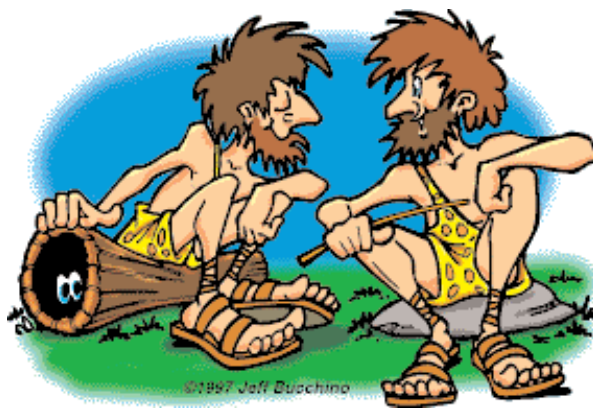


# A Lesson in Nutrition From our Stone Age Ancestors

*Borage Oil and other “good” fats can help restore  
the natural balance our bodies were meant to have*

by Artur Klimaszewski, MD



*In 1930 scientists discovered a class of metabolites called  
**prostaglandins** – compounds produced in the body from dietary fats.  
After 70 years of research, we have finally come to understand the signif-  
icance of prostaglandins. There have been close to 7,000 published stud-  
ies on prostaglandins and their roles in the body. This research demon-  
strates that prostaglandins play very important roles in regulating some of  
the most **basic body functions**  
on a minute-to-minute basis.*

*Prostaglandins are extremely potent hormone-like compounds that belong to a larger family of compounds called eicosanoids. They fall into three classes, or “series”, each of which has specific biological effects:*

### **“Series 1” prostaglandins**

These compounds have three basic functions: they reduce inflammation, dilate blood vessels, and inhibit blood clotting. The strong anti-inflammatory properties help the body recover from injury by reducing pain, swelling and redness. The other two functions keep blood vessels open wide, and keep blood flowing freely.

### **“Series 2” prostaglandins**

The most prominent compounds in this group strongly increase inflammation, constrict blood vessels, and encourage blood clotting. These properties come into play when the body suffers a wound or injury – without these prostaglandins, you would bleed to death from the slightest of cuts. However, in excess, these prostaglandins may be harmful. Many diseases are directly linked to excessive inflammation and blood clotting – for example, rheumatoid arthritis and some forms of stroke and heart attack. High levels of Series 2 prostaglandins in the body have also been linked to other diseases including diabetic nerve damage, high blood pressure, allergies, skin inflammations and cancer.

### **“Series 3” prostaglandins**

The compounds in this group are a mixed bag: some of them dilate blood vessels, while others constrict. They also have a weak tendency to increase inflammation and inhibit blood clotting. In general, these are useful defense mechanisms against trauma and infection.

The body must maintain a delicate balance between these prostaglandins – otherwise the strong pro-inflammatory, blood-vessel-constricting, and blood-clotting effects of Series 2 will overwhelm the system, causing a host of ill effects.

As important as prostaglandins are, the body has no reliable mechanism for keeping them in balance – it depends mostly on diet to maintain equilibrium. The type of fat we eat has a direct impact on what type of prostaglandins the body will produce and how much it produces of each type.

For example, the body may produce Series 1 prostaglandins from Linoleic Acid found in vegetable oils, margarine, and processed foods. The body breaks down Arachidonic Acid found in meats and eggs into prostaglandins of Series 2. Consumption of fish and fish oil causes the production of prostaglandins of Series 3.

## *Optimal Balance*

Since the diet has such a powerful influence on prostaglandins in the body, we must determine the optimal balance and supplement our diets to achieve that balance.

What, then, is an optimal balance of prostaglandins?

To answer this question, we must take a lesson in nutrition from our prehistoric ancestors. Over

the course of 4 million years, humans evolved into hunter-gatherers, adapted genetically to their environment. The human metabolism was able to continually adapt to changes in diet over time.

About 10,000 years ago, however, the human diet began to change so dramatically that evolution was not able to keep up. In about 8,000 B.C., humans began to cultivate crops, domesticate animals, and improve cooking and baking techniques. Cultivation of crops severely limited the variety of plants in the diet, while domesticated animal meat introduced a much higher level of fat. At the same time, newfound techniques of cooking and baking meant that we could eat a whole new range of vegetables – namely



starches, which are undigestible when raw.

Two hundred years ago, the pace of dietary change started to speed up even more. Humans developed mass food production techniques and introduced numerous harsh chemicals into the food we eat.

Genetically, we are still virtually identical to our hunter-gatherer ancestors, yet the food we eat is far removed. We cannot and do not want to imitate our ancestors' diets. We simply have to understand the types of fat their diets would have contained and deduce the levels of prostaglandins that their bodies produced as a result.

Equipped with modern scientific tools, we may study human remains, fossilized fecal matter, and bodies preserved under ice or bogs. These provide clues to the kinds of food that our prehistoric ancestors consumed. Most of the plants and animal species they ate can still be found today and we can analyze them for their nutritional value. We can also analyze the diets of surviving tribes who have resisted the adoption of "civilization" and the modern Western diet. Finally, we can analyze the diets of other primates and extrapolate those findings to humans. Through these methods, we can, in fact, get a surprisingly accurate picture of the human diet of 10,000 years ago.

The findings show that we presently eat ten times more saturated fat and hundreds of times more trans-fatty acids than did prehistoric humans. Such high consumption of these "bad" fats is known to impair the metabolism of Linoleic Acid, which, as we have seen, is the body's main source of the beneficial prostaglandins of Series 1.

In addition, we eat far more Arachidonic Acid (in meat and eggs) than did our ancestors, leading to high levels of the potentially harmful Series 2 prostaglandins in the body.

Furthermore, we eat less fish, one of the primary sources of the beneficial Series 3 prostaglandins.

In the final balance, our bodies are producing too few beneficial prostaglandins and too many potentially harmful prostaglandins, contributing to increasing incidences of arthritis, diabetic nerve damage, heart attacks, high blood pressure, allergies, skin inflammations, and cancer.

### *A Supplement A Day...*

We cannot change our genetics – so the key is to tilt the scale towards Series 1 and 3 prostaglandins through dietary supplementation with fats that the body can easily break down into these beneficial compounds. For Series 1, there are several plant sources the body can use – Borage Oil, Evening Primrose Oil, and Black Currant Oil. For Series 3, turn to Fish Oil or Flax Oil.

To fully satisfy the body's need for production of Series 1 prostaglandins, a healthy adult needs only 1-2 grams per day of Borage Oil, or 3-6 grams per day of Evening Primrose Oil. To increase production of Series 3 prostaglandins, a healthy adult needs to eat fish several times a week, or supplement the diet with 1-2 grams of Fish Oil or 2-5 grams of Flax Oil a day.

Restoring the natural levels of prostaglandins in our bodies will help both prevent and treat those diseases where harmful prostaglandin activity is a key factor.

Supplementation with Borage Oil and other "good" fats can help restore the natural balance our bodies were meant to have.

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January 2000

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