



## OPTIONS CENTER NUTRITION TOPIC



### Carbohydrates and the Glycemic Index

*Note: If your hair analysis report has told you to avoid some of these foods, please do not consider this list a recommendation. It is reported here to give you a sense of the kinds of foods to avoid that are high glycemic.*

*Carbohydrates, proteins and fats* are the three fundamental kinds of nutrients that our bodies absorb from food in our intestines. Of the three, carbohydrates are the most efficient at supplying fuel for energy, in the form of glucose, in our bloodstream. The *glycemic index* is a ranking system that shows the rate at which a carbohydrate breaks down as sugar or glucose in the bloodstream. Eating foods according to the glycemic index can help you improve your health.

### Carbohydrates- Simple or Complex

Carbohydrates may be simple or complex. Sugars are *simple carbohydrates* (often called simple sugars), consisting of only one or two units in each molecule, like sucrose (white sugar). They are ingested and absorbed quickly, supplying a quick source of energy.

*Complex carbohydrates*, on the other hand, are built of chains of simple sugars. They are derived from starches like grains, beans and vegetables such as squash and potatoes. According to the glycemic index, certain complex carbohydrates like potatoes, corn, whole wheat and brown rice (the very ones you may have been loading up on for the past few years) are absorbed by our bodies quickly, in much the same way that simple sugars are.

### The Glycemic Index

Foods with a high glycemic index are considered to be fast-acting because they release glucose into the bloodstream quickly, causing a rapid rise in blood sugar and then a rise in insulin – the fat storage hormone. Foods with a low glycemic index are considered slow-acting and release glucose into the bloodstream slowly but surely.

#### **Glycemic Index**

High	70% and up
Moderate	40% - 69%
Low	39% and below

Arranging foods according to their glycemic index gives you a working knowledge of which foods to eat plentifully, moderately, and as sparingly as possible. Certainly, foods assigned a high glycemic index are the most rapid inducers of insulin and therefore are the ones to avoid.

Using the glycemic index allows you to offset one high-index food with several low-index foods, and I highly recommend such "creative accounting." Even more important, however, the glycemic index can save you from the effects of unknowingly eating several high-index foods together.

## Food Lists

Although the list of foods in the glycemic index may look a bit daunting at first, you will quickly catch on to the thinking behind it and be able to make judgments for yourself of foods not included. Accuracy of assigning percentage points is much less important than gaining overall understanding of foods and insulin response.

<b>RAPID PRODUCERS OF INSULIN</b>	
<b>Glycemic index greater than 100%</b>	
Puffed rice	40% bran flakes
Maltose	Rice Krispies
Puffed wheat	Tofu ice cream substitute
French baguette	Millet
Instant white rice	
<b>Glycemic index of 100%</b>	
Glucose	Whole wheat bread
White bread	
<b>Glycemic index between 90% and 99%</b>	
Grape Nuts	Muesli
Carrots	Shredded wheat
Parsnips	Apricots
Barley (whole meal)	Corn chips
<b>Glycemic index between 80% and 89%</b>	
Rolled oats	Corn
Oat bran	Rye (whole meal)
Honey	Shortbread
White rice	Ripe banana
Brown rice	Ripe mango
White potato	Ripe papaya
<b>Glycemic index between 70% and 79%</b>	
All-Bran	Buckwheat
Kidney beans	Oatmeal cookies
Wheat (coarse)	

<b>MODERATE INDUCERS OF INSULIN</b>	
<b>Glycemic index between 60 and 69%</b>	
Raisins	Bulgur
Mars candy bar	Couscous
Spaghetti (white)	Wheat kernels
Spaghetti (whole wheat)	Beets
Pinto beans	Apple juice
Macaroni	Applesauce
Rye (pumpernickel)	
<b>Glycemic index between 50% and 59%</b>	
Potato chips	Sucrose
Barley	Yam
Green bananas	Custard
Lactose	Dried white beans
Peas (frozen)	

