

Understanding Carbohydrates: The Quality of Your Life Depends on It.

Urban development, social changes, and city life make consumption of locally grown, fresh fruits, vegetables, and grains less possible for most people. Technology has transformed civilization, especially the food trade, by creating new means to store, process, package, and transport food. Today's supermarket exhibits a triumph in food engineering and processing. Every day, modern science develops more effective techniques for processing food; however, these techniques take their toll on the human constitution by removing the important fiber, vitamin/mineral, and essential fatty acids, while refining, bleaching, and irradiating the vital nutrients that are naturally produced in our food.

As a clinical nutritionist and educator, I am constantly confronted with questions regarding carbohydrate intake versus protein and fat intake. There seems to be legitimate controversy regarding the best way to translate our nutritional needs into food intake patterns. Many traditional schools of nutrition take the position that a healthy diet contains high carbohydrate intake. There is, however, a great deal of popular, controversial literature on the market today that claims that high carbohydrate diets are the cause of many of the metabolic disturbances that lead to diseases such as obesity, cardiovascular disease, and diabetes. The Surgeon General Report states that over sixty eight percent of the mortalities in this country are due to diet-related disease. That means that two thirds of the deaths in America can be controlled by what we eat. There are strong trends in the scientific literature that suggest that "carbohydrates" are the cause of metabolic disturbance in people who eat Western diets, while other more traditional schools of nutrition tend to lean towards the belief that high carbohydrate diets will cure some of the present diet-related diseases.

So what's the answer? Should we eat a high carbohydrate diet or a low carbohydrate diet? In the thesis I wrote for my Masters in Nutrition Education, I spent two and a half years researching the answer to this question. While trying to unravel the controversy, I discovered an important detail that much of literature overlooks. Not all carbohydrates are alike. There is a vast difference between refined carbohydrates and whole, unrefined complex carbohydrates. Nutritional researchers seem to focus on carbohydrates in general, with no real distinction between the vast differences in carbohydrate forms.

The research shows us that particle size and food structure play a significant role in how fast a nutrient reaches the blood stream. When we reduce complex carbohydrates (starches and grains) into simple carbohydrates by refining them, they break down and enter the blood stream much more rapidly. The faster a carbohydrate converts to glucose (blood sugar) and enters the blood stream, the faster the body responds by producing insulin in order to manage our tightly regulated glucose system.

When you consume what seems like just a few carbohydrates, like a cookie or a candy bar, or even a rice cake, your blood insulin concentration can increase up to ten-fold within a few minutes. In the Textbook of Medical Physiology, it states that "insulin levels will reach 10 to 25 times above normal to get rid of excess glucose (sugar), and continue to stay elevated even 2 to 3 hours after the time carbohydrates are eaten".

Insulin's job is to remove the resulting excess glucose from the bloodstream as fast as possible, which simply means these excess carbohydrates get stored as fat.

When we eat food, our body either breaks it down and burns it for energy or stores it away as body fat in the fat cells (or as glycogen, the storage form of glucose, in the muscle) for later use. Both functions occur simultaneously, and although both storing and burning pathways are active to some degree all the time, one pathway usually dominates. The important factor is the net direction of fat flow over time. If you mainly store it, you get fat; if you mainly burn it, you lose weight.

The fat flow is composed of the fat we eat, the fat released in storage from our fat cells, and fat we make from excess protein and carbohydrates. Don't be fooled. Normal blood glucose concentration uses about 1 teaspoon of glucose in our bloodstream at one time. What we don't use, we store. Remember, insulin is a fat storing hormone; too much insulin is produced when we eat too much refined carbohydrates. So even if you eat fat-free ice cream, fat-free cookies, and fat free potato chips, don't expect to lose fat. There seems to be little doubt that adopting a Western lifestyle with its refined and highly processed diet and sedentary disposition has a tendency to result in obesity and other diet-related diseases.

Since it is unlikely that refined carbohydrate foods will be totally avoided in the Western diet, I would at least advise that cereal fiber, in the form of bran, be added to food. I would also recommend consulting the Glycemic Index and the Satiety Index (these are easily found on the internet) in order to determine which food choices should be considered in moderation and which should be avoided all together. Evidence strongly suggests that dietary fiber plays a significant role in glucose/insulin balance, aid in digestion, bowel function, and overall metabolic health. I would advise everyone to reduce intake of fiber-depleted carbohydrates and increase consumption of all unprocessed or lightly processed cereal products, also including sprouted or stone-ground whole-meal bread, non-quick oatmeal, whole grains, and starchy vegetables, such as yams, whole beets, and carrots as complex carbohydrate choices. Legumes, raw nuts and seeds are also rich in fiber. These foods have a high satiety value, that is, they make you feel full and a high fiber/energy (calorie) ratio, and evidence shows that these are important factors in managing body weight. At the same time, one should decrease consumption of refined carbohydrate foods in the form of white flour, white rice, and sugar, which include sweets confectionery, white bread, cake, and biscuits, and also sweetened drinks and alcohol. All of these foods have a low satiety/energy (calorie) ratio or a low fiber/energy (calorie) ratio.

Does this mean that we should eat a high protein low carbohydrate diet, like Atkins suggests? I don't believe that is healthy or necessary. Balance is the key to a long and healthy life. Taking any diet to the extreme is counterproductive and temporary. I don't believe in diets per say. Diet implies that it is short-term. You modify your eating patterns until you reach your goal then you revert back to your old habits. Nutrition is a permanent lifestyle of balance from birth to death. It should consist of unprocessed, unrefined carbohydrates, a moderate amount of protein and be sure to have an adequate amount of the good fats. A healthy diet does not have to be painful or mean that you have to give up the pleasures of life. As a nutritionist, it's my job to make your transition to a more vibrant and youthful life easy and fun regardless of your age. Our

nutritional choices should be thoughtful and educated because the quality of our life depends on it.