**How Cold Water Treats Anxiety, Depression and Chronic Pain – Mark Harper, M.D., Ph.D. – #956**

Dave Asprey:

You're listening to The Human Upgrade with Dave Asprey. Today, we're going to talk about cold water, not about whether you should drink cold water, but actually what happens when you swim in cold water? What happens when you soak yourself in cold water? Of course our friend Wim Hof has been on the show. He's graced the stage of my biohacking conference and he's always fun to hang out with.

Dave:

He's made some waves in the scientific community, but still it's kind of fringy, but I think it's changing now. I think it's appropriate to give Wim some credit for saying here's my lipo polysaccharide levels. I can withstand things other people can't, it's the cold water. But now there's a lot more science coming out on that. I found a guest for you who knows exactly what's going on with some medical knowledge.

Dave:

What you're going to learn in the episode is how you can use cold water on things like depression, anxiety, PTSD, arthritis, migraines, and how to have your own cold water practice. That can even cause stem cells to work, better immunity. I'm also going to have a little bit of skepticism and I'm going to display strategic laziness by saying seriously, I don't want to do that. Just wait till I troll our guest today.

Dave:

Speaking of our guest today, he's from Brighton in the UK. I'm not sure exactly how to say that with the right Brighton accent, but he's going to teach us. That's basically in England where they look out at France and make rude gestures, depending on what decade you're in. He's an MD and a PhD, and he works halftime in Norway. Normally, he's about keeping people warm because, well, he is a doctor, but now he's making him cold, but not in that way I just implied. He has a team at the Extreme Environments Lab at the UK's Portsmouth University, and they're doing clinical studies of sea swimming on depression, anxiety. That's why I wanted to have him on the show. Not to mention his new book, Chill, The Cold Water Swim Cure, a transformative guide to renew your body in mind. Mark, welcome. Thank you for coming on the show.

Mark Harper, M.D. Ph.D.:

It is a pleasure. I'm so glad you have me on.

Dave:

Now, it's kind of amazing. You're in Norway and we're just having this casual video chat. It would've been pretty difficult for me to fly to Norway or for you to fly to me here in the dark gray Northern parts of Canada. I'm just technically, I'm feeling pretty grateful that we can just have this chill conversation. See what I did there. Now, you're a medical doctor and suddenly you're getting into cold water swimming. I've always thought it was kind of nuts.

Dave:

I remember when I was getting my MBA, a group of friends would wake up in the middle of the night, something like six in the morning or something, and they would go for a cold water swim in San Francisco Bay. I always thought they were nuts. I never joined them just because it was too early and

plus it was cold, but they swore that it was completely changing them, but it was always this hardcore, almost like masochistic, like watch what I can do kind of group. Are you one of those guys? You're like the, I'm going to see if I can endure, I'm going to struggle and suffer. Was this your vibe when you started getting into this or was this something else?

Mark:

It's completely the opposite. I was like you. I've always been a pool swimmer. That's my exercise. That's how I get my training, how I keep fit is in the pool. Then one summer nearly 20 years ago now, I was complaining to an old friend of mine. I said, look, the pool shut for a couple of weeks in the middle of the summer. The pool's shut, no training. It was a bit boring. Isn't it? Said, go and join the sea swimmers. I didn't even realize the club had a group of sea swimmers. I said, when do they swim? They said seven o'clock in the morning. Well, when? They said, all year. No, really?

Mark:

I didn't even realize the club had a group of sea swimmers. I said, when do they swim? They said, seven o'clock in the morning. Well, when? They said, all year. No, really? I was just as shocked as everyone else. But the pool was shut. I wanted my swim, I needed my exercise. I went down and swam around the pier the next day. As I was walking back up the beach, it's about a mile, probably not even that. I was walking up the beach and this is the middle of summer so it's 20 degrees Centigrade, was at 68 Fahrenheit, something like that.

Mark:

Walking up the beach and thinking, God, this feels really good. I just wasn't expecting that. I was just expecting to have a swim and those two weeks, which is the initial plan has turned into, as I say, nearly 20 years of doing it myself. But, when I go into the water and it's really cold, I'm still ... I'm not hard about it at all. This is something I'm really keen to get across about it is it's not about being hard, be the dipper. Don't do the thing. Wim Hof, yeah, he's incredible. Isn't he? But he is an amazing physiological ...