**Glycemic index between 40% and 49%**

Sweet potato	Oatmeal (steel-cut)
Navy beans	Sponge cake
Peas (dried)	Butter beans
Bran	Grapes
Lima beans	Oranges
Rye (whole grain)	Orange juice

**REDUCED INSULIN SECRETION**

**Glycemic index between 30% and 39%**

Apples	Milk (skim)
Pears	Milk (whole)
Tomato soup	Yogurt
Ice cream	Fish sticks (breaded)
Black-eyed peas	Chickpeas

**Glycemic index between 20% and 29%**

Lentils	Peaches
Fructose	Grapefruit
Plums	Cherries

**Glycemic index between 10% and 19%**

Soybeans	Peanuts
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Check out [www.nutritiondata.com](http://www.nutritiondata.com) for more information on the glycemic index. The following points are worth keeping in mind when you are looking over the glycemic index.

- Even when processed carbohydrates are listed in the same category as whole-grain products, they are still less beneficial from the standpoint that they lack the vitamins, minerals and fiber that whole grain foods possess.
- When proteins and fats are eaten with high or moderate glycemic foods, they help slow down absorption of carbohydrates and therefore help prevent sharp rises in blood sugar and insulin levels.
- Keep in mind that the kind of energy you feel is closely tied to this index. The higher the food on the glycemic index, the faster the burst of energy and the sooner the letdown. With decreasing glycemic index, foods increasingly provide a healthier, more long-term kind of energy.



## Blood Sugar Imbalance

Now you know that simple sugars, processed carbohydrates, and high-glycemic carbohydrates (like rice cakes, cold cereals, and even whole-wheat bread) when eaten alone are quickly digested in the intestines and absorbed by the body. A flood of glucose is released into the bloodstream. The pancreas reacts to this imbalance of blood sugar by secreting the hormone insulin. Insulin restores the blood sugar balance by helping to send the glucose to muscles to be consumed for energy and to adipose tissue to be stored as body fat.

Evolved over thousands of years to deal with nutrients from natural, unprocessed foods, the body's insulin system is very efficient. However, the system is not designed to deal with our diet today and has not been given time to adapt. Our gastrointestinal system evolved to digest

carbohydrates in the form of high-fiber vegetables and fruits. Until agriculture developed comparatively late in human development, carbohydrates from grains were only a small part of the diet.

The pancreas answers sudden floods of glucose in the bloodstream with corresponding amounts of insulin, which often makes the level of blood sugar drop too low. What we feel is a quick burst of energy, followed by a letdown as our blood sugar level drops.

## Insulin Resistance

Frequent surges in blood sugar from excessive intake of processed and high-glycemic carbohydrates and simple sugars result in high levels of insulin secretion. Over time, the high levels are thought to result in *insulin resistance*. This is when the body becomes less and less sensitive to insulin, and thus more and more insulin is required to break down the blood sugar. When overweight people follow a low-fat, high-carbohydrate diet and don't lose weight, insulin resistance may be the problem.

## Insulin-Aware Diets

For years, nutritionists had been stressing the role of insulin and other hormones, but their warnings had been generally overlooked. Then, in 1995, large commercial publishing houses issued a number of diet books that emphasized the relationship between food and hormones. The best known of these books is *The Zone* by Barry Sears, Ph.D. Pointing out that one in every three adult Americans is now obese, in comparison to one in four a decade ago, he and other authors claim that we have little weight loss to show from diets high in carbohydrates and low in fats and protein. Although Americans have reduced their dietary intake of fats by 2% over the last decade, they became 30% more overweight during the same period. It's easy to think that since some particular food has little or no fat content, it will not add to our body fat. But the truth is that all excess blood sugar not used for energy by our muscles is stored as body fat – regardless of what kind of food it came from. *Carbohydrates can therefore create a bigger weight problem than fats for obese people.*

Looking at food as the most powerful and ubiquitous drug we have, many nutritionists say that we need to eat in a controlled fashion and in the proper proportions.

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*The 40-30-30 Phenomenon*

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