

KOFINAS PERINATAL

Providing care to the unborn

UPDATES ON PERINATAL ISSUES AND NEWS ABOUT KOFINAS PERINATAL

◉ The effects of fat and carbohydrates on weight loss and health ◉

Perpetual myths exposed: part I

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Kofinas Perinatal Baby of the Month

After many losses and much heartache my husband and I had nearly given up on having a full-term, healthy baby. On January 18th, 2010 my husband and I welcomed our sweet daughter



Margot who brings us unimaginable joy. Margot has been meeting her relatives via computer cam and looks forward to seeing her six aunts and uncles who will be visiting for one week each starting next month. Go Margot!

Palmer and Cherri

This article was written for the most part by Dr. Graham Simpson, M.D. under the title “Glycemic Index and Glycemic Load”. The current version of the article has been subject to minor editorial and content adjustments by Dr. Alexander Kofinas to be more suitable for our newsletter. In addition, those of you who would like to get a more in-depth exposure to the subject, should buy the book “Good Calories, Bad Calories” by Gary Taubes. This is the most accurate medical textbook I have ever read that was not written by a physician. Mr. Taubes, a medical journalist/reporter, did an exceptional job in putting together the facts of a massive medical literature and sole handedly dispelled all of the myths regarding fat and cholesterol in association with cardiovascular diseases and the chronic diseases of civilization (diabetes, cancer, hypertension, coronary artery disease, heart failure, cerebrovascular accident disease etc.) This article will be presented in two parts and the references will be presented at the end of part II. Below is part I.

In order to fully appreciate the role of

the glycemic index/glycemic load, it is important to briefly review how carbohydrate metabolism has come to occupy the primary role in combating the obesity epidemic and other diseases of civilization. I want to acknowledge Gary Taubes’ excellent recent book *Good Calories, Bad Calories* from which some of this material was obtained.

Our story begins in 1863 when William Banting, a retired undertaker in London published “A Letter on Corpulence, Addressed to the Public”¹ which launched the first popular diet craze. In fact, within a year “Banting” had entered the English language as a verb meaning “to diet”.

Banting was 62 and weighed over 200 lbs at 5’5”. He had consulted more than 20 of the better doctors of the day and found no help in losing weight. Finally he met an ENT (William Harvey) who placed Banting on a diet. Harvey had recently heard Claude Bernard’s lecture on diabetes in Paris and treated Banting successfully with animal food and vegetables that contained neither sugar nor starch – essentially the avoidance of any food that might contain sugar or starch. (in particular bread, milk, beer, sweets, potatoes and

pies). Despite ingesting several glasses of wine and brandy, he lost 50 pounds without any problem over the following months.

Myth #1

“Cholesterol causes heart disease”. No proper studies have proved any such association. In fact, twice as many individuals who had lifetime total cholesterol of less than 200 mg/dl had coronary heart disease (Heart attack) compared to those who had total cholesterol greater than 300 mg/dl.

For over 100 years, many physicians treated patients successfully with this low-carbohydrate diet. In 1961, Ancel Keys appeared on Time magazine cover and the AHA (American Heart Association) officially alerted the nation to the dangers of dietary fat. In fact, Keys deserves most of the credit for convincing us that levels of cholesterol best predict heart disease and that dietary fat is a killer!

In 1951 Keys had an epiphany while at a conference in Rome. A physiologist from Naples claimed heart disease was not a problem in Naples. Keys found that indeed the general population of Naples was heart disease free, but the rich were not. Rich people had more heart disease than the poor because they ate more fat. (What Keys did not appreciate was as the intake of meat and saturated fat increased, grain consumption decreased, but there was an increase in refined carbohydrates, white rice, flour and sugar). Over the next decade, Keys assembled evidence to back his hypothesis including his famous “7 Countries Study”. However, when all 22 countries were included in the analysis, the apparent link between fat and heart disease vanished.

In 1957, the AHA had opposed Keys’ diet/heart hypothesis. Less than four years later the evidence hadn’t changed, but now a 6-man committee (which included Keys), issued a new statement (just two pages long with no references) linking elevated cholesterol to the risk of heart disease.

As the 1961 Time article reported, Keys believed the ideal heart healthy diet should increase the percentage of carbohydrates from less than 50% to 70% and reduce fat consumption from 40 to 15%.

Friday, January 14, 1977 is when Keys’ hypothesis became gospel! Senator George McGovern announced the First Dietary Goals of the United States – the first time that any government institution had told Americans they could improve their health by eating less fat!

McGovern had gone to Pritikin in Santa Barbara shortly before this, plus McGovern’s committee was due to be downsized to a senate subcommittee, leading the staff

director, Marsha Matz, to say, “We really were totally naïve, a bunch of kids who just thought – Hell, we should say something on this subject before we go out of business.”

There was little or no evidence to support these dietary goals. For example, the Mr. Fit Trial (12,000 males) in 1982 shows no association with fat/heart disease (\$115 million). The Lipid Research Clinic (LRC) Trial in 1984 also found no association with fat/heart disease (\$150 million).

In contrast, there was a wealth of epidemiological studies - Schweitzer (Africa), Hutton (Eskimos), Fouche (S.A.), Hardlick (Indians), Williams (Fiji), Cleve & Campbell (S.A.) - when populations were exposed to Western diets (sugar, molasses, white flour, white rice), this caused an increase in “diseases of civilization” – obesity, diabetes mellitus, coronary artery disease, hypertension, CVA (cerebral vascular accident), cancer, diverticulitis, gallstones, appendicitis, varicose veins, hemorrhoids, etc., all due to the increase of easily digestible carbohydrates.

