Determining the Goldilocks Dose for Exercise Volume
A Special Interview With Dr. James O'Keefe
By Dr. Joseph Mercola

Dr. Joseph Mercola:

Welcome, everyone. This is Dr. Mercola helping you take control of your health, and you're in for a real treat today because I have Dr. James O'Keefe, who you probably haven't heard of, but I've known about him since I was researching one of my modules for my masterclass on movement and his was the most pivotal paper. It really changed my whole views on this. Literally.

I started exercising in 1968. So, I've been exercising for 53 years and I made a lot of mistakes. And if I would have known the information in this paper, it would have saved me a lot of trouble. And we're going to go dive deep into it. And why I'm so excited to have him on is because there was a question in his meta-analysis study that was just published earlier this year that has profound implications about resistance training. So, I can't wait to discuss about that.

But in the meantime, let's tell you a little bit about him. He is a graduate of the internal medicine residency at Mayo Clinic, and then he went on to do a fellowship in cardiology at Mayo Clinic also. And then he met the love of his life who he's married to now and now he's out in Kansas City doing some things. So, I'll let Dr. O'Keefe describe his background further rather than me elaborating on it, and how he's positioned. But, thankfully, the love of his life is also a dietitian, so he has a strong nutritional orientation in addition to preventive cardiology. So, welcome and thank you for joining us today.

Dr. James O'Keefe:

Yeah. Thanks, Joe. It's a pleasure to be here. I'm a cardiologist. I practice clinically in Mid-America Heart Institute at St. Louis Hospital in Kansas City. But I spend a lot of time on research and writing and presenting various topics, and my professional passion is just cardiovascular health and wellness, well-being. And so, your interests and mine align nicely along these topics.

Dr. Joseph Mercola:

Yeah, it's very unusual for that to happen. [With] someone in the drumming for the traditional model, I'm usually vilified and scorned and viewed as the devil for the most part, and I can't tell you how many people like yourself who are so well-credentialed and respected that I've attempted to interview and just refused because they went to Wikipedia and looked me up and then they believe Wikipedia, which still to this day says I was married to a woman who I only dated.

And we stopped dating like four years ago, so [it's] just shocking. It's not a credible source of information. But anyway, why don't we go into your meta-analysis study that was published, I believe, in July of this year? Yeah, so I'll let you discuss it because I'm going to do a terrible job of summarizing it, but it was really pivotal for me. It was so profoundly powerful because foundationally the core of it is – No one's going to dispute everyone needs exercise. If you don't exercise, we know what happens. The ultimate epitome of that is going in microgravity in space, which is like zero exercise, negative exercise. They have to exercise for four or five, six hours a day just to maintain their bone structure. So fortunately, just living on earth, we get a little bit of exercise, but we need optimal exercise. The problem, this is the major problem, is how much do you need?

Because many of us who are really committed to being [as] healthy as we can tend to overdo it. And that's exactly what I did. And if I would have had the information to study, I could have saved myself a lot of time, effort and grief. And you're going to have this because Dr. O'Keefe is going to explain it to you.

Dr. James O'Keefe:

Well, yeah. Right on, Joe. Exercise is like – if we had a drug that did everything exercise had, it would be by far the most powerful drug for longevity and preventing disease and improving mood and all sorts of things. But the question is-

Dr. Joseph Mercola:

Oh, wait, actually, before we go in there, sorry for interrupting. But you know, one of the curiosity questions I had – I think it might help frame your perspective on this – there's no way you would do this type of study unless you were personally committed to fitness and you look pretty healthy. I've never met you personally, but so why don't you tell us your experience, your journey with exercise?

Dr. James O'Keefe:

Yeah. So, my family thinks I probably have ADHD (attention-deficit/hyperactivity disorder). I've always been there. I've always been hyper. I've never had trouble focusing, but I'm pretty active and I've always used exercise. Whether I'm nervous or happy or sad, it's like exercise has been my coping mechanism. And as a kid, I loved basketball and I played varsity basketball and ran track. Then when I quit playing basketball in college and focused on medicine, I made a personal note that I have to exercise every day because this is super important for me. And somehow a lot of people have this notion that if something is good, more is better, like hammering your body. So, I got into triathlons and I was running 5K, 10K races and [the] occasional marathon. I was really, really fit and I was just pushing my body.

And when I got to be about 45, I started to get palpitations and I realized sometimes I'd get this aching after a really high-intensity [exercise], like [a] bike ride or things like that. And I realized, "Wait a minute, where did I get this notion [that] if exercise is good, this extreme exercise in

middle-age is better? It's just not." And so, I started doing some research. I have a lot of connections all around the world in the clinical research community, and we started looking at this question and sure enough, it's quite obvious that yeah, you can overdo exercise. And I had been – and I did a TED Talk on it, it's seen millions of views. And I've just focused on this and changed my life personally, too. I realized exercise is good for you. And just to sort of echo your comments, Dr. Mercola, 70% of the U.S. adults don't get enough exercise and they would be healthier getting more exercise, any exercise. In fact, the first 20 minutes of exercise that you do will get you most of the benefits. Even getting out for a walk is dramatically better than sitting on the couch, sitting in front of a screen or sitting behind a windshield. We have a sedentary lifestyle, and if you don't actively fight to incorporate movement into your day, you're going to be in trouble, no question about it. Just like following the standard American diet will absolutely get you in trouble, there's no question. But about 2% of people are overdoing it. Overachievers.

Dr. Joseph Mercola:

Is that all? [inaudible 00:06:46]-

Dr. James O'Keefe:

It might be 5%, depending on-

Dr. Joseph Mercola:

Wow, and we're both in that 2%, 5%.

Dr. James O'Keefe:

Yeah. Overachiever, highly active people, competitive people. And it's probably because the world you live in, the world I live in. I know a lot of people like this. I see patients like this all the time because I've written on this a lot. They come with AFib (atrial fibrillation) or accelerated atherosclerosis with a lot of calcium in the coronary [vein] or ventricular problems. And it can even shorten your lifespan if you get really extreme about it. But so the-

Dr. Joseph Mercola:

I would be a little more stern about that. I think it will shorten your lifespan unless you address it, which is why we're having this discussion, because we want to define the sweet spot.

Dr. James O'Keefe:

Yeah, and that is the tricky part. I had a wise mentor up at the Mayo Clinic decades ago and I'd be going out for a run at lunchtime, and he'd say, "You know, James, you're just wasting your heartbeats. Your heart has only so many heartbeats." If you look out in nature, you know, you can kind of make that case that a hummingbird has a heart rate of 150 – I mean, 500 beats a minute, and lives like a year or two like a mouse does, who also has a similar heart rate. And

animals that have really slow heart rates, like a whale, can live 200 years. And if you do the math, it does look like part of the sort of programmed life expectancy, how many heartbeats you have.

