

# NEWS

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Nutrition Special:

## Get with the glycemic index

Here's how you can apply this dietary concept to a wide range of clinical situations **BY ROSIE SCHWARTZ • Toronto**



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It has been more than 30 years since University of Toronto researchers Dr. David Jenkins and Dr. Thomas Wolever introduced the glycemic index as a potential dietary treatment aid for those with diabetes and hypertriglyceridemia. The glycemic index (GI) ranks carbohydrate-rich foods by how much they raise blood glucose levels compared with a standard food—either glucose or white bread.

While most health professionals are aware of the concept, many have deemed it impractical and somewhat irrelevant nowadays. Yet research is showing it's time to reconsider its use in both the prevention and treatment of disease. Evidence is accumulating that a high-GI diet is linked to adverse health effects such as diabetes, coronary heart disease, obesity, eye disease, cancer and gallstones.



Courtesy of Oldways

However, one of the major criticisms of the GI is it doesn't account for portion sizes. Eating a gargantuan serving of a low-GI dish can definitely send plasma glucose and insulin levels soaring, while a small amount of a high-GI food may yield a desired glycemic response.

This is where the glycemic load (GL) comes in. The concept, developed in 1997 by Dr. Walter Willett and colleagues at the Harvard School of Public Health in Boston, takes into account both the total carbohydrate in the food and the effect of that carbohydrate on plasma glucose levels. A food's GL is determined by multiplying its GI by the amount of carbohydrate it contains.

This past June, Drs. Jenkins, Wolever and Willett—along with other leading nutrition scientists from 10 countries—gathered in Stresa, Italy, for the International Scientific Consensus Summit on Glycemic Index, Glycemic Load and Glycemic Response, organized by the Boston think tank Oldways and the Nutrition Foundation of Italy. After presenting their research and debating the merits of the evidence, they developed a consensus statement on their current understanding of GI/GL and the benefits of low GI/GL diets: [oldwayspt.org/programs/special-custom-programs/glycemic-index-scientific-consensus2013](http://oldwayspt.org/programs/special-custom-programs/glycemic-index-scientific-consensus2013).

By way of putting that knowledge to practical use, here is a series of tips on incorporating GI/GL into your practice: **continued on • page 50**

**Dr. David Jenkins (left) and Dr. Walter Willett chaired a recent consensus committee on glycemic index, load and response.**

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## Five ways

### a low GI/GL diet may benefit your patients

#### 1. Reduced diabetes risk

There is convincing evidence from meta-analyses of prospective cohort studies that low GI/GL diets reduce the risk of type 2 diabetes, through improved insulin sensitivity and beta-cell function.

According to Dr. Antonio Ceriello, head of research at the August Pi i Sunyer Biomedical Research Institute in Barcelona, it's often forgotten that hyperglycemia can occur even in healthy individuals following large intakes of carbohydrate or a high-GI diet and lead to decreased beta-cell function and insulin sensitivity over time.

An interesting note in the efforts toward prevention: Studies show that eating a low GI/GL diet during adolescence may protect against type 2 diabetes later in life. While family meals may be less common these days, a foundation of healthy eating habits at home may offer some advantages.

#### 2. Better plasma glucose control

The benefits of a lower postprandial glucose include a diminished state of oxidation, which includes a lower level of the atherogenic oxidized LDL-cholesterol. When you consider that we spend most of the day in a postprandial state, the importance of postprandial glucose readings increases dramatically.

#### 3. Decreased risk of endothelial dysfunction

Endothelial dysfunction is frequently thought of in relation to established cardiovascular disease, not as a condition linked to healthy individuals. Yet hyperglycemia in both those with impaired glucose tolerance and in healthy individuals is associated with acute endothelial dysfunction. The long-term effects of repeated bouts of endothelial dysfunction have not yet been determined.

#### 4. Lower levels of inflammatory markers

Evidence points to inflammation as the culprit in the development of a host of diseases, including diabetes and cardiovascular disease. While weight reduction is associated with lowering of inflammatory markers such as C-reactive protein, low-carb diets don't produce the same decreases as low GI/GL diets.

#### 5. Increased sense of satiety after eating

Consuming a low GI/GL meal not only leads to greater satiety during the meal but also later in the day, and contributes to a decreased total daily intake of calories.

## Five ways

### to use the GI/GL in your practice

#### 1. Reduce HbA1c in your patients with diabetes

How often do you have patients who record perfect fasting plasma glucose and two-hour plasma glucose readings on a regular basis, yet their A1c is always elevated? At the conference, presenters agreed that taking readings 1.5 hours after meals provides a much clearer picture of diabetes control. In many cases, while 1.5-hour plasma glucose may be elevated, the two-hour reading may be normal.

