FDA Bans Trans Fats in US Foods:

A Special Interview with Dr. Fred Kummerow

By Dr. Joseph Mercola

DM: Dr. Joseph Mercola

FK: Dr. Fred Kummerow

DM: Hi, this is Dr. Mercola, and we are live in the field to celebrate – yes, we are celebrating – a massive victory. We are joined today by Dr. Fred Kummerow, who is a 100 years old. But that is not his major distinction. His major contribution and the reason we are celebrating is that about 60 years ago, this man started the research to identify trans fat as a pernicious toxin in our diet that’s prematurely killing tens of thousands of people every year in the US alone.

Thanks to Dr. Kummerow’s research – he was the first investigator to figure this thing out – and his subsequent filing of a lawsuit with the FDA in 2013, just recently, June 16, 2015, nearly 60 after he started his research, the Food and Drug Administration (FDA) has finally, finally agreed to ban trans fats in all foods in the United States beginning three years from now. I know it’s a while. It’s a little bit longer, but it’s done. We have victory, and it’s a reason to celebrate.

Thank you so much for all your hard work, your persistence, your perseverance, and your patience. There are not many other researchers who’ve had the discipline and the stick-to-it-iveness to get this thing done. Thanks to your efforts, you are saving tens of thousands of people every year in the United States alone. That is quite an accomplishment.

FK: Yes. I agree.

DM: You’ve done a magnificent job. I’ve just described the end result. It would be really interesting, from a historical perspective, to find out some of the details behind the story. What got you first interested in identifying this and what brought up your radar to say, “Listen, we need to focus on this and do some research to document the danger here”?

FK: Well, at the time, I was living across the street from a doctor who was working at the Carle Foundation Hospital. I asked him to get me some autopsy samples from people who had died of heart disease. I got the samples.

DM: What year was this?

FK: 1957.

DM: 1957. And where is Carle Hospital?

FK: It’s the biggest hospital in town here.

DM: Oh, it’s in Urbana.
FK: It’s in Urbana. Yes.

DM: We are in Urbana, Illinois filming this in Dr. Kummerow’s home where he has lived for the last 20 years. But your initial research was also in Urbana, Illinois.

FK: Of course. Yes. So, he gave me samples of old tissue. I had my two students. One extracted first the fat from the tissue, and then the other one analyzed it to see what kind of fatty acids were in there. I have the reprint here where I originally published that article in *Science*.

DM: The journal *Science*.

FK: The journal *Science*.

DM: One of the most prestigious journals in the world for science.

FK: Yes. That’s right.

DM: The abstract is: Occurrence of trans fatty acids in human tissue. It was August 8th 1957, when it was published.

FK: Yes. That’s right.

DM: As far as you know, this is the first documentation of trans fat clinically, published in the literature.

FK: That’s right. That was exactly found in a human being.

DM: Okay. All right. You had your initial study published in *Science* in 1957, which was before I was born, by the way. No, actually, it was after I was born. I was three years old when that was published. But the initial research started before then, didn’t it?

FK: Yes. Hugh Sinclair in Great Britain had mentioned something about the fatty acids. At that time, they were thinking about saturated fatty acids and unsaturated fatty acids, and what these fatty acids were doing in the body. They thought that there was a fatty acid in hydrogenated fat that might have been doing something, too. They were considered as the start of heart disease. That’s why I got to publish that article.

By 1968, I had noticed that the death from heart disease was going up every decade from the Centers for Disease Control (CDC) data and so did the physicians at the time, but they didn’t know why this was going up, because at the time, between 1910, when this margin was first introduced into the diet and 1958, there was actually no good way of analyzing them. In 1958, a machine was invented by two British, which they got the Nobel Prize for, that would actually analyze what was in the trans fat. I found a publication that had put it into atherosclerosis that there were 14 synthetic fatty acids made that were not present in either animal fats or vegetable fats. They were strangers to the diet.

DM: They were an artifact of the commercialization of the process, the industrialization of the food that hydrogenates the oil and creates these trans fats and these synthetic fats that you identified.

FK: That’s right. But there was no way of knowing that they were there.

DM: Right.

FK: After I published my article, Dr. Campbell Moses, who was the medical director of the American Heart Association (AHA), asked me to join a committee, a sub-committee of the AHA to figure out what we should be telling the American public to eat.
I got data from the Procter & Gamble Co. on the eight margarines that were available at that time. They all contained more than 40 percent trans fat and averaged up to 43 percent trans fat. We found in the laboratory that if we mixed soybean oil with pure oil with increasing amounts of trans fat, when we got to 40 percent, you could not make any more arachidonic acid from linoleic acid.

