

THE brain-belly CONNECTION

what if i could tell you about a diet strategy that would shrink your belly and protect your brain at the same time? would you be interested? **i thought so.**

BY JONNY BOWDEN, PHD, CNS

You may have noticed—how could you not?—that we’re living smack-dab in the middle of what is generally called an obesity epidemic, not to mention an explosion in the incidence of diabetes. What you might not have noticed is that at the same time, there’s also been an exponential increase in Alzheimer’s and the other so-called dementing disorders.

Could these things be related?

One person who thinks so is Larry McCleary, MD, a pediatric neurosurgeon who is also a nutrition expert and the author of a new book about the brain-belly connection (*Feed Your Brain, Lose Your Belly*, Inner Wisdom, 2010). What he has to tell us explains a lot about why the appropriate diets for disparate conditions (in this case overweight and memory loss) have so much in common. In fact the same “diet” strategies that help you lose weight not only help your brain function better, but they may also impact such far-ranging conditions as asthma, acne, yeast infections and

goodness knows what else.

What all these healing diets have in common—and the reason they have such wide ranging health benefits, including weight loss—is that they are all designed to mod-

erate your body’s secretion of the fat-storing hormone known as insulin.

You may know insulin as the hormone produced by the pancreas, the same hormone that type I diabetics (whose bodies make

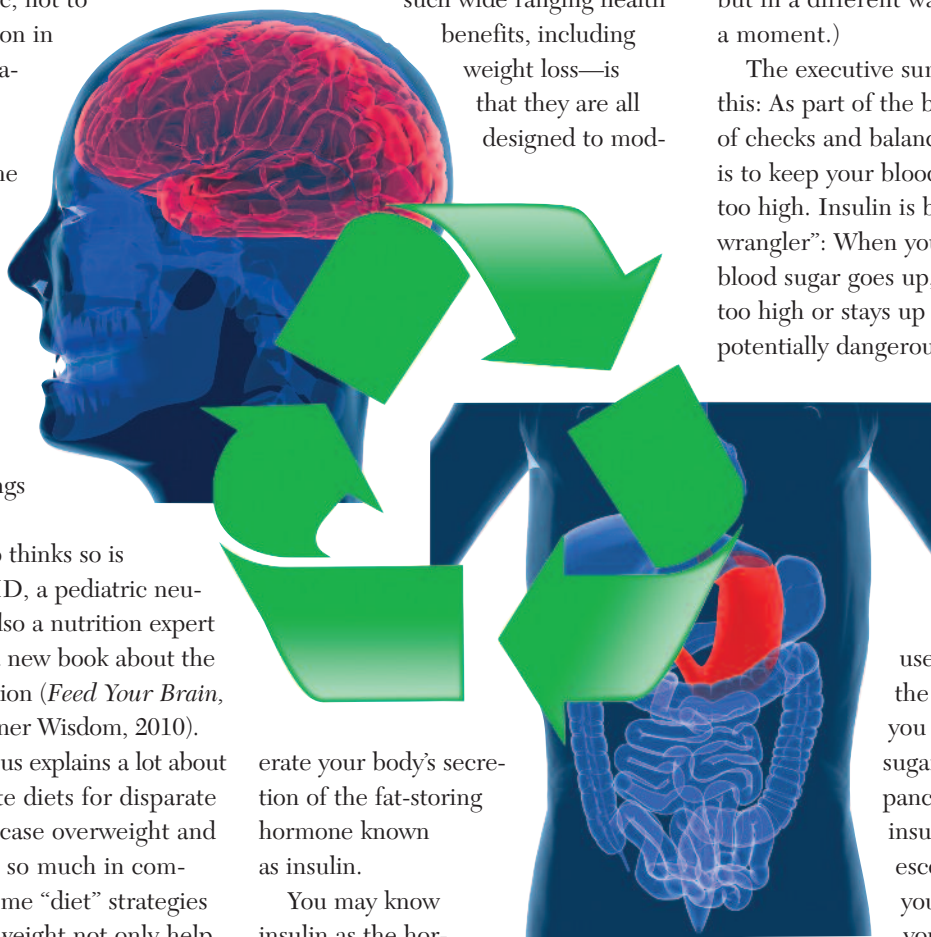
none of the stuff) have to inject on a daily basis to stay alive. (Insulin problems are also central to type II diabetes, but in a different way; more on that in a moment.)

The executive summary on insulin is this: As part of the body’s innate system of checks and balances, its primary task is to keep your blood sugar from going too high. Insulin is basically a “sugar wrangler”: When you eat food, your blood sugar goes up, but if it goes up too high or stays up too long, it’s a potentially dangerous situation. So the

pancreas releases insulin, which lassos the stuff out of the bloodstream and escorts it into the cells, where it can be

used for energy. When the system works right, you eat, your blood sugar goes up a bit, the pancreas responds with insulin, insulin politely escorts the sugar into your muscle cells, your blood sugar goes back down, you get

hungry, you eat again, and all’s well with the universe.



