



23 and a Half Hours

Dr Mike Evans

Hi, I'm Dr. Mike Evans and welcome to this visual lecture I'm calling, "23 and a Half Hours". So I have a big interest in preventive medicine, you know, which can mean a lot of things from, you know, cancer screening, to eating more fibre, to having a good social network and I -- I mean that in the old sense of the word. Weighing less, drinking less, smoking less, controlling your blood pressure, cholesterol, and so on and so forth. So, all these things are incredibly important and I wouldn't want you to minimize your efforts in any one category.

But I -- I want to know what comes first. What has the biggest impact, what has the biggest return on investment? [sound of cash register ringing] What makes the biggest difference to your health? So I did my research, and I found an answer, at least for me. And it's tricky 'cause, you know, all these things are sort of overlapping. But I picked out this intervention and -- because of its breadth, it worked for so many different health problems, and that's what I found so cool about it.

So, just to kind of walk you through a quick list, so this intervention in patients with knee arthritis who received one hour of treatment three times a week reduced their rates of pain and disability by 47 per cent. In older patients it reduced progression to dementia and Alzheimer's by around 50 per cent. For patients at high risk of diabetes and coupled with other lifestyle interventions, it reduced progression to Frank diabetes by 58 per cent. Post-menopausal woman who had four hours a week of the treatment had a 41 per cent reduction in the risk of hip fracture. It reduced anxiety by 48 per cent in a big meta-analysis. Patients suffering from depression -- 30 per cent were relieved with low dose and that bumped to 47 per cent as we increased the dose. Following over 10,000 Harvard Alumni for over 12 years, those that had the intervention had a 23 per cent lower risk of death than those who didn't get the treatment. It's the number one treatment of fatigue, and, of course, the kind of outcome of choice or my favourite outcome is quality of life, which is really all of the above, and really about making your life better. And this treatment has been shown over and over again to improve quality of life. So, the question is, "What -- what's the medicine?"

And what is "23 and a Half Hours"? So the medicine was exercise, mostly walking. So not triathlons. And let me just put it a different way. I think what I'm asking you to do is if you think about your typical day, so there's 24 hours, and so you might spend most of your day, you know, this varies obviously, but, you know, couch surfing, sitting at work, obviously sleeping, and what the evidence that I am going to show you kind of tells me is the best thing you can do for your health is to spend half an hour being active, maybe an hour and that if you can do that you can realize all the benefits I've described in the previous slide. So let's just take a quick walk through some of the literature.



So Stephen Blair, he is a professor at the Arnold School of Public Health at the University of South Carolina, and he looked at this in what's called the Aerobic Centre Longitudinal Study which followed over 50,000 men and women over time.

And along the left side of this graph is something called Attributable Fractions which is a kind of fancy word, but it's the estimate of the number of deaths in a population that would have been avoided if that specific risk factor had been erased. So for example, turning a smoker into a non-smoker, or a couch potato into a daily walker. And along the bottom is the typical risk factors. You can see the hypertension's incredibly important, and so on and so forth. But the one that was most -- that kind of applied the most risk was this sort of mysterious CRF which is Cardio-Respiratory Fitness which is really low fitness. So low fitness was the strongest predictor of death. And this is important.

Most of the trials we see, to be honest, are funded by Pharma, or other companies because they've got a drug for hypertension or high cholesterol or diabetes. And we rarely see fitness thrown in to the mix. And so it's nice to see a trial that's not so siloed. [sound of bicycle bell] Blair's work is interesting. He also did another trial looking at obesity. What he found was, you know, sort of two things. One is obesity and no exercise -- that's a very bad combination and that's where we saw many of the negative consequences of obesity from a health point of view. But if the -- if the obese person was active, even if they didn't have the weight loss, but were just active and obese, that was much, much better and that the exercise ameliorated much of the negative consequences of obesity.

So if exercise is the medicine, what's the dose? So when I think of dose, I think of how long, how often and how intense? I'm going to give you a slightly mixed message, but essentially, more activity is better. But I must say the rate of return seems to decline after 20 or 30 minutes a day so if you're being active less than 150 minutes a week or more if you're a kid -- an hour a day if you are a kid, my flag goes up in the clinic.

So, my personal take on this is that, you know, the literature draws a very broad brush and so we see big differences when somebody goes from not doing anything to doing something. And after that the return is more granular. So if we took the nurse's health study, women who went from zero activity to just one hour a week, reduced their heart disease rates by almost half. So you can break it down so it can be 10 minutes, 10 minutes, 10 minutes if you want to do 30 minutes of exercise so it can be broken into three. Higher intensity -- it looks like it's equivalent to less time with lower intensity. But I think obviously the clinical pearl is mostly of thinking about your style and habits and your personal cues.

So if you're only going to do it if it is pre-booked with friends, you know, I've couples who take a half hour walk every morning or evening to organize their life. A dog is a great walking coach. [sound of dog barking] The data's showing 67 per cent of dog walkers achieve the 150 minutes a week just with the dog walking. And finally, of



course, your commute. You know, getting off a stop early, taking the stairs, and so on and so forth.

So thinking about that, I'm just going to walk you through some quick slices of the literature. And the first one comes from Japan. In the 90s, Japan required all employers to conduct annual health screenings for their employees. And so a large gas company in Japan called Osaka used this to answer a great question. So if people's walk to work was longer, did that reduce their chance of serious health problems? So in this example, high blood pressure. And what they found is under 10 minute walk, no difference; 11 to 20 minute walk, 12 per cent reduction in rates of high blood pressure or hypertension; and over 21 minute walk, a 29 per cent decrease in rates of high blood pressure. So the authors calculated that for every increase of 10 minutes in your walk to work there was a 12 per cent reduction in the likelihood of getting high blood pressure.

The second exhibit is looking at stents. So, this is something we commonly do now in medicine. So you can see on the left that the artery is blocked; on the right, a vascular surgeon has gone in and put a balloon, open it up and left a stent to keep it open, which makes great sense. So a German researcher named Rainer Hambrecht looked at this with about 100 cardiac patients. He got half the group to exercise and by that I mean 20 minutes a day on an exercise bicycle and then a once weekly 60 minute aerobics class. And the other half got the high tech stent and just sort of normal activity. And after one year, 88 per cent of the exercisers were event-free compared to 70 per cent of the people that got a stent. So both worked, but I find it, you know, sort of incredible that the low tech made a bigger difference. And you have to remember that the stent just fixes one part of the heart.

The next way to think about it is the reverse, so what I call "sitting disease". We know that being sedentary is bad for your health but a researcher named Leonard Veerman wanted to quantify this and he did so down in Australia in a big study that he did there. They found comparative persons who watched no TV; those that spent a lifetime average of six hours a day watching TV can expect to live about five years less. I mean that's incredible. But then I think, "Oh, who watches 6 hours of TV?" It turns out the average adult in the USA spends about five hours a day watching TV or screens. So, I find this fascinating that we never think of the TV as something that's bad for our health, but clearly it's as powerful as many other risk factors for chronic disease.

So, I'm just going to leave you with, well, I guess, two quotes. So, one is Jerry Garcia, the singer who is the lead singer for The Grateful Dead, and he said, "Somebody has to do something. It's just incredibly pathetic that it has to be us". And I think that's true, that in some ways it has to be us. As Hippocrates said, "Walking is man's best medicine". And so, I'm going to finish by asking you a question. And this may have some personal challenges for you, so you know, you might be very busy with work or kids or both and -- or you may be in pain or have other priorities, but my question to you is, "Can you limit your sitting and sleeping to just 23 and a half hours a day?" So, something to think about. Thank you very much. [sound of marker on white board]