Now, we have more than 10,000 enzymes in our body that are made in the liver. Each enzyme has a specific function. There is one enzyme that prevents the synthesis of arachidonic acid from linoleic acid. The arachidonic acid is needed in many, many processes in the body, including making what is called prostacyclin, which is needed for sight.

**DM:** It’s the prostaglandin.

**FK:** People who ate that kind of margarine could not synthesize any prostacyclin, so their blood clotted. Even today, there are 325,000 people who die of sudden death, and that’s due to a blood clot.

**DM:** That’s every year in the United States alone I’m assuming.

**FK:** Yes.

**DM:** That’s a lot of people. That’s a third of a million people.

**FK:** Yeah. And 600,000 is the total death from heart disease, including the sudden death. In 1968, I wanted trans fat to be removed from the diet, but the industry didn’t want to do that, because it was such a good fat. It had a longer shelf life, it was smooth, and everybody liked it. In 1928, or in the 1920s, I would say, it was called “a miracle fat.”

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The industry did agree to lower it from 43 percent to 27 percent and increase the amount of linoleic acid from eight percent to 25 percent. At that point, the heart disease rate went down. Decade by decade, it went lower and lower. The National Institutes of Health (NIH) had calculated that if it had stayed the rate of what it was in 1968, there would be a hundred million… Let’s see… A hundred thousand more deaths today – or was it a… I know that’s a…

**DM:** A large number.

**FK:** A large number of more deaths.

**DM:** Interestingly, in the early ‘70s, the general understanding within the professional health community was that margarine was okay. It was actually healthier than butter. That was the recommendation. I was still in college at the time, didn’t know any better, and didn’t have enough understanding or insights. I believed it. I was eating margarine every morning. But my guess is that you didn’t buy that and that you avoided those margarines because you knew the dangers. Is that true?

**FK:** That’s true.

**DM:** That’s one of the reasons why you’re healthy: you took the knowledge that you gained as a researcher in health and applied it to yourself personally, and were able to be a hundred. Obviously, your mental health seems pretty sharp at a hundred years old to recall this story and these details, because that’s one of the damages. I mean, there’s cardiovascular disease, but doesn’t it contribute to Alzheimer’s disease and cancers?

**FK:** I suspected.
DM: We have the gradual transition, recognition, and understanding that trans fats are harmful. Now the FDA has accepted that, and actually it has become established as a scientific medical fact. That’s the standard of care now, thanks to largely your pioneering efforts. How does that make you feel when you heard earlier this month that the FDA had actually officially banned them?

FK: I felt that science had triumphed.

DM: Yes indeed. It’s an enormous testimony to your perseverance and to your patience, because so many… You know that you’re right. You’ve seen the data. But it’s so easy to get discouraged when everyone else is saying the exact opposite. And as you mentioned earlier before we started the camera, as a result of your belief on eggs and cholesterol not being harmful to you, you lost your funding.

FK: That’s right.

DM: You actually were vilified for having integrity and sticking to your guns, because you knew it was true.

FK: Well, the judge asked every cardiologist what caused heart disease, and they went to say it was cholesterol. In fact, the summary of that hearing was that the egg industry could not advertise eggs as a source of good nutrition without saying, too, that…

DM: A warning, wasn’t it?

FK: A warning.

DM: Just like on cigarette labels.

FK: They had to say that cardiologists believe that cholesterol cause heart disease – and they still believe it today.

DM: Many do. But with this recent FDA announcement and I think the emerging science, so many of us who are helping people understand the reality, and through books that you wrote… In fact you have that book on cholesterol, your earlier book, right? It’s right here. This is an excellent book that you’ve written earlier. Cholesterol Is Not the Culprit written by Dr. Kummerow [with Dr. Jean Kummerow]. Who is Jean? She’s a relative?

FK: My daughter.


FK: Yeah. She just got an award from Grinnell College for what she’s been doing.

DM: She’s following your footsteps?

FK: No. She’s a counseling psychologist. That’s her.

DM: Okay.

FK: She was at an international meeting in London last week and gave a talk, and she had mentioned me she said.

DM: You outline in your book your positions on this. Maybe we can just briefly review that for those who aren’t familiar with it, because you had mentioned earlier about how trans fats limit the production of
prostaglandin, specifically prostacyclin, which is an anti-inflammatory process, the good one, the one that we need.

Because people are familiar with prostaglandins. They are familiar that non-steroidal anti-inflammatories (NSAIDs) would not specifically reduce these prostaglandins. Clearly, they reduce some of the pro-inflammatories, but they also reduce the anti-inflammatories. Trans fats primarily reduce the anti-inflammatories, the ones that we need. Can you explain and expand on that, how that causes the hundreds of thousands of deaths every year in the United States that we’re seeing?

