

# DiabeteSource™

News For The Diabetes Specialist

Summer 2007 ♦ Vol. 10 No. 3

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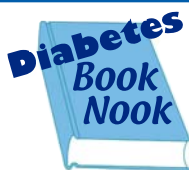
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## Attack of the Killer Postprandials

By: Gary Scheiner, MS, CDE  
Integrated Diabetes Services • Wynnewood, PA

How many times have your patients complained about feeling a bit "sluggish" after meals? In all likelihood, we're not talking about a typical post-Thanksgiving tryptophane-induced slumber. We're talking about an evil, persistent force known as POST-PRANDIAL HYPERGLYCEMIA.

### Post-Meal Blood Sugars are Major, Measurable, and Manageable

Postprandial hyperglycemia refers to a high blood sugar spike that occurs soon after eating a meal or snack. For everyone with type-1 or type-2 diabetes, it is natural for the blood sugar to rise after eating. Although, if the rise is dramatic, it can affect a person's well-being and quality of life.

Even though the spikes are temporary, all those after-meal rises can result in a higher HbA1c than pre-meal readings would indicate. In fact, research reported at the ADA Scientific Sessions indicated the average blood sugars during the three hours *after* eating, not before, correlates most closely to HbA1c levels.

Research on the effects of postprandial hyperglycemia has also shown an increase in the risk of death from heart disease in those with type-2 diabetes. In those with type-1, postprandial hyperglycemia increases earlier onset of kidney disease and accelerated progression of retinopathy. There is growing concern that blood glucose *variability*, and not just a high average, contributes to microvascular disease.

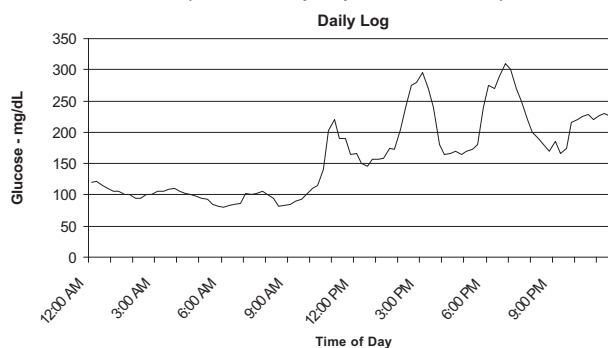
In addition, there are the more immediate effects. A rapid rise in blood sugar after meals has been shown to negatively impact mental concentration, energy levels, mood, and physical performance.

### How Much is Too Much?

In most cases, blood sugar levels peak about an hour after finishing a meal or snack. Ideally, the blood sugar at the peak should be below 180 mg/dl in adults (160 during pregnancy), 200 in adolescents, 225 in school-age children and 250 in very young children.

A number of good options exist for measuring after-meal blood sugars. Perhaps the most practical is to check the blood sugar level about one hour after eating with a home blood glucose monitor (using capillary blood from a finger rather than an alternate site). Check before and after each meal (breakfast, lunch and dinner) over several days to determine whether postprandial spikes are a problem associated with a specific meal.

Another technique for analyzing after-meal blood sugar levels is having patients wear a continuous glucose monitor (CGM). The CGM systems provides statistics and graphic readouts which allow you to see exactly how much blood sugar levels are rising after meals and snacks (see example printout below).



### Spike Control

Reducing after-meal spikes does not always mean taking more insulin or medication at mealtimes. In fact, if the pre-meal readings are already close to normal, increasing insulin/medication could result in a *low* blood sugar before the next meal.



## Mark Your Calendar!

### American Association of Diabetes Educators

34th Annual AADE Meeting  
◆ August 1-4, 2007  
St. Louis, Missouri  
www.aadenet.org

### American Diabetes Association

55th Annual Advanced Postgraduate Course  
◆ February 1-3, 2008  
San Francisco, California  
www.diabetes.org



## Staying in the loop...

### Glycemic Index Food Choices

Higher-GI Choices	Lower-GI Choices
<b>Breakfast</b> Typical cereal, bagel, toast, waffle, pancake, corn muffin	Oatmeal, high-fiber cereal, yogurt, whole bran muffin
<b>Lunch</b> Sandwich/sub, french fries, tortillas, canned pasta	Chili, rye/pumpernickel bread, corn, carrots, salad, vegetables
<b>Dinner</b> Rice, rolls, white potato, canned vegetables	Sweet potato, pasta, beans, fresh/steamed vegetables
<b>Snacks</b> Pretzels, chips, crackers, cake	Popcorn, fruit, chocolate, ice cream, nuts



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To help reduce postprandial spikes, a number of strategies can be used:

1. **Get Moving.** Physical activity after eating has a number of benefits. It helps injected insulin to absorb and act quicker. It diverts blood flow away from the intestines, resulting in slower absorption of sugars into the bloodstream. Plus, some of the glucose will be consumed by working muscles. All of these result in lower postprandial blood sugar levels. It does not require a heavy exercise session. Ten or 15 minutes (or more) of *mild* activity will get the job done. The key is to avoid *sitting* after eating. Instead of reading, watching TV or working on the computer, go for a walk, shoot some hoops or throw a few darts. Schedule active tasks (housework, yardwork, chores/errands, walking pets) for *after* meals. Make an attempt to schedule exercise sessions for after meals instead of before.

2. **Think Lower GI.** Glycemic Index (GI) refers to the speed with which food raises the blood sugar level. While all carbohydrates (except for fiber) convert into blood sugar eventually, some forms do so much faster than others. Many starchy foods (breads, cereals, potatoes, rice) have a high GI; they digest easily and convert into blood sugar quickly. Some starchy foods (pasta, beans, nuts) have lower GI values. Foods that have dextrose in them tend to have a very high GI. Table sugar (sucrose) has a moderate GI, while fructose (fruit sugar) and lactose (milk sugar) are slower to raise blood sugar. Foods that contain fiber or fat tend to have lower GIs than foods that do not. Switching to lower GI foods will help reduce after-meal blood sugar spikes.

3. **Medicate Wisely.** Whether a patient takes insulin or oral medication to control their diabetes, the right medication program can make or break their ability to control after-meal spikes. In general, insulin and medications that work slowly over a prolonged period of time do a poorer job than those that work quickly and for a shorter period of time. When taking insulin, the goal is to have a significant insulin "peak" just after eating.

Rapid-acting analogs do a better job of controlling the post-meal rise than short or intermediate acting insulin. The timing of mealtime insulin is also critical. Unless the pre-meal blood sugar is low, it may be helpful to give the insulin 15-20 minutes prior to eating. This is especially true when consuming high glycemic index foods.

For those with diabetes controlled by oral medication, the choice of oral medication can also impact after-meal control. Sulfonylureas act throughout the day without regard to meal timing. Meglitinides work fast and are short-acting, resulting in better after-meal control. Alpha-glucosidase inhibitors can also improve after-meal control by partially blocking the transport of sugars across the intestines.

Finally, a new class of medications called *incretin mimetics* can significantly reduce postprandial blood sugar levels. Among their many actions, these injectable treatments slow gastric emptying, resulting in a more gradual, prolonged rise in blood sugar after meals.

### Inform Your Patients

Given the benefits of managing post-meal blood glucose levels, it's time to start giving them the attention they deserve. Measure glucose levels periodically within a 1-hour post meal blood glucose check or use of a continuous glucose monitor. If they're not where you want them, get them in range by applying the tools at your disposal: the right medications (timed properly), slower-acting foods, and post-meal physical activity.

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