Dave:

He's bat shit crazy. I've told that to his face. He's a friend. I love the guy, but he does stuff because he can. He has this energetic perspective on cold and how it's his teacher and breath. He's just not like most people, and that's okay. What I'm trying to figure out is, is cold water swimming always going to be this unusual group of people who are either really sick or just really like, I'm going to charge forth, or is this something my mom would be doing?

Mark:

That's really interesting. I think 20 years ago when I started doing it, that's what it was, but certainly in the UK and actually to an extent in Norway, over the last five, 10 years, it's changed. Now it is more and more people. Particularly, over the pandemic when other forms of excise were closed, the one thing, certainly if you live near cold water, the one thing you could do was get into the cold water and get a swim, get a dip. People tried it, they came out, and they felt good and they've kept doing it.

Dave:

I'm seeing it catch on as well, but it's endorphins. You get in the cold water, you get a bunch of when you come out, especially you have this huge endorphin rush. Of course, if you're anxious and depressed

or even dealing with PTSD, a big wave of endorphins helps enormously. Is there something going on besides getting a hit and couldn't I just take a cold shower and be done with it?

Mark:

Yes and no. First of all, it's not just endorphins. I think that's quite important.

Dave:

I know it's not.

Mark:

The endorphins get in, but it's the main driver of that feeling is you noradrenaline and your adrenaline, and that really kicks in. That's kind of what you get from cocaine. That is what you get from cocaine. It causes release of these things, but when you do it, you put your body in the water, your body's releasing it naturally. It's got natural ways of controlling it. It doesn't have the negative effects, I suppose.

Mark:

I did a TV program with a doctor called the Doctor Who Gave Up Drugs, Chris van Tulleken. Yeah, this was where we basically started out on our way of saying, well, actually this really does work for depression, anxiety, but that's another story. But anyway, the first time he went in, afterwards he came out and he said to me, God, if this was a drug, they'd make it illegal. But what you say about the shower, yes, you can get it from the shower.

Mark:

However, it's not as effective. The thing is, to get the effect or ... Getting to cold water is a stress. It's all about the benefits of you. You feel good because you get this release of all these chemicals, but you also adapt to cold water, but getting into cold water, there are two factors which determine the amount or the extent of this stress. The first is how cold the water is. The second is how quickly you get cold. If the water coming out of a shower, it's probably 58, 70 degrees, maybe something like that. 68, 70 degrees. That's not as cold as most cold water that you like to swim in, certainly in Canada, certainly in the UK.

Mark:

You get your maximum physiological effect. Although you get maximum vasoconstriction, that's one of the main things. All your blood vessels to your skin shut down. That's one of the ways you react to the cold. With cold water, you react, you get that at 68 degrees Fahrenheit. It's not that cold. You get more of an effect lower down, but you are getting a significant physiological effect at 68 degrees Fahrenheit. Most places can deliver that, but it's not going to be as effective as getting into something cold. Of course, you have a shower you're not hit all at once. It's not as if you're totally immersed. You're just getting splashes, as it were.

Dave:

How much better is swimming in cold water outdoors for you versus either a really cold shower or just standing in really cold air for three minutes?

Mark:

The cryo chamber probably works quite well, but that has to be a lot, lot colder because air doesn't contain air. Air has such a low what we call thermal heat capacity. That has an effect. Yeah, if you've got a cryo chamber, I think you probably get the same effect in terms of the cold. With a shower, you can get an effect. There was one study which showed that people who took cold showers as opposed to those who didn't spent less days sick off work. You do get an effect. You get an effect if you wear a wetsuit when you go into the cold water.

Mark:

But for me, the cold water isn't just about the cold water. That has a massive effect and that's a really important part of it, but it's the whole package you get. Most people, I always recommend you swim with someone else. A lot of people I know swim in groups, including myself, you have a lot. You're being in group, you're reducing social isolation. We know that's a really important factor.

Dave:

Community and connection to others is a massive reason to do it. If you have an organized event, but that's going to be once a week usually. Or are you at a place where you do it every morning?

Mark:

Yes, in Brighton, they do do it every morning. There are a lot of people who do it every morning.

Dave:

Wow.

