

## January/February 2013 Newsletter



*Dr. Hassell with Anna and Tor, resting after taking their pancreases for a brisk walk. Happy New Year!*

### Send a valentine to your pancreas

Spare a thought for your pancreas. There it is, crammed back there behind the stomach, shouting, “Stop the madness! Put that cookie down!”, but unable to be heard over the rush of the digestive juices, and all the while trying desperately to protect its beta cells and maintain blood sugar levels at the same time. It’s a big responsibility for one little organ, and it’s time we talked about what we can do to help.

#### Sugar has been around a long time

Sugar and carbohydrates have been a part of a healthy human diet for thousands of years, in whole fruit, whole grains, and honey, for example. However, until about 100 years ago these traditional sugars and starches were present in relatively small quantities, often only seasonally available, and usually in an unprocessed state. In the case of grains, the starch was surrounded by fiber and valuable oils and other nutrients. Concentrated sugars were not available like they are today; refined sugar was rationed as recently as World War Two, and the honey supply was limited by the protective attitude of bees and their production capacity.

#### Where’s rationing when we need it?

These days, however, sugars and refined carbohydrates (which are essentially starches that

behave like sugar in our body) of every kind are available cheaply and in virtually unlimited quantities and infinite variety. Add the fact that we humans are hard-wired from birth to love sweets and starches, and it’s not a pretty picture. Here are a few snapshots of the effects of refined carbohydrates on our health **even if we are not overweight**:

- Excess sugars and starches – *not* dietary fat – are the main drivers of triglycerides in the blood and fatty liver. Fatty liver can cause cirrhosis and liver failure, and is associated with more heart disease.
- We all know that excess calories make us fat, but a curious and lesser-known fact is that excess sugars are deposited as fat specifically in the most dangerous place – deep within the abdomen and organs (“visceral” fat), including the liver, kidneys, and heart. (It is perhaps counter-intuitive that sugars would end up as fat, but that is how they are stored.)
- Excess sugar is associated with more high blood pressure, independent of excess weight.<sup>1</sup>
- Sugars and starches do not suppress the appetite as much as proteins and fats, so it is easier to gain weight when your diet has a lot of bread, pasta, sweets, juice, and other sweet drinks.<sup>2</sup>

Adding to these risks is the fact that we are eating *more* refined carbohydrates while moving *less*!

#### The whole grain conundrum

Then there is the confusion over true whole grain – that is, the whole grain which has its virtue intact as opposed to the whole grain which has been ground to a very fine particle size unachievable in previous eras. The process that turns intact whole grain into whole-grain flour not only damages or destroys nutrients with heat, oxidation, and storage time, but there is another more subtle downside; bread made with the finely-ground whole grain flour is processed so quickly by our bodies that it has almost the same impact on our insulin response as white bread or plain sugar.

Thus well-meaning but nutritionally-inadequate 100% whole grain products are slipping under the

<sup>1</sup> Brown, I. et al. Hypertension 2011;57:695-701

<sup>2</sup> Westerterp-Plantenga, M.S. Annu Rev Nutr 2009;29:21-41

radar and escaping the blame they should be sharing with sugar. How many people think they are making healthy choices by eating 100% whole-grain ready-to-eat breakfast cereal in the morning, a sandwich made with 100% whole-grain bread for lunch, and whole-grain pasta with dinner? Ouch. Stick to coarse minimally processed whole grains.

### Identify empty calories

Sugars, sweet drinks (including 100% juice) and highly-refined grains (including ready-to-eat breakfast cereals and anything made with white flour) are mostly “empty calories”. This means that they give you weight-gaining sugars and starches, but offer little or no nutrients to build healthy cells, muscle and immune systems. They tend to get converted to belly fat, which is why many people who do not seem overweight nevertheless have a tummy, a high body-fat percentage, and often a fatty liver. For most of us, reducing our intake of empty calories will also reduce our waist, triglycerides, blood sugar, and blood pressure. Can any of us afford empty calories? Your own medical profile determines the urgency of the answer to that question. But why roll the dice?

