**23 ½ Hours Transcript**

I'm Dr. Mike Evans and welcome to this visual lecture I'm calling twenty three and a half hours.

So I have a big interest in preventive medicine, which can mean a lot of things from you know cancer screening or eating more fibre, to having a good social network, and 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 want to know what comes first: what has the biggest impact? what is the biggest return on investment? 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 because you know all these things are sort of overlapping but I picked up 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%.

In older patients it reduced progression to dementia and Alzheimer's by around 50%; for patients at high risk of diabetes and coupled with other lifestyle interventions, it reduced progression to diabetes by 58%.

Postmenopausal woman who had four hours a week of the treatment had a forty one percent reduction in the risk of hip fracture; it reduced anxiety by 48 percent in a big meta-analysis; patients suffering from depression thirty percent were relieved with low dose, and that bumped to forty seven percent as we increase the dose.

Following over 10,000 Harvard alumni for over 12 years though that had the intervention had a 23 percent lower risk of death and those who didn't get the treatment.

It's the number one treatment of fatigue and of course the kind of outcome of choice.

My favorite 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's the medicine and and what is twenty three 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'm 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's 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 death 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 couch potato into a daily walker, and along the bottom is the typical risk factors you can see that hypertension is 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.

Low fitness was the strongest predictor of death and this is important that most of the trials we see to be honest are funded by this is important that 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 into the mix and so it's nice to see a trial that's not so siloed.

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 we're 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 a medicine what's the dose oh 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, 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 Nurses Health Study woman who went from zero activity to just one hour a week reduce 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 that obviously the clinical pearl is mostly thinking about your style and habits and your personal cues so if you're only going to do it if it's pre-booked with friends, you know I’ve couples to take a half hour walk every morning or evening to organise their life.

A dog is a great walking coach, the data showing 67% of dog walkers achieved 115 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. The first one comes from Japan in in the 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 a used this to answer a great question.

So people's walk to work was longer, did that reduce their chance of serious health problems, so in this example high blood pressure.

What they found is under 10-minute walk no difference, 11 to 20 minute walk 12% reduction in rates of high blood pressure or hypertension, and over 21 minute walk a 29 percent 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% 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 here the arteries blocked on the right vascular surgeons have gone in and put in a balloon open it up and left the stent to keep it open which makes great sense.

So a German researcher named Rainer Hambrecht looked at this with about 100 cardiac patients, you got half the group to exercise and by that I mean 20 minutes a day on exercise bicycle and then once weekly 60 minute aerobics class and the other half got the high-tech stent and just sort of normal activity.

After one year 88 percent of the exercises were event free compared to 70 percent 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 they did there, they found compared with persons who watched no TV those that spent a lifetime average of 6 hours a day watching TV can expect to live about 5 years less.

I mean that's incredible but I think oh who watches 6 hours of TV it turns out the average adult in the USA spends about 5 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 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 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 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.