Mark:

But saying that, I think the frequency at which you do it probably once a week is enough to really reap the majority of the benefit. You get a bit of a boost if you do it every day. But if you're doing it once a week, you are probably getting as much as you really need.

Dave:

The studies that I've found, showed that in mice, that after three days of cold exposure, there was a shift in the fatty acid composition of cardiolipin inside the mitochondrial membrane. It's funny because when people start doing cold showers, which is worth doing before you do your first cold outdoor swim, at least I think, the first day, no one can do a minute of cold shower if they hit them right in the face because you get a headache from it.

Dave:

But the second day you might go 10 seconds, 20 seconds first day, second day, 40 seconds, third day a minute. You're still swearing the whole time and you hate your life. Then the fourth day when you finish, you're like, that wasn't so bad. I'm actually relaxed. I feel great. That three day period matched what I'm guessing is just all mammalian mitochondrial behavior where suddenly your cells shifted to be able to make more heat more quickly.

Mark:

Yeah. There are two ways looking at this. There were two approaches to beginning to research cold water as a therapy. I could have taken the re the route where you look at these really interesting and

important things like cardiolipins and you say, wow, that's how it has an effect. Maybe we could do it through this and that's three minutes. Or you can take it from the other end and say, look, I suspect this works. I feel good. I'm not depressed. We know it reduces inflammation and we know inflammation is associated with depression. Let's see if it works.

Mark:

Then as time goes on, we can start really digging down into these fascinating aspects of how it works. I think I got the idea for this eight, 10 years ago now, and the problem has been getting funding for it because it's exactly what you say. It's not a randomized control trial. There's no drug company out there going to make millions from it.

Mark:

The UK, certainly the funding bodies there, the government, they want to encourage you to work with industry. They have no real interest in finding something that's pretty much free as long as you've got access. I think maybe it's easier to get access in the UK where we're surrounded by water, and that's been a big problem actually. But yes, it's bio hacking it is stress response hacking. That's what I'm doing.

Dave:

What you're doing is you're saying, well, it's probably not going to hurt you, and so let's see if it works. If it does, you got the results you wanted and we can dive deeper into mechanisms later if we want to. If not, we can just do what works as long as we're not seeing evidence of harm. That's kind of how a lot of sick people get well. When you get this vasoconstriction in the skin, whether it's a cold shower or a cold water swim, probably more in a cold water swim because of water pressure on you, it's going to put way more blood into the brain. Right?

Mark:

I suppose there's the one part of it is the brain is pretty well perfused all the time anyway, but I think again, I'm coming back to my biohacking rather than my scientific hat. My PhD, that's on stopping people getting cold, as you say. That was all proper studies as it were. But I'm stray into the bio hacking, as you're saying. I don't know what goes on in the brain. For me, the best ... I can talk about the cortisol, the serotonin, the dopamine, the noradrenaline and so on. But for me the best, again, going back to the, what happened, what do you feel? What do you experience? The best description comes from Jill Bolte Taylor, have you come across her.

Dave:

Oh, absolutely. She's been on the show.

Mark:

Oh, fantastic. Yeah. Her experience of having a stroke, knowing she's having a stroke and not caring about it, because that was the left side of her brain. All that stuff, which is fear, which is time, which is the future, which is all that kind of stuff, that was just bounced out. She just came totally into her body. She was at one with nature and full of empathy and things like that. This is the feeling I get. Here in Norway, I have a 10 mile cycle to work. 500 meters before I get to work, there's a lake. I get there. My head's all sort of going round and round. I've got all that chatter going on. I'm hot, I'm sweaty.

Mark:

Get into the water, when I come out I'm a different person. It's like, oh, isn't the world amazing? Isn't this just a great place? I feel so good. I feel so calm. Her description, obviously on a completely different level to mind, but it really reflects my experience. Here we're talking experience rather than details of circulation and oxygen and whatever. I don't know whether it's because it's taking your concentration away from your mind and into your body. I think that's really something. That's how it feels.

Dave:

Why is sticking your face in cold water so much worse than even sticking your balls in cold water?

Mark:

I think there are a couple of things about putting your face in which are worth bringing out here. The first is your face has so many nerve endings in it.

Dave:

Why is sticking your face in cold water so much worse than even sticking your balls in cold water?

