THE MODEL HEALTH SHOW

EPISODE 688

The Truth About Exercise (This Is What It REALLY Does)

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SHAWN STEVENSON: Welcome to The Model Health Show. This is fitness and nutrition expert Shawn Stevenson, and I'm so grateful for you tuning in to me today. On this episode, we're going to be diving into the little known truth about exercise. Now, we tend to think that exercise is about vanity metrics. If we really dig in and look at our psychology, we think it's about the outer expression of results. Getting a flat stomach, getting the biceps, triceps, quads, getting those muscular changes, and also, it's really tied to fat loss. Now, though all of those things might be a side effect of doing exercise, today we're going to dive in on what actually happens in the body, what are the real systemic changes that take place in the human body when engaged in exercise and movement. Now, I want you to ask yourself a question, why do you think that your health is the most valuable asset that you have? We tend to think that other assets, things externally are some of the most important things in our lives, sometimes the most important thing, but in truth, your health is the most valuable asset that you have. Why do you think that is? Well, having a level of health and fitness enables you to interact with life in a way that's advantageous. It enables us to go to work, to create art, to play, to engage with our friends and family members, to do the things that we want to do.

And oftentimes, we waste away our health trying to get stuff, and then when you finally get the stuff or we get a chance to do stuff, a lot of times we're struggling with our health to actually be able to enjoy it. And so being able to bring your very best to the table in whatever it is that you're doing, this is why our health is such an important thing for us to focus on. Plus, in the world today, when we are not just on the cusp of AI, AI is here. Alright? Artificial intelligence is here and popping, and whether we like it or not, it's not going anywhere, and it's just going to progressively become more and more integrated into our society. With that said, human capital has to change over, and we have to be able to adapt and to pivot to become more creative and also to be able to find new competitive advantages. And I'm telling you right here, right now, based on what you're going to learn today, your health and fitness is the number one competitive advantage that you're going to have. A recent study published in the peer-reviewed journal, Metabolic Syndrome and Related Disorders determined that 88% of American adults are metabolically unhealthy.

88% of our society is metabolically unhealthy. That means if you're a fit, if you're healthy, you're in the minority. You have an advantage. You can do more. Create more. You have more energy, more functionality, more capability when you are doing well. The wise adage says that people don't do well because they don't feel well. You know what it's like when you are stricken with a sickness or a chronic illness or an injury. It can really pull a veil over life itself and makes everything more difficult. Now, what we want to do is stack conditions in our favor, because inevitably life is going to happen, but stack conditions in our favor so that we're more resilient,

and that's what this is all about today. Now again, exercise is not just about vanity metrics, and this is actually a big part of the problem when it comes to psychology around fitness, because the stuff that we're doing, the activities of fitness, whether it's running, whether it's lifting weights, whether it's playing a sport, whatever the case might be, roller blading, whatever the case might be, those activities are a result of our thinking. We first have to engage in a psychological chain of thinking in order to elicit a physical response. So, all change, all movement, all activity first begins in the mind.

It first begins as a thought process. And there can be psychological barriers there for people to do those things. No matter what benefits they might think that they're going to get, and when I say that it's because those benefits are often superficial, right? To be able to get fitter, to be able to have more energy, these things sound very fluffy and nice, but not a requirement. Not a requirement, and that's part of the psychological barrier is because we don't truly understand what exercise is really about. And in reality, exercise is one of the most powerful epigenetic controllers of our reality. So, epi meaning above, and genetics mean our genetics, so this is above our genetic control. So, this is determining what our genes are doing. Which genes are getting expressed, which genes are going on mute. Exercise is a powerful epigenetic controller, and we're going to talk about right now some of the ways that this epigenetic controller is helping to keep you in the game, because again, being a powerful competitive advantage, no matter what you're into, whether you just want to be a better person in the office or on the stage or in your family context, whatever the case might be, you want to show up and be your very best.

What I want to share with you is the top three things that are keeping people out of work today. They're keeping people sidelined in society today. Alright? So, we're talking about the three main causative factors why people are missing work today, and how exercise keeps you in the game. How exercise is clinically proven to protect you from the very things that sideline most people in our society today. Number one, the number one thing that is disrupting our livelihood, that is keeping people out of work, the number one thing is depression. According to the National Institute of Mental Health, depression is now the leading cause of absenteeism in the United States. The number one cause of missed work is depression. To say that depression has reached epidemic proportions is an understatement. Now a huge, often overlooked underlying faculty or contributing force behind depression and really all manner of chronic illnesses is stress. And a study that was published in JAMA Internal Medicine, so this is the Journal of the American Medical Association Internal Medicine, reported that upwards of 80% of all physician visits today are for stress-related illnesses. Alright?

Upwards of 80% of the things that people are going to the doctor for are related to stress. Stress is a key contributing factor to those things. And we don't think about that because, again, stress is sort of invisible in many ways, and in reality, stress can cause a whole series of

biological and mental breakdowns as well. Now, how does exercise provide a science-backed defense against depression? A brand-new meta-analysis published in the BMJ, one of our most prestigious medical journals, the British Medical Journal, looking at the impact of exercise on symptoms of depression versus conventional treatments like drugs and psychotherapy, this meta-analysis included 1039 randomized controlled trials.

Alright? So over 1000 randomized trials were included in this analysis. And this also included nearly 130,000 human beings. And the study revealed that physical activity is 1.5 times more effective at reducing mild to moderate symptoms of depression, psychological stress, and anxiety than medication or psychotherapy. It works better. Over 1000 randomized controlled trials found that exercise works better. Now, this study has been published for a couple of months now, but yet why aren't we hearing about this? Why aren't our physicians recommending exercise as a form of treatment because to say that it's not science-backed is ridiculous. It's more science-backed than anything. And it's free. It's generally free and accessible, but it's not promoted to provide that benefit so clearly. Now, is it really a surprise that conventional treatments are less effective? We recently had a wonderful conversation here in The Model Health Show with Professor of Psychiatry at Harvard University. No big deal. No big deal. Dr. Christopher Palmer, and he shared with us the results of a 12-year longitudinal study. This is where they're following you around. Alright?

