



Sweet-Talk

the glycemic index and wellness

by Pat Lam

The term “glycemic index” has been cropping up regularly in health news in recent years. What is it and how does it impact our health? How does it affect us as skin and body care professionals? During my book research on nutrition topics for the skin care professional, I found that there was a need and interest in learning more about the glycemic index. Furthermore, the CIDESCO International exam now includes it in the new syllabus. Since many skin care professionals are now working in the wellness track, we should have some knowledge on how the glycemic index impacts not only our client’s health, but ours as well. This article will discuss the correlation between the glycemic index and health. ➤



Many of us crave sugar because it curbs our hunger immediately. This is because simple sugars are digested quickly, appearing immediately in the blood stream in the form of glucose.

Health and blood sugar

In the past, the glycemic index has been associated with the treatment of diabetes, but in recent years, health care professionals began to use it in other areas of health such as weight control and exercise. The glycemic index was developed by Canadian researchers at the University of Toronto working with diabetes. Since diabetic patients had to limit or avoid foods that raise blood sugars too quickly, they wanted to measure how quickly certain foods, particularly carbohydrates, were digested and showed up in the blood stream. If the food raised blood glucose levels immediately, it was assigned a high glycemic index (GI) value and if it raised blood sugar levels slower, it was given a lower number. High blood sugar levels inevitably lead to increased insulin (hormones) levels that

convert excessive glucose to glycogen which is stored in the liver and muscles for future use. Excessive insulin levels in the blood are detrimental to individuals who suffer from low blood sugar.

A food's GI is measured in comparison to a "control" food or a standard food: glucose or white bread. Glucose and white bread have been given an arbitrary glycemic index (GI) value of 100, and other foods are assigned a value in comparison with them. Several observational studies have also shown that high GI foods were not only associated with increased risk of developing Type II diabetes, but also certain cancers and cardiovascular disease.

In the past few years, diabetes Type II, a disease that usually develops among mature individuals, has been discovered to occur among children at alarmingly high rates. Diabetes is positively correlated to obesity, a phenomena that is threatening to be the fastest growing epidemic in Europe, North America and even developing countries such as China. A high proportion of children have become obese due to the high-in-fat food consumption and the sedentary lifestyle of modern society. According to a British nutritionist, obesity threatens to reverse the gains that modern society has made in the past century in terms of longevity and some surveys have shown that some parents are now outliving their children who have died from complications as a result of obesity and diabetes, two prevalent epidemics.

Where is the problem?

Many of our western-style diets produce a high glycemic response that promotes weight gain in contrast to low GI foods that may enhance weight control. With this in mind, a GI table has been devised to inform health practitioners and patients of the GI value of foods. The message is simple, and the research in glycemic index indicates that food that is digested and absorbed slowly has the least impact on blood sugar levels.

Not all carbohydrates have been analyzed so far and the process is still ongoing. Some researchers believe that the GI permits new insights into the relationship between the physiological effects of carbo-

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hydrate-rich foods and health. They see the glycemic index as a more useful concept in nutrition rather than the traditional classification of carbohydrates as sugars, simple or complex. Furthermore, the GI is often used to help people eat healthfully, reduce the risk of diabetes, control weight and improve exercise performance.

Carboholics

Let us briefly review the role of carbohydrates in the body. Carbohydrates provide the main energy source in foods and are the quickest form of energy. Most health care professionals recommend that a daily dietary intake should be comprised of more than 55 percent carbohydrates, 15 to 20 percent protein and less than 30 percent fat (out of which no more than 10 percent should be saturated fats). The quality of the carbohydrates that constitutes the majority of our daily diet should be carefully checked. Carbohydrates are categorized as either simple or complex, with simple carbohydrates as sugars and complex consisting of starches. All carbohydrates must be broken down into monosaccharides before they can be absorbed by the cells. There are three types of monosaccharides: glucose, fructose and galactose, each having different physical and chemical properties. This accounts for their varying amount of sweetness, and fructose is the sweetest.

Glucose constitutes 80 percent of all monosaccharides and is digested immediately. The amount of glucose in the blood is maintained by several hormones. Insulin from the pancreas converts excess blood glucose to glycogen, which is stored in the muscles and liver. When the body needs more energy, the hormone glucagon, secreted by the liver, converts the stored glycogen back into glucose and puts it back into the blood when your body needs it. When the body is under stress and needs to burn a high amount of energy, the hormone epinephrine is released from the adrenal gland to increase glucose production for more energy.

When we are feeling hungry, many of us crave sugars because they help to curb our hunger immediately. This is because simple sugars are digested quickly appearing immediately in the blood stream in the form of glucose. This is why we feel satisfied when we eat very sugary foods such as

doughnuts. However, complex carbohydrates such as vegetables, rice and pasta take longer to digest because they have to be broken down by enzymes in the gastrointestinal tract before they can be available to the cells.

What should we eat?