**FK:** In the process of hydrogenation, something happens with the double bonds. Now, if you think of a carbon atom… Now, the fats are carbon atoms, 18carbonatoms-long. When they’re saturated, that means every position on that chain cannot add any more hydrogen or cannot add any more oxygen. During the hydrogenation process, the double bonds move to the other positions on that chain. That makes a fatty acid that is no longer recognized by your enzyme system. Your enzyme system only recognizes things that come from the diet, the natural things and not the unnatural things.

We were asked the question: how does the trans fatty acid in butter fat differ from that in hydrogenated fat? That difference is because the double bonds in the kind of fatty acids in butter fat have a position at the 11th carbon atom, where things can be added on. This enzyme system recognizes that double bond at 11th position has things that we can metabolize and has no interference with our metabolism of fatty acids.

While the double bond in synthetic fat is at the 9th position and it changes from a cis to a trans. That is not recognized by the enzyme that is needed to synthesize linoleic acid to arachidonic acid. It prevents it, as I said before. That’s the difference between the synthetic and the natural. The fatty acid in butter fat does not do harm.

**DM:** When that occurs and you have this reduction in prostacyclin, how does that impact your risk for heart disease? Is it primarily through the increased clotting of the blood or is there some other damage that is done as a result of that?

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**FK:** It’s primarily the increase of clotting. But there are other factors involved in the calcification of arteries. I found that out by getting samples, so many bits of samples of veins from somebody who had been bypassed, through a bypass operation. I analyzed those to see how they were different from veins obtained from placenta. I went to the hospital with sterilized jars, they dropped the placenta into the jar, and that’s how I got both arteries and veins from the placenta.

I compared their composition with the arteries and veins of people who had bypass. The veins of the placenta contained 10 percent sphingomyelin while the composition of the veins of somebody who had been bypassed contained as much as 60 percent sphingomyelin. What made the difference? Why did this happen? Well, another factor in your artery is phospholipid. That went from almost 50 percent in the placenta to 22 percent in the ones who have been operated on.

Also I collected the blood from people who had needed the coronary bypass operation and compared that blood with patients who had been cardiac catheterized to show that they had no heart disease. The blood from those who had been bypassed contained more of 7-hydroxycholesterols in their blood than those who were healthy. Five of those hydroxysterols were in rabbit-fed cholesterol, so we knew that came from cholesterol. But two of them came from what we were eating, and that was 27-hydroxycholesterol and cholesterol triol. 27-hydroxycholesterol is present in frying fats and triol is present in powdered egg yolk. Those two, people who ate more of those needed bypass operations.
DM: I’m wondering, some of the current literature shows that vitamin K2 is really important for the carboxylation of the matrix gla protein (MGP) and that its function is to actually extract the calcium out of the arterial plaque and make it available for osteocalcin to plug it into the bone matrix. I’m wondering if you ever looked at the interplay between vitamin K2 and trans fats.

FK: I know about that, but that does not involve trans fats. No.

DM: But the end result would be the same. The clinical pathology where you have calcification at the lining of the blood vessels.

FK: Okay. But what we’ve found, what causes of calcification of the coronary arteries is that as you have more sphingomyelin in your blood…

DM: I’m sorry. Can you just expand on what sphingomyelin is for those who aren’t familiar?

FK: Sphingomyelin is another component of the arterial wall. The arterial wall is made up of sphingomyelin, phosphatidylcholine, and phosphatidylethanolamine. The choline comes from phosphatidylcholine. The choline is removed by the presence of oxidized fat.

DM: Phosphatidylcholine another form of that is lecithin.

FK: Phosphatidylcholine becomes sphingomyelin.

DM: Right. Okay. It’s a precursor of it.

FK: Yes, precursor.

DM: What is its role physiologically?

FK: The sphingomyelin is now in a greater percentage in the coronary artery. In the presence of saltwater – and it took us 10 years to figure that one out – sphingomyelin becomes negatively charged. It picks up a negative charge, and the calcium in the blood is a positive charge. Because the sphingomyelin is a more of a negative charge, it picks up the calcium and deposits it in your coronary arteries, especially where the joints are. You’ll begin to pile up calcium deposits along with the sphingomyelin. It blocks the flow of blood through the coronary arteries.

The heart first has large vessels, blood vessels, sort of over the top like a crown. In the heart itself, it branches out into tiny branches, so that every cell of your heart gets blood in it, because that’s what causes the life process. That’s what’s causing the heart to beat 60 to 70 times a minute. When you don’t allow the blood to come into your heart by blocking it, by blocking the coronary arteries, you’ll have heart disease.

