Heart of the Matter Part 1 - Dietary Villains

(Transcripts)

NARRATION

For the last four decades, dietary fat and cholesterol have been the villains in heart disease.

Dr Michael Eades

You very seldom see the words 'saturated fat' in the public press when they're not associated with artery clogging. So it's like it's all one term - 'artery clogging saturated fats'.

NARRATION

But now some medical experts are coming forward to challenge this medical paradigm.

Dr Jonny Bowden

I think it's a huge misconception that saturated fat and cholesterol are the demons in the diet, and it is 100% wrong.

Dr Stephen Sinatra

Saturated fat has been vilified for years because of the cholesterol theory.

NARRATION

A multibillion dollar food industry has fuelled our phobia of fat and cholesterol and dramatically influenced our diet.

Dr Michael Eades

That's not science. That's marketing.

Dr Jonny Bowden

It's lived past its expiration date, and it's one of these hypotheses that just won't die.

NARRATION

Have we all been conned?
Dr Maryanne Demasi

In this episode, I'll follow the road which led us to believe that saturated fat and cholesterol cause heart disease, and reveal why it's being touted as the biggest myth in medical history.

NARRATION

The food industry has shaped our ideas about heart health with TV ads like this one.

Advertising Man

So join me in the Uncle Toby's Oats cholesterol challenge!

NARRATION

Lowering our cholesterol has been a running theme with the food industry.

Dr Michael Eades

People have this fear of cholesterol because they've been bombarded with it so much in the media that it's bad and it's going to cause heart disease. That's why all these things were emblazoned with 'cholesterol free'.

NARRATION

These advertising campaigns are at the behest of our peak health authorities.

Dr Maryanne Demasi

The National Heart Foundation guidelines are pretty clear. We're told to reduce our saturated fat and cholesterol levels in order to reduce our risk of heart disease. But many doctors are now suggesting we need to radically rethink this approach.

NARRATION

One of those doctors challenging this medical dogma is California-based nutritionist, Dr Jonny Bowden.

Dr Jonny Bowden

When you look at the data, it's very clear - everything that we have been told about saturated fat and cholesterol is a bold-faced lie. It's just not so.

Dr Maryanne Demasi

But isn't there good science behind this?

Dr Jonny Bowden

If you look at the 'science' that actually the dietary guidelines were based on, the early stuff was so badly done, so filled with confirmation bias, it would never even pass muster today. And unfortunately most doctors don’t know this.
Dr Ernest Curtis is astonished at how medicine has gilded the lily on cholesterol.

Dr Ernest Curtis

During medical school, I was taught the same thing everybody else was - the importance of cholesterol and so forth - and I saw no reason to doubt it. But once I got into the cardiology field itself, I was seeing people with heart attacks that had cholesterol all over the place - high cholesterol, low cholesterol, the middle - it didn't seem to matter.

And at first I thought, 'Well, OK, these are probabilities, so there will be exceptions.' But it turned out that, after a while, I was seeing far too many exceptions. So that motivated me to go back and look at the origins of these theories. And, quite frankly, given the certainty with which we're taught this, it surprised me to find out how poor the evidence was. It's virtually non-existent.

Cardiologist Dr Stephen Sinatra said he routinely ordered patients to lower their cholesterol with medications. But now admits he was wrong.

Dr Stephen Sinatra

I used to be the poster boy for the drug companies. And when I was Chief of Cardiology, I used to write for statins all the time. I really believed in the cholesterol theory of heart disease. I first became skeptical of the cholesterol theory in the mid-'80s. I was doing coronary angiograms. You know, you place a tube in the groin and it goes up into the heart, and you can see if there's blockages there.

Sometimes I would do the angiogram on a person with high cholesterol thinking I was going to find a lot of disease, and I... Many times, I didn't find disease, and the converse was true. You know, I would do somebody with low cholesterol, and expecting not to find disease, and I found disease. So I was starting to think, 'Maybe I don't have this right. Maybe cholesterol is not the enemy we think it is.'

Dr Maryanne Demasi

We've become so paranoid about cholesterol, we've actually forgotten it's essential for life. It's a major component of brain and nerve tissue, and central for the production of hormones. In fact, it's so important that virtually every single cell in the body makes it.