They're following you. Paparazzi. They're following you around. And this was published in Archives of General Psychiatry and attracted nearly 500 individuals with varying degrees of major depressive disorder receiving conventional treatments of medication and psychotherapy. What the researchers found was that even with treatment, even with taking medications every day, nine out of 10 people remained depressed and continued to have persistent symptoms. Did it work? Nine out of 10 times. And yet we're still doing the same standard of care bull**** that's not actually helping the vast majority of people, not to say that there can't be some benefits, but they are small, they're in the minority, and we have to be honest about this if we're going to get to a place of true change, of true wellness. And also, just even from that study, that one out of 10 people who actually gets resolution of their symptoms, that number is so small that a variety of confounding factors could be the reason why. It doesn't necessarily mean that it was the drugs they were prescribed or the psychotherapy. They could've just had what is often dubbed as spontaneous remission. It could've just got better, and they don't know the causative agent behind it. They used that spontaneous remission for other things, but not in this context. Say we got one out of 10 people better, come buy our stuff.

We've got to really open our eyes and understand that exercise and movement is not about vanity metrics. That's a side effect. Getting more physically fit, side effect. It's one of the key controllers of our mental health. It's one of the key controllers on how we perceive reality. Now

the question is, how does it work? Number one, your muscles are an endocrine organ. Your muscles are an endocrine organ that's constantly, when we're utilizing our muscles, producing regenerative anabolic hormones. Recently, a lot of science has been coming forward about myokines. So, this is just one variety of compounds, these are proteins, all hormones are proteins in nature that are secreted from our muscles when we're using our muscles. Alright? Now, here's the thing. These myokines have been found to be able to cross the blood-brain barrier and influence what's happening in our brain. Influence what's happening with our other endocrine organs as well, and have this really interesting anti-inflammatory, rejuvenative, antioxidant effect in the body. Really helping us to sustain our youthfulness and energy, and that's just, again, that's just one flavor of the hormones that are getting produced when we utilize and use our muscles.

Number two. Another reason why exercise is so effective against the number one thing that is putting people on the sidelines and keeping people out of work being depression, number two is that exercise is clinically proven again and again and again to reduce stress. This is because, and some of these things we hear about, but we don't really get it, we don't really let it land, we're producing these endorphins, right? These feel-good chemicals in our bodies that just, they're really, a primary reason that they're produced, they're kind of pain relievers. So, we're doing things that might be challenging, they're helping to ease our pain in a sense by making us feel better, right? So, we see the pain differently if we do experience pain. Also, serotonin is getting increased, another, again, kind of feel-good neurotransmitter, dual hormone as well. We've got dopamine as well, this kind of reward-oriented compound in the body as well that's getting engaged when we're doing exercise and when we're even just looking forward, having the mindset, the psychological on-ramp to looking forward to exercise even triggers the release of dopamine. Again, if we start to understand the value of it, maybe we'll start to look forward to it more. And in addition, another reason why it works, and this ties into this stress reduction is that exercise increases our resilience.

Exercise is a well-documented hermetic stressor. This means that it's a stressor to our bodies that makes us better, but there's a big old but here, you got to make sure that we're healing from the stress. That's where the real benefit comes, the adaptation. So hermetic stressor is like a triggering event, it's like the first domino, and we don't want to block that process of getting better when we put something right in the middle of those dominoes falling over because we're not getting adequate rest and recovery and nutrition, all those other things, right? So, it's not just the exercise alone, but it's the adaptation. But without the exercise, we're not creating a reason for our bodies to become more resilient.

And this is a huge key when we're talking about depression and our mental health, sh**'s going to happen in our lives. Stuff's going to happen, but how are we confronting these things? How are we perceiving when "bad things happen". What is our perception? What is our mindset

like? We've got to be able to bring a stronger self, our stronger self, which is in each and every one of us, strength beyond anything that we can imagine. Bringing that person to those troubling, trying, challenging events. When life hits you with those inevitable obstacles, how are you showing up? Exercise is one of those things. Moving our bodies, becoming physically stronger, makes us mentally stronger and more capable to handle when life presents you with, again, the inevitable challenges.

Also, another reason why it works is that exercise actually sensitizes your brain to more pleasure. Not only does it help to reduce abnormal stress, increase resilience, but it sensitizes your brain, it makes your brain more sensitive to the good stuff. Alright? It makes your brain more sensitive to pleasure. That's one of the most overlooked aspects about exercise that is now clinically proven, and thanks to a wonderful conversation that we had with health psychologist, Kelly McGonigal, and her remarkable work in really bringing this really important understanding to the forefront. And we'll put her episode for you in the show notes, by the way, if you want to do some follow-up listening or follow-up watching. Alright? So again, you can actually make your brain like the good stuff more. It's more sensitive, and even it makes you more sensitive to things that might not even seem to be that big of a deal. You just start to be a little bit more jubilant and fulfilled just because. Now, these benefits are remarkable, science-backed for the vast majority of people but what tends to happen is we might have this what about-ism pop up because what about my friend who exercise all the time, but they're still depressed?

Now, there are a couple of things here to consider. Every single human being is unique, and this is not a "cure". This is not a cure all for every condition, but the majority of people are going to tell you that they feel better when they exercise. Don't negate that. Don't brush it off and oh, what about? The majority of the time, because your genes expect you to exercise and to move, we've got to do this, alright? And the majority of the time it's going to bring forth benefits with our mental health. With that said, there are situations where, yes, this individual could be feeding into exacerbating excessive stress and excessive psychological and physical stress load and the exercise is just pouring on to it, right? So that's one flavor of why wouldn't this make them feel better, right? And/or, if we even consider like, okay, they exercise all the time, but they're still depressed. Again, it depends on the situation, but in some instances, we could start to see like, do they feel good enough to exercise all the time?

Mmm, something's not adding up here. Alright? Because a lot of times, again, it depends on our expression of depression. A lot of times people are withdrawing. They're pushing away the idea or the concept of even getting out of bed. And so, we've got to understand and start to rank this in like put this in a more rational context, right? And don't just be like, it doesn't work, argh. Then why you doing it? Let's be more honest and rational about this, and also understand that sometimes this isn't appropriate, this isn't the thing that's going to "fix the situation", but

we've got to stack conditions in our favor, right? This is not to negate the potential benefits with some medications, for some people, at some times. This does not negate the benefits of psychotherapy in all modalities. There's a bunch of different science-backed versions of talk therapy and the like that can be very, very helpful. Absolutely. But we cannot replace or mistake doing a thing for effectiveness. Alright? We've got to stack conditions in our favor. And we've also have... We have to have the audacity to do what works for us, and not lie to ourselves. Like are we actually getting better? And if we're not exercising, if we're not consistently moving our bodies and yet we're seeking out help with other things we've got a huge problem.

