Sugar Myths – Sugar and the Link Between Cholesterol.

Transcription brought to you by Genevieve Devereaux.

(Introductory Flute Music)

Exposing the myths on sugar, especially the link between sugar, obesity, diabetes and heart disease.

**I started in graduate school, I’d been reading on my own, but I decided to study in the physiology and biology department in the University of Oregon 1968. Since then I’ve been working pretty much full time in physiology related things, reproductive endocrinology was what I did my dissertation on: how oxidative metabolism interacts with ageing estrogen and so on to regulate fertility and sterility. The part of that thesis work involved the ageing of metabolism and how oxygen came to be wasted more and more with ageing, or under the influence of stress or high estrogen. The age pigment, lipofuscin was one of the things that I found was involved in high estrogen and ageing or radioactive damage. Lipofuscin is a breakdown product of polyunsaturated fatty acids largely, with other things bound into little brown lumps in the cells and it consumes oxygen and wastes energy and eventually can kill the cells, but it’s main function seems to be to waste oxygen and energy.**

And those are those little brown spots people call age spots or liver spots on their skin?

**Yeah they form in the brain and on the skin, everywhere and they tend to get formed faster and faster, the more stress you’re under and pretty soon, if you’re under the influence of unopposed estrogen they can eat all the oxygen and not leave any for the cell functions. That was what really started getting me interested in the unsaturated fat metabolism. I did that dissertation in 1972 and that was the year that John Udkin published his book, ‘Pure White & Dangerous’ or something. I read that and was so impressed by his argument that sugar increases blood lipids, saturated fats and cholesterol that, that was what started me on the idea of recommending increased sugar for people who are under stress, because I had already become convinced that there was no basis at all for the connection between high cholesterol and saturated fat and heart disease and so on. And so when I would see someone deficient in progesterone, having too much estrogen and age pigment, they would often recover if they could increase their cholesterol production and the simplest way to do that is to have them eat some extra sugar. That started me seeing the therapeutic possibilities of sugar and from there I worked backwards, understanding where the lipid hypothesis had come from and especially the doctrine that essential fatty acids are essential nutritionally, and since they’re what lipofuscin is made from, it seemed increasingly important to understand how that theory came about. I saw that George and Mildred Burr were the ones who created that idea in the 1929 and 30. In their experiment they didn’t, at that time, know about most of the essential nutrients, vitamins and minerals, so they fed what they thought was a complete diet. When they eliminated linoleic and related, so called ‘essential fatty acids’, their animals developed skin symptoms and various things that they called, ‘Burrs’ Disease’ and their diet consisted of only of the purified nutrients that were known in 1929. They used a high sugar content, a little starch and protein casein that had been highly purified. They recrystallised the sugar and precipitated the casein, which eliminated all the minerals and vitamins of it and then added what they thought were the essential nutrients, so the animals when they removed the linoleic acid from their diet, developed these scaly tail symptoms and so on. Three years after that George Burr put one of his rats under a bell jar and saw that it was burning oxygen at fifty percent faster than the rats getting the normal essential fatty acids diet. He decided that that was because their skin was leaky, because he said, the essential fatty acids created a barrier in the skin – just making this up. In the same journals, where George and Mildred Burr published these ideas, those journals had already published articles by several well-known researchers showing that animals are healthier without fats in their diet and lived longer, didn’t get cancer and so on, but the Burr’s just absolutely ignored the counter evidence and just went ahead published their doctrine and their financiers supported them, but the world didn’t pay much attention to it. 15 years later in the mid-1940s, Roger Williams, a famous lab in the University of Texas, had been working on the B vitamins, discovering new B vitamins and essential minerals and such, and they created the exact diet that Burr had fed the rats, created the so called Burr disease and cured it by supplementing them with vitamin B6. So what had happened was that on a high sugar diet, the animals were burning calories fifty percent faster than normal, and on a terribly deficient diet they got scaly skin, largely because of a vitamin B6 deficiency. That pretty much ruined the Burr’s scientific accomplishment, but meanwhile the pig industry had problems with the chemical that they were using to reduce fed intake, shut down their thyroid function then they could get fat cheaply and they found that by substituting a high polyunsaturated fat diet, soybeans and corn, they could supress their thyroid, just as well as using that toxic drug and make them get fat on a small food intake and the Burr’s essential fatty acids turned out to be what was supressing the thyroid. At the same time, the seed oil industry was losing its market for extracting these unsaturated fats to use in paint and plastic manufacture and that turned the whole seed oil industry, all the seed products that were used to fatten livestock, they found that they** **could increase the sales of these extracted seed oils by promoting the idea that they were helpful for human consumption, they had been hardening them to make margarine and by promoting their health products they could sell them directly as liquid cooking oils and salad oils. To do that they found that a biological effect was that they lowered cholesterol production, or lowered the cholesterol that appeared in the blood and caused it to increase in the liver as a defensive reaction, but they created the doctrine of cholesterol as a cause of heart disease and to eat more of the unsaturated fats, even though they knew that they would create obesity as they did in the pig industry. They convinced doctors, by a huge campaign that cholesterol was found in the wall of arteries that were developing atherosclerosis, and since you could lower the cholesterol in the blood, they argued that you would lower the cholesterol in the wall of the artery and that would prevent heart disease. Ravenschoff much later showed that none of those arguments had any evidence to support them. Atherosclerosis didn’t have a direct connection to heart disease, mortality, cholesterol in the blood didn’t have a connection directly with the formation of atherosclerosis and dietary fats, saturated fats didn’t create the cholesterol in the blood. But there was a slight back sliding in the ability to sell doctors on the ideas of eating unsaturated fats to lower cholesterol. There was a study with veterans in which putting them on the liquid oil diet eliminating saturated fats caused more of them to die of heart disease, and a lot more of them to die of cancer. There was some problem with that lipid theory already in the 1960s and John Udkin came out, he had been doing research since the mid 50s, 1972 he published this book arguing that sugar caused heart disease because it increased cholesterol! Already since I knew that cholesterol didn’t have anything to do with heart disease, except protecting against it to some extent. That was when I realised that he was right on the issue that sugar would increase cholesterol in some people.**