Aside from people with a genetic condition, like familial hypercholesterolemia, diet has long been the focus of how we can lower our cholesterol. The idea that saturated fat clogs your arteries by raising cholesterol first gained traction in the '50s. American nutritionist Ancel Keys became intrigued with the soaring rates of heart disease after World War II.
Ancel Keys

The facts are simple. You know the chief killer of Americans is cardiovascular disease.

NARRATION

He compared the rates of heart disease and fat consumption in six countries. It was almost a perfect correlation - the more fat people ate, the higher the rates of heart disease. Except, there was just one problem. Keys withheld data for 16 other countries. Later, when researchers plotted all 22 countries, the correlation wasn't so perfect. Dr Michael Eades is critical of the way Ancel Keys excluded countries that didn't fit his hypothesis.

Dr Michael Eades

He more or less cherrypicked countries. You could show just the opposite. You could show that the more saturated fat people ate, the less heart disease they had, if you cherrypicked the right countries.

NARRATION

Dr Eades says that even if fat consumption trends in the same direction as heart disease, it doesn't prove anything.

Dr Michael Eades

Just because there's a correlation, doesn't mean that there's causation. It's like people who are fat have big belts, but that doesn't mean that if you buy smaller belts, you won't be fat. I mean, that's not the causation. That's what these observational studies show - it's just a correlation.

Dr Ernest Curtis

The classic study by Ancel Keys is a textbook example of fudging the data to get the result that you want out of a study. And, unfortunately, there's a lot of that that goes on.

NARRATION

Science writer Gary Taubes says it's all very well to have a theory, but in science you have to prove it. And they tried.

Gary Taubes

And over the next 15 years, researchers did trial after trial. There were probably a half a dozen of them between 1960 and 1975. All refuted or failed to confirm the idea that you could live longer by either reducing the saturated fat in your diet or reducing the total fat in your diet.

NARRATION

The American Heart Association was also reluctant to lend credence to Keys' theory. But then he managed to score a position on the Association's advisory panel, where he
pushed for the acceptance of his ideas, and it wasn't long before they had a change of
heart.

**Gary Taubes**

Instead of the data not being good enough to claim that dietary fat was a cause of heart
disease, they concluded that the data were good enough, and, therefore, all Americans
over the age of two should go on low-fat diets.

**NARRATION**

As the idea gained widespread acceptance with the public, science was left to catch up.
Two ambitious trials, costing over $250 million, involving hundreds of thousands of
patients, both failed to prove that lowering saturated fat could lower your risk of dying
from heart attack.

**Gary Taubes**

The way the authorities responded to this was to claim that they must have done the
study wrong. Instead of saying, 'Hey, look, eating a low-fat diet doesn't apparently do
anything for people, or certainly not women,' instead they respond by putting out press
releases saying, 'Look, we don't know why this trial failed to confirm our hypothesis, but
it doesn't mean the advice we've been giving you is wrong, and it doesn't mean that the
hypothesis that dietary fat causes heart disease is wrong.'

**NARRATION**

The National Heart Foundation of Australia defends these failures, saying that nutrition
trials are just too complex.

**Dr Robert Grenfell**

When you ask that question of 'Do dietary fats increase heart disease?', you're sort of
trying to negate all the other risk factors that, in fact, actually also cause heart disease.
So, to imagine creating a study that would prove that conclusively is virtually impossible.

**Dr Maryanne Demasi**

So, if they can't prove it, on what basis have they decided that saturated fat is bad for
us?

**Presenter, in advertisement**

Eat too much fatty food and you risk a high level of blood cholesterol building up in your
arteries. Eat sensibly.

**Dr Robert Grenfell**

Many analysts have, in fact, actually shown that, you know, we can say with convincing
evidence that intake of saturated fats leads to an increase in blood cholesterol.
Dr Maryanne Demasi

An extensive review of the literature showed that the data was highly inconsistent. In fact, there were many long-term studies that refute the idea that saturated fat raises cholesterol. So I approached the National Heart Foundation for further evidence. They said the data was complex. They cited one study which showed only certain types of saturated fat could raise bad cholesterol, but it also raised good cholesterol. In the end they concluded - 'We agree that we are limited by the evidence base, available at this time.'

NARRATION

I asked Australia's leading lipid expert what he thought. So, should we be giving people dietary advice if there is such poor adherence and the studies aren't available?

Associate Prof David Sullivan

I think there are some very telling pieces of evidence which have been used to establish the importance of avoiding saturated fat. If saturated fat is completely benign, if it's actually beneficial, where's the evidence in support of that? Where's the evidence of an alternative cause? We are particularly keen to get some dietary advice, because otherwise what do we offer people?