If we're jumping to those other things, and also the people that are ministering or distributing those other things are not telling you, you need to move your body. Ooh, red flag. Alright? We've got to stack conditions. We've got to do what our genes expect us to do to have good mental health in the first place. And also check ourselves with the whataboutism. The vast majority of people get substantial mental health and metabolic health benefits that are so overlooked because of the vanity aspects of exercise when they're moving their bodies consistently. Just a quick example about this, and we're going to dig deeper throughout this episode on like what are some of the specific forms of exercises for us to target. We're going to get to that in this episode a little bit later, but Harvard Medical School reported findings that strength training provides an opportunity to overcome obstacles in a controlled, predictable environment, which has been found to increase mental resiliency. You're training, when you're in the gym or wherever you're doing your strength training, you're training your body to be more resilient when under stressors. So, we're creating a safe stress.

And we have full permission, you have a full permission slip to be able to do this. Alright? Now moving on to number two of these top reasons that is keeping people sidelined, keeping us out of work, reducing our competitive advantage in life, number two is infectious diseases. This is one of the, again, leading reasons for absenteeism in the workplace. Now, the question is, with all of our so-called advancements, why are people still getting sick all the time, catching all these bugs, these "bugs"? Why are there so many infectious diseases that are constantly keeping people sick?

Again, we're supposedly in this place with science where we would have conquered to a degree rampant infectious diseases, at least make a dent in it, at least bring it down. It's gone down at least, hasn't it? Well, an analysis titled, Trends in Infectious Disease Mortality in the United States During the 20th Century, published in JAMA, the Journal of the American Medical Association. The researcher stated, "Until recently, it was assumed that the epidemiologic transition had brought about a permanent reduction in infectious disease mortality in the United States. However, in the United States, mortality due to infectious diseases increased 58% from 1980 to 1992, a trend that was unforeseen." There's a lot of really interesting language here in this quote from these researchers, again, analyzing infectious disease and

mortality. Again, something we would think that we had a handle on the surface, they had words like assumed, right?

And this transition, you know, this transition with science and understanding of these things. Also, words like, however, we thought this thing, however, stay Gucci down to the socks. However, another one that they had here, unforeseen, unforeseen with all of our advancements, better living through chemistry, dominating nature. That's the tenet in modern science to control and to dominate nature as if, as if, shout out to Clueless. As if. Infectious disease outbreaks. Now, this was this time period, again, from 1980 to 1992. Do you think it's gotten better? It's been all kinds of stuff. Zika, bird flu, swine flu, you know the VIB, alright? Amongst many, many, many other rapidly spreading infectious diseases, infectious disease outbreaks are actually even more common in recent years, and you know that, you can't not know it. Now, with that being said, there first of all... Obviously there's a problem here, something is awry, something's not adding up, why is this happening? But does exercise provide a science-backed defense. Well, a meta-analysis published in Exercise and Sports Science Reviews determined that regular exercise significantly improves human immune system response to infections and reduces susceptibility to viruses.

Say more Shawn, say more. In the context of one of the most recent infectious disease outbreaks, COVID-19, a study conducted by researchers at Kaiser Permanente Medical Center, not too far from where I'm at right now, tracked the exercise habits of nearly 50,000 COVID-19 patients and revealed some eye-opening evidence. After analyzing their exercise habits over the two years prior to the pandemic, it was revealed that people who didn't regularly exercise were two and a half times more likely to die from COVID-19 than those who consistently exercised. Now, this is not causality. Just because they exercised did not mean that it stopped them from dying from COVID. But wow, the researchers in this particular study, these are some pretty brilliant researchers, Kaiser Permanente, they did a great analysis really addressing a lot of confounding factors and exercise really stood out as something that was remarkably preventative, really dramatically reducing the risk of severe outcomes from COVID-19. Now, is that just a flash in the pan? Was it just a little once in a lifetime kind of glimmer for exercise? Well, a peer-reviewed study that was done after that and published in the British Journal of Sports Medicine analyzed detailed exercise data from a large population set of participants. Now, what was interesting about this, they looked at different forms of exercise as well to see what were the outcomes.

Well, just overall, number one, they found that regular exercise had a notable protective effect against contracting a COVID infection in the first place. Again, not perfect, not perfect protection. You heard that somewhere before? Not perfect protection. But again, very, very, very, very, very low risk and also high reward, accessible, pretty much free. No concern about negative side effects, just good effects. That was number one, reducing the risk of contracting

a COVID infection in the first place. But even more significantly, that was good, right? There was some good data on that, good results with that. But even more significantly, regular exercise was found to slash the risk of severe COVID infections. And regular exercise dramatically reduced the risk of death from COVID-19 as well. Now, they looked again at strength training and aerobic exercise, and they found across both forms of exercise, reducing the risk of infection, reducing the risk of severe infections to a varying degree. But what they found most notably was that people who regularly strength trained and did aerobic exercise had a 27% lower risk of contracting a COVID-19 infection and a 57% lower risk of severe COVID-19 symptoms.

57% lower risk. That is, it's pretty remarkable. Comparable with some of the newly invented medications to address this particular issue. And again, this is something that humans have been doing forever. We've been moving forever, forever. This is something our genes expect us to do. It's not an experiment to move our bodies. All these wonderful beneficial side effects as well, cardiovascular health, cognitive function, all these other things we're going to talk about. But was this advocated? You already know the answer to this. You didn't see one major news network in the midst of all this touting, because these papers came out during that time. I shared them during that time. And there are many people who are part of this community who grabbed that information as an affirmation to what they already knew in their spirit. But again, this is not some kind of a superficial force field. We want to make exercise into something that it's not. It's not guaranteed that this is going to protect you from... Fill in the blank. But what it is, rationally, logically, it dramatically improves the function of your immune system and resulting health outcomes.