Peter Cleve (and Campbell’s) “Law of Adaptation” states that the refining of carbohydrates represented the most dramatic change in nutrition since the introduction of agriculture 10,000 years ago. The key is that the link between refined carbohydrates and disease had been obscured over the years by the insufficient appreciation of the correlation between carbohydrate foods in the natural state and the unnatural refined carbohydrates – treating sugars and white flour as equivalent to raw fruits, vegetables and whole meal flour.

Researchers like Joslin would measure only fat, protein and total carbohydrates, thus failing to account for effects of these refined carbohydrates. Even in Key’s 7 Countries study, sugar consumption predicted coronary artery disease even more than saturated fats. Yudkin also showed that increased sugar consumption (increased insulin and triglycerides) correlates better than fats with coronary artery disease. Joslin refused to believe that carbohydrates caused diabetes mellitus and led four decades of endocrinologists to believe that increased fat was the problem.

Hunter-Gatherers by comparison ate 22-40% Carbohydrates, 28-58% Fat and 19-35% Protein). The greatest single change in the American diet has been increased sugar consumption – from 15 lbs/year per person in the 1820’s to 100 lbs/person in the 1920’s and is now over 160 lbs/year per person in 2008. In 1882, William Osler noted that only 10 cases out of 35,000 patients at Johns Hopkins were diagnosed with diabetes mellitus. Thus not all carbohydrates are created equal. This forms the basis of the glycemic index/load.

In the 1960’s, Robert Stout (Queens Univ., Belfast) pre-empted Reaven’s Syndrome X by suggesting that the

ingestion of large quantities of refined carbohydrates leads to hyperinsulinemia and insulin resistance, and then to atherosclerosis (hardening of the blood vessels) and heart disease. In certain individuals, insulin secretion after eating carbohydrates would be disproportionately large, with carbohydrates being disposed of in fat tissues, liver and arterial walls. Obesity is produced. Stout also related that insulin stimulates the smooth muscle that lines the interior of arteries, a step in the production of hypertension and atherosclerosis.

Anything that raises blood sugar, especially refined carbohydrates, will increase the generation of oxidants and free radicals. It will increase the rate of oxidative stress and glycation and the formation and accumulation of Advanced Glycation End Products (AGEs). AGEs lead to loss of elasticity of the collagen tissues forming the blood vessel wall and thus cause increased resistance to blood flow and hypertension.

This means that anything that raises blood sugar will lead to more atherosclerosis and heart disease, more vascular disorders and an accelerated pace of physical degeneration, even in those of us who never become diabetic. In addition, because AGEs affect the collagen (elastic structural tissue) in all parts of our bodies, are responsible for many of the degenerative diseases of modern times (renal failure, lung failure, osteoarthritis, etc.).

In the mid-1970's Gerald Reaven initiated the study of glycemic index to test the difference between simple and complex carbohydrates. Reaven was more interested in insulin and left this research to David Jenkins, et al.

Jenkins and Wolever tested 62 foods in 1981. Different individuals responded differently and variations from day to day were tremendous. The more refined the carbohydrate, the greater the blood sugar and insulin response. Anything that increases the speed of digestion (e.g., polishing rice, refining wheat, mashing potatoes, drinking juice) will increase the glycemic response.

Every complex carbohydrate must be broken down into simple sugars and will eventually enter the bloodstream as glucose, which in turn will stimulate insulin. Fiber (both soluble and insoluble) cannot be broken down into simple sugars and thus will have no effect on insulin. If a carbohydrate source (like pasta which has

little fiber) is tested, we see a high insulin response as compared with broccoli (which is rich in fiber), where the insulin response will be minimal. This is why starches and grains are considered high-density carbohydrates, fruits are medium density and vegetables are low density. It is very difficult to consume 50 grams of carbohydrates when testing broccoli (+/- 16 cups), so most glycemic index work has been done with grains, starches and some fruits.

Myth #2

"High fructose corn syrup is a natural product and as such is safe." Fructose is natural indeed but it is absorbed very quickly into the blood stream, causes a sharp rise in insulin levels; subsequently, enters the liver circulation where it is immediately converted to very low density lipoproteins (VLDL). These lipoproteins are the worst kind when it comes to vascular obstruction and coronary heart disease.

When researchers tested different foods, they found that some simple sugars like fructose entered the bloodstream very slowly; whereas, some complex carbohydrates like potatoes entered the bloodstream faster than table sugar. Table sugar is made up of glucose and fructose. Glucose enters the bloodstream; whereas, fructose is only metabolized in the liver and has little effect on blood sugar levels.

In 1978, HFCS-55 (High Fructose Corn Syrup) was introduced into the market – 55% fructose and 45% glucose – identical with sucrose. By 1985, 1/2 of all sugar consumed in the U.S. was from corn sweeteners and 2/3 of this was from HFCS. This was initially perceived as healthy because it didn't increase blood sugar because it had a low glycemic index. **The problem was that, fructose caused a huge increase in triglycerides by the liver and increased storage of fat – "fructose-induced lipogenesis"**. Fructose is the most lipogenic carbohydrate. Also, fructose increases blood pressure much more than sucrose. In addition, fructose produces 10 times more cross-linking of proteins and thus increases AGEs. Fructose also increases the oxidation of LDL (low density lipoprotein, the bad cholesterol). **Thus HFCS results in the worst of both worlds – glucose increases insulin and fructose increases triglycerides.**

For part II of this article, see the May issue of the Newsletter to be published soon.