NARRATION

But Dr Curtis disagrees with giving people dietary advice when he believes the evidence is insufficient. He says diet has very little influence on your blood cholesterol in the long term.

Dr Ernest Curtis

The reason for that is that your body manufactures 80% to 90% of your cholesterol. Really, very little of it comes from the diet. Most people seem to have a genetically preset level for the cholesterol in their body, maybe in a range. But they're generally going to seek to stay within that range. So, if somebody cuts all the cholesterol out of their diet, their body will simply start making a little bit more to bring it back up into the range.

NARRATION

In the '60s, British physician John Yudkin challenged Keys' theory, claiming that sugar was the culprit in heart disease, not saturated fat. But Keys was politically powerful, and publically discredited Yudkin's theory.

Gary Taubes

By the early 1970s, Ancel Keys was ridiculing John Yudkin and his theory in papers, and just on the basis of that sort of personality and political struggle, the nutrition community embraced this idea that saturated fat was the problem, working through dietary cholesterol, and began to think of the idea that sugar could heart disease as akin to quackery, and Yudkin was eventually ridiculed.
NARRATION

Keys won the diet war, helped by his rise to fame after appearing on the cover of Time magazine.

Dr Maryanne Demasi

This widespread publicity meant that Keys' theory went from weak hypothesis to medical dogma. It would turn out to be one of the most significant events in the history of post-war medicine. The consequences of this study would reverberate over the next several decades to influence public opinion, government policy and the way doctors practice medicine today.

NARRATION

The most influential and respected investigation into the potential causes of heart disease was carried out here, in the town of Framingham, Massachusetts. It began in 1948 and is still going on today. It's the longest observational study of its kind, involving over 5,000 residents.

Dr Stephen Sinatra

The Framingham data pointed out very early that certain habits, or what you did, like cigarette smoking or emotional stress, did point in the direction of heart disease. But then something happened. Some of these Framingham residents were living longer than others.

Dr Maryanne Demasi

When researchers went to look at the data 30 years later, they found that, after a certain age, it didn't matter what your cholesterol level was.

NARRATION

Cholesterol did correlate with heart disease, but that disappeared by the time you reached your late 40s.

Dr Jonny Bowden

After the age of 47, high cholesterol is probably protective. The people who had the highest cholesterol lived the longest, much to the amazement of a lot of the researchers. The people who ate the most cholesterol, ate the most fat, actually weighed the less and were the most active.

NARRATION

One of the Framingham researchers became so dismayed with the results, he wrote a scathing review of the whole diet-heart hypothesis, saying that people had been misled 'by the greatest scientific deception of our times, the notion that animal fat causes heart disease'. Hundreds of articles refuting the cholesterol hypothesis have been published in the world's leading medical journals, but they rarely get noticed by mainstream media.
Gary Taubes

So, what you do in bad science is you ignore any evidence that's contrary to your beliefs, your hypothesis, and you only focus on the evidence that supports it.

NARRATION

In 1977, the US government stepped in. Senator George McGovern, an advocate of Ancel Keys' theory, headed a committee hearing to end the debate once and for all.

Dr Michael Eades

And they are the ones who really have put us in the nutritional mess that we're in now, because based on virtually zero science, they decided that a low-fat diet was the best thing for us all.

NARRATION

Eminent scientists at the time disagreed with the report.

Man

I have pleaded in my report and will plead again orally here for more research on the problem before we make announcements to the American public.

NARRATION

But their pleas fell on deaf ears.

Senator George McGovern

Well, I would only argue that senators don't have the luxury that a research scientist does of waiting until ever last shred of evidence is in.

NARRATION

News reports began peddling the same message, and many say it was this article in Time magazine that put the final nail in the coffin for saturated fat and cholesterol. This led to the creation of the food pyramid, which formed the basis of our dietary advice in the following four decades. It advised us to eat less saturated fat, mainly found in meat and dairy, recommending a diet rich in carbohydrate foods, like breads, grains and cereals.

Dr Michael Eades

McGovern himself was from a big wheat-growing state, so it didn't hurt him politically that people moved away from foods of animal origin into breads and pastas.

NARRATION

There is one diet that stands out from the rest - the Lyon Diet Heart Study, which touted the benefits of a Mediterranean diet. Remarkably, after several years, those on the Mediterranean diet had a whopping 76% less deaths from heart attacks.
Dr Maryanne Demasi

So why the Mediterranean diet get such a spectacular result when all the others had failed? I'll explain why later. But one of the most interesting things to come from that study went virtually unnoticed.