### It pays to pander to your pancreas

Excess sugars and refined carbohydrates place an abnormal load on your pancreas, which must make more insulin to get sugar distributed to your cells. Often this leads to “insulin resistance” and is associated with more heart disease, stroke, dementia, diabetes, and cancer. In many cases, the pancreas is unable to keep up, and the ability to make insulin in the pancreatic beta cells gradually diminishes. This can eventually lead to type 2 diabetes. There is a vicious cycle involved: as the insulin-producing beta cells in your pancreas become less able to make insulin, then the blood sugar rises. Higher blood sugars then cause faster destruction of the beta cells, leading to a higher probability of needing insulin injections in the future. This phenomenon is sometimes called “glucose toxicity”.

### Is this sugar better than that sugar?

Although some sugars are better than others (see box further on), simply switching sugars is not going to improve our health. Reducing sugars, however, **will** make a positive difference. Rather than focus on replacing one kind of sugar with another kind of sugar, let’s go back to the concept of sugar as a special treat – the way it used to be before the great flood of refined carbohydrate hit civilization a century ago. Listen to your pancreas!

**Fructose?** This is one of the common sugars but it is notable in that it appears to contribute to overeating.<sup>3</sup> Fructose makes up the bulk of sweeteners such as agave syrup and high fructose corn syrup, and roughly 50% of table sugar (sucrose), honey, and maple syrup. The body cannot use fructose as easily as glucose, and **excess** fructose in the diet tends to be more strongly associated with so-called “diseases of civilization” (such as diabetes, gout, abnormal cholesterol, and high blood pressure) than other forms of sugar.

**Sugar substitutes?** Don’t think you can safely substitute artificial or non-nutritive sweeteners such as stevia, aspartame, and sucralose for real sugars. One reason is that many studies suggest that artificial sweeteners are just as closely associated with obesity and poor health as real sugar.<sup>4</sup> Also, sugar substitutes maintain your sweet tooth, which only perpetuates the problem.

### The carbohydrate solution

If you have insulin resistance or excess weight around the middle, limit all refined carbohydrates, maybe even whole grains. Work on reducing your sweet tooth, and use natural traditional sweeteners such as raw honey and pure maple syrup **sparingly**. Unlike refined sugars, these contain a variety of antioxidants and other nutrients, and their naturally stronger flavors and higher cost means that they are simply much harder to use to excess. For those special occasions when you must have refined sugar, just use plain old brown or white sugar.

### Speaking Events

**1/10/2013 – St Charles Medical Center Wellness Fair:** *Choosing Good Health, Which Diet and Lifestyle Choices Really Matter?* Miles Hassell MD; Bend, Oregon.

**1/11/2013 – St Charles Medical Center Grand Rounds:** *How a Greek Grandmother Would Solve the Health Care Crisis.* Miles Hassell MD; Bend, Oregon. *For physicians only.*

**1/21/2013 – Family and Consumer Science:** *Sugar and Refined Carbohydrates.* Miles Hassell MD; Portland, Oregon. *For members only.*

**2/4/2013 – OHSU Nutrition Elective:** *Nutrition in the Primary Care Setting.* Miles Hassell MD; Portland, Oregon. *For OHSU medical students.*

**2/23/2013 – Osteopathic Physicians and Surgeons of Oregon Winter Conference:** *Reversing Diabetes – Tools for Primary Care Physicians.* Miles Hassell MD; Bend, Oregon.

*“Prove all things; hold fast that which is good.”*

*1 Thessalonians 5:21 (KJV)*

<sup>3</sup> Page, K.A. JAMA 2013;309:63-7

<sup>4</sup> Green, E. Physiol Behav 2012, DOI:10.1016/j.physbeh.2012.05.006