Except when the system doesn't work.

Which is way more often than you might expect.

See, the system was designed to work optimally on a hunter-gatherer diet. Protein, fat and fiber—mainly in the form of nuts, berries, roots, and possibly a drop of honey if you were willing to shimmy up a tree—are all foods that have only modest effect on blood sugar and thus pose minimum challenges to the pancreas' ability to churn out insulin. But in 2010, what we eat bears little resemblance to what our cavemen ancestors feasted on. Today's diet is oaded with that recent invention in human history, processed carbs. In fact, on average, Americans consume an incredible 156 pounds of sugar per year, in the form of sweets, sodas, muffins and other "treats" that your great-grandmother wouldn't have recognized as food. No surprise, then, that our blood sugar is on a constant roller-coaster ride, straining the abilities of even the healthiest pancreas to keep up with the demand for sugar-busting hormonal wranglers.

When the pancreas can't keep up with the workload, you're looking at diabetes.

You're also looking at an expanding waistline. Why? Because one of the things insulin does is lock the door to the fat cells. You can't "burn" fat in the presence of high levels of insulin. Sorry. Just won't happen. Insulin is a fat-storage hormone, not a fat-releasing hormone, and a high-carb, high-sugar diet is the most effective way to keep insulin levels elevated, which is exactly what you don't need if you're trying to lose weight.

As it turns out, it's also what you don't need if you're trying to keep your brain sharp, and herein lies the connection between the two Bs (belly and brain). "It's not generally appreciated that memory loss, difficulty thinking and even Alzheimer's disease are associated

with 'brain starvation,'" explains McCleary. It's as if the brain just isn't getting enough nutrition, which in turn means it can't produce the electrical signals it requires to function properly. McCleary likens this to a kind of power outage. "These electrical 'brownouts' contribute to the development of mental fatigue, difficulty concentrating, senior moments and more ominous conditions," he says.

So what does this have to do with insulin? Everything. And your own experience can prove it. Ever have one of those afternoons when you experience "brain fog"? Have you noticed how often that happens right after a big (and usually high-carb) meal? And have you ever noticed the feeling of fatigue and mental exhaustion that happens not too long after a huge (usually high-carb) meal? Like when you fall asleep after Thanksgiving dinner?

You may have thought the Thanksgiving narcolepsy was due to tryptophan in the turkey, but that's just an urban legend. What's really causing it is the action of insulin. The brain needs glucose (sugar) to function. When you eat a diet high in sugar or in foods that convert quickly to sugar, you produce a lot of insulin. That insulin removes the sugar from the bloodstream (and usually puts it into the fat cells, unless you're exercising like a demon that day). The result? Not enough sugar to fuel the brain.

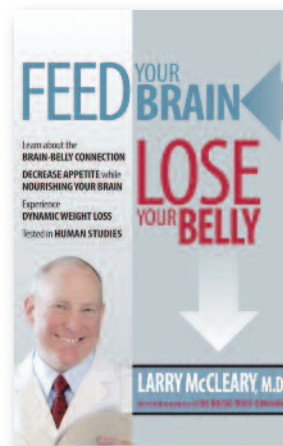
The brain can't store nutrients the way the body can. If blood-sugar levels fall too rapidly, the brain will eventually go into an "energy brownout". Eat a diet designed to produce high levels of insulin, and the next thing you know, your fat cells are feasting on sugar, and your brain is starving from lack of it.

In a perfect metabolic world, insulin will deliver its sugar payload to the muscle cells, where it can be burned for energy. If the sugar isn't needed by the muscle cells (for example, when you're sitting at the computer all day), insulin just reroutes the sugar to the fat cells. But fat cells are a two-way street; when insulin levels are low, like when you haven't eaten in a while, fat cells release their stored energy into the bloodstream, and you can function on your caloric savings account.

Problem is, due to our modern diets, insulin is perpetually elevated—at least for an awful lot of people. Owing to either a genetic predisposition to respond poorly to sugar and high-carb foods or to a constant demand on the blood-sugar-controlling mechanisms in the body (or some combination of the two),

their blood sugar gets elevated easily (along with their insulin), and both stay at these elevated levels for far longer than is good for the body. That scenario virtually guarantees fat accumulation. And because insulin keeps the doors of the fat cells locked, there's no release of "energy" from the fat cells, meaning no energy for the brain.