So, at first blush, you'd say, “Well, for sure, I'm going to sit on the couch then.” But no, if you do the math, and it's a complex math problem – you do enough exercise during the day to stay very fit so your pulse is nice and low when you're not exercising. That's the way to maximize your heartbeat. But you don't want to be exercising intensely for five, seven hours a day, let alone do a full-distance triathlon. It's like you're just asking way too much of your heart. So, there's an intuitive logic about this as well. Like everything in nature, you're better off not in the extremes. And that's true with exercise.

So, we've been doing a lot – we have plenty of time to talk about this, but it's so fascinating that when you kind of drill down on what types of exercise really correlate best with longevity, it's not the maximum amount of high-intensity interval training, or some of that's important, but more is not necessarily better for vigorous intense exercise. This recent systematic review that we did looked at a large group and this has been – when you look at all these groups, you'll see what I call the reverse J-curve. From starters, let me draw a J, a reverse J. So, from people who are sedentary, once they start exercising you get a dose-dependent decrease in mortality during follow-up — in diabetes, depression, high blood pressure, coronary disease, osteoporosis, sarcopenia, falls, all these things. You get this very precipitous drop down to a [inaudible 00:10:02] of about 45%. So, you can really slow aging and improve life expectancy dramatically with exercise. But then at the very high end, the people that are doing the highest volume of vigorous exercise, they lose some of that benefit.

They're not as bad off as sedentary people, but in virtually every study you can find, they lose. And it's a small proportion of people like we talked about. They will lose some of those benefits for longevity and certainly for things like atrial fibrillation. We see a drop in atrial fibrillation in people who are from sedentary to – if you exercise moderately, you have less atrial fibrillation. But if you're doing full distance triathlons when you're over age 40 or 45, you start seeing like a 500% to 800% increase in atrial fibrillation. And I think that's [why] I was feeling some palpitations. I've never had an AFib. But I have a lot of friends who have had, just for that reason, just for excess training.

But there's [a] fascinating study recently, a big study of like a million people followed for more than 10 years, and they found that vigorous exercise up to 75 minutes per day reduced the risk, even up to – not 75 minutes per day, but 75 minutes per week, or 150 minutes per week, even that might improve a little bit where you have these reductions in all-cause mortality and other diseases. But then it plateaued out after that. The people that are doing four, five, six, seven hours of vigorous exercise didn't get any benefit and probably, from a cardiovascular standpoint, lost a little bit. But if you look at the people doing moderate exercise – and vigorous exercise, if you wanted to define it loosely, would be exercising to the point where you're having a hard time carrying on a conversation at all. You're just breathless, you can't talk, you can't even hardly think about a conversation. You’re just really hammering it.

Moderate exercise is like you're a little winded, but you can carry on a conversation, but it's not going to be comfortable like we're sitting now having a conversation. So, if you look at moderate exercise, that is very clear that more is better. You can't overdo moderate exercise. We're talking gardening, housework, walking, recreational bike riding, yoga, non-intense swimming — those kinds of exercises. Pickleballs [are] really popular these days. [When doing] these things, more is better, number one. Number two-

Dr. Joseph Mercola:

Yeah. Let me just hold you there for a moment because that is such a profound statement. You can't overdo moderate exercise. Who would have known? Which is exactly conversed to the vigorous exercise. You can easily do it. And we'll talk about resistance training, which is, I don't think you've discussed yet, which is even worse.

Dr. James O'Keefe:

Yeah. So not only can you not overdo moderate exercise, at least the latest studies would suggest that, but moderate exercise improves all-cause survival better than vigorous exercise, about two times that. If you look at the people who are doing the most vigorous exercise compared to the people doing the most moderate exercise, the moderate exercisers have twice as good a reduction in long-term mortality as the high-volume vigorous exerciser. So, not only don't you need to be overdoing the really strenuous exercise, but it's counterproductive if you're trying – It's not counterproductive if you're trying to win your age group, or you're trying to set a personal record, or all that kind of stuff. But once you get past 45 or 50, exercise should be fun, stress-reducing, [will] keep you fit, but you have to be careful not to get too competitive about it. And that's kind of the – to me, the most important thing is you need to find an activity that feels like fun, that is sustainable.

Dr. Joseph Mercola:

Yeah. In your paper, I think you discussed the ideal exercise. It's not an isolated or solo exercise. It's a social exercise. So, rather than walking alone, you walk with a group of friends or you're playing pickleball, or you engage with your friends. It's this social community aspect of exercise that is so important, and you totally miss it out when you're in competition mode and you're training like crazy, and wasting your time [and] effort, and losing the social aspect of life.

Dr. James O'Keefe:

Yeah, Joe, like we did a study, a study that was written up in the New York Times in 2018 with some colleagues from Copenhagen. And there's this Copenhagen City Heart Study that had been following 11,000 or 12,000 people for like 40 years now, really long follow, young to middle-aged people, and following virtually their whole adult lives. And we asked the question – because it had the granularity around what kind of physical activity they were doing. We asked the question, "What type of exercise or sport confers longevity best?" And they had a list of things they were keeping track of, like running, swimming [and] cycling. They're huge cycle

fans. If you've ever been to Copenhagen, a third of the population commutes by bike to work. It's nice and flat there, and it's really amazing and inspiring. But they're also into tennis and pickleball, and they do calisthenics. They had a thing called fitness club activities, which have grouped weightlifting and treadmill [and] elliptical altogether. They had data on soccer, golf [and] badminton. They're big on badminton and tennis. So, we looked at this and then we did this complex multivariable analysis to find out how much time they were doing each sport.

And I went over there to go over these results with them. We sat down, looked at it, and I looked at this complex multivariable analysis. I said, "Well, that's too bad. This obviously is just nonsense. It's like tennis was 9.5 years and badminton was seven years, and running, swimming [and] cycling were three and a half years life expectancy compared to the [inaudible 00:16:20] of people," I said. But then I started thinking of it and it's just your point, Joe. It's the sports that are social. The number one predictor of longevity, health and happiness in humans – we're such a social species – is connections, social connections. If you can exercise and make social connections at the same time, that is an absolute goldmine of a longevity activity. And so, that means even walking with your dog or your friend or your neighbor or [playing] pickleball is huge. You talk to pickleball players, you know it improves their friend group, it improves their mobility, they sleep better, it's a stress reducer.