But didn’t the Japanese come out with a study, just recently too that showed that when they took off an atherosclerostic plaque it had a cholesterol bandage over oxidised rancid vegetable oil?

**Yeah cholesterol protects every cell. It is increased in the location that is being injured, especially. It is necessary for healthy cell division, DNA replication, nerve function, and learning. It’s our most basic anti-stress protective substance.**

So those oxidised vegetables oil were damaging the arterial wall and if the cholesterol wasn’t there, it couldn’t have stopped the rancidity and oxidation and it could’ve caused more problems right?

**Yeah and what starts the inflammation in the artery wall and everywhere else, is the breakdown of the essential fatty acids into the free radical products and lipofuscin. You can extract lipofuscin from every arterial plaque, every degenerative tissue you find the breakdown product, but you don’t find fresh polyunsaturated fats because they’re unstable. They break down quickly and what you find is the cholesterol that is there repairing the tissue, the saturated fats that didn’t break down and the lipofuscin which is the EX essential fatty acids.**

The initial insult. So just for our listeners to understand in case they are not aware of what this polyunsaturated fatty acids is they are all liquid vegetable oils that are commonly sold and things are fried in, also includes, fish oils and omega 3 and 6 oils, flaxseed oils, hempseed oils. All of these are very unstable products. They can go rancid outside the human body, even if they are at room temperature. Once you ingest them they can go rancid very quickly because we are warm and full of oxygen.

**Yeah in an experiment, I put a little clear plastic tube into a cork of a bottle of safflower or corn oil and put the other end in a cup of water and sitting at room temperature, you could see the water being sucked up into the tube as the oil sitting there was just consuming oxygen and becoming rancid even at room temperature, but it is much faster at body temperature.**

Okay so you’re listening to ask the herb doctors on KMUD…SO sugar is the probably the second most maligning substance after cholesterol. So what else are they saying about sugar?

**That Lustig professor at the University of California, San Francisco, in his famous lecture uses the words, ‘toxic’, ‘poison’ and ‘evil’, someone counted 18 times in an hour and a half lecture.**

And he was referring to fructose?

**Fructose yeah.**

Fructose? The sugar that is found in fruit is toxic, deadly and evil?

