



Module 8 Summary:

Sugar Lesson

Checklist, before you move onto this module, have you:

- ✓ Read the module lesson from previous module,
- ✓ Watched the video,
- ✓ Completed the exercise class at least 3 times last week and had a 90% adherence rate to the new habit, eating slowly until 80% full at each meal?

Completed the previous modules assignments:

1. Complete video: Triceps and biceps workout
2. Worksheet: Kitchen makeover questionnaire
3. Review infograph: Hunger awareness.
4. Weekly adherence sheet - week 7

If so let's discuss sugar and start replacing the sugar in your diet – your new habit is introducing herbal tea and removing the sugar from your daily liquid intake. We will look at the harmful effects of sugar on the body and why it causes fat. We will review the prevalence of added sugar in everything and look at some specific everyday treats that contain a lot of sugar. Discuss exercise and sugar, and daily recommended amount of sugar.

Your homework this week:

- Complete Video: Balancing and stretching workout
- Get Gorgeous weekly adherence sheet - week 8



Module 8: Sugar Lesson

Habit 8: Drink herbal tea

Exercise of the week: Balancing and stretching workout

Drink herbal tea

Green Tea – Swap one cup a day of your regular brew for green tea for the next two weeks.

Green tea is an especially rich source of protective antioxidants and a few cups a day will increase your metabolism. Drink 4-5 cups throughout the day, add a squeeze of lemon if preferred. If it is still too bitter, wean yourself slowly on other teas like raspberry or other flavoured teas and work up.

Avoid if possible or limit to one coffee or two normal teas per day. Avoid cola/energy drinks completely. As caffeine can cause insulin levels to rise.

Sugar

Excessive sugar in the diet is not the best idea when it comes to healthy living. However most of us are not eating the recommended moderate amounts and let's be honest most of us are eating tons of it. In fact, worldwide we are consuming about 500 extra calories a day from sugar. That's just about what you would need to consume if you wanted to gain a pound a week.

Most people know that sugar is not good for them, but for some reason, they think the risk of excess sugar consumption is less than that of having too much saturated and trans fat, sodium or calories. Perhaps it's sugar's lack of sodium or fat that make it the "lesser of several evils," or perhaps people are simply of the frame of mind that what they don't know won't hurt them. If you really knew what it was doing to your body, though, you might just put it at the top of your "foods to avoid" list. Here are some things that may surprise you about sugar.

1. Sugar can damage your heart

While it's been widely noted that excess sugar can increase the overall risk for heart disease, recent research showed evidence*(1) that sugar can actually affect the pumping mechanism of your heart and could increase your risk for heart failure.

Trying to pump blood full of sugar through blood vessels is basically like pumping sludge through a teeny tiny pipe. This leads to high blood pressure and increase risk of stroke.

2. Sugar specifically promotes belly fat

Excess sugar equals excess calories equals excess weight in the form of fat.

Adolescent obesity rates have tripled in the past 30 years and childhood obesity rates have doubled. Many of us are aware of the data that demonstrates just how 'big' our future is looking.

Fructose, the sugar widely used as high-fructose corn syrup in soft drinks and processed foods, often gets some of the blame for the widespread rise in obesity. Now a laboratory study has found that when fructose is present as children's fat cells mature, it makes more of these cells mature into fat cells in belly fat and less able to respond to insulin in both belly fat and fat located below the skin.

Obesity is generally defined as a body mass index, or BMI, of 30 or more; morbid obesity is defined as a BMI of 40 or more. One of the main culprits is the added sugar from soft drinks and other beverages with added sugar. The average 12-ounce can of coke has 130 calories and eight teaspoons of sugar. According to Harvard Medical School, the calorie content of sugar-sweetened beverages can be deceiving because of the thin, watery texture that makes them easy to consume.

3. Sugar is the true silent killer

Move over salt and hypertension, you've got competition. Sugar, as it turns out, is just as much of a silent killer. A 2008 study found that excess fructose consumption was linked to an increase in a condition called leptin resistance. Leptin is a hormone that tells you when you've had enough food. The problem is, we often ignore the signal our brain sends to us. For some people though, leptin simply does not want to work, leaving the person with no signal whatsoever that the body has enough food to function. This in turn can lead to over consumption of food and consequently, obesity. Why the silent killer? Because it all happens without symptoms or warning bells.