Have your patients measure their plasma glucose 1.5 hours after various meals and look for those with readings above 9 mmol/l. It is at these meals they should focus on lowering the glycemic load and then tests the results.

#### 2. A treatment strategy for non-alcoholic fatty liver disease

The incidence of this condition, one of the most common causes of chronic liver disease, is rising rapidly. While standard treatment strategies usually involve weight loss and exercise, low GI/GL diets appear to significantly reduce fat accumulation in the liver.

#### 3. Rather than just focus on sodium, use a low GI/GL diet to both treat and prevent hypertension

Although sodium reduction is often the first line

of attack in the dietary treatment of hypertension, research shows that using a low GI/GL approach is also key. In fact, the Dietary Approaches to Stop Hypertension (DASH) diet is this type of regimen.

Furthermore, recent studies show a low GI/GL diet in adolescence protects against blood pressure increases—welcome news at a time of rising incidence of hypertension in younger people.

#### 4. Decrease the risk that prediabetes will progress to type 2 diabetes

A common part of the approach to halting the progression of prediabetes and insulin resistance to diabetes is to limit the intake of carbohydrates. Yet how often do you see this plan work? You likely witness what the research shows: Carbohydrate totals are not independently linked to the development of diabetes. It's carbohydrate quality and the GI of these foods. This is also the case for the development of gestational diabetes.

The combination of pharmaceutical agents, especially for those at a greater risk for diabetes, together with a low GI/GL regime, may preserve beta-cell function and decrease cardiovascular disease complications.

#### 5. Easier waist management

Obesity prevention and treatment are two issues that may predominate in your practice, yet solutions seem elusive. Research on low GI/GL diets appears to offer some promise.

As well, consider just how many of your patients have struggled to lose weight only to regain it in short order. Not only does a low GI/GL eating pattern lead to decreased caloric intake, it is associated with a greater likelihood of maintaining weight loss following a weight reduction program.

In addition, when low-carbohydrate weight loss regimes are compared with moderate-protein, low GI/GL diets, there is a greater incidence of type 2 diabetes and cardiovascular disease in addition to greater mortality rates with the low-carb diets.

## Five simple tips

### to suggest to your patients to reduce their postprandial glucose and incorporate GI/GL principles



Good foods for reducing postprandial glucose include longer-cooking grains, pasta cooked al dente, coarse breads and lemon juice.



- Opt for intact or longer-cooking grains over their instant or short-cooking counterparts. For example, large flake or rolled oats have a low GI of around 50 while instant oats have a value of 83.

- Go for properly cooked pasta. Here's an example of the wisdom of the ages: The traditional way of cooking pasta—al dente—meaning “to the tooth,” yields a low GI. Overcooked pasta, though, can send blood glucose readings soaring. Keeping portions in check keeps the GL down as well.

- Look for coarse, grainy breads rather than light fluffy varieties. The latter, even if it's whole-grain, will have a higher GI and a greater ability to boost postprandial glucose.

- Take your pulses—not heart rate, but dried beans and peas. These foods not only aid in lowering the GL, but they boost satiety because of their low-GI and high-fibre content. Adding pulses such as lentils or beans to soups and salads or stews such as chili, or enjoying bean dips such as hummus, also aid in lipid lowering.

- Increase the use of acidic foods, such as various vinegars and lemon juice, at meals. Before the use of pharmaceutical preparations for plasma glucose control in diabetes, using



vinegar teas was the norm. Research shows that these acids blunt the rise in postprandial glucose. There are an assortment of ways to increase their use while boosting the palate-pleasing effect of meals: Add a splash of vinegar to soups and stews; enjoy an oil and vinegar dressing on salads or marinated

vegetables and squeeze lemon juice on fish and vegetables.

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## Where to find glycemic index info

Here are some reputable websites for information on glycemic index and glycemic load values. However, it's important to keep in mind that exact figures are not as important as whether foods are low or high on the glycemic index:

- **Canadian Diabetes Association GI tables:**  
[www.diabetes.ca/files/glycemicindex\\_o8.pdf](http://www.diabetes.ca/files/glycemicindex_o8.pdf)

- **The University of Sydney GI search engine:**  
[www.glycemicindex.com/foodSearch.php](http://www.glycemicindex.com/foodSearch.php)

- **Harvard Health Publications:**  
[www.health.harvard.edu/newsweek/Glycemic\\_index\\_and\\_glycemic\\_load\\_for\\_100\\_foods.htm](http://www.health.harvard.edu/newsweek/Glycemic_index_and_glycemic_load_for_100_foods.htm)