

Control Insulin and Improve Control Of Disease, Performance, and Weight

Eat vegetables, fruit, lean meat, and nuts and seeds. Limit or moderate grains and starch. Abolish or dramatically reduce sugar consumption. Why? This edition is a primer for you curious cats out there who want to know more about WHY we recommend these things. You've undoubtedly heard of the hormone "Insulin" at some point—maybe in a book, on the news, something in a magazine. There is a lot of information out there; yet, insulin is often poorly understood [by laymen and professionals alike]. Let's take a [somewhat] closer look at this powerful entity and lay some ground work for future topics. Insulin is VERY complex. This is the simplified "short course" on the metabolic affect of insulin and should help give you a better understanding of why it's crucial to pay attention to both the QUALITY and QUANTITY of carbohydrate (among other foods) in our diets.

Insulin: The Primer

- ♣ Insulin is a hormone that is secreted by "Beta" cells in the pancreas [in normal individuals].
- ♣ Insulin is essential for life—needed in order to signal various cells (such as muscle, liver, and fat tissue) to "open their doors" to blood sugar so that it can be stored or used as energy.
- ⇒ By the way, when carbohydrate stores are full, we generally will convert sugar to store as fat.
- ♣ The types and quantities of the foods you eat determine how much insulin should be released.



The body likes to keep the amount of sugar in the blood within a normal range.

- ♣ At a meal, more carbohydrate (and some amino acids—protein sub-units) = more sugar (all carbohydrate is eventually reduced to glucose—a sugar) = more insulin released. Also, the faster a sugar gets in to the blood stream, the more insulin is released and the more dramatic a bodily response.
- ♣ Chronically elevated insulin circulating in the blood is called hyperinsulinemia.
- ♣ Over time, elevated insulin levels can lead to a myriad of health consequences. Among those is the development of insulin resistance.
- ♣ Insulin resistance means that the cells are becoming less responsive to insulin (think of how a tolerance is developed to alcohol or coffee and more is needed to get the same effect, or how you "get used to" and do not notice perfume (to borrow an analogy from Robb Wolf) shortly after it is applied). In this scenario, there is nothing wrong with the insulin; our cells just aren't paying as much attention to it anymore.
- ♣ Some individuals are able to overcome the resistance by placing the pancreas in overdrive and secreting more and more insulin. "Send in more troops and we'll break the door down!"
- ♣ This compensatory increase in insulin over time can lead to even greater insulin resistance as well as numerous other health concerns often clustered under the umbrella term "Syndrome X" (Cordain, Reaven): glucose intolerance, excess blood fat or "hypertriglyceridemia", slow clearing of blood fats after meals, low HDL "good" cholesterol levels, small, dense (more dangerous) LDL cholesterol, disturbances in blood clotting and difficulties clearing blood clots, obesity and abdominal adiposity, and elevated blood pressure or "hypertension".
- ♣ The manifestations of Syndrome X have severe implications with cardiovascular health; hence, insulin resistance (not high cholesterol) is the greatest risk factor for myocardial infarctions (also known as heart attacks).

"Insulin resistance ... there is nothing wrong with the insulin; our cells just aren't paying as much attention to it anymore."

- ♣ To make matters worse, one's capability to overcome insulin resistance by secreting more and more insulin may be compromised as the beta cells of the pancreas eventually wear out.
- ♣ When an individual's beta cells *lose their mojo*, they then have Type II Diabetes (likely accompanied by several of the "Syndrome X" complications listed above).

(Note: There are many other issues, complications, and functions of insulin which are beyond the scope of this article.)

The Lesson?

Take care of your pancreas; it's the only one you've got. We need insulin in order to live, and we want it functioning full strength. The best ways to keep your cells sensitive to insulin and avoid many of the complications of metabolic derangement are regular physical activity, a diet which emphasizes low glycemic foods, and weight loss when appropriate.



Exercise

Obtaining at least 30 minutes of exercise most (if not all) days of the week is essential to disease management and prevention. Do a Google search for "exercise and insulin sensitivity"—enjoy. While 30 minutes of regular daily exercise has shown to be enough to reduce disease risk, a more substantial amount—60-90 minutes per day—is commonly requisite to achieve weight loss or to improve body composition. This amount is **HIGHLY VARIABLE** depending on the person, the modalities and intensity of the exercise they perform, and how diligent they are with their diet.

Nutrition

Foods that enter the blood more slowly result in a lower total elevation in blood glucose and require less insulin to metabolize. The Glycemic Index and Glycemic Load are one set of tools that one may use to choose foods which have more favorable effects in the blood stream. Generally non-starchy vegetables and fruits are the best carbohydrate choices. One should be careful about grains because they are often refined and behave very similarly to glucose in the blood stream (Cornflakes and Shredded Wheat both have higher glycemic indexes than table sugar!). Grains and starches should be carefully moderated and whole grains should be emphasized over refined or "enriched" products—care should be taken when reading ingredients labels to ensure that one is purchasing a "whole grain" item and not just an item which contains *some* whole grain. Additionally, the inclusion of fiber, protein, and fat at meals helps the body by slowing the release of sugar into the blood stream – and proteins (primarily animal protein) trigger the release of glucagon (to be discussed at a later date) which has an opposite effect to insulin and helps us to maintain balance on the metabolic teeter totter. So balance that plate!



Weight Loss

Obtaining and/or maintaining a healthy weight is a fantastic **LONG TERM** goal for those seeking immaculate health and will likely be one of the effects of diligently following the advice of these newsletters. Even a modest amount of weight loss (10-15%) can greatly reduce your risk for disease; and may improve your insulin efficiency by as much as 40%.

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