Now, the question is why? Because we know why. How does it work? Well, number one, exercise enhances something called immunosurveillance. This is the process by which the cells of the immune system are able to look for and recognize foreign pathogens and effectively make adaptations to them. Immunosurveillance, who you got in the van? Who's in the van in your immune system? Alright? Who's undercover? Being able to have that surveillance and to be able to adequately address foreign invaders. Secondly, exercise is, again, clinically proven to reduce systemic inflammation. Exercise improves the recirculation of immune cells that stimulate an anti-inflammatory and antioxidant state through multiple pathways. Alright? So, helping to reduce overall inflammation in the body. In the context of COVID-19, this was a very pro-inflammatory sparking because the virus itself isn't what makes the inflammation. It's our immune system's response to a virus, to a bacterial infection, to a fungal infection and the like. It's how our immune system addresses and reacts to a thing because for many people it could do nothing.

It could be something that we don't even notice, right? We contract a thing because our body adapts to it, right? Or it makes an intelligent assessment and adjustment, and we have no

symptoms at all. We just have the antibodies now, right? For some people they might have small symptoms, for some people they have a hyper response and that was what was notable about this, was a pro-inflammatory condition, specifically targeting the lungs, but for other aspects of our physiology as well. Moving on, what's another reason why exercise is so effective against infectious diseases is because exercise improves something called immunomodulation. This is essentially our immune system being able to respond in a more vigorous way or help to bring immune system activity down and so it's not overreacting, right? And so there was this labeling of a "cytokine storm," right? This is things that sounds like a movie, right? Cytokine storm. It's sort of like one of these doomsday movies, like Armageddon, Moonfall. There's another Doomsday movie that came out recently starring Halle Berry in case you missed it. If you happened to miss it, don't worry about it. You didn't miss much. Shout out to... She's great. Alright? But it's just another one of those, you know.

But I'm sure there was a cytokine storm involved in that it's using language and kind of creating this mental framework, but in a way that's disempowering and fearful, right? Not to say that there isn't a hyper response by the immune system in some folks, but we have to realize also that cytokines are one of the most critical aspects of human health. Right? So, we start to label and create this fear around a certain aspect of our physiology. Actually, it's really interesting. So, cytokines are, yes indeed, important in the adaptation and response to pathogens and helping to kind of clean house. Yes, but also cytokines are actually an important aspect of our sleep quality, all right? Cytokines are influencing our sleep and how we're going through our sleep cycles. You don't hear that in the cytokine storm, right? It's just all bad, right? It's providing context and empowerment and being aware of language. And also again, with healthy immune modulation, which is one of the things that exercise brings to the table, it helps our bodies and our immune system to properly, adequately, intelligently respond to a pathogen.

One additional way that exercise helps our bodies to defend itself against pathogens and infectious diseases that keep people sidelined is that exercise delays the onset of immunosenescence. Immunosenescence refers to the gradual degradation of the immune system associated with aging, and is regarded as a foundational reason why elderly individuals had higher rates of susceptibility to COVID and other infectious diseases as well, immunosenescence, this gradual degradation of the immune system that is correlated, not causative though, correlated with aging because there are people who are in aging populations, elderly populations, who don't have substantial degradation of their immune system. Probably the ones who are more active and exercising regularly, moving regularly, walking regularly. It's one of the things, if you don't use it, you lose it. When it comes to our immune system, exercise is required. Now another interesting connection between COVID-19 and exercise has to do with cellular communication and some of the foundational things that actually enable our cells to talk to each other.

Now, in exercise, if we're thinking about fueling our performance, rehydrating, and really helping to enable the production of energy, we think about something like electrolytes, right? So, these are minerals that carry an electric charge, thus the name electrolytes. And again, we think about them in terms of exercise and sports performance, but in reality, the reason that they're so important is because electrolytes enable our muscles to actually move. Without electrolytes being present, we wouldn't be able to generate muscular movement, contraction, and relaxation, right? So, this is one of the things we see with cramping, for example, is a lack of electrolytes, like the muscle spasming and not being able to relax, being deficient in key electrolytes. And also, bigger picture, electrolytes are critical for the utilization of energy in the first place, right? So, we're talking about the human currency, the very thing that the human body is run on, ATP, adenosine triphosphate. We know about ATP, we hear about it in science class when we're in high school, middle school. But one of the things that's left out of the equation in the conversation about ATP is that it has to be bonded with magnesium in order to be utilized by the body.

And so again, another place where electrolytes are popping their heads up. And really, the sodium potassium pump enables the vast majority of functions in our body to take place. Like I can go on and on and on with how important this is, but even in the context of COVID-19, there was a meta-analysis, a meta-analysis, multiple studies publishing annals of clinical biochemistry and the study was titled, Electrolyte Imbalances in Patients with Severe Coronavirus Disease 2019, COVID-19. And it analyzed five studies with nearly 1500 patients with COVID-19 and found that both sodium and potassium in particular were significantly lower in patients who had severe outcomes. Now, this gets in the conversation, the chicken, or the egg scenario, was it because they were deficient in electrolytes that their immune system wasn't responding adequately or effectively or intelligently, or did the disease drive a deficiency of electrolytes? Either way, if this is the post thing, if this is where it's happening as a result, we know that electrolytes are getting used up by the body in response as it's trying to fight off an infection.

We know that the electrolytes are important, but again, you don't hear about this in conventional "major media", which even as I say that with major media, they're not major. They're not major anymore. They're majoring in minor sh**. That's the only thing major about them at this point. We're taking over. This medium, the podcast medium, being able to have access to some of the very best researchers in their respective places. Now, here in The Model Health Show, I've brought forth hundreds of the top people in neuroscience, gastrointestinal health, in cardiology, in muscle centric medicine, the list goes on and on and on. And you get to learn from the very best people in the world for free, just push play.

That's never existed before, never existed before. And we have access to this. And we also have access to the narrative that you aren't good enough, you aren't strong enough, you are not capable. With the narrative that you can't survive without this multi-billion dollar, newly invented pharmaceutical that we've come up with. And this is what you're deficient on, right? All the human evolution, all of these years of intelligence in those cells that we barely know anything about, you're deficient in a statin. That's what you're missing. No human being has ever been deficient in a statin or deficient in lisinopril. It's not that we are missing these things. It's the fact that we're not, first and foremost, the vast majority of the time, giving our bodies and our brains these essential inputs that are required for healthy expression of our genes.

