reference:**

With apologies to Michael Pollan (author, columnist, activist, journalism professor and director of the Knight Program in Science and Environmental Journalism at the University of California, Berkeley), I started this paper with a pithy one-liner to emphasize we should make sure the food we eat is in the form in which it has always been. If it's an animal, make sure the animal has been eating the food it was intended to eat. If we do this, cells will get what they need to function optimally.