Mark:

I think there are a couple of things about putting your face in which are worth bringing out here. The first is your face has so many nerve endings in it. Your face and your hands. They're the ones. They have so many nerve endings. You really have to use those. It's your interface with the world. Evolution has left us with a lot of nerve endings in there. We want to protect our face. We want to protect our head, our brains, things like this. We are really sensitive to our faces.

Mark:

The other thing is that ... You put your body into cold water and it gives you a sympathetic stress response. But when you put your face into water, it actually stimulates the parasympathetic nervous system. Your rest, digest, chill out, and anti-inflammatory response comes from putting your face into the nervous into the water. I think that's part of the reason why you have a kind of different effect from putting your face in, and that's it.

Mark:

If you actually go swimming in a hole, if you just put your face in and you've got a high vagal tone, you're super high on vagal tone. It's over the top, but the thing is, if you get into water that, sets off the sympathetic response. You put your face into water afterwards, it more balances it out. The benefit from putting your body into water is more about the adaptation to cold, the adaptation to stress, and that reduces your inflammation and your inflammatory levels. Whereas putting your face into cold water, that actually has a direct effect on reducing it. You have a long term effect from body in cold water. You have an immediate effect from face in cold water.

Dave:

I did not know that the face activated a different part of the nervous system. That's really important. Do you measure heart rate variability ever when you are doing cold swimming or not doing cold swimming?

Mark:

Not yet, but it's on our list and it's a study we are doing at the moment because I think that's a really interesting way of starting to dig down into the mechanisms. I think that's a really interesting way to approach it. I'll have to tell you the results in a year or two's time, but I think it's a really interesting.

Dave:

It's intriguing because we do cryo at Upgrade Labs at some of our locations. By the way, guys, ownanupgradelabs.com if you're in being a franchisee, but cryo is optional for that. We do see in general members HRV goes up and we're doing all the data analysis from huge amounts of data to tease out if someone does three of our interventions, which ones are the ones contributing to an increase or decrease in HRV and we're getting HIV from whatever wearables they have. It's almost like instead of doing a proper study, you could just tell everyone, Hey, do you have a Whoop or an Aura or a Fitbit or whatever. Give us your data when you go cold swimming and see what happens. It could be interesting.

Mark:

Yeah, really interesting. I'd love to see that data. I've been in contact, the guy who's driving this bit of research is an expert in heart rate variability.

Dave:

Okay. You're going to be looking at for sure.

Mark:

He's a heart rate variability nerd. He says that Whoop and the things like that, don't give you accurate enough information. Their response rate isn't quite quick enough, but it'll be fascinating to see. I'm not convinced by this I think you probably could see broad changes. It'd be fascinating to see if you do notice differences with your methods.

Dave:

One of our Upgrade collective members here, Ski, did track his HRV with a polar strap and says before, during and after a cold plunge, which isn't swimming, but it's at least a plunge, his HRV goes up, but if he does a sauna, it goes down.

Mark:

That's interesting.

Dave:

What about saunas? Should we be doing what the Norwegians, given that you're Norway, do? They hop in the sauna, then go roll in the snow or dip in the frozen lake and then go back in the sauna. Do you play around with that? Do you have whole communities of people [inaudible 00:22:47].

Mark:

Only for pleasure, not for science, I would say. Yeah, there are a couple of things. One thing is quite interesting is so I went to this conference on thermal regulation and the scientific con conference. What I was fascinated about coming from the cold side of things is that a lot of what you see from our end is mimicked from the hot side of things. It's thermal stress and thermal stress can be cold thermal stress and thermal stress can be hot thermal stress.

Mark:

It does seem that you can have the same effect from a sauna, but what they were doing, what they had to do is actually raise your internal temperature quite high. You are actually becoming hyperthermic. Whereas we get into the cold, I think one of the important things is you don't become hyperthermic. You stay in long enough, exposing yourself to the cold is stressful and that's good. This is how we're hacking our stress system is by getting used to that stress.

Mark:

Whereas actually becoming hypothermic is always bad for you. This is why I come from my PhD is all about stopping people getting cold during surgery, because when you actually become hyperthermic, you lose your thermo regulation, you become hyperthermic, you have more complications. But the other aspect of saunas is of course getting in and out. Is it safe to get in and out? Yes, it is. It's just a fantastic ... I've got a friend who lives a few miles away. She has a lake at the bottom of a garden. She has a sauna. Last year, lake totally frozen over, dad comes out with the chainsaw, cuts a hole in the lake, and there we are warm up first and then go in, and then going into the water.