If we're not doing these things, we're going to have abnormalities. We're going to have the presence, the presentation of disease symptoms. The disease symptom isn't oftentimes a labeling or a state of permanence, nor is it oftentimes the same or even close to the same symptoms that someone else is having. But we tend to use these symptom clusters, give you a label, and that is your lot in life. When in reality, if our body's presenting insulin resistance and we're producing insulin, we've been fine our whole lives, we don't have type one diabetes, something happened, something happened. And that same thing, that shifting in our genetic expression that is altering the way that our body is functioning now, it's an adaptation for our body to keep functioning under unideal circumstances to keep us alive. The disease symptoms is an adaptation, right? What are we doing or not doing that's causing this adaptation that we might not want? And so, within that context, again, even with the health of our brain, electrolytes are critically important. Researchers at McGill University affirm that sodium, for example, functions as an "on/off switch" in the brain for a variety of neurotransmitters that help to optimize and improve cognitive function, but also to protect the brain from neurodegenerative diseases.

So, I'm a huge fan of electrolytes. I actually just had some during the episode and the only place that I get my electrolytes from because there's no artificial weirdness, no added sugar, and they're also sourcing the electrolytes from places with the highest integrity. And I'm talking about the folks at LMNT, L-M-N-T. Go to drinklmnt.com/model and you're going to get a free gift pack with every electrolyte purchase. Alright? Now, for the longest I've been a fan of their raspberry electrolyte, but right now, for whatever reason, I'm really vibing with the mango chili. Some people are just on the spicy tip. You know, there's a chocolate salt as well, which is my wife's favorite, but I'm really feeling that mango chili right now. So, if you want to try out some of the different versions of the LMNT electrolytes, this is a great opportunity because they're going to send you a bonus variety pack with every purchase. So, head over there, check them out, drinklmnt.com/model. And now moving on. So, we covered two of the top reasons for absenteeism in the workplace, and again, just sidelining us from our lives in general.

Number one being depression, number two being infectious diseases, and number three, the number three reason for absenteeism is injuries. Accidents and injuries happen in both younger and older demographics, but consistent exercise is proven to reduce the risk of injuries and accelerate recovery when injuries do occur. Now, does exercise provide a science-backed defense? A meta-analysis of 25 randomized controlled trials published in the British Journal of Sports Medicine found that specific forms of exercise, those being proprioception training and strength training can reduce approximately two-thirds of sports injuries. Reduce two-thirds of all sports injuries if those types of training are utilized consistently, and the researchers found that overuse injuries could be nearly cut in half by utilizing those two forms of training. And proprioception training, if you're wondering about that, we're going to talk more about that later in the show. But proprioception is your body and nervous system being able to navigate your body in the environment, navigate your body in space, and training specifically so that your body is adapting to the conditions that you're putting it under.

And so again, we'll talk about that a little bit later. And how to do it because you definitely want that in your superhero utility belt. So, does exercise provide science-backed defense against injuries? Yeah. And also, another study, and this was looking at the influence of exercise in injury healing of older adults aged 55 to 77. And this was published in the journals of Gerontology Series A. They had 28 participants and they split them into an exercise group and a non-exercise group. Then the researchers essentially stabbed the study participants to see how fast they'd heal. Guess what? Stabby! This reminds me of Harlem Knights. She was like fighting with Eddie Murphy's character. She was like, "Now I got to cut you." But they gave them a little wound, a little cut. They didn't just come, you know, like scream, stab them, but just gave them a little cut. And interestingly, they had the exercise group begin exercising three times a week for a month prior to cutting them and then had them continue their exercise program afterwards. Alright? So, they got them fitter first so they're already in motion, right? They're exercising three times a week prior to stabbing, prior to getting this wound.

Now, after compiling all the data, the exercise group healed about 25% faster than the non-exercising control group. Don't you want to heal faster when sh** happens? Don't you want to heal faster? Being fit is a superpower in this context. Now, the question is how does it work? Well, number one, exercise is a key driver of circulation, right? So, our cardiovascular system, blood is providing oxygen and nutrients that aid in repair. Movement delivers nutrient rich blood supply to the site of an injury. It's just what it does. It's what your body does when we're moving. There's this wonderful statement in higher echelons of physical therapy that says, motion is lotion, motion is lotion. Well, there's another guild of injury treatment that's just like, don't do anything, just like, kind of debilitate an organ, a tissue, a side of the body that's injured and don't move it at all. When in reality, not doing anything is one of the worst things you could do. Now, this doesn't mean if you have a severe leg injury that you go and you're doing

box jumps and squats, alright? Back squats. It means that do what you can. If you can get some steps in, if you could do a stationary bike, if you can work on your upper body, do what you can to get some blood flow, to activate those myokines.

And again, your muscles are an endocrine organ. It's going to help with pain. It's going to help with the adaptation. It's going to release anabolic hormones that help to repair things like HGH. The list goes on and on, a lot of benefits. So, number one, circulation. Another reason why exercise is so effective in preventing and also accelerating the healing of injuries is waste removal via the lymphatic system, via our blood, via our eliminatory organs. Your lymphatic system is your extracellular waste management system. And it's a site for a lot, the immune response, the inflammatory response of our body, that's the immune system. So, when you have an injury, your immune system is there to take control and kind of recruit all the elements in order to heal. They create the inflammation calling in the troops. And so, to help to flesh out metabolic waste, your lymphatic system is going to be important in that. And your lymphatic system doesn't have a pump like your circulatory system does. And so, your moving is required in order for you to move out the garbage. Alright? So again, waste removal. Another aspect of why exercise is so important in this particular regard is the production and release of stem cells.