Before we had benzodiazepines and antidepressants and pain relievers, [we had] play, I call it vitamin P. Play, like prayer, did a lot of those things. You go and play and have fun. It's one thing – we work hard all day and you come home and then you go for another workout. Enough work already, right? You don't have to convince kids to go play. They just [inaudible 00:17:23]. And adults, too. Adults should be playing. I think you should find somebody to play with twice a week, however you define that play, but play is so important for mental health and it's the best way to improve your longevity from [an] exercise standpoint. And those are generally moderate exercises, whether you're playing volleyball or pickleball or basketball or softball or tennis or golf or anything, pool for that matter. My grandson and I were playing pool last night after we went over and jumped on the trampoline together. The whole thing is to move your body in a fun, playful manner and make it social.

Dr. Joseph Mercola:

And that is such good news. I think 70% of the people are sedentary. Some may be inhibited from participating in exercise because they see the elite athletes and all the hard effort they're putting in, and they don't understand that it can be fun. It could radically increase your lifespan, not only your lifespan, but the quality of your life, and reduce your risk of all these chronic degenerative diseases. And you don't have to hurt yourself.

Dr. James O'Keefe:

Yeah, you don't need to hurt yourself. You don't need to go anywhere near a gym. You don't need a gym membership. You don't need to feel intimidated by the exercise addicts over at the gym. But it's just hard for people to get out of that mode. That's why if you could find something

to play, that would work a lot. And then the other thing I'm a really big fan of, Joe, is activity track.

Some people like them and some don't, but to me, if you can gamify that a little bit – I have a Fitbit on one wrist and an Apple Watch on the other, so I love these kinds of things.

Dr. Joseph Mercola:

Oh yeah. I do the Oura.

Dr. James O'Keefe:

The Oura is another great one. And I get into a group with my family and friends and then we have a little friendly competition about how many steps you got. It really helps. The first step in changing anything is measuring it. So, measure your activity and just gradually increase it. And there's a lot of good data showing that the average American gets about 3,800 steps a day, which is not quite 2 miles. That's about 2,000 steps per mile. And for every thousand steps you get on average per day, it reduces your mortality by something like 10% or 15%.

Dr. Joseph Mercola:

Okay, what's your take on the literature? Because when I reviewed it, it seemed somewhat – not controversial, but it wasn't clear. Some studies show that there wasn't an improvement the more you get, like you said earlier. With moderate activities, sky's the limit. The more you do, the increased benefit [you get], as far as we know. But what's your review of the literature? Can you still get-

Dr. James O'Keefe:

Yeah, Joe, there's been more and more studies on this all the time using these activity trackers, because now you're getting big data like the U.K. biobank, which has a half a million people and there's a sizable subgroup of them who have been wearing activity trackers and being followed for 10 years now. So, clearly more is better up to – you get the big gains going from the sedentary lifestyles, like 2,000, 3,000 steps a day up to 7,000 or 8,000, you have this very steep improvement in mortality, or I should say reduction in mortality, improvement in survival. And then it continues to trail down to about 12,000 steps a day. And most of the studies show that the plateau's out at 12,000. [inaudible 00:21:15]-

Dr. Joseph Mercola:

Okay, that's that journal result or conclusion. Okay, 12,000.

Dr. James O'Keefe:

I hadn't seen the upturn in the J-curve at 16,000. Some people get that, I get like 16,000 steps a day, because I'm so generally active, but – there's another recent study that also looked at little

exercise snacks. We're looking at people who take the stairs, who do some vigorous exercise for just 30 seconds or 45 seconds, like lifting something heavy, doing gardening, whatever, where you sprinkle in some higher intensity stuff. That also adds to the baseline of just getting steps. And when you think about our evolutionary roots, that's kind of what our ancestors do. They were walking. There are studies of hunter-gatherers where they would walk 6 or 8 miles a day. The males more like 8 miles, which is like 16,000 steps, and the females more like 6 miles. And they were carrying stuff a lot of the time. They're carrying water, babies, wood, food, shelter. They're carrying [something] all the time.

And occasionally they were really exerting themselves, felling a tree or in the final stages of the hunt or – so this stuff is very intuitive from – If you think back about our deep evolutionary rifts, this is what we're meant to do. And by the way, we were generally doing it with our tribal mates,

Dr. Joseph Mercola:

Yeah, [inaudible 00:22:45] social.

Dr. James O'Keefe:

We were doing it socially. So, to me, that's just one of the joys of life, is exercising, especially as a male. Females are better at cultivating social networks on their own. But males, away from work, lots of times don't have a real deep circle of friends, and if they do, the best way to cultivate that and maintain it is find something to do with your buddies – hunting or fishing or playing a game like golf or tennis or pickleball or badminton or anything, really, just whatever you find fun, I think is just so important.

Dr. Joseph Mercola:

You know, I couldn't agree more. And when I was doing the research for my movement module in my masterclass, one of the studies I reviewed pointed out what the origin of the 10,000 steps per day was. Are you familiar with that story? The Japanese pedometer?

Dr. James O'Keefe:

Yeah, [inaudible 00:23:42].

Dr. Joseph Mercola:

In the '60s, in the '60s, but it appears that they had no evidence for that recommendation, none. It was just pure marketing, but it turns out it was right.

Dr. James O'Keefe:

It's pretty close to the truth, yeah. Somebody was probably pretty intuitive, they just noticed that on an active healthy day, that seems like a good target. But you're right, it was just purely a marketing ploy for a mechanical pedometer back in Japan 60 years ago.

Dr. Joseph Mercola:

Now, some of our viewers, actually a large portion of the population, independent of our viewers, they're really tightly strapped on funds. So, a fitness tracker like an Apple Watch or Fitbit – and I don't recommend the Fitbit, not because it's not a good device. It's because it was purchased by Google in 2019. And Google is one of the heads of the global cabal, in my view. They steal your data, they're taking your data to brainwash you for the conventional narrative. So, I'm strongly opposed to any Google product, including Google Chrome, Google Search, all of them, Google Gmail. Stay away from Google. But the – where was I going with that?

Dr. James O'Keefe:

The activity tracker.

Dr. Joseph Mercola:

Oh, the activity tracker, right. For people who can't afford it. Many people aren't aware that your phone has a free activity tracker. You don't have to buy anything. Your phone can do it.

Dr. James O'Keefe:

Yeah, you just have to wear your phone while you're going for your walk.

Dr. Joseph Mercola:

Yeah, that's the only problem. And obviously, I would recommend putting it on airplane mode because EMFs (electromagnetic fields) are a real deal. And I was just teaching at an autism event over the weekend, and this was called Documenting Hope. It was in Orlando. And this is a really good group because they're committed to research and they've put hundreds of thousands of dollars to do these very detailed analysis of these autistic children, and the intention was to identify the causes of autism. And I almost fell off my chair when I heard the results. EMF was the No.2 cause of autism, No.2. No.1 was antibiotics, No.3 was toxins and No.4 was vaccines. It was crazy. But anyway, I thought it was an interesting tangent. Just [to] highlight the importance of how important EMFs are. Now, if you're an adult, you're not going to get autism, but it just shows that it can cause neurological damage. So, don't put that phone out of airplane mode when you're wearing it. Or put it in a Faraday bag.