**But since sucrose is 50% fructose, he was implying it to sucrose too, or the high fructose corn syrup, which is almost 50% fructose. He was saying that it’s just like alcohol in being toxic to the liver, but that’s one of the weirdest thing he said, because for many years, people have been showing that it detoxifies many things that injure the liver, including alcohol. It can increase almost double the rate of destruction of alcohol and prevent liver damage in the process, but many other toxins are detoxified in the presence of fructose.**

Our engineer just said, what about honey? Honey is mainly fructose?

**About half. Honey and more purified fructose have been used to treat diabetes and other things, like stomach ulcers. Sugar has been used to cure wounds, like in emergency situations they found that when they didn’t have antibiotics they could do open heart surgery and pack the wound with pure white sucrose and prevent scarring and promote healing better than the fancy antibiotics. Honey was used for thousands of years that way to cure wounds.**

I think that’s how Alexander the Great prevented his soldiers from dying of usually fatal battle wounds.

**In the seventies, there were many articles advocating the use of fructose in the diabetic diet because it becomes economically pretty cheap. It could be added to practically anyone’s diet to improve the regulation of blood glucose. That idea goes back to 1874. Someone showed that it metabolised better in diabetics than other sugars. Even earlier sucrose was used to cure diabetes in 1856 – 57.**

I wonder again, why is it that mainstream medical science, why does it want to promote the idea that sugar is so bad for you?

**I think it is this momentum. They are committed to the mistaken cholesterol-lipid theory of heart disease and I think Yudkin sort of tilted the scale and all of the ranting against cholesterol and animal fat has just slid over to concentrate on sugar and fructose.**

For people that are listening if you have a pen and paper there is some very good scientific references written by Uffe Ravnskov. He has produced about ten books and over 80 scientific articles, completely disputing the cholesterol myth. It’s an excellent example to try and get their head around the fact that things come out and things are distorted or steered in different directions by various interests. What we read, what we hear and what we are told are constantly reinforced as people keep telling each other the same lie. You got to be careful to not take everything you’re told as truth and look into it yourself and probe a little further if that is the case. This is a glaring example where cholesterol has been mentioned as evil and something where you have to use cholesterol lowering drugs to get your cholesterol down, when it is actually a protective compound and I’ve looked at the articles around that showing the antimicrobial protective effects of cholesterol, where they used mice in situations where they would basically, give them cholesterol or not post infection. They would basically infect control mice…

**It’s the same with toxins. As early as 1915 – 1920, people were showing that cholesterol would protect against toxins as well as infectious things and Ravnskov did some studies on triglycerides showing that they are also anti-infective. He showed that triglycerides protect against infective things and other people have shown that they are anti-inflammatory and the low density lipoprotein and the high density that it happens, if you have extreme exposure to chemicals your high density lipoproteins increase so they associate with a higher incidence of cancer.**

And we are told those are the good guys and you want a high HDL!

**Yeah they are all good in the sense that they are there to protect you but…**

When they are in elevated level they are showing that there is something else is wrong, like if you’re low thyroid you could have a total cholesterol of 300.

**Yeah if you take alcohol or estrogen your HDL will go up, but also if you take chlorinated hydrocarbons and other things they will go up.**

Like if you work in a dry cleaning company right?

**Yeah.**

Getting back to sugar and the erroneous link between sugar, diabetes, obesity and heart disease…

**The same thing that Burr demonstrated: His diet, most of the energy was from plain sucrose and his animal respired fifty percent faster than animals on a normal diet. That’s been seen over and over. Fructose in particular, even a small amount of fructose added to a standard diet will catalyse the oxidation of other substances, glucose and fat both, but mostly it will catalyse the use of glucose turning it into carbon dioxide.**

So it helps your cells use oxygen more efficiently, helps the cell respire which is, y’know, basically function better.

**Yeah and that increase is just about 30 – 50% in all of the publications where they have looked at it.**

And the increase in CO2 is also beneficial and that is another erroneous belief or misconception that CO2 is actually bad and oxygen is good but it’s actually the other way around right?

**Yeah and experimenters who have given a fructose supplement to diabetics see that they respond just as well or better than people without diabetes to the ability to oxidise fructose and produce energy. One group happened to look at the fructose that is normally present in everyone’s blood stream and compared it to diabetics and saw that diabetics are deficient in fructose. There is almost no fructose circulating in their blood stream, so naturally it would be therapeutic to restore a normal level, but since they aren’t able to metabolise glucose that’s apparently why they metabolise fructose to get carbon dioxide, even a little faster than healthy people do.**

So that’s orange juice and honey for diabetics?