Mark:

It's so much better than if you ... It feels so much better than if you go in cold. The reason for this is your core is really protected. You vasoconstrict. You shut down all the stuff to the skin, all the blood supply to the skin when you get in cold water. Your body naturally does it. Then your fascia, your fat, or your muscles, they act as a kind of storage heater. If that storage heater is cold, you've got no spare. You can't stay in that water very long. You're going to become hypothermic very quickly. But if that storage heater is heated right through, you've been in a sauna, then you've got more time and it actually does feel better I find. I find it feel so much better if I go into the water warm.

Dave:

It seems a lot easier to do a cold swim if you just got out of a sauna, that's for sure. Just like if you're living somewhere where the indoor heating is always set to some ridiculous temperature all winter long. You go outside without a jacket on, you're kind of like, ah, but it's because you're already too hot.

Mark:

Yeah. Sweden has the highest temperature, internal temperatures in the world. They keep their houses, their thermostats are set the highest in the world.

Dave:

No kidding. I wonder why they do that. It's also the highest amount of coffee consumption per capita. It's an odd and cool country, but those words do not apply to Saab automobiles. Those were definitely not cool. I just have to say, sorry. Now you talk a lot in your book about community. I know in certain parts of the world, like Norway, all of Scandinavia, parts of Russia, the sauna is a thing you do. It's a community thing, it's co-ed, it's naked and all talk to me about you're riding your bike to work. Would you just strip naked? Are you wearing a Speedo underneath this? How do you handle the dressing undressing community? Is this usually a bunch of dudes? Is this co-ed? Walk me through the cultural dynamics of cold water swimming and how it works in real life, because I'm confused.

Mark:

I think there are a lot of different cultural dynamics is what it comes down to. I cycle to work. I work in Norway. I cycle there. I swim on my own basically, but whereas when I'm in the UK, we've got the swimming club and it's got a little, it's an arch. It's got a kind of shed under the road as it were, where we go. Lots of people, have got a hundred members. Usually 20, 30 people there every morning from seven o'clock or actually from 6:30 in the morning, they're 20, 30 people. We've got somewhere warm and out of the wind to change. That makes a massive difference.

Mark:

During lockdown, we weren't allowed to use the changing rooms. It was super cold. Then you go into the sea, there's always someone to swim with. You go into the sea, you splash around. We get a lot of waves, certainly in the winter. Some days it's swimming days and other days it's waves days. You just play around like kids in the waves. Then you go back in, you have a shower, get dressed, go on and have coffee together.

Dave:

Afterwards, do you take a warm shower or do you just drink the coffee to get warm?

Mark:

The best way to get warm either before or after cold exposure is from the inside out. Getting cold from the outside, warming up from the outside just doesn't quite work. If you do that before a swim, you actually cool down quicker. By this, I mean using exercise. That's the best way to do it. If you go into the shower, it's not about having a hot shower, wouldn't recommend the hot shower, but a lukewarm shower, that's what I really like.

Mark:

Particularly, if it's been super cold, my hands, I can hardly move my hands. Just keeping your hands warm, getting a bit of that. Luke warm and I don't stay in for very long. Then I carry on cycling, and occasionally I have to drive down, drive for my swim and it's just not as good. I really notice the difference. I haven't used that exercise. I haven't got my body moving before I've got into the water.

Dave:

Okay. That makes sense. I asked Wim Hof the same thing. I think last time he was on the show and he said like, it's okay to finish warm, but it's better to finish cold. Most people say finishing cold is the right way to do it. Of course, you want to rinse salt water off your skin and things like that. It seems like you could even burst some capillaries. If you take a really hot shower after getting out of a really cold water, because the blood vessels are going to be asked to do on natural things if you're taking a really hot shower. It wouldn't even feel good. Right?