Dr. James O'Keefe:

Well, we should probably chat a little bit about strength training too, because I think that's a-

Dr. Joseph Mercola:

Yeah, 100% was the next step, 100%. Because that was what motivated me to contact you because I had a lot of questions on that, a lot, but a significant one. So, enlighten us because it shocked me. It radically changed my exercise program after reviewing that.

Dr. James O'Keefe:

Yeah. Strength training is, again, very important. And if you look at the benefits, it will improve muscle mass and muscle strength. It will improve bone strength. It's a good booster of testosterone. It helps to improve mood. It helps to prevent falls. And the thing is, as we get past even age 30, we start to lose muscle mass. And if you don't do specific training to maintain muscle mass, it will erode and you end up with what we call sarcopenia, which is not enough muscle mass, or osteoporosis. These are very common problems. Even people that have obesity, we call it abdominal obesity with sarcopenia, is a really common thing because if you don't train that – so, I've always been a fan of strength training. Again, my intuition kind of aligns with these latest studies in that when you add strength training to aerobic exercise, like we're talking about moderate exercise. And moderate exercise can often be a mixture of moderate cardio exercise and strength training, like gardening, for example.

One of my favorite things to do is gardening out there, digging holes and dragging trees around, and bags of mulch. It can be pretty – you're using some muscles there besides just getting your heart rate up, not to mention getting probiotics from the soil and vitamin D from the sun, and mood-boosting from the fresh air and visiting with the neighbors as they're walking by. It's all good. And in fact, on a tangent, I think that paying attention to what humans need, that social connection, nurturing other life, like dogs or cats or gardens, houseplants, not to mention, paying attention to your neighbors — all those relationships are so important. But relationships with animals, like dogs, have been huge – I often write a prescription, "One dog taken for a walk once or twice a day, refill as needed." And I insist that my patients, especially if they've had a dog and the dog died and they said, "I just don't think I can do another dog." I said, "No, your health depends on your mental and physical health." But back to the strength training, [the] thing is, again, the devil is in the details about the dosing. And when you look at the dose, when you look at people who do strength training, it adds another 19% reduction in all-cause mortality compared to the reduction, the 45% reduction that you get from-

Dr. Joseph Mercola:

On top of 40%?

Dr. James O'Keefe:

On top of it.

Dr. Joseph Mercola:

So, 59% total?

Dr. James O'Keefe:

Yeah, yeah.

Dr. Joseph Mercola:

Wow.

Dr. James O'Keefe:

And that's like if you're doing the optimal amount of moderate exercise, which is about an hour a day of moderate exercise. You should be moving at least an hour a day.

Dr. Joseph Mercola:

So, that is precisely why I contacted you for this interview, because it's such a small amount of exercise that how do you count it? Because there are so many different ways that you can do strength training. You could take a five-minute rest between sets, you can do five reps. I mean, how is that calculated? Because it wasn't clear in the analysis.

Dr. James O'Keefe:

No, it wasn't clear and it is a little tricky. Again, the devil's in the details and you have to use some intuition. When I strength train, I go to the gym and I spend about anywhere from 20 to 40 minutes and I do at least 10 lifts. And I try to use weights that I can do 10 reps [with]. Sometimes I can't quite do 10 reps, like 10 pull-ups or 10 squats, or – there's a variety of full bodyweight strength training, arms and legs, and these are lunges and, as I mentioned, squats, and we do man makers where you do a pushup with a barbell in each hand and pull, I mean dumbbell in each hand. But in any event, [if[you do 10 and then you pretty much can't do any more than that, that's about as much as I feel good about doing it. After that, you're feeling spent and whatnot. And so, if you do that, it takes a couple of days to recover from that. So, if you do that two at the most three times a week, that looks like the sweet spot for a strengthening, for conferring longevity. But like you say, some people go to the gym and lift, do one thing and then they'll kind of-

Dr. Joseph Mercola:

Socialize.

Dr. James O'Keefe:

Well, usually it's not socializing, usually [they're] staring at their phone. It's true. [If] you look around the gym, most people, if they're not on a treadmill or something – and again, hearkening back to the Copenhagen City Heart Study, as important as strength training is, in that study, the people doing the health club activities, weightlifting, treadmill, all that kind of stuff, they had a very meager improvement in long-term life expectancy. It was only 1.5 years compared to sedentary people. Whereas, badminton was seven years, tennis was nine and a half years. It's crazy. So, it's important. But the health club activities generally are solitary. You're lifting weights, you got your headphones in, people come over to share a thing and somebody looks at

you like, “Get out of my space, what are you doing here?” It's like the opposite of social almost. And so-

Dr. Joseph Mercola:

It’s antisocial.

Dr. James O’Keefe:

Yeah. So, the point is – and maybe I'll show this [so] that your listeners can look at these J-curves in our recent paper.

Dr. Joseph Mercola:

Is that from your study?

Dr. James O’Keefe:

Yeah, the J-curves.

Dr. Joseph Mercola:

Yeah, we'll put it on the screen. I've got the study. We can put it on there.

Dr. James O’Keefe:

All right, you have the study. Show those J-curves, because by the time you get to be [at] above 130 minutes a week, you start losing the benefit.

Dr. Joseph Mercola:

That’s just [inaudible 00:32:48]-

Dr. James O’Keefe:

Your longevity benefit would be the same as if you weren't doing anything. And if you're doing more than about three or four hours a week, you have a worse long-term survival than people who don't lift weights. And I don't know why that is.

Dr. Joseph Mercola:

[Crosstalk 00:33:05]. It's worse than being sedentary?

Dr. James O’Keefe:

Yeah, yeah. And I don't know why that is. With aerobic or vigorous exercise, you're still way better off even if you're doing a lot of vigorous exercise, way better [than] sedentary people. You

lose some of the benefits, but you're not worse off. And I don't know if it has to do with – the people that are doing too much weightlifting, maybe they're doing a lot of steroids or maybe it's like when you're doing really heavy weightlifting, your blood pressure does get above 200 lots of times and maybe it's just too much work on your heart. I don't know what it is, but it fits with my intuition, is that a couple of sessions of 20 to 40 minutes of weight training a week on non-consecutive days is a really important thing to add to your [crosstalk 00:33:48]-

Dr. Joseph Mercola:

Yeah. No question, but the key point and word you said is "add." It is not to be done exclusively because you'd be far, far better off to take that time and just walk.

