



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 – what you need to know.

To make life simpler – most of what you eat shouldn't have a label. When you reduce the number of packaged (labelled) products from your diet, you begin a new whole-food clean way of eating that will serve you better in the long term.

Nonetheless there will be times when labelled products will be required so firstly opt for products that have fewer ingredients. Here are few other tips:

1 Forget fats and calories on labels.

Stop looking at the fat and calorie content of food. I appreciate if you have been watching your weight and tried various diets, this maybe your first instinct. There are some bad fats still lurking in food (we will cover this in the next module) however not all saturated fats are bad. A red saturated fat traffic light these days can be completely misleading.

2. Calculate sugar per portion.

Look for sugar content first and it will soon rule out the foods and stop you spending any more time reading complicated labels. Plus you will appreciate and learn very quickly that quite a lot of products are filled with sugar.

As a simple rule of thumb any product where sugar is either one to three on the ingredient list avoid the product. If you want to be specific check the sugar per portion by looking under carbohydrates (of which are sugars) and work out the portion you are likely to eat or drink and how much sugar it would contain.

For instance check the amount of sugar in serving size and the amount in 100g or 100ml. Check the serving size and then multiply up what you would consume if you ate the entire pack or entire drink. It is an interesting maybe one of exercise, which will make the point very quickly.

So if you get a drink for instance with 14% sugar per 100ml its 14% sugar. If you drink 250ml you need to multiply $14 \times 2.5 = 35\text{g}$. Divide that by 4 equals 8.5teaspoons of sugar. Drinks tend to be the big shocker.

Another few I have tried:

Heniz Baked beans 4.7g sugar per 100ml, entire can 415g

$4.7 \times 4.15 = 19.5\text{g}$ divided by 4 = 5 teaspoons of sugar.

Sainsburys Baked Beans (cheaper product but more sugar content)

5g sugar per 100ml in a 420g can. $5 \times 4.2 = 21\text{g}$ divided by 4 = 5.5 teaspoons of sugar.

Loyd Grossman Bolognese

5.2 g sugar per 100ml on a 425g jar $5.2 \times 4.25 = 22.1\text{g}$ divided by 4 = 5.5 teaspoons.

3. How natural is the product?

If a product is not an obvious sugar bomb, perhaps look at the type of sugar is contained within. Bear in mind that the sugars on the label include both added and natural sugar. There are no requirements at the moment to distinguish between sugars, unlike fats. So consider how natural the product is even if the product sells you 'only natural sugars' carry on and check the ingredients list and look at the different names of sugar (see later below), anything ending in 'ose' or that is described as syrup is likely to have some form of sugar.

Even natural sugar – fructose intake needs to be managed, especially when losing weight but also because of other health issues. Fruit extracts or concentrates should be avoided, it is a form of processing.

Ideally to really shift your taste buds, you could aim for very little refined sugar in anything and less than 5% sugar (5g per 100g) even if it is natural.

4. Milk and yogurt.

Milk and dairy products like yogurt, the first 4g per 100g are natural lactose, so if your yogurt has 4% sugar and no other ingredients apart from yogurt

you are generally safe from sugar. If a natural yogurt has 5-7g of sugar per 100g then sugar has been added to make it taste sweet again.

5. Fructose

Fructose is the fruit sugar it is found naturally in fruit and in small amounts in some vegetables. Honey is about 30-40% fructose, Agave nectar is a 90% fructose. Fruit fructose varies for example bananas are higher and berries are lower.

Fructose, unlike other sugars is processed only by the liver and an excessive amount can put a strain on the liver. Our bodies weren't designed to cope with the amount of fructose in fizzy drinks, smoothies and fruit juices.

Issues with fructose consumption:

- Fructose converts to fat in the liver as a fatty acid to be used as energy. What if you are not using up that energy or if you are consuming too much fructose, where does it go. Fructose can lead to fat storage and this excess increases unhealthy cholesterol and uric acid.
- You don't feel full on fructose it doesn't suppress your hunger hormones.

6. Perspective.

Don't stress about the smaller amounts of sugar it is important to be aware and then avoid your own habitual sugar consumption – e.g. the post meal chocolate, 3pm sweet treat. A few portions of fruit a day, if that, is fine. Please be aware that refined sugar and natural fruit should be considered together in your sugar intake for the day.

Dangers of highly processed sugars.

Excessive sugar in the diet is not the best idea when it comes to healthy living. 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 fruit sugar is 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. As we discussed earlier, 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 system 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 liver's 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, marinades, crackers, baked beans, Bolognese sauces 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 sweeties 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

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)}.

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.

Early evening munchies antidote:

You feel really good all day but then come around 7pm you can hear biscuits, chocolates, nuts calling and find it impossible to resist. Sound familiar?

Well you are not alone, the first thing to consider is why these feelings occur and then we can get to the cause:

1. Hunger?
2. Boredom?
3. Taste?
4. Comfort?
5. Addiction?

Hunger – eating more nutritious foods, foods which will fill you up and satiate you will alleviate hunger pangs. Eating four meals a day, so you won't feel hunger at those trigger times of the day.

Boredom – what can you do to divert your attention – have a bath or read a great book?

Taste – we can feel conditioned to love the taste of certain foods, remember the first time you had an olive or an anchovy or your first taste of booze? You had to

train yourself to like those foods. Well the reverse is true also, using your habits to change behaviour we can adapt our taste buds.

Comfort – the emotional trigger, consider the emotion that you are dealing with and ask ourselves if we can express our love for ourselves in another way? Can you use your mediational or EFT techniques to sooth your soul, and appreciate yourself in another way.

Practical steps:

1. Believe that you can do it, believe that you can change this habit. Start with your beliefs and thoughts – little wins. If you keep telling yourself you never will, you possibly won't.
2. Dark chocolate – if you absolutely must have a chocolate fix, use darker chocolate. Dark chocolate is a better fix than a sugary low fat yogurt or a special K bar and certainly better than a 100 calorie milk chocolate bar. Use dark chocolate as your post meal sweet fix to help with your transition away from the fix. Brands like Green & Black organic 75% or even 85% cocoa or really hard core Lindt Excellence 90%
3. Embrace hot drinks – green tea during the day and camomile at night.
4. Few glugs of coconut water – naturally sweet but not too bad in fructose but do check the brand.
5. Add cinnamon to something – yogurt or some hot milk.
6. Coconut flakes to mix up with nuts – go easy.
7. Swap fruity yogurts for natural full fat creamy yogurt and add nuts and seeds for texture. Fage yogurt, discussed earlier is the best of the brands.
8. Give it time, you need repeated implementation for long term habit change. Find something you like and then repeat.
9. Focus on one post-meal fix at a time, don't try lunch and dinner and 7pm trigger spot.

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>