4. Sugar makes you feel tired. All the time.

In the world of nutrition, it's hard to talk about sugar without talking about insulin. That's because insulin is sugar's little chaperone to the cells. Sugar hitting your body as glucose releases the insulin hormone from your pancreas. The insulin's job is to absorb the excess glucose in the blood and stabilise your sugar levels. Once the insulin does its job, your blood sugar drops again. Which means you've just experienced a sugar rush, and then a drastic drop, leaving you feeling drained.

When too much of it is consumed, or our insulin does not work (probably because we're eating too much sugar) and the body revolts. You feel sluggish all the time, or always hungry or thirsty. These are signs that you have been binging on a little too much sugar.

5. Sugar may be linked to cancer production and may effect cancer survival

The link between insulin resistance and cancer is associated with high levels of insulin. Insulin is an important growth factor for body tissues. Typically, insulin increases when nutrients are plentiful, and drops dramatically during a fasting state. Insulin may signal cells to increase rapidly in number through a variety of mechanisms. Insulin could directly signal growth, or it could make cells more sensitive to other growth factors. Although cancer is a complex, multifactorial disease, one of the consistent characteristics of cancer cells is their ability to grow uncontrollably and to be resistant to programmed death. Thus, growth factors are critical to the initial development of cancers, as well as to their progression. If you are interested in this, I have put a link at the bottom of module*(3)

6. Sugar and alcohol have similar toxic liver effects on the body

A 2012 paper in the journal Nature, outlined the idea that limitations and warnings should be placed on sugar similar to warnings we see on alcohol. The authors showed evidence that fructose and glucose in excess can have a toxic effect on the liver as the metabolism of ethanol - the alcohol contained in alcoholic beverages had similarities to the metabolic pathways that fructose took. Further, sugar increased the risk for several of the same chronic conditions that alcohol was responsible for. Finally, if you think that your slim stature keeps your immune from fructose causing liver damage, think again. A study*(4) found that liver damage could occur even without excess calories or weight gain.

One of the livers functions is regulating blood sugar levels. Your cells use the glucose in your blood for energy and your liver takes the excess and stores it in the form of glycogen. When your cells need energy later, like in between meals, the liver will release glucose back into the bloodstream.

But your liver can only store a certain amount of glucose, so the rest is accumulated as fat in the liver. This can lead to non-alcoholic fatty liver disease.

7. Sugar hides in many everyday "non-sugar" foods

Some of our favourite foods also contain lots of sugar - tomato sauce, fat free dressing, tonic water, marinates, crackers and even bread.

8. Sugar is making us fat

Foods rich in fibre, fat and protein all have been associated with increased fullness. Sugar will give you the calories, but not the feeling that you've had enough. That's why you can have an entire king-size bag of sweets at the cinema and come out afterwards ready to go for dinner.

9. Sugar can age your body

Research in San Francisco found that excessive sugar can age your body on a cellular level as quickly as cigarettes. The way the sweet stuff impacts your body is way more complex than just causing weight gain. When you eat a lot of sugar, almost every part of your body feels the strain.

The collagen and elastin fibres in the skin are affected by a lot of sugar in the bloodstream. Glycation is the process where glucose attaches to proteins in the body including collagen and elastin and makes it harder for these proteins to repair themselves, resulting in wrinkles and other signs of aging.

10. Sugar may sap your brain power

A study*(5) found a positive relationship between glucose consumption and the ageing of our cells. Ageing of the cells consequently can be the cause of something as simple as wrinkles to something as dire as chronic disease. But there is other alarming evidence that sugar may affect the ageing of your brain as well. A study found that excess sugar consumption was linked to deficiencies in memory and overall cognitive health.

11. Sugar consumption is addictive.

Eating sugar creates a surge of feel-good chemicals (dopamine and serotonin) and responses in the brain and help to buffer negative emotions, they can also become 'drug-like' for those struggling to cope with stress.

And just like a drug, your body craves more after the initial high. You get addicted to that feeling.

12. Sugar and diabetes

Chronic higher sugar intake can reduce the body's ability to handle carbohydrates which reduces insulin sensitivity. The body becomes resistant to the normal effects of insulin and struggle to absorb glucose from the blood to use for energy. So your pancreas goes into overdrive to produce more insulin. But despite the excess insulin trying to do its job, the cells still do not respond and accept the glucose - which ends in excess sugar floating around in your bloodstream, with nowhere else to go. Above normal blood glucose levels is called prediabetes. When blood sugar levels reach even higher, that's type 2 diabetes.

Because the body is less insulin sensitive, it then increases insulin production at meal times. So producing too much insulin means our body doesn't send the brain signals to

stop when we are eating sugar. We then have an excess fat gain around the love handles and upper back areas.