Dr. James O'Keefe:

Yep, yep, absolutely. Just go for a walk, especially outdoors. Outdoor walking, there are studies showing that improving mood and even cognitive functioning is better with outdoor exercise, especially if you can do it around some trees or a body of water or grass. It just settles our subconscious mind down and gets us back in the milieu to which we are adapting.

Dr. Joseph Mercola:

Yeah. And in your paper – which is available free in PubMed, you can download this paper and read the whole thing – you talked about nature. Is it nature walking or some type of nature activity?

Dr. James O'Keefe:

Yeah, yeah, it's called forest bathing.

Dr. Joseph Mercola:

Yeah. But no, the group of exercises. That's if you're in the forest, but basically being in nature when you're when you're moving is the key.

Dr. James O'Keefe:

Yeah. And especially, you should try to get – there was a really cool study done in the U.K. where they looked at the dose of nature per week that correlated with good health. You need at least an hour and a half or two hours outdoors. And it doesn't have to be – you don't have to go to a national park, but just get out to a local park or a tree-lined street or – and so, that's like, when you think about it, at least three walks a week, three or four walks a week where you get out in nature. And then the forest bathing thing is really interesting. These are Japanese people who live in Tokyo, one of the biggest cities in the world, and they will get on a bullet train and an hour or two later be at the mountains and in the forest, and they go hike around or even just sit in nature

and smell the pine and the fresh air, and then they get on the boat [or] train and go back home, and they show reductions in blood pressure and improvement in mood.

And there are really, really strong benefits. And it's also benefits like that – I've really gotten conscious of this myself, is that from time to time, go someplace where you can kind of be in awe of nature. Something that's like the mountains or the sea. One of my favorite things is when I'm swimming outdoors. I love to swim outdoors, I flip over on my back and do a gentle backstroke and stare at the clouds going by. And that is also very mesmerizing and calms your system down. There's something about looking at a blue sky, like listening to [and] watching the waves, or looking at trees. Just really focus on that and take your headphones out and appreciate the beauty of nature. And it will definitely – it's been shown to calm your mood and reduce anxiety and improve sleep and all those kinds of things that are important for well-being.

Dr. Joseph Mercola:

Yeah, I think part of that has to be exposure to the sunlight on your skin.

Dr. James O'Keefe:

Completely agree.

Dr. Joseph Mercola:

We know it has so many benefits. Vitamin D is only one of many others.

Dr. James O'Keefe:

Right. As a cardiologist, Joe, one of the things I love about sunlight is even if you have sunscreen on, you get this big boost in nitric oxide, which is the thing produced by the endothelium lining all the veins and arteries throughout our body and brain. And that increase in nitric oxide, which dilates blood vessels and makes them more soft and supple and less likely to clot, like a Teflon-like effect.

So, it's super good for your whole cardiovascular system, body and brain to get out there in the sunshine. And people worry about – Oh my God, the dermatologists are always trying to scare us about being out in the sun like we're naked mole rats, like you were talking about. [Inaudible 00:37:49], we're evolved to be outdoor creatures. You have to keep in mind the sunlight that you were adapted for. If you came from Northern Europe, or your ancestors, then in the midday sun in Florida in the summer, you're going to get sunburned and you're going to get in trouble. But the point is that 7,000 people a year die of melanoma in the United States, which seems like a lot. Although it's a disease that affects a lot of people. It's unusual to die of squamous cell or basal cell, but melanoma will kill you. So, we want to avoid that and you want to avoid sunburns. But last year, 108,000 people died of recreational drug overdose, mostly opioids, but [there are] other things. 108,000.

Dr. Joseph Mercola:

I thought it was more. 180 not 108 [thousand], right?

Dr. James O'Keefe:

No, no. It was 108, It was 108 [thousand], [crosstalk 00:38:41]-

Dr. Joseph Mercola:

Really? I thought it was higher.

Dr. James O'Keefe:

That's more than all the gunshot wounds, motor vehicle accidents, and breast cancer [deaths] put together per year. So that's a problem of like mental health, you know? I mean, it's like-

Dr. Joseph Mercola:

There's no question. No question.

Dr. James O'Keefe:

Disease and desperation. Get outside in the sunshine. It'll perk you up and make you happy. Go play with your friends, go get a dog. You won't be so susceptible to drugs. And keep in mind, yeah, you have to be a little careful about the sun, but you have to be more careful to cultivate these habits in your life that keep you mentally healthy.

Dr. Joseph Mercola:

Yeah, that is the first module in my masterclass, is sun exposure, so I'm really a big fan of that. I want to come back to this, especially your comment about melanoma and sun exposure. But before I do that, I want to finish up the resistance training because – and you may not be aware of this, but I suspect you are because you're pretty literate on these things, but there are two types of resistance training, generically. One is the conventional training where you're going to [do] typically 70%, 80%, maybe even 90% of your one-rep max, the most amount of weight you can move through one complete full range of motion, one repetition. And it seems like that would be most of the research that it was evaluated on. So, you're really pushing yourself and you're pushing your body to its maximal physical limits.

The alternative strategy is something that's relatively new. It's called blood flow resistance training, although it's been figured out 50 years ago by a Japanese researcher and just introduced into the United States about 15 years ago. And it was originally by this Japanese – the scientist developed a company called KAATSU, K-A-A-T-S-U, and it's a Japanese word meaning additional pressure, where essentially – are you familiar with that?

Dr. James O'Keefe:

Yeah. I'm familiar.

Dr. Joseph Mercola:

Okay. So, this is the question I have for you, because I really, really want your insights on this and your thoughts, because you've got a deep knowledge, and I would really love to hear what you believe it is, but it seems to me that you could probably go longer because you're not pushing it as much. Now, you'll be metabolically tired, you'll get increased lactate levels, but you use weights that is literally 70% lower than you would in conventional training. And it gets closer to the movement than really hardcore resistance training. So, what's your gut feeling tell[ing] you? Can you go longer than the time limits you were talking about, like two hours a week?

Dr. James O'Keefe:

So, Joe, I'm just going to be frank with you. I know about it, I've never done it myself. I'm just really, [crosstalk 00:41:34]-

Dr. Joseph Mercola:

Well, okay, you don't have to be an expert in it. I've been doing it for like five years, but you don't have to be an expert.

Dr. James O'Keefe:

So, what's your intuition? You think it really helps?

Dr. Joseph Mercola:

Oh, I know it helps. I mean, it's far more effective. You know, you're such a strong advocate to resistance – I'm sorry?

Dr. James O'Keefe:

Is it kind of painful? I've heard that, you know-

Dr. Joseph Mercola:

No, no, it should never be painful.