Dr Jonny Bowden

Here's the part that nobody talks about. See, you think that in the group that had the double-digit reduction in heart disease, their cholesterol levels must have plummeted, right? Their cholesterol levels didn't budge. Both groups had the same cholesterol levels, except one group just stopped dying. So, so much for the relationship between cholesterol and the risk for heart disease.

Man, in advertisement

This is the average amount of saturated fat a person consumes in a month.

NARRATION

Atherosclerosis begins when plaques build up in the arteries.

Man, in advertisement

If saturated fat can clog this pipe, imagine what it's doing to yours.

NARRATION

But, contrary to popular belief, neither saturated fat or cholesterol deposit on the artery wall like sludge in a pipe. Nobody knows what begins the process, but damage on the artery wall causes inflammation. The body responds by recruiting cells to fix the problem. Tissue cells called macrophages clean up the debris, which consists of things like bacteria, calcium and cholesterol. A fibrous cap grows over the plaque, trying to conceal the inflammation. If the cap bursts, the plaque's contents are released, and a clot may block the artery, after which a heart attack ensues. Dr Curtis has a theory on what initiates the damage that begins atherosclerosis.

Dr Ernest Curtis

Arteries are constantly branching off, one from another, and at these branch points is a very common place to find these plaques.

NARRATION

The study of fluid dynamics shows this is where the artery experiences the most stress from the tremendous pulsatile force of blood coursing through the artery, at high pressure. Veins don't endure the same pressure as arteries, so they never develop plaques.
Veins that simply return the used-up blood to the heart to get reoxygenated are not under the same stress. And veins don't develop atherosclerosis - unless you put them in a situation where they have to function as arteries.

And this may happen when surgeons use veins in heart bypass surgery.

Now, that portion of the vein is receiving the same arterial pressures. Those coronary bypass grafts and veins here will develop atherosclerosis very quickly. That is never seen in their native state.

But because cholesterol is found in the plaques, it's often blamed for causing it.

If you go in and you do autopsies of people who've had coronary artery disease, and you cut open the coronary arteries, they're filled with cholesterol. So it's not a big leap to say, 'Gosh, I shouldn't eat that because it's going to go right into there,' but that's not the way it works.

Dr Sinatra says blaming cholesterol for causing plaques is like blaming firemen for causing fires, just because they're always at the scene.

Cholesterol is really not the villain. I mean, we need it to live. The problem is cholesterol is involved in a repair process. Look, cholesterol is found at the scene of the crime, it's not the perpetrator. And where I sit now, as a cardiologist, practicing cardiology for over four decades, it's very low down on my list of risk factors.

Cholesterol is a waxy substance that doesn't dissolve in the blood. So it has to be ferried around by proteins, mainly LDL and HDL. LDL is said to deliver cholesterol to the tissues, hence it's bad, and HDL is said to remove cholesterol from plaques, hence it's good. But when Dr Sinatra has his annual blood test, he says he's not that concerned about cholesterol.

What about the bad cholesterol?
Dr Stephen Sinatra

You call it, the LDL, bad cholesterol? Well, you know, I don't really call it bad unless it's oxidized. Remember, if it's oxidized, then it's inflammatory.

Dr Maryanne Demasi

So cholesterol's not bad, only if it's oxidized.

Dr Stephen Sinatra

Exactly. If the cholesterol is oxidized, if there's free radical stress involved and it's oxidized, that's inflammatory and that starts the cascade for inflammation.

Dr Stephen Sinatra

Well, the inflammatory theory of heart disease I think is accepted more and more now. I think the general cardiovascular community is still focusing on cholesterol. They need to focus more on inflammation, and that's where, you know, emotional stress...

But sugar. Sugar is really the fall when it comes to cardiovascular disease. You see, we've placed all this emphasis on cholesterol, we've taken it off sugar, and that's the problem. Then you're getting more insulin responses, and we know that insulin is the number one indicator for inducing what we call inflammation of blood vessels.

Dr Jonny Bowden

Sugar is far more damaging to the heart than fat ever was, and we're beginning to see this now. So, this focus on cholesterol has been incredibly destructive because we haven't looked at these real promoters of heart disease - inflammation, oxidative damage, sugar in the diet, and number one with a bullet - stress.