McCleary calls this condition "sticky fat cells." Like firemen to a blaze, insulin rushes in to deal with the condition of high blood sugar, but it hangs around a long time, especially when your next meal is going to cause the whole cycle to start again. Since insulin is always elevated, the doors to the fat cells are always locked making them, in essence, "sticky" and unwilling to give up their payload. Your brain doesn't get enough sugar, and you always feel hungry, even though you're sitting on a Fort Knox worth of calories trapped in the fat cells. So ultimately you don't just get fat because you overeat—you overeat



because you store too much fat in sticky fat cells that won't give up their goodies to nourish the rest of the body.

Hence, the belly-brain connection. And it's spelled insulin. McCleary puts it perfectly: "The more carbohydrates you eat, the higher your insulin will go, and high is not good if you want to stay thin or lose weight." And, as we're seeing, the higher your insulin goes, the worse it is for your brain.

McCleary is not the only researcher to notice the connection of brain vitality to insulin levels. Researchers have long known that insulin is absolutely vital to brain function. But more is not better.

MD, MPH, of Rhode Island Hospital and Brown University Medical School, believes that insulin resistance plays such a pivotal role in Alzheimer's that she has dubbed it type III diabetes.

By now you should have gotten the point that it's essential to get a handle on your insulin levels. Low fasting insulin levels are one of the hallmarks of healthy centenarians (along with elevated HDL cholesterol and low triglycerides). "If there is a single marker for lifespan," observes Ron Rosedale, MD, author of *The Rosedale Diet* (Harper Paperbacks, 2005), "it's insulin sensitivity."

The good news is that the corollary is

On average, Americans consume 156 pounds of sugar per year, in the form of sweets, sodas, muffins and other "treats". No surprise, then, that our blood sugar is on a constant roller-coaster ride,

When insulin is chronically elevated, cells become resistant to it. Meanwhile, insulin metaphorically pounds on the cell doors trying to get in. This condition—known as insulin resistance, a progressive inability of the cells to respond properly to insulin—is at the core of both diabetes and the pre-diabetic state called Metabolic Syndrome. Studies have shown that most people with Metabolic Syndrome develop diabetes within 10 years unless they lose at least 5 to 7 percent of their weight; people with Metabolic Syndrome are also at much greater risk for cardiovascular disease.

Insulin resistance has a profound effect on brain function. To function properly, brain cells need to be sensitive and responsive to insulin signals, not to ignore them. But as we've seen, the hallmark of insulin resistance is a breakdown in the communication between cells and insulin. In fact, one prominent researcher, Suzanne M. de la Monte,

true: The same insulin-lowering diet that feeds your brain also starves your belly. And a fringe benefit of that diet is that it will starve yeast cells, reduce inflammation (acne and asthma) and even lower the risk for heart disease.

So how do you do gain control of your insulin, and blood-sugar levels? Simple. Eat less of the foods that raise your blood sugar. Of the three macronutrients—protein, fat and carbs—carbs by far have the highest impact on blood sugar. Protein has a minor effect, and perhaps shockingly, fat has exactly no impact whatsoever.

Think about what this means in terms of the standard dietary advice we get from organizations like the American Dietetic Association. And think about the fact that as Americans have cut back on the percentage of fat in their diet, their waistlines have expanded exponentially.

If you want to control insulin, put more fat in your diet. Cut out some of

your processed carbs (which includes virtually every commercial cereal, bread and pasta). Up your protein. And eat way more vegetables and fruits—in that order. Vegetables have the lowest impact on blood sugar, while too much fruit can potentially play havoc with blood sugar.

As McCleary points out, diets with a higher ratio of fat to carbohydrates reduce hunger significantly, largely because they raise blood sugar and insulin less dramatically. (Remember what goes up must come down, and when your blood sugar is constantly being driven upward, it often comes crashing down quickly, leaving you susceptible to hunger, cravings and overeating.) A number of studies have shown that eating eggs—with the yolk—for breakfast actually lowers hunger later on in the day. And a recent, widely publi-



cized study at the University of Alabama showed that mice fed a higher-fat meal in the morning gained less weight and had better metabolic profiles than mice fed a low-fat breakfast.

The bottom line is this: We eat too

much sugar and too many foods that convert to sugar quickly. And we continue to irrationally fear fat, even though it turns out to be one of our best allies in the battle of the bulge. By increasing our protein and our fat and cutting back just a bit on our carbs (not including vegetables and fruits), we can go a long way toward stabilizing the spikes and plummets of blood sugar that in turn creates those elevated levels of insulin. By doing so, we protect our brains for the long haul, shrink our bellies—and maybe even wind up living longer.

Which is not exactly a bad set of outcomes.

Nutrition editor Jonny Bowden is a nationally recognized expert on weight loss and health and the best-selling author of eight books, including 'The Most Effective Ways to Live Longer.'

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