**Yeah.**

And we do have a caller on the line. Let’s take the first caller. You’re on the air.

Hi I was just curious. I take Lovaza, it’s fish oil. Are you saying that that stuff ain’t no good?

**Well it’s better than seed oils because it’s so unstable that it pretty much breaks down before it gets integrated into your tissues as much as the seed oils would.**

So you figure I should just stop taking this stuff?

**Yeah I don’t know any benefit, except temporarily it lowers inflammation, but that’s basically by poisoning the immune system. That anti-inflammatory effect is similar to the anti-inflammatory effect of stress or radiation…**

Oops we lost Doctor Peat. Doctor Peat are you still there? You were explaining that the only positive effect of fish oil, the slight anti inflammatory effect of transience, through suppression of the immune system, which is similar to they use to use radiation x rays to treat rheumatoid arthritis and psoriasis because it supressed the immune system, but it’s pricey because it supressing your immune system you risk increased cancer, increased heart disease, all sorts of problems later in life if you use it long term.

Well I still have heart disease. I’ve had four by pass surgeries, three heart attacks, both of my coronary arteries cleaned, so I’m pretty much at the end of my road, so they gave me this stuff to lower my cholesterol. The count was 203.

That’s not high. The reference range is 200, so even by medical standards 203 is not…was that after you were taking the fish oil or before?

I’ve been taking it for a couple years, but I’ve been wondering about this stuff because it makes me sick.

How old are you?

I’m 60 years old.

Well I know that Doctor Peat is a very strong advocate, through plenty of papers that also agree that a higher than 200 cholesterol is better and decreases the incidence or prognosis of Alzhemiers, dementia and other degenerative diseases, so you should be happy that you have a cholesterol over 200. Between 200 and 250 is good.

So that’s good. Now that it’s already there I don’t have to work on it.

But the fish oil is not a good idea. What the fish oil does when someone has a cholesterol test is that it just measures what’s in the blood. It doesn’t look at whether it changes anything at a tissue level, so basically what happens if you take a fish oil supplement is that it actually gets deposited in other tissues, like you mentioned earlier Doctor Peat in your liver, so that’s actually not good for your liver, because then you end up with fatty liver disease.

Well okay. I’m gonna stop taking that right now.

And make sure your dietary fat is basically butter, coconut oil and saturated animal fats. They’re probably the only good fats. You don’t wanna use vegetable oil.

We have two more callers on the line. One was quick. He asked, what about glycerine?

**I’m ambivalent about it, because some research shows that it’s protective and can work somewhat like fructose, but my own experience with it is that it can cause a lot of digestive irritation.**

Is one of the protective effects of fructose is that it’s non fermentable?

**When you eat any free sugar - fructose, glucose or sucrose - it is so quickly absorbed in the upper part of the intestine, the duodenum gets the biggest part of it and that means you’re not feeding sugar to the bacteria because the intestine should be pretty sterile in the upper part.**

Right, ‘cause we were just talking to a wine maker who said if you wanna make mead from honey, you have to heat the honey in order to break down the fructose and then you can ferment the product, otherwise that is why honey is non fermentable and that’s why it will last thousands of years without going bad.

**I think that you have to add water to it to dilute it.**

We have another caller on the air.

I am very interested in Doctor Peat’s attitude to sugar. I have Lyme disease and every time I have sugar, my affected joints hurt immediately. I can have honey or maple syrup and it does not affect them. I am also very interested in the relationship between sugar and cancer. I have been reading an anti cancer diet, which says sugar is a great promoter of cancer.