Dr. James O'Keefe:

Oh, okay.

Dr. Joseph Mercola:

You build a tolerance over time to the pressure and you develop these metabolic adaptations. But the reason it's so beautiful is because you're using such a low weight. One of the main reasons, if you're going to engage in resistance training, almost everyone, almost everyone gets injured. That-

Dr. James O'Keefe:

Yeah. Especially if you're doing it at first. You have to build up gradually.

Dr. Joseph Mercola:

Yeah. But almost everyone does-

Dr. James O'Keefe:

Maybe talk to a trainer to kind of, you know.

Dr. Joseph Mercola:

Yeah. Even if you have a trainer, if you still get injured. So, it's really, really hard to get injured with KAATSU because the weights are so low. So, I'm thinking, because you're not really pushing this heavy, heavy weight and really getting to the point where you can't move the next day, that doesn't qualify into the same type of resistance training that was analyzed in the study. And I think you might be able to get away with more. I'm not saying a lot more, but maybe closer to three hours a week.

Dr. James O'Keefe:

Yeah, maybe it will be.

Dr. Joseph Mercola:

Does that make sense?

Dr. James O'Keefe:

It makes sense. Yeah, like I said, I just don't know enough about it. And yeah, being a cardiologist, it just makes me a little nervous about like restricting blood flow while you're exercising-

Dr. Joseph Mercola:

[inaudible 00:43:00] well, you should be. Though the pressure is such that it doesn't stop the arterial flow. It is not a tourniquet. It is not a tourniquet. Just the venous return, yeah. So, the metabolic byproduct of exercise builds up.

Dr. James O'Keefe:

[crosstalk 00:43:12] metabolic lactic acid in the muscles [crosstalk 00:43:17].

Dr. Joseph Mercola:

Yeah, the lactate increases really high, but it really causes profound benefits. There's no question. But they've looked at this specifically. There's lots of studies that have done on it and there's no increase in blood clots. But that's an appropriate concern. Absolutely. But if we just go out and take a band and do a tourniquet, that's a problem. You don't want to do that. Definitely don't want to. See the KAATSU device is a compressor and it dials into a very specific pressure. So, you can't ever shut the pressure off. Yeah.

Dr. James O'Keefe:

Yeah. So, one other thing that I'd kind of like to touch on a little bit is – people think about fitness and an important point about that too is there's no question, and maybe you can show that graph from our recent review that shows that fitness is one of the most powerful predictors of long-term mortality. And so, the more fit you are, the better your life expectancy.

And so, some people would say, "Well, that doesn't really fit with what you were talking about a minute ago when you said that vigorous exercise after about 75 to 150 minutes a week, you really don't get further benefit. And at real high levels, like several hours a week, you can lose some of the benefit." So, you'd think that more is better for vigorous exercise for getting fit. And so that's a bit of a paradox. The way I resolve that is to think that there's a lot of different things in fitness. If you're overdoing exercise – I have a good friend who is a very good cyclist, and he's about 65, and he says he's like the last man standing in his age group doing competitive cycling because you get all these injuries and the last thing you want to do is go and injure yourself and then become sedentary. You want to maintain fitness, which you do with this multifaceted approach, some plays, some outdoor exercise, some strength training, lots of walking, gardening, getting a dog [and] playing with your friends. I grew up in North Dakota near the Canadian border and my mother used to tell us all the time as kids, she said, "Go outside and play with your friends and I don't want you to see till lunch," and that's what I did. Go outside, play with your friends and try to do it a few times a week.

Anyway, I think that it's really important to have that multifaceted exercise. And also to eat right and to get your sleep and to avoid substance abuse, and maintain an optimal body composition. And those things confer fitness, too. So, that fitness is not just about hammering vigorous exercise. You want to get plenty of exercise, but you also need to pay attention to those other things.

But there's another element to fitness. So, we've talked about cardio, we've talked about vigorous and moderate exercise, we've talked about strength training. But there's also balance as part of fitness. A lot of people lose their balance and fall, and that's a common cause of morbidity and mortality in older people. And also, body composition and flexibility. So, things like yoga or tai

chi are another really good thing. And that's a group activity that tends to improve mood and make friends and cultivate a sense of well-being physically and mentally.

But there's a really interesting test called the sit-rise test that we talked about in the paper too. It's tricky. If you're going to try this, it sounds really simple. You're just standing and then you put your ankle one foot in front of the other, so your ankles are crossed, and then you squat down, sit down, and then you stand back up. If you can do that without touching [your] elbow or hand down to the floor.

Dr. Joseph Mercola:

Does your butt hit the floor?

Dr. James O'Keefe:

Yeah, your butt hits the floor.

Dr. Joseph Mercola:

So, you're sitting on the floor?

Dr. James O'Keefe:

Sitting on the floor and your feet are up, at least off the floor, just for a millisecond. So, you're sitting all the way down and then you stand back up. If you can do that without touching your hand, and then you lose one point for each hand or elbow that goes down. If you have to get on all four to get down and then get on all four to get back up [inaudible 00:43:34], and you know, for a lot of people that's the reality.

Dr. Joseph Mercola:

Yeah.

Dr. James O'Keefe:

You'd get minus four for going down and minus four for coming up. A 10 is a perfect score if you could sit down and stand up without using your hands or your elbows or your knees. That's a 10 if you can do that. In this study of 2,000 people followed for seven years – I think there's one or two people who died during that study. It makes you almost bulletproof. And even if you can get a score of eight, which is [when] you put one hand down on the way down and one hand up, way up. In other words, that simple test, which is a test of flexibility, strength, balance [and] body composition – if you have a big belly, it's going to be-

Dr. Joseph Mercola:

Yeah, it's going to be really hard, yeah.

Dr. James O'Keefe:

So, that is almost as powerful as any test that we could do to predict [longevity]. And by the way, it's very trainable. You can practice this and get better at it. It just speaks to the fact that fitness is a multifaceted thing and you need to work on all those different things.

Dr. Joseph Mercola:

All right, well, let's pivot to another component of that, which is the diet. It's particularly appropriate because your wife is a nutritionist and that's why you're in Kansas City and not in Mayo Clinic, probably a professor of medicine at Mayo. So, the reason I wanted to pivot there is that – there's a connection between the melanoma, which I wanted to get back to because I've studied the research on the vitamin D and written papers on it.

And you know that's clearly one of the concerns. And I couldn't agree with you more. You really never want to get sunburned, but what causes sunburn and what causes melanoma? There doesn't appear to be any direct connection between sunlight and melanoma. In fact, most of melanomas are in non-sun exposed areas of the skin. What does increase is basal and squamous cell carcinoma. No question about it. And I don't know the death rates from that. It's really hard to die from that because it's so obvious and easily treatable, but nevertheless people die from it.