The more of this calcium that you deposit at these junctions of the arterial cells, you will begin to feel that, because the heart doesn’t get enough blood. The heart tells you that by hurting. You can feel it. That’s the point when you’ll go to the doctor. The doctor finds that you have heart disease. It’s called heart disease, but actually it’s due to the blocking of the coronary arteries. That’s the problem.

DM: Yeah. They need that oxygen.

FK: You need that oxygen.

DM: The blood vessels are the conduit for the delivery of that oxygen.
FK: Yes. That’s the other source of causing heart disease and the 600,000 deaths that we had. And 2013 was the last time I saw what we have. I don’t know if it’s been increasing or decreasing since 2013. Maybe you have a good idea about that.

DM: Well, it clearly is the number one cause of death. If you classify both heart attacks and stroke as cardiovascular disease together. It far exceeds cancer, which is number two. But clearly, trans fats also play a role in the development of cancer.

FK: That’s what my attorney said. If you want to clarify how this happened, I had put a docket in at the Food and Drug Administration. A docket is where you say something does either good or bad, and you have to say what it does. That’s what I did by putting a docket in 2009, but I didn’t hear anything from the FDA. They gave me a number. The last I heard from them was that they were studying it, but that was it.

And then in August 2013, I had a telephone call from Greg Weston, who was an attorney in San Diego, California. He asked me, “Did the FDA ever answer your docket?” I said, “No.” He said, “They were supposed to. They broke a law. Would you mind if I sued the FDA in your name?” I said, “No, I don’t mind. Go ahead and do it.” That’s what he did.

DM: It was the lawsuit that was filed in 2013 that has resulted in the FDA finally banning trans fats, responding to your original request.

FK: You’re right. They did a thorough study on it and found that trans fat was more than involved in more sicknesses than heart disease. It was involved in cancer, Alzheimer’s disease, and diabetes. And he did a beautiful job of writing up that lawsuit.

DM: Obviously. It was successful. Now, as a result of that suit, food companies, which make tens of billions of dollars or more, are obviously opposed to that for financial reasons, and they’re already starting to lobby the FDA for exclusions to this banning.

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FK: That’s right.

DM: I’m wondering what your thoughts are on this, and if you believe that the food companies knew enough in advance and were given off warning, that they should actually be held liable and accountable for the deaths that it caused.

FK: That’s what Greg Weston is already doing.

DM: He has another lawsuit in place?

FK: Greg, he’s having lawsuits, these lawsuits where a lot of people get together.

DM: Class action lawsuits.

FK: Class action lawsuits, yeah. That’s what he’s doing.

DM: Certainly, you can only have class action lawsuits if you have proven damage.

FK: That’s right.

DM: There are tens of thousands, hundreds of thousands of people who died as a result of exposure to trans fats. Obviously, trans fats are not the only thing that causes heart disease, but it’s one of the leading
contenders. I mean, smoking is another factor. Exercise, other additives in the diet, and basically not eating real food but processed foods.

**FK:** There are four big companies that make most of the hydrogenated fat. They have all changed already. They’re Archer Daniels Midland, Bunge, Cargill, and Unilever. They’re the ones that were producing this, and they already have substitutes for it. They’re not hydrogenating the fat as they did before. They’re using microorganisms, for example. But they’re using more modern methods. Companies like the Grocery Alliance…

**DM:** The Grocery Manufacturers Association (GMA).

**FK:** Yeah. They are the ones that are buying this fat and using it for the products that they’re making, cookies or whatever it is.

**DM:** Essentially, these are alternative synthetic fats. And just like trans fats that you studied over 60 years ago and identified, there’s high likelihood that these are going to cause similar types of damage even though it’s not the initial trans fats you studied on your research.

**FK:** No. I disagree with that.

**DM:** Oh, you do? Okay.

**FK:** Because they’re doing a much better job. They’re not using anything that’s damaging. They have a whole bunch of fats available. They can pick the one that suits them, say, for making cupcakes, coating ice cream bars, or whatever it is. They have something already there for them. There’s no point in giving them three years to change, because they already have the stuff. These companies have been aware of years ago and have changed the way they’re doing things. These fats are there for them to use.

**DM:** Yeah. So, you think they should not have to wait three years?

**FK:** They should be done as soon as they’ve called up whoever they want to call up on Archer Daniels Midland or whatever company they want to call up, tell them and ask them, “What fat do you have available for my particular process?” They’ll give it to them. It will take only a couple of months for what’s on the shelf now to be sold, and this new fat now comes into their product.

[END]