**That’s a whole topic in itself. If you look at the blood sugar in an animal or person carrying a tumour, their blood sugar is generally at least normal and even if they don’t eat any sugar, they will still keep their blood sugar at about the same level. There has been many attempts to starve the cancer by lowering the blood sugar, but the cancer, the tumour is sending out signals to provide sugar and protein (amino acids) and fatty acids that it needs to grow, so if you cut off the sugar supply all it does is send out more stress signals to increase, basically cortisol production to break down your tissues. It causes tissue wasting, the cachexia that is the worst feature of cancer usually. It is produced by the stress hormones, which are converting your protein-y tissues and fat tissues into food to make up for the absence of sugar. One experimenter using, to treat tumours, for example of the leg, since the circulation could be isolated, they put in a high concentration of glucose into the artery, feeding this tumour in the extremity and they could get an extremely high concentration of sugar to it, and it killed the tumour without hurting the healthy tissue, because the tumour has such an unlimited appetite for anything that it will eat itself to death in vitriol, if you feed unsaturated fat to cancer cells, they will eat itself to death but in the body, the unsaturated fats are under control. Other tissues will consume them and be injured. You can’t do anything but stimulate a cancer with unsaturated fats, but with high concentrations of sugar, the experimenters showed that sugar would be consumed to the point that it will kill the cancer.**

But I am interested in the fact that sugar makes my affected ankle with lyme horrible and hurts terribly, but honey and maple syrup don’t…I find that very curious.

**The sucrose is the main ingredient in maple syrup and the balance of fructose and glucose in honey are approximately the same, so it must be the other ingredients that are having the effect.**

Well there are some minerals in maple syrup and I don’t know what’s in honey, but it definitely has more than just fructose and glucose…

**Yeah that is one of those things that Yudkin used for his argument that fructose was poison. He said that it wasn’t the absence of minerals and vitamins in white sugar that made it poison. He gave arguments showing that he wasn’t really anymore logical than George Burr had been. Yudkin believed that he knew what all of the nutritional requirements were, and he said the difference between the known nutrients between molasses and white sugar were so trivial that it couldn’t be that white sugar and white bread were causing nutritional deficiencies. It was just because they were poison…**

Well my parents ate an OUTSTANDING amount of white sugar and they both lives in to their 90s in reasonably good shape. Anyway, thankyou. Goodbye.

Next caller.

Okay what I am hearing is that there is a difference between fructose and pure white sugar. Obviously not all the medical people are not all against fructose, cause I am always hearing eat more fruits and vegetables, so fruit is good for you and the sugar in fruit are good for you.

Well there are lots of doctors saying that fructose is poison.

Well I haven’t heard of that but what I do know is that I feel differently, it tastes different and I feel different when I eat something made with just pure white sugar than honey or maple syrup or a fruit juice that doesn’t have any added sugar and I think an overload of white sugar, pure sucrose without any fructose in it is the culprit here. I know that there are some metabolisms where insulin will take sugar and especially just plain sucrose and store it as fat, and that is part of why people get fat when they eat a lot of sugar and white flour and also when a person has diabetes and the insulin isn’t producing they can’t take of the sugar, so I mean too much white sugar seems to stress out the pancreas where it is exhausted and can’t produce enough insulin to take care of a normal amount of sugar.

Well if you at the glycaemic index, the glycaemic indexes of some potatoes and rice are almost double that of white sugar. Fructose has a lower glycaemic index than sucrose, but sucrose is not the guy that causes obesity and heart disease. Sure if you eat enough of anything you’re going to get some weight gain.

So you’re saying white potatoes and white rice have a higher index than white sugar?

Yeah some potatoes and some rice are almost double that of white sugar.

When people eat white sugar, even just a piece of fruit that’s easy to do but, who just sits there and just eats white sugar?

(Obviously they have not heard of Genevieve but anyway…)

Well no, but you can put a whole lot of sugar in your coffee, in your lemonade. Sugar becomes addictive and that’s why the desire of it increases and you want more and more.

I think the fattening effect of sugar that happens is because it is in cake and cookies and all these fattening foods that have such a high glycaemic index besides just the sugar.

**It increases your ability to burn fat by 30 – 50% so you can eat much more without getting fat**

Of the sucrose as long as you stay away from the white rice and white flour?

**Yeah.**

So cake and candy so that’s worse for you than a fruit pie that you added a bunch of sugar to but the crust was a whole wheat crust that would be okay?

Well even the grains and all the starches and beans. All of those starchy carbohydrates they all have a higher glycaemic index than fruit, honey and white sugar.

So mostly you don’t even put white sugar, unless you put it in your coffee or lemonade or whatever…

Or your icecream.

What about ice cream? That’s mixed mostly with fat. Is that bad?