Mark:

Yeah, no, totally. I think this is the problem. There's a lot of speculation out there that are, you go under a hot shower. You faint because you suddenly vasodilate very slowly. But the problem is because you vasodilate very slowly after that swim, after that kind of cold exposure, the blood isn't moving that heat away from you. A temperature of a shower that would normally be fine for you, actually you can damage the skin. You can actually cause a scold by having that kind of hot water. I work on the principle it's the lowest temperature that feels comfortable. Now I hate a cold shower. I'm perfectly happy getting to cold water. I hate a cold shower.

Dave:

Interesting. I notice too. Well, I guess if you're in the ocean, you have enough currents, but if you're doing an ice bath, which a lot of people do, the water's not moving around. You sit there and you actually build a little buffer of warm water that you heated up around you. But if you have a chilled cold tub with circulating water, the way I do it, it's constantly moving across your body. It actually cools you much more quickly than just sitting in a static ice bath.

Dave:

I believe with almost every biohack that's out there, whether we're talking light therapy, electrical stimulation, cold water, we are going to figure out the rate, duration, and timing of application that causes specific physiological changes. There's probably some special treatment where you hot, cold, hot, cold three times, and then you do the hokey pokey and you become enlightened. I have no idea. But there nuances I would say that none of us knows yet that will tease out.

Dave:

But what I wanted to ask you about was about some of the specific things you mentioned in the book about, say, chronic pain. A lot of people have chronic pain. I had it for much of my life. I just thought you were supposed to hurt all the time. Especially in my upper back and my joints. I've diagnosed with arthritis when I was 14 and I don't have chronic pain anymore. I also do cold therapy and many other things. What have you seen with chronic pain and cold exposure?

Mark:

Well, I think it is really interesting. There a couple of really good examples from the book. Yes, there's David, who I saw was in his seventies and he is had crippling arthritis. I mean, literally crippling arthritis. He gets himself out of the bed in the morning. He comes down, he has to walk maybe a mile down to the beach, gets in the water on his crutches and gets into the water. He says, that means that he doesn't need to take his opioids until midday. This is a guy who really doesn't want to take opioids.

Dave:

Wow.

Mark:

He's tried going cold turkey and he just can't do it. He's an amazing guy. But I think also particularly interesting was one of the guys we had down, joined our courses. We ran these courses as part of a clinical trial and we run them, generally, just as therapy now. But as part of a clinical trial, we ran these courses for depression and anxiety. We got people who were clinically diagnosed with one or other or both of them and got them to do an eight week course of sea swimming. It is about 30 minutes. Totally, probably 15 to 30 minutes in the water. Not especially cold. Somewhere between, I don't know, probably 50 and 68 degrees Fahrenheit.

Mark:

It was all about depression, anxiety. Grant suffered from chronic pain. He was a really fit guy, semiprofessional, cyclist, surfer, but kept on having blowing discs in his back and has so much pain. He came along because he was depressed. He said, look, it's a really lonely place was one of his things about it. He was about to get referred on to the chronic pain clinic and he was hating this and thinking

about antidepressant and all that kind of stuff. He came along, he saw a thing on the BBC. Said, right, I'm going to try that.

Mark:

He went along for his depression, but he noticed coincidentally that his pain got better and he has not needed that referral to the chronic pain clinic as a consequence. He's got this pool. He swims in the sea, but he is also having this pool up in the things. He says, the chill pool, that's my Tramadol.

Dave:

There's some amount of toughness that's important. Especially for men, but for some women as well, there's sort of the walk it off mindset. It's just a flesh wound, to go back to Monty Python. Well, that kind of works, but that's not what you're talking about here. It's that teaching the body it's not going to die from being cold for a little while. Because it feels like you're going to die at first. Somehow it feels like when you show the body just chill a little bit, like you don't have to be stressed over this, that it may have a more systemic effect. I know that it helps with sleep to do stuff like that. But there's something else going on. Is it neurological or is it psychological? What would you say?

Mark:

I think it's a whole package. I think I've heard you talk before about the poly pill and the poly exercise and stuff like this, and that's what you're getting with this. On one point, you've got definitely a psychological thing going on. You build resilience by just getting into that water. Sarah, who's the first patient we took in ever to cold water to test our theory. She afterwards, after her first proper swim, she said, God, that's the hardest thing I've ever done. She was so proud of it. She felt so good from it.