The Journal of Muscle Research and Cell Motility affirmed that exercise can boost the supply of adult stem cells. Now, what does stem cells do? Stem cells become whatever you need. Stem cells become, if you need muscle fibers, if you need new tissue for your meniscus, right? Stem cells have the capacity. Now, with adult stem cells, they're more specialized. Alright? They're not like totipotent and pluripotent stem cells that we talked about with Dr. Bob Hariri in a previous episode. He's one of the foremost experts in the world in stem cells, put that for you in the show notes, but there's a lot of capacity with adult stem cells. And again, you're not going to be secreting. You're not going to release; you're not going to bust out your stem cells if you're not moving your body. In particular, weight-bearing exercise really helps with the release of stem cells. Another reason why exercise is so important and valuable with accelerating the healing from injuries and preventing injuries is the myokines. Going back to the myokines, research published in Advances in Clinical Chemistry states, "exercise-induced myokines can exert an anti-inflammatory action that is able to counteract not only acute inflammation due to an infection, but also a condition of low-grade inflammation." Alright? So effective against infections, effective against inflammation from an injury, myokines are that deal.

Alright, now that you know how exercise gives you a massive advantage to keep you in the game, now let's cover how exercise protects and up levels your life overall. Incredible research from Dr. Wendy Suzuki and her team at NYU. And Wendy Suzuki, incredible neuroscientist, and somebody who's been a friend and colleague for many years. Her team revealed that aerobic

exercise does in fact contribute to the creation and maintenance of brain cells in your hippocampus. So, this is the memory center of the brain, a region that's really playing huge roles in learning as well, but again, in particular with our memories. Now, what does this actually translate to in the real world? Because we know on paper, we could see it functionally, right? That we're seeing this benefit with neurogenesis in the hippocampus. And again, involved in learning and memory, but how does this show up in the real world? A series of cognitive skills tests run on students found that children who exercised before class improved their test scores by 17%.

And children who exercised for 40 minutes improved an entire letter grade. Come on now, again, our genes expect us to move. Children, they're so driven towards movement. And so being able to perform better as far as cognitive skills, conventional education, movement is such a huge aspect of what's happening with our brain and cognitive function, but more and more our population, including our population of children is becoming more and more sedentary. And we think the answer is more tests, more learning, more books. What if you can actually retain that information? What if you can actually improve your skills at reading and understanding by moving your body? Because they go hand in hand, they really do. What about for the big adult babies? What about for us as adults? Another study analyzing the performance impact on adult employees found that employees who exercise regularly are 15% more efficient than those who do not regularly exercise, which means a fit employee only needs to work 42.5 hours a week to do the same amount of work as the average employee who does not exercise does in 50 hours a week.

Again, we're improving effectiveness. We're not just showing up and doing the job and working hard and grinding. We're being more effective, getting sh** done so we can do other stuff that we enjoy besides just working, right? Because for many people, their work is not their passion. And so, what if you could be more efficient and effective? And exercise is a huge inroad to that because of the impact that it has on our brain and cognitive function. A randomized controlled trial published in the Archives of Internal Medicine found that resistance training in particular promotes cognitive and functional brain plasticity. So this is the ability of our brain to adapt and change, whether it's from basic new learning and your brain changing and adapting, finding new ways to solve problems and to create new pathways, new nerve communications, brain cells talking to each other, laying down more myelin so that the nerve pathway is firing faster, right? So, an adaptation in the brain from just general learning and learning how to do something differently. And this can also be in regard to overcoming some kind of damage that happens to our brain and our brain finding a way around an issue. And again, finding new ways to adapt and to learn. And we want that plasticity. And exercise is one of the things that really aids in functional brain plasticity, and again, promoting cognitive performance.

The researchers indicated that two sessions per week appears to be the minimum effective dose to get substantial benefits that we're talking about with plasticity and cognitive performance. Another study, this was published in 2014, conducted by researchers at Georgia Tech, revealed that strength training for as little as 20 minutes can improve our long-term memory. The researchers had study participants train their legs for 20 minutes versus controls who did nothing. Two days later, they had them to do an image recall test and the strength training test subjects outperformed the non-lifters by 10%. Never skip leg day, moral of the story. A 2007 study conducted by German researchers found that daily walking can statistically improve our working memory. And researchers from Stanford University found that walking increases creative capacities in the brain that are now really starting to be understood better. And a particular flavor of creative thinking called divergent thinking, and walking can increase divergent thinking by 60%.

And what that really means is it's the ability to think outside the box, right? Because a lot of times when we're in a problem, we are thinking with tunnel vision. Like we're trying to hammer our way through a thing where this creative inspiration or divergent thinking has us thinking about things in new and different ways, different directions, and being able to get outside of that box that we tend to put ourselves in. And again, you hear this even with some of the greats throughout history, walking and having this kind of time where they're processing and solving problems when they're walking. And you don't even have to think about the problem, by the way, generally you're just walking, and a solution can come. Another study, this included 80,000 adults. This was published in JAMA Neurology, Journal of the American Medical Association Neurology. This is looking at brain health protection. And their study revealed that there is a dose dependent effect of steps taken per day in lowering the risk of dementia. Now, unfortunately, our society has not gotten the memo yet that one flavor of dementia, which there are several, Alzheimer's disease is almost in the top five causes of death in the United States.

We just see it as like some kind of, you know, unless you experienced this or have a family member who's experienced this, we don't really respect or understand how this could deeply degrade and even end our lives. And it is just skyrocketing in recent years. What is going on? Well, again, dose dependent effect in protecting against dementia. The researchers found that participants who walked briskly for an average of 30 minutes per day had their risk of developing dementia slashed by 62%. It's remarkable, just from walking. Could this be one of the contributing agents to why we're having so much more dementia and Alzheimer's in our society today? Because we are the most sedentary population in the history of humanity. Could that be an ingredient in that recipe?

You already know the answer to that. And keep in mind, it's not just the act of doing exercise per se, but the act of not chronically sitting for hours upon hours each day. A study conducted

by researchers at UCLA and published in PLOS One, Public Library of Science One, found that long stretches of sedentary behavior like spending all day at your desk in a chair each day was linked to loss of brain thickness in parts of the brain that's critical for memory. There's certain kinds of thickness that you do not want to lose, alright? You don't want to lose this kind of thickness. There's other kind of thickness too that you don't want to lose, but we don't want to lose the thickness of our brains because we're sitting chronically day after day after day. And also, in regards to the protective effects and life enhancing effects of exercise, our society has a major heart issue, which is kind of poetic in a sense with our terrible rates of heart disease and being that we have a heart issue and our heart being synonymous with love and compassion and empathy and understanding, connection, could this all be stirred together in the same problematic soup that we're experiencing as a society? Nearly 700,000 people died from heart disease in the US in 2020, and you barely heard a peep about it, you know? And again, in contrast...

