

Hyperactivity: Is it "JUST" the sugar?

By Kristi Wees

We have all heard the comments or perhaps even spoken them ourselves, "Little Johnny is sooo hyper today. He must have had too much sugar yesterday." But is there scientific proof behind that statement? The curious chemist in me had a hypothesis: Is it the sugar that causes the child's "hyper" behavior or does the type of "sugar" along with what it is "paired with" have much more to do with the hyper behavior?

Sugar comes in many forms. Table sugar (the kind you would find in grandma's fine china tea set) is the chemical called sucrose, when broken down in the body it becomes glucose and fructose. Glucose is readily used by the body and necessary for cellular energy function and well known from "blood sugar" measurements in medicine for diabetes. Fructose on the other hand is not as well metabolized and requires being processed through the liver. Fructose occurs naturally in fruits and vegetables, as does sucrose, with certain varieties being higher than others. For instance, carrots are higher in sucrose and pears are higher in fructose. Fructose is also nearly two times as sweet as sucrose.

In the 1970's a new form of "sugar" or sweetener was introduced to the food industry, called High Fructose Corn Syrup (HFCS). This "newer" sweetener is manufactured by chemically modifying cornstarch and increasing the fructose content. HFCS has the advantage over table sugar (sucrose) in that it is easier to handle in food manufacturing processes and also can be less expensive. Statistics show, though, that the use of this sweetener skyrocketed and in 1986 figures show that corn sweeteners exceeded consumption of cane and beet sugars (sucrose) (Source : <http://ers.usda.gov>). It is estimated that Americans eat 63 pounds of HFCS a year!

That's the scoop on sugar... but what does the Science say?

Twenty years ago an analysis in a leading medical journal (*JAMA*, PMID: 7474248) studied the effect of sugar (specifically sucrose) on behavior and cognition in children. The authors who reviewed years of previous published studies concluded:

"The meta-analytic synthesis of the studies to date found that sugar does not affect the behavior or cognitive performance of children. The strong belief of parents may be due to expectancy and common association. However, a small effect of sugar or effects on subsets of children cannot be ruled out."

More recently, in 2012, journal *Pediatrics* (the primary medical journal of the American Academy of Pediatrics) published a review article entitled: "The Diet Factor in Attention-Deficit/Hyperactivity Disorder (ADHD)" (PMID: 22232312) with a few startling conclusions:

"In preschool boys aged two to six years rated by parents as "sugar responders" and "nonresponders," neither acute sugar loading nor aspartame (an artificial sweetener) increased activity level or aggression, but the daily sucrose intake and total sugar consumption correlated with duration of aggression. Inattention was increased after sugar intake, but not aspartame or saccharine. The sugar and placebo challenges were given with a breakfast high in carbohydrate, a possible reason for the adverse effect of the sucrose challenge. The hyperactive response is blocked if a protein meal is ingested before or with the sugar." Another finding in this same study for ADHD and diet found "that of children with suspected sensitivities, 65 percent to 89 percent react when challenged with 100 mg of artificial food colors."

The research begs to question... is it "just" the sugar or could it be what the sugar is paired with? Is the sugar given with other "sugar" containing carbohydrates, or artificial food coloring or does the hyperactivity response diminish when protein is added and dyes are removed? The answer just may be in the way each individual child's body metabolizes or breaks down the food we feed them.

On the topic of metabolizing sugar and fructose, Robert H. Lustig, MD, UCSF Professor of Pediatrics, is one expert who is studying this impact. In a 2009 lecture archived on YouTube-Sugar: The Bitter Truth. He explains how the body metabolizes fructose. He boldly

states that fructose alone is a poison (fructose found in fruits and vegetables are not because of the added benefit of the fiber paired with it!). He compares consuming foods or drinks with HFCS in them to drinking alcohol, because he supports the liver metabolizes sweetener in a similar alcohol is metabolized. few parents would a bottle of beer to their but are we doing the when we hand them sweetened with what impact does of metabolizing their behavior? questions than

So is sugar to blame? Not all by itself, it depends on its form, and too much of anything is not good for any of us! If you want to find out if your child is a "responder" or in the subset of kids who's metabolism is impacted by sugar or fructose from HFCS, then take the babyfoodsteps.com challenge: For the next month, each time you go to the grocery store read the labels... and don't buy anything that contains High Fructose Corn Syrup (if you are really ambitious, avoid the dyes and artificial food coloring too!). Once you run out of a treat at home replace it with something more natural: fruit or cut up veggies (adding some fiber), some protein (peanut butter, beef jerky or egg) or even a special treat of a cookie that is without the HFCS or dyes. Observe your kiddos and see if you notice a change in their hyper-ness.

Can you "turn on" the hyper switch with a dose of HFCS and a side of Red 40? Drop me an email, (babyfoodsteps@gmail.com), I would love to know how your experiment went! ■

Kristi Wees is a mother of two children from Gibsonsia. For more on the topic of dyes and behavior in ALL children, see my article: Childhood Behavior: Are they what they eat? - July 2015 Issue of Pittsburgh Parent Magazine



that this way that I am sure hand over toddler, same thing a snack HFCS? And this method it, have on Many more answers! blame? Not all