Mark:

But the other thing is it also has a physiological effect because getting into cold water regularly means that your body kind of downgrades its stress response, it downgrades its stress level. Stress is good. Inflammation is good. Inflammation is our first line of defense against bacterial attack. But what we want to do is keep that in the physiological zone, the zone that's good for us. The trouble is so many of us are running at a level where it's too high, our baseline's too high and we go into those peaks, which are too high in that really pathological zone. What you get from cold water swimming, regular cold water swimming is that baseline goes down and those peaks go down and this is what we see with your response, your breathing response, with your heart rate response, with your blood pressure response.

Dave:

What about migraines? I was really intrigued in your book. You're talking about a specific person. You don't have tons of trials, but someone with chronic migraines, talk to me briefly just to find what chronic migraines are versus occasional ones from eating MSG and what the treatment was and what the results were.

Mark:

This is a girl called Beth and she was having 28 migraines a month, so pretty much every day she was getting a migraine. A migraine is a whole body experience. You're just totally flattened. She was doing a PhD. She had to give up her PhD because she just couldn't get out of the house for long enough. You have auras. You have funny feel. Your head goes weird. You have pain.

Dave:

Nausea.

Mark:

Nausea. It's just dreadful. The WHO says that a day with migraines is like a day being paraplegic. It's that bad. This is what I find really interesting. We don't have the trials, but what we have is people who have started doing cold water swimming for another reason. She said she read something about nature therapy and said, okay, look, I've got to do something. I can't work. I can't do my PhD. I want to go out and be in nature. Yeah, let's do that. Oh, how can we be in nature? Well, let's go down and swim in the sea every day. She made this wonderful film called a hundred days of vitamin C, which is CSEA. She documented what happened, but she didn't go down to cure her migraine.

Mark:

But she found that her attacks became less and that they were shorter. It meant that she was able to finish her PhD. It had that effect. Hasn't cured them. She still gets them, but it's calmed them down. I think as with a lot of these things, it's the effect on inflammation. Although interestingly, with migraines, there's something about them being generated from the trigeminal nerve. The trigeminal nerve is what takes signals takes those pain signals or takes sensory signals from the face. It's what links with the vagus nerve, which what's linked with a parasympathetic nervous system and reduces those levels of inflammation. Unproven, but it's kind of a bit more than the coincidence.

Dave:

Walk me through what you've seen from cold water swimming and fibromyalgia.

Mark:

Again, that's another of these cases where it was someone who came, he came on our course, one of the chill courses, Martin. He came on our chill courses for anxiety, but he had fibromyalgia. He came in and again, he said it worked for his anxiety and he noticed that his symptoms of fibromyalgia were reducing. I thought, this is ... And he's come up with this fantastic comment, which I keep coming back to which he came out and he feels alert, alive with a sense of euphoria and achievement. Now, if you've taken a pill, you do not get that. If you've been in the water, you do get that. Whether taking apart the effect, the actual effect on the condition, I think that says a lot. It's just the whole difference about it. Interestingly, I'd just today been reading a new scientist about fascia and we don't know much about fascia. We've always thought the fascia, the connective tissues in our bodies, it's just a sack of nothing.

Dave:

It's more than that, for sure.

Mark:

Exactly. It's such a complex thing. I think with a lot of things, so there's one, is this level of inflammation. How do you decrease inflammation in these difficult to get to organs? It's there all over the body, but I think it's difficult to access, because it doesn't have a massive blood supply. It's kind of a cleaning up things, isn't it? The heart, the lungs, they take the blood supply. I think so there's the inflammation side of that and also stretching and getting out. I don't know. There's something in that fascia that I think we

are missing. There's a good evidence that that's kind of what we are looking at with fibromyalgia. It is in the name, fibromyalgia. Fibers and muscles.

Dave:

There's definitely an overactive immune system and the immune system includes the fascia. But like you said, you can't get a lot of chemical signaling into the fascia planes. That's more touch. It's more temperature, it's more light, possibly sound. There's all sorts of weird adhesions and things that happen. I've done a lot of work on fascia and there are these domains where people really know what they're talking about, even like somatic therapy.