NARRATION

Dr Grenfell says these theories are untested but plausible.

Dr Robert Grenfell

These are still hypothetical questions that need to be answered about why does high blood pressure cause damage to the artery walls. I mean, these are all fantastic ideas, and how fantastic it would be if we found that there were simple ways of preventing heart disease by lowering our body's inflammatory response, and also its enthusiasm, to, in this hypothesis, to heal itself, or to heal holes in the arteries.

Dr Maryanne Demasi

So it's also plausible that maybe cholesterol isn't the driving factor in this process?

Dr Robert Grenfell

It's a contributor.
Dr Sullivan does concede that an aspect of the food pyramid was a mistake. He says replacing fats with carbohydrates didn't help the rising obesity problem.

Dr David Sullivan

If you replace fat with carbohydrate, you will probably be a little bit more inclined to be hungry; your insulin levels will be a bit higher, you'll have high levels of triglyceride, higher levels of glucose and less of your good cholesterol to avert problems. We certainly probably gave some advice which was a good way to avert one pathway, but people then tracked down another pathway, and that's what's led to the revision of dietary guidelines.

The more recent advice is to replace saturated fat with unsaturated fats in order to lower the risk of heart disease. For example, swapping butter with margarine.

Dr David Sullivan

It's very hard to find any positives about butter in term of its impact on cardiovascular disease.

But this advice still receives its fair share of opposition.

Dr Jonny Bowden

Margarine is the perfect example of the stupidest nutritional swap-out in history. We had this trans fat-laden crappy manufactured product that we were eating because we were so phobic about saturated fat and cholesterol.

Dr Stephen Sinatra

To switch to polyunsaturated fats with the vegetable oils, that's horrific advice. The polyunsaturated fats, the vegetable oils, these omega-6 oils, are inflammatory because they're very prone to oxidation.

Dr Maryanne Demasi

Have we been given the wrong advice?

Dr Michael Eades

We've absolutely been given the wrong advice. People became afraid of saturated fat, so they said, 'OK, we've got to do something to replace the saturated fats, and so let's do it with vegetable oils.' Well, vegetable oils don't have the same cooking qualities that saturated fats do. Polyunsaturated fats have a lot of double bonds in them, and double bonds are prone to free radical attack.
It becomes a rancid fat, and it becomes really bad for you. Saturated fats, on the other hand, have no double bonds. That's why they're incredibly stable. That's why they're great for cooking. That's why they're great for frying. And that's why they don't really perpetuate free radical cascades in the body, because they're inert fats.

**NARRATION**

Dr Eades says butter and coconut are not harmful to your health, and recommends those fats over the omega-6 vegetable oils. When vegetable oils are used to manufacture margarine, they undergo a process called partial hydrogenation, which results in the formation of industrial trans fats, and everybody agrees they're bad for you.

It's important to look for products that have them removed, although Australia doesn't have mandatory labeling of them. Junk food, for example, is riddled with industrial trans fats. The omega-3s, another type of polyunsaturated fat - found in fish, for example - are thought to counter the inflammatory effects of omega-6s.

**Dr Michael Eades**

The two of them are kind of like the accelerator and a brake pedal on a car, and if they're in balance things operate smoothly. I mean, you don't want too much anti-inflammatory, you don't want too much pro-inflammatory. Because of the advent of vegetable oils, we now have tons of omega-6 fats, and, really, very little omega-3 fats.

**NARRATION**

This is thought to be why the Mediterranean diet was so successful. It was higher in omega-3 fats, not to mention it was low in refined carbohydrates like sugar, and rich in antioxidants.

**Dr Robert Grenfell**

The Heart Foundation still suggests that a diet that substitutes saturated fats for polyunsaturated fats is one that is healthier for your heart.

**NARRATION**

But opposition to this advice is still palpable.

**Dr Stephen Sinatra**

It took decades to really entrench this myth. It's probably going to take a few more decades to get us out of this myth. But to vilify saturated fats I think is one of the worst things the medical profession has done.

**Dr Ernest Curtis**

I'd love to see the medical establishment saying, 'Whoops, we were wrong'. That's not going to happen. Frankly, that generation is going to have to die off, and perhaps the generation coming up can do better.
Dr Stephen Sinatra
We created this new disease called hypercholesterolaemia. And if we created this new disease, we got to create drugs to neutralize it. Are there corporations and billions of dollars and money behind this? Absolutely.

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