Well, we don't want to compare issues, but, you know, a lot of other folks, we had infectious disease on our mind, rightfully so in some aspects, but again, not giving much of any thought to the main thing, the most dangerous thing in our society. The thing that kills us most often, every few seconds somebody in the United States is dying from this, but not just in that minimum time span, every year, year after year, week after week, day after day. And the rates of heart disease, again, is just grown exponentially in recent society. And there's a reason behind why this is, nearly 60% of the United States population now has some degree of heart disease. Alright? We're talking about the majority of our citizens. This is not normal. A peer-reviewed meta-analysis published in 2012 on sedentary behavior risk found that our nation's sedentary behavior was associated with a 102% increased risk of developing diabetes, one of the leading risk factors for heart disease.

And with heart disease itself, they found that our sedentary behavior is responsible for a 147% increase in developing heart disease with a 50% greater risk of dying from all causes. But nearly 150% increased risk of having heart disease when we are sedentary, when we're not exercising. This is not rocket science. Again, our genes, our cells expect us to move. If we're not doing it, we're a ticking time bomb. According to research published by the American Heart Foundation, the antidote, the researchers found that walking for an average of just 30 minutes per day can lower the risk of heart disease and stroke by 35% and lower the risk of type two diabetes by 40%. The researchers called it "a wonder drug". If this was front page, "Lower your risk of heart disease and stroke and diabetes by 40% with this new wonder drug." Ask your doctor, none of you are going to be asking their doctor. This is free, going for a walk.

So, you're not going to see that. It is a wonder drug, wonder drug. But whoa, wait a minute. It's not really a drug though. Like, I'm not going to like go get a prescription and I'm going to pop this thing and get these apparent benefits. No, I'm going to do something. And this, again,

getting into lexicon and framing and how we see a drug as this Captain Save-A-Hoe, essentially this save all thing that we're going to be able to take this thing and get this effect, right? Whereas with exercise and movement, this wonder drug requires a new approach to things and more of an activity than taking your hand and putting it towards your mouth and popping a pill in. Alright? But still, the results are even better than the sh** that we put into our mouths from said prescription. It's crazy. It's crazy. Now the question is, again, are we doing it? Do we have the right framing? Do we know that this is what's possible? Or are we shielded from that somehow where we know superficially, yeah, I know I need to exercise, my doctor said whatever, but are you getting a prescriptive science-backed approach with the same leverage that the physician is giving? Is he giving that same adamant leverage for you getting your steps in versus you getting this prescription filled? Probably not.

Not to say that... We're not talking about the character of our healthcare workers. You know what we do. Many of the top professionals, the top physicians in the world in their respective fields are my friends and colleagues. I've brought them for you here on The Model Health Show. And we have a systemic problem where we're treating symptoms. We're not actually teaching patients how to be empowered and how to live healthfully and peacefully and empowered within their own bodies. We're just passing out drugs to treat symptoms. We're not removing the cause of the disease. And it's not okay. We have a $4.2 trillion healthcare industry here in the United States. It's propping up. Our economy is dependent upon it at this point. Alright? 'Cause we're in debt, we're in big debt, alright? I would not trust our government with the loan. You know what I'm saying? We are in so much debt. The bookies, the muscle guys would be coming for our government. Alright? You're not paying up. They're coming to break your legs, the government's going to be swimming with the fishes if the government was a person. But it's a system. We're not okay. We're not okay. And our sickness as a society is propping up and holding our economy up right now with all the problems that we have. It's dependent on us being sick in order for it to keep running at this pace. Again, $4.2 trillion annually coming out of our pockets, even if we... Insurance, right? No, it's still coming from us.

We've got to do something different. Alright, moving on. The question is, why is walking a wonder drug? Why is exercise a wonder drug? Why does exercise in particular work so well against diabetes, for example? Again, 40% reduced risk just from walking. Not to mention strength training. It's because muscle is the primary site for insulin resistance in the body. When we're talking about insulin resistance with diabetes, muscle is the primary site for insulin resistance to take place. It is muscle that is responsible for upwards of 80% of glucose disposal. When we're consuming glucose, when we're consuming these carbohydrate and sugar rich products, upwards of 80% of that needs to get into our muscles. What if we don't have much muscle? Guess what? This is going to be in our bloodstream tearing up sh**. This is why muscle is so important to build. It's a depot, it's a sponge to help our bodies to adapt to the glucose that we're consuming.

It is muscle that is a reservoir for amino acids that help secure metabolic performance and support healthy aging. Muscle is a reservoir for anti-aging compounds. It is muscle that is the most powerful endocrine organ that we have the power to substantially control. You can make more of it when you want. The question is, do you want it? And I hope that with this episode, and this, again, science-backed understanding of why exercise, the truth about exercise and why it really matters, it has inspired you to engage in exercise and movement at a whole new level. And also advocate for this for your friends and family and community. Now, let's dig in as we close things out. What are the specific forms of exercise that you need to get all of these incredible benefits that we've just noted? Well, number one, I'm going to start with strength training because if we're talking about targeting our muscles, there is nothing more efficient and effective than actually engaging in some strength training.

And there are a variety of ways to do this. Obviously, we got the old school barbells, we got the dumbbells, we've got body weight exercises, we've got unconditional tools and equipment, steel clubs and maces and battle ropes and sled pushing and all this cool stuff. And by the way, I have a lot of these tools at my house. I've just been picking up a tool here or there over the years. Now we've got this amazing assortment of fitness related tools for us to engage in strength training and also to keep it fresh and fun, do these variety of movements. I get my fitness equipment from Onnit, go to onnit.com/model. You get 10% off their incredible fitness equipment. And also, they're one of the premier companies in the world for human health and performance when it comes to supplementation and foods. And they also run some clinical trials for some of their supplements. And they're all earth grown nutrients. They're all real food-based nutrition. So definitely check them out, again, get 10% off their fitness equipment and everything that they carry, you know, huge fan of their steel clubs and maces. I have a bunch of them.