Prevalence of added sugar in everything:

Here are some common synonyms for sugar, even the healthy ones are sugar, look out for them:

sucrose

fructose

glucose

maltose

dextrose

maltodextrin

hydrolysed starch

invert sugar

corn syrup

honey

cane sugar

agave nectar

sugar beets

high-fructose corn sweetener

maple sugar

molasses

Look for foods that have close to 0g of sugar where possible. Food manufacturers (the 'Influencers') add sugar to many foods that you would never expect, like frozen fruit, bread, dressings and sauces. So please have a look on food labels and be aware that sometimes fruit concentrates and purees are also used as sweeteners. The more you stay away from processed foods, the better off you will be.

Sugar contents of common foods:

Bowls of cereals:

- Alpen - 5 teaspoons of sugar
- Cheerio's - 1.1 teaspoons of sugar
- Corn Flakes - 2.4 teaspoons of sugar
- Fruit Loops - 10.6 teaspoons of sugar
- Frosted Flakes - 8.9 teaspoons of sugar
- Honey Smacks - 14 teaspoons of sugar
- Rice Krispies - 2.5 teaspoons of sugar
- Special K - 3 teaspoons of sugar
- Honey Nut Cheerios - 8.25 teaspoons of sugar
- Golden Grahams - 8.8 teaspoons of sugar
- Cocoa Puffs - 9.3 teaspoons of sugar
- Shredded Wheat - 0.1 teaspoons of sugar

How much sugar is in a chocolate bar?

- Milk chocolate bar (44g) - 5.75 teaspoons of sugar
- Snickers bar (57g) - 7 teaspoons of sugar
- Milky Way bar (58g) - 8.5 teaspoons of sugar
- Marshmallows (100g) - 14.5 teaspoons of sugar
- Starburst packet (45 grams) - 5.5 teaspoons of sugar
- Twix bar - 2.75 teaspoons of sugar
- M&Ms packet (45 grams) - 5.75 teaspoons of sugar
- Boiled sweets bag (100 grams) - 11.5 teaspoons of sugar

How much sugar do soft drinks contain?

- Coca cola (one can) - 7 teaspoons of sugar
- Red Bull (one can) - 7.5 teaspoons of sugar
- Lemonade (one glass) - 5.5 teaspoons of sugar
- Orange squash (one glass) - 2.5 teaspoons of sugar
- Hot chocolate (one mug) - 4.5 teaspoons of sugar
- Fruit smoothie (one glass) - 3.5 teaspoons of sugar

Here is the scary one:

- 1 bowl of ice cream - 23 teaspoons

Sugar during and after exercise:

Avoid sugar in the 'Gatorade' or 'Lucozade' sports drink, we have talked in previous modules about making your own, if indeed you need it. Really only consider a sports drink if you are exercising for 2 hours or more of continuous exercise.

We have discussed in earlier modules carbohydrate tolerance is much improved during and immediately after exercise, as long as sugar is minimised during other meals, this small daily amount of sugar

Recommended daily amount:

The new WHO guidelines strongly suggest that adults and children should reduce their intake of free sugars by roughly half - to less than 10 per cent of their daily calories.

However, to accrue the most health benefits, this figure should actually be as low as 5 per cent. That's the equivalent of just 25g, or six teaspoons, a day *(6)

Assignments:

- Complete video: balancing and stretching workout.
- Weekly adherence sheet - week 8.

References:

* (1) 2013 study in the Journal of the American Heart Association

* (2) Georgina Coade, a PhD student at the University of Bristol, UK

* (3) A number of studies now show that individuals with higher levels of circulating IGFs are at increased risk for developing colon, premenopausal breast, and aggressive prostate cancers than are individuals with lower levels. One connection that has been well documented in the literature is the link between insulin resistance and cancer. A 2013 study found that sugars in the intestine triggered the formation of a hormone called GIP (controlled by a protein called β -catenin that is completely dependent on sugar levels), that in turn, increases insulin released by the pancreas. Researchers found that β -catenin may in fact affect the cells susceptibility to cancer formation. Further studies have found negative associations between high sugar and starch intake and survival rates in both breast cancer patients and colon cancer patients.

* (4) Sugar is alcohol without the buzz:

<http://www.ncbi.nlm.nih.gov/pubmed/23493539>

* (5) http://www.naturalnews.com/034484_sugar_consumption_aging.html

* (6) <http://www.independent.co.uk/life-style/health-and-families>

<http://www.telegraph.co.uk/news/shopping-and-consumer-news/11373080/The-10-most-sugary-breakfast-cereals.html>