But the question becomes, because whatever causes sunburn is likely contributing to the cancers, and the common denominator, as far as I can tell, is the excess of seed oils in the diet. More specifically, omega-6 fats, and more specifically than that, is a specific fatty acid called linoleic acid, which is 18-carbon fat. And it's a PUFA, polyunsaturated fatty acid, and it's predisposed to oxidative stress. So, when you have sunlight shining on your skin and the skin is loaded with high levels of linoleic acid, and most people are now today because the levels we have are exponentially higher than they were a hundred years ago, exponentially higher. And that is basically what is the precursor, the highest risk factor for getting cancer in general, but specifically the skin cancer, which is the most common cancer in the United States, is skin cancer. Most people will not die from it, but it's still the most common cancer.

I think the most common cancer women die from is clearly breast cancer. I think, I don't know. I forget what it is for men, either prostate or colon, maybe lung [cancer]. I don't know, but it's up there. But anyway, when you lower the linoleic acid, you radically reduce your risk of not only sunburn, and this is well-documented, but also skin cancers. It goes away. I live in Florida and I'm pretty much out on the beach every day for an hour at solar noon, at solar noon. And I never wear sunblock, never wear sunblock. My vitamin D levels were consistently near or over 100 nanograms per milliliter.

Dr. James O'Keefe:

Without a supplement?

Dr. Joseph Mercola:

Without a supplement, I haven't taken a supplement in 15 years, a vitamin D supplement.

Dr. James O'Keefe:

Wow, impressive.

Dr. Joseph Mercola:

Yeah. So, you have to eat well to do that too. And you need enough magnesium and vitamin K2, because those are all cofactors for making sure that your body is able to produce the vitamin D. But I just wanted to let you know that, if you lower linoleic acid, you can – your fear, which is appropriate – I mean, there's a reason people get sunburned and reason people get skin cancer. Because I don't think our ancestors did hardly at all. They really didn't. They weren't dying of [skin] cancer. And this is [where] I would like to get your comment [on] because it's really uncommon for me to connect with a high-level cardiologist like yourself. But as I was putting together my paper – because I wrote a paper on linoleic acid, a narrative review, about the same time your paper was published, maybe a little earlier. And the literature I looked at was the incidence of heart disease prior to 1900. It was very, very low.

I mean, it almost didn't exist in the United States. And in fact, the first reported case of heart attacks, legitimate heart attacks, in the United States was [in] 1912. I think James Herrick reported it. That's 110 years, 111 years ago. I mean, it didn't exist. We're going from a disease that didn't exist to essentially the No.1 killer of most adults. That's in a century, in a century. That's pretty – I mean, did you ever think – what's your explanation for that? Because I mean, that clearly is not genetics. Genes don't change in a few generations. And it's not exercise. It can't be exercise that can explain it.

Dr. James O'Keefe:

No, it's a multifactorial thing, obviously, but a big part of it is that our environment, our food environment, our movement environment, our amount of stress, our social structure, all those things are so drastically different. Cholesterol levels are much higher. If you look at pictures of people from back then, yeah, there was no obesity. I mean, even in medical school. And at the medical school, they always talked about the average 70-kilogram man, which is 154 pounds, which is skinny by today's standards. That's about what I am. But, you know, that was the norm. And now 72% of people are overweight or obese in America. And it's not their fault. It's just this food environment we live in and all the marketing and everything. So, it's a complex thing, but it does speak to the fact that [with] longevity, heart disease, all these things, genetics are not the most important thing. By far the most important thing is your lifestyle, diet, exercise, sleep, those kinds of things. Getting sunshine, gardening, getting a dog. These are the things that will make the difference in the long run.

And you want to keep knowing what your blood pressure is and know what your lipids are and that kind of stuff. But the most important thing that has gone so badly in the last hundred years, and again, nobody's fault, but it's just the environment we live in. We're victims of our own

success. We can afford cars. We don't have to walk places. We don't have to take stairs. We don't have to build things or carry things. We sit in front of these smart computers and we eat all this tasty sugar, added sugar, refined seed oils. So, really, it's the combination of these lifestyle factors, which are highly modifiable. You just have to take the path less traveled. You have to make a point to prioritize these types of exercise. We're talking about prioritize avoiding all that processed food with the refined seed oils and all that junk food and the added sugar. This will make the difference for mental health and physical health and longevity and immunity and all that.

Dr. Joseph Mercola:

Yeah, I couldn't agree more. And usually the simplest recommendation is to adjust your lifestyle, because it really much covers almost the whole thing, is to avoid all processed foods, because that's where the stuff is a problem. All processed foods. And very few physicians will argue with that. If you do that, that almost solves the problem. There's a lot of other things that you have to fine-tune, but that's the number one rule, number one rule. Yeah.

Dr. James O'Keefe:

[inaudible 00:55:48] eating broccoli and nuts and fish and red meat.

Dr. Joseph Mercola:

Yeah. Well, I would argue that you could get fat eating nuts because nuts, especially – See, in my view, you know, I'm biased. I'm really a strong proponent of linoleic acid being the primary etiology of most diseases, [like] cancer [and] obesity. Interestingly, at the same time, when heart disease didn't exist, there was still 1% of the population, 1%, a thousand people [out] of a hundred thousand were obese back then. So even though 45% are obese today, heading towards 50%, that's only a 45% increase.

But when you go from maybe 70 people out of 100,000 to 30%, that's like 5 million times increase, 5 million times of heart disease. It's like mind boggling. It's just so shocking. But anyway, the reason I – the amount of linoleic acid in people's tissue is, as I mentioned, 10 times higher. It's like 12% on average, and it's supposed to be under 2%, under 2%. So, it's almost exponentially – and it's the primary source of calories, linoleic acid. So, it's in the tissues. So, even any additional source of linoleic acid when you're loaded with this stuff and you haven't engaged in a regular process or a regular strategy of eliminating processed foods from your diet, it's going to make it worse.

So, nuts are loaded with linoleic acid, except for macadamia. So, you've got to – I mean, you don't have to avoid them like the plague, but if you have like pounds of nuts a day, it's a problem. It's going to just put a load of omega-6 in your diet, in your tissue actually. So anyway, your specialty is preventive cardiology, right? So, when a patient sees you, what is your strategy? What is your approach? I mean, obviously you do a workup and everything, but what is your recommendation?

Dr. James O'Keefe:

Yeah, we have a cardio wellness clinic, the Duboc Cardio Wellness Clinic, and we also have the cardiometabolic clinic. So, we look at people, and I'm in a group of cardiologists, there's 67 of us and we have 50 nurse practitioners, so-

Dr. Joseph Mercola:

Wow, that's a big group.