I just love them because, again, it cuts down that barrier to entry, cuts away the excuses of, you know, I don't have much to do strength training with. So again, head over to check them out, onnit.com/model. That's O-N-N-I-T.com/model. You must strength train. It is required. Your genes expect you to do this. So, the minimum effective dose noted in the research is two days a week. You can do full body press, pull, squat, lunge, two days a week, alright? And you can get all of these benefits. And of course, there are so many different ways, you know, there are different splits, and you can get fancy and you can do body parts and you can do super sets. There's so many different ways of strength training we've talked about on many of the episodes of The Model Health show. But just number one, strength train, put it into your regimen. Number two is walking, of every form of exercise, this is the one thing that we are designed to do. Alright? Can we do a Turkish get-up with a one pod kettlebell? Yeah. Can we back squat? You know, my son Jordan, 400, 500 pounds. Yes, we can do it, but are we designed to, do our genes expect us to do that? Hmm. We can do it. We can get incredible benefits. All

of these incredible, you know, the muscular development, the release of all of these, you know, again, it's an endocrine gland, the release of HGH and all these great things.

But the thing that we are designed to do is to walk. We are bipedal. Alright? We're up on these twos. Alright? We're walking around. This is what we're designed to do. And if we're not doing it, guess what? We're going to have the manifestation of disease because we're not doing the thing that our genes require us to do. So, walking daily, you cannot, I cannot stress this enough. You cannot overlook this. It's so simple, but it's so powerful, right? And so, you can also blend these together. You know, you could do your strength training workout for 20 minutes and then go for, you know, a 20-minute walk, right? It's not like you have to try to fit all this stuff in and figure it out. And also, you got to put a priority on yourself. Cause you might be like; I don't got time. Walking is too slow. Cool. Well, walk and talk. You know, get on a call with your best friend or walk with your kids or significant other, or, you know, listen to a podcast, alright? You can stack things. Alright? Start to habit stack so that you can get your walking in because it is so essential. And also, if you want to live longer, walking is the fastest way to get there. Alright?

Ironically, if you're like, it's too slow, walking is the fastest way to get there. According to a study published in the journal PLOS Medicine, Public Library of Science Medicine, walking for just 11 minutes a day is enough to extend your lifespan by two years. While research from Australia's University of Sydney shows that swapping one hour of sitting for an hour of walking daily can slash a risk of early death by about 14%, that could mean roughly nine additional years of life.

Yes, please. Alright? So, walking. Number three, sprint. Now, when I say sprint, I'm just saying move quickly. This could be upper body, this could be lower body, battle ropes, for example. This could be a SkiErg. This could be utilizing a stationary bike, a recumbent bike. This could be sprinting out on the streets. This could be at the track. This could be... There's so many different ways. Shuttle... You know, the "suicides", which is a terrible name for a drill, but my youngest son is in AAU basketball and they're running the court, you know, running back and forth. So, there's so many different versions of doing sprints, but this is one of the things that helps to keep you young and vital. Power is what we lose over time. It's not necessarily strength as far as what's correlated with longevity, it's losing that power, that explosiveness, we have to train those fast twitch fibers. Plus, we get all these cool benefits with sprinting related to our metabolic health. Alright? So again, we've done past episodes on that, but once a week at least, one to two, but at least once a week, do something where you're moving quickly.

You don't want to lose the capacity to move quickly. Alright? That's part of the reason that people are not out here when they're in their forties and fifties and sixties and seventies playing and having fun with their bodies is because they slow down, right? It's just like this,

you know, it's this mindset of I'm not supposed to move fast, right? And also, that being conditioned to be sedentary, right? And so, if you do try to move fast, something can happen. Alright? So, you got to train for it. Number four is plyometrics and balance training. Alright? This is something that I've overlooked in the past, alright? For a long clip, it was just implemented as a part of my routine. Every week I was doing box jumps and lateral movements along with heavy deadlifts and all this. But then I moved to California. I was working on a book; it's called Eat Smarter. If you happen to have heard of it, it's a USA Today national bestseller. No big deal. No big deal. But I was working on this book, and I got away from doing that form of training.

You're just asking for a problem. Again, if you don't use it, you lose it. So plyometrics and balance training. So, this is like being able to jump, being able to balance. So, being able to do things on one leg, right? So, one leg squats. You could use a chair, right? Just be able to lower yourself and/or stand up using a single leg, just standing on one leg, you know, doing a one leg dead lift. You know, RDLs. This could be literally getting a slackline and working on your balance. This could be just when kids are, you know, when you were a kid, you probably did stuff where you see a thin line of something, maybe a curb, and you walk along that, like find ways in your environment to balance yourself and plyometrics. In particular, being able to jump, you know, box jumps and just, you could jump on stairs. There's so many different ways that you could find... You could jump from side to side, lateral jumping. You've got to train these things because when you get out and play, if you're not training these things and then you do something that your body has not been conditioned to do, you might be asking for a problem. So, again, especially as we are putting this plan together, implement at least one day of plyometrics and balance training.

And number five, most importantly, number five is to make sure that we are engaging in play. Play is the most powerful form of exercise because it's not just this kind of linear thing. It is all senses, all encompassing. And this word play is synonymous with vitality and youthfulness and our childhood. And the society steadily just beats the play out of us. Stop playing so much, you play too much. Alright? We have these things that we say in our culture, especially in the culture that I come from, right? Who you playing with? Don't play with me, right? And we start to reduce the amount of playing that we're doing in a broader scale. And so, it truly is one of the most important ingredients because the most powerful form of exercise is the form of exercise that you'll do because you enjoy it. Give yourself permission to do that more.

Whether it's roller skating, whether it's ultimate frisbee, flag football, whether it's pickleball, whatever the case might be, give yourself permission to do that thing, that form of play that you enjoy the most. As George Bernard Shaw says, we don't stop playing because we get old. We get old because we stop playing. I appreciate you so much for tuning into the show today. If you got a lot of value out of this, please share this out with your friends and family. You can

tag me. I'm @shawnmodel on Instagram. Take a screenshot of the episode, share it out. I'm also on Twitter. I'm @ShawnModel on Twitter and @The Model Health Show on Facebook. And of course, you could send this directly from the podcast app that you are listening on. I appreciate you so much. We've got some powerful masterclass world class guests coming for you very, very soon so make sure to stay tuned. Take care, have an amazing day, and I'll talk with you soon.

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