How do we know the glycemic index values of foods and how do they help us to determine which foods we should eat? Several factors appear to influence the GI value and how the food is digested in the intestinal tract. There is no obvious correlation between the present chemical classification of carbohydrates and the GI of a food. For example, complex carbohydrates such

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Glycemic Index of Common Foods	
Food	GI Value
Breads	
White bread	70
French bread	95
Sourdough	57
Breakfast cereals	
Cornflakes	84
All bran	42
Cream of wheat	66
Fruits	
Apple	36
Banana	53
Orange	43
Cherries	32
Pawpaw	58
Peach	28
Dairy products	
Ice cream (full-fat)	61
Milk whole/skim	27/32
Yogurt (fruit-lowfat)	33
Starches	
Potatoes (boiled)	80-100
White rice/brown rice	70-90
Legumes	
Lentils	28
Soybeans	18
Confectionery	
Chocolate	45



Low GI foods may enhance weight loss because they promote satisfaction as well as reduce the levels of insulin and blood sugar.

as white bread and potatoes have a high GI while fruits such as pear or cherries have a low GI. The following are some factors that affect the glycemic index effect of a food:

The type of sugar—

Fructose has a lower GI than sucrose or glucose. Fructose is found in about 15 percent of all simple carbohydrates. Foods high in fructose have little effect on raising high levels of blood sugar and insulin. So check to see if the carbohydrate has a lot of fructose in comparison to sucrose or glucose.

The type of starch—More refined carbohydrates have a higher GI than wholesome coarse grains.

The fiber content—The higher the fiber content of a food, the slower the food is digested and the lower the GI. Fruits have a lot of fiber. Also check the acidity of fruits, vinegar and lemon juice since they help to reduce the GI overall.

The amount of food processing—Some processed foods, e.g., potato chips, have a lower GI than boiled potatoes which carry a higher GI.

The amount of protein and fat—Fat and protein slow down digestion.

Food preparation method—Foods that are soft, overcooked or over-ripened are digested more quickly than firm, raw foods and intact grains.

The foods with the lowest GI values include pastas, relatively unprocessed cereals, baked beans, dairy products and many types of fruits and vegetables. Many of the starchy foods in western societies such as bread, breakfast cereals and potatoes have a moderate to high GI content regardless of fiber. This occurs because the starch is fully gelatinized and is quickly digested and absorbed.

Using the GI

How can we use this knowledge of the glycemic index to our advantage in various health applications?

As was previously stated, foods with a high glycemic index generate high insulin levels that are detrimental to those suffering from diabetes and low blood sugar problems. Physicians recommend that low GI foods be used in order to avoid the resultant rise in insulin levels from moderate and high GI foods. Regular consumption of foods with a low glycemic index can be seen as a preventative measure to avoid the onset of diabetes and maintain adequate insulin levels in the bloodstream.

GI and obesity

Low GI foods may enhance weight loss because they promote satisfaction and reduce the secretion of insulin and blood sugar levels. For weight management, the consumption of low to medium GI foods can prove to be quite useful.

According to Dr. Jenkins who developed the concept, the GI can be viewed as an extension of the fiber hypothesis since high fiber foods have the same effect as low glycemic index foods. Early studies indicated that starchy foods showed different rates of digestion with varying effects on blood glucose and insulin responses in the body. Slowly digested carbohydrates will keep you full for a longer period of time since its prolonged presence in the gastrointestinal tract will signal satisfaction to the brain. This should deter the obese or overweight individual from feeling hungry so this concept can be useful in weight management. Several studies based on calorie-restricted diets and low GI foods produced greater weight loss than similar diets based on high GI foods.

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GI and exercise

How does the glycemic index affect exercise performance? Some studies suggest that the dietary intake of certain low GI foods can have a beneficial effect on how one performs during exercise and energy recovery after exercise. It has been hypothesized that intake of carbohydrates with a low GI before exercise may prolong blood glucose levels so that sufficient energy levels are maintained during prolonged exercise. A study by Kirwan (et al, 2001), found that when moderate GI foods were eaten 45 minutes before exercise, more energy was available to prolong the duration of exercise as well as post-exercise. However, another study found that a high GI meal ingested 65 minutes prior to exercise had no effect on maximal exercise performance.

Moderation is key

It is important to understand that foods should not be rated good or bad based simply on GI values. For example, it is not a good concept to substitute potato chips (low GI) for boiled potatoes (high GI, but better nutrient values). It is suggested that one should consume at least one to two low GI carbohydrate choices per day but should not avoid high GI foods totally. The GI should not be the only criterion for food selection and its proper use should be to compare foods that are of similar nutrient values. With the comparison, the consumer will be able to make a better choice and select the food with the lower GI in that group, e.g., low-fat, unrefined foods.

Skin and health care professionals can apply this knowledge within the framework of their profession. For example, recommend and educate your clients, particularly those with low blood sugar problems. Within the spa settings, the body therapist or fitness professional can use this information to guide their clients for weight management and exercise performance. ■

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