Dr. James O'Keefe:

-it's a really big group and so there's a lot – And I'm the only one who's really passionate and [inaudible 00:58:25] because there's so much work to be done with stents and pacemakers and ablations and all that stuff, and that's important too, but prevention is just so foundational and fundamental and it works so well these days, we really know [inaudible 00:58:45]. And here we often will do a cardio scan, which is a low-level CT scan just look for the-

Dr. Joseph Mercola:

What's the radiation when doing this and how do people find that locally?

Dr. James O'Keefe:

We call it a cardio scan, but it's like CT coronary calcium screening. It's low dose. If you go to a place with modern machines, it'll be about 1 millisievert. In Florida, you get about 3.5 millisieverts a year just from cosmic radiation and background radiation.

Dr. Joseph Mercola:

What is a chest X-ray?

Dr. James O'Keefe:

Chest X-ray would be quite a lot less than 1 millisievert.

Dr. Joseph Mercola:

That's what I thought.

Dr. James O'Keefe:

Yeah. But this would still be – Like say, living in Denver, you'd get 5.5 millisieverts a year, so-

Dr. Joseph Mercola:

Wow. So, it's still acceptable.

Dr. James O'Keefe:

It's acceptable. You wouldn't want to be getting this all the time, but like it's a very limited CT scan, just looking at the heart. I call it the mammogram for the heart. You ought to get one like for women.

Dr. Joseph Mercola:

But how do you find it locally? How do you find that?

Dr. James O'Keefe:

If you look around on the internet, you could find people doing this. We charge $50 for it-

Dr. Joseph Mercola:

Oh my gosh. Really?

Dr. James O'Keefe:

Yeah, just because – you don't know about the atherosclerosis until it blows up. You know, with a stroke or a heart attack or sudden death, and it's so modifiable.

Dr. Joseph Mercola:

Do you think that is the best – in your mind, is that the best screen for atherosclerosis? It is?

Dr. James O'Keefe:

Yeah, that's the best, most easily proven screen. Yeah.

Dr. Joseph Mercola:

Wow, that's what I thought, but it's nice to have that confirmed. What would be an acceptable score in your mind? And is it, is it based on age?

Dr. James O'Keefe:

Zero is normal. Zero.

Dr. Joseph Mercola:

Zero is normal. Okay. So, it should be zero.

Dr. James O'Keefe:

Our arteries should be soft and supple and smooth and no calcium [buildup]. The old-fashioned term for atherosclerosis was hardening of the arteries and it is pretty apt as the disease progresses, it gets calcified. These soft supple tubes turn into these rigid pipes, crusty pipes that are all inflamed. So, I mean the lower the better. We don't really have therapies to reduce the calcification. In fact, statins, if anything, accelerate the calcification, even though they help to reduce risk of heart attack and stroke and cardiovascular death. And the record I've seen – and I've probably read 150,000 of these scans myself, we do 40 of them a day, and it's a pretty simple reading thing, but the highest I've seen is 13,500.

Dr. Joseph Mercola:

Wow.

Dr. James O'Keefe:

Less than 100 is pretty mild. 100 to 400 is moderate. 400 to 1,000 is significant. Above 1,000 [is] severe. And a lot of people have this and don't know about it. And so, it's a good tool to use.

Dr. Joseph Mercola:

Yeah, it sounds like it's really good. So, a good screen, don't do it regularly.

Dr. James O'Keefe:

No, I mean, if you have a zero score, we'll repeat it in five years just to see. And if you have a high score – Sometimes I will repeat it, but if you have a high score, we just need to be aggressive about getting these risk factors.

Dr. Joseph Mercola:

What's the most aggressive resolution you've seen or [an] amazing success story with an intervention? I mean, could it go from like a thousand down to zero?

Dr. James O'Keefe:

The score would go from 1,400 to 1,200, something like that. And, you know, that's-

Dr. Joseph Mercola:

So no one's going from 1,000 to zero?

Dr. James O'Keefe:

No, never happened, never happened.

Dr. Joseph Mercola:

What's the biggest reduction to zero you've ever seen? Or it doesn't happen, once you're up there, you just can't get back to zero?

Dr. James O'Keefe:

Well, if you have a little specs and you do everything right, you can. But this change is [a] really drastic change. I've seen it go from, from 10 or 20 to zero.

Dr. Joseph Mercola:

Okay. Thank you. Thank you for painting the parameters and the guidelines around how to analyze it.

Dr. James O'Keefe:

So, yeah. And Joe, the most important thing about plaque is [it's] not the calcium that so much causes the heart attacks. It's the cholesterol that gets underneath the surface of the intima, the oxidized LDL that gets inflamed. And then it's like a zit on our face that we had as teenagers, at least I did. They get this white head and it gets red and inflamed. And then the overlying dermis thins out and that ruptures and drains. And when it's on the skin, it'll heal that way. But in the arteries, when you have a zit that's full of pus and triglyceride and oxidized LDL, it's very sort of thrombogenic and ruptures and then platelets adhere to it over and it can propagate to occlude the vessel altogether. And that's how you have a heart attack or a stroke. So, we want to get that oxidized LDL and triglycerides out of the surface of the arteries. And that's where we get the cholesterol down, and eat that diet we're talking about, and follow these lifestyle things, you can really make a lot of progress there.

Dr. Joseph Mercola:

Yeah. So, I'm just curious. There were 67 other cardiologists in your practice?

Dr. James O'Keefe:

Yeah.

Dr. Joseph Mercola:

So, is the title of the practice preventive cardiology or is that your subset?

Dr. James O'Keefe:

Oh, no, I'm in the – it's called the St. Luke's of Kansas City, Mid America Heart Institute.

Dr. Joseph Mercola:

Okay, so you're a subset of preventive cardiology?

Dr. James O'Keefe:

I just work in the group and I round in the hospital and I read scans and I'm a general cardiologist-

Dr. Joseph Mercola:

You don't do any interventional cardiologists like-?

Dr. James O'Keefe:

I was trained in it, but I really became passionate about prevention instead because I think it's a neglected area that's so effective. I mean, this is just so, so modifiable, this disease. And so, yeah.

Dr. Joseph Mercola:

It's definitely an anomaly. You're an anomaly. Congratulations for being a renegade.

Dr. James O'Keefe:

Thanks, Joe. And it's been great chatting with you. In fact, they're texting me over at the hospital now, so I'm going to have to get going.

Dr. Joseph Mercola:

Okay, all right, well thanks so much. You keep up the good work.

Dr. James O'Keefe:

Yeah, it's been a real pleasure. Thanks.

Dr. Joseph Mercola:

Okay, bye now.