Well no because there is no starch there and if we are talking about the glycaemic index and raising your sugar and causing obesity.

Well I can eat plenty of ice cream but as far as calories goes…

Right, it’s the fat. It’s the fat in the cream.

But yeah if you decided you were going to eat sugar but not mixed with any carbohydrates…

I eat fresh fruit and I make lemonade and I drink orange juice and I…

Well I believe in fructose and I think that’s good. When I drink fruit juice, I drink it without any added sucrose but I dilute it with half water so I don’t get even that much fructose. I know there can be like 600 calories in sometimes a quart of juice that has no added sugar…

The other thing is that when you have a fruit sugar or just any sugar, you should have it balanced with a fat and a protein so you slow release the sugar, so your liver can store it, so you can use it for longer, rather than a huge spike of sugar that then your sugar pumps out insulin and then it gets stored as fat.

So if you have chocolate that’s a good way to have it?

Well chocolate doesn’t have the protein. Maybe chocolate with a glass of milk.

Okay next caller.

Hi my name is Mike. I am calling from Eureka. Thank you for taking the call. My question is about and Lipoprotein A and collagen. Is there a loss of collagen when the LPA is high? If that’s true how do you lower the LPA and how do you raise the collagen? (Cut out caller)

The gentlemen wanted to know the connection between lipoprotein A and collagen.

**Lipoprotein A?**

**I don’t know what he…**

Next caller?

I heard that high fructose corn syrup blocks a chemical signal that goes to your brain when you have enough food to eat or enough to drink and it blocks that signal, causing people to want to eat or drink more.

**That’s leptin that you are talking about.**

I think it came from one of those doctors that were anti sugar.

**Yeah the pharmaceutical industry was hoping to promote leptin as a natural anti-obesity chemical, when they discovered it would limit appetite, but as it developed over the last twelve or so years, it turns out that it is produced when you over eat, especially on fat. It is produced by fat cells, especially by obese people a lot of it is produced. When you have a lot of it and the brain responds, it does shut off your appetite but it also happens to activate inflammatory processes, and for example in breast cancer, it is found to be the signal that turns on the cancer metabolism, called aerobic glycolysis where the cancer, even in the presence of oxygen needs sugar or will burn sugar at a higher inefficient rate. So leptin turns out to be one of the means by which obesity causes it damages, rather than being this mysteriously wonderful protective molecule. It’s part of our regulatory system that in fat people it gets out of whack and causes harmful effects, rather than regulatory effects.**

So leptin is the bad guy?

**And it so happens that fructose suppresses it relative to other foods.**

I know most people that listen to the show are way more conscious than to drink artificially sweetened juices or artificially sweetened sodas, but with the trend and fad to drink artificially sweeteners as a replacement to sugar. There are a few nasty replacers for sugar. Things like saccharine were shown to cause allergic reactions. Sucralose is a relative new one. I won’t go through the chemical process to make it, but let’s just say there is nothing in nature like it and it is not good for you and acelulfame-k is a known carcinogen, containing methylene chloride. Plenty of the alternative sweeteners are bad for you…

Our engineer has a question:

Someone with hypothyroidism and low cholesterol, what can their link be there?

**Probably eating too much starch. That’s the commonest cause of that pattern. Fructose in particular acts very much like T3. Both glucose and fructose increase the conversion of the inactive thyroxine to the active T3. They do several things to increase the thyroid activity, lowering the stress hormone as well as increasing the active thyroid hormone and the energy provided by both the glucose and the T3 in the liver will give it the energy to produce the cholesterol that is needed if you are eating enough sugar and not producing toxins in the intestines, by eating hard to digest fibrous foods.**

So they can replace their starchy carbohydrates with fruit and honey in combination with protein, so it’s not just sugar on it’s own and that would help with their liver, increase thyroid hormone and increase their cholesterol.

**Yeah and all of the sugary fruits come with a very high concentration of potassium and other minerals that help to metabolise the sugar in a safe way so you don’t turn it into fat.**

Would you mention the name again of the gentlemen?

**Udkin was the one that popularised that sucrose causes heart disease.**

And the medical doctor Ravnschoff. Thanks so much for joining us Doctor Peat.

Blah blah and the end…for more information see Raypeat.com

(Oh yeah – flute music!)

HeH