

Sugar Dumbs You Down

BY BARBI WALKER

We've long known that eating too much sugar isn't smart—but scientists are now finding that eating too much sugar actually makes people less smart.

Most people have heard that a diet high in sugar can lead to insulin resistance, hyperactivity in kids, sluggishness in adults, and weight gain for people of all ages. And even as kids, we knew eating too much sugar would rot our teeth out. But it turns out sugar isn't just bad for your body—it's bad for your brain and can inhibit brain functioning.

A recent study from University of California, Los Angeles (UCLA) suggests a diet high in fructose impairs the brain's ability to learn and remember. "Our findings illustrate that what you eat affects how you think," said professor of neurosurgery Fernando Gomez-Pinilla at the David Geffen School of Medicine at UCLA, in a statement. "Eating a high-fructose diet over the long term alters your brain's ability to learn and remember information."

The study focused on fructose, which is ubiquitous in processed foods. Sources of fructose in the Western diet include cane sugar (sucrose) and the inexpensive, sweeter, and increasingly controversial high fructose corn syrup (HFCS). These sugars are found in everything from baked goods, orange juice, peanut butter, condiments, sodas, even baby food, the list is long, wide and surprising (in fact, certain children's medications even contain HFCS).

Because of the incredible amount of sugar in processed food and drinks, most Americans get 21 teaspoons of sugar a day, almost 3 1/2 times what is recommended, according to the American Heart Association (AHA).

Our body needs sugar (glucose and fructose), and we process each one differently. Glucose, a simple sugar derived from carbohydrates, is not only the primary energy source for your body, but also the only source of fuel for the brain. The body converts carbohydrates into glucose for the brain, but if there is too much of the wrong kind of sugar (think added sugar and HFCS), the brain is negatively affected.

When sugar (or fructose) occurs naturally in foods, say from fruit, it also contains fiber which tells your brain when you've had enough. Remove the fiber and reduce the sugar into an easily digested form of processed carbs, like soda, and the brain doesn't get that fiber-based signal. It loses the ability to tell you that you've had enough, so you keep on consuming.

A diet high in added sugar also reduces the important chemical, brain-derived neurotropic factor (BDNF).



Photo by Diana Lustig

Current research indicates that production of BDNF is reduced by high sugar intake, and the brain's ability to remember or learn is impaired. Adding to the problem, as BDNF decreases, the body's ability to metabolize sugar worsens. It's a vicious cycle; habitual consumption of added sugar reduces BDNF, which allows the body to resist insulin, and can lead to Type 2 diabetes and metabolic syndrome.

It's also a self-reinforcing cycle: the more sugar you consume, the lower your BDNF; the lower your BDNF, the worse your body metabolizes sugar—and that causes your brain to "demand" more glucose, leading you to consume more sugar, which continues to lower your BDNF. Low levels of BDNF have also been linked to depression and dementia according to the National Center for Biotechnology Information (NCBI). Research further indicates low levels of BDNF may be the key link to diseases such as Alzheimer's.

Additionally, NCBI studies reveal that the brain's ability to regulate appetite and satiety (the feeling of being full after eating) are dulled by a diet high in added or extra sugar. The full impact of what we are doing to our bodies with a continual diet of added sugar remains to be seen, but the data seems to indicate we are harming not just our bodies, but also our brains, with processed foods high in added sugar. **gl**

Barbi Walker is a freelance writer and an award-winning journalist. Barbi lives in Phoenix with her husband and young son.

SOURCES

- American Heart Association | heart.org
- Brain, Oxford Journals | brain.oxfordjournals.org
- The Journal of Physiology | jp.physoc.org
- National Center for Biotechnology Information | ncbi.nlm.nih.gov/pubmed/17151862
- UCLA's David Geffen School of Medicine | newsroom.ucla.edu
- USDA Economic Research Service | ers.usda.gov