Dave:

The problem is if you look at the Venn diagram overlap of medical schools and those, there is no overlap between those. They're really ought to be. An open-minded perspective on that would say, well, there's a tribe of healers over there. They're doing some weird stuff. We need to figure it out. What I've come to understand is that if you can increase mitochondrial function systemically, generally, things like that get better. But oftentimes, that means removing root causes that were causing the electrical issue, which causes an over enthusiastic immune system. It's a messy problem. But if you're finding that when people do cold water swimming, that they're getting improvements in fibromyalgia, that's a relatively affordable thing to do. If that cold water exposure could work for you, heck, it's worth a try as long as you're not so fibromyalgic that you wouldn't be able to get out of the water, because that could be bad.

Mark:

Yeah. But that's the thing. I think what's great about cold water therapy is it's something that your body has control over. Yes, you get boosts in all these chemicals in the body, but when you're not bringing in from outside your body ... Every single system you've got the parasympathetic and the sympathetic. You have something pulling in both directions, the dynamic equilibrium, every single system in the body. There, your body has control of it. It's just pulling back. It's you've got control over it, even though you might be boosted up.

Mark:

By strengthening the pulling back of the parasympathetic nervous system, you bring the sympathetic nervous system back into where it should be. I think this is why it's so good. You are unlikely to do yourself damage as long as you're sensible about it and let's face it, you don't need to be in for very long, just, I say three minutes and put your face in three times. That's all you need to do to get a really significant effect.

Dave:

Who should not do cold water therapy? There's got to be contraindications.

Mark:

There's got to be, but they're actually relatively few. I would say there's a very uncommon, but actually really serious condition called cold urticaria. That is where you have this kind of awful allergic reaction, I suppose, an anaphylactic reaction to cold water or to cold generally. People with that shouldn't do it.

Mark:

But then a lot of people worry about the heart, and actually get into cold water, if you can walk down to the beach or get in or whatever. Particularly, if you can get out of the cold water that you're going into, your heart is probably good enough to take it. What kills people with cold water isn't actually the heart. It's not the cold suddenly cause your heart to beat harder and giving you a heart attack. It's more likely to be the fact that when you first start swimming in cold water, you can't control your breathing. You start hyperventilating.

Mark:

This is part of the problem in the way that treat for anxiety, depression is it feels like a panic attack, but you can't. What happens is people go in, they go straight in, they take a lung full of water before they started. That's the thing that stops people from going in, that kills people. The other thing is you've got to be a bit careful the first time you start doing it because you get your body in first and then your face, because otherwise again, very unusual, but that sympathetic response can fight the parasympathetic response. You get this thing called autonomic conflict and that can send your heart into funny electrical rhythms, which isn't good for you. But on the whole, if you can get in, you can get out safely. It's pretty safe.

Dave:

Overall, the risks are low medically. The risks are low from a predator perspective. If you swim in a place with weird worm and ameboma parasites, well, then you should probably know better. Other than that, I think it's a low risk and especially the sticking your face in a bowl of cold water, that's remarkably effective. It's such an easy way to start. If your goal is to go cold water swimming with your friends in the ocean or a cold river, you might consider doing that for three days first, just so that you won't be quite as shocked when you get in.

Mark:

Yeah, absolutely.

Dave:

Is that a good way to go?

Mark:

That's a great idea. Do that, do the cold shower, get accustomed to. This is an important part of it is getting accustomed to it, getting used to it before you do it. Yeah, it's also important to point out you get the benefits at pretty high temperatures. I think anything below 20 degrees, you're going to feel a significant benefit. In terms of your body adapting to it, the maximum or the minimum temperature you have to go into is 10 to 15 degrees Centigrade. What's that? 50, 50 odd, 55 degrees. Something like that. It's not that cold. It doesn't have to be ice water. Just go into cold water pretty much.

Dave:

That's actually, we're talking about for a little while. You always go through these phases of saying more cold is good. Then you want your water to be at 33 degrees Fahrenheit or 0.1 Centigrade. But that is relatively hard to do it. It's really intense. Is that any better than something that's 60 degrees? Or I don't know what that is in Centigrade.

Mark:

I'm sort of bilingual. It's all right. No, absolutely not. In fact, it's possibly worse. I do find the colder the water is, the longer and the more intense the buzz I get out of it, but I'm in for virtually no time at all. It's a couple of minutes, three minutes max. Again, you got to look at the proportion of the fact, you don't get any more benefit in terms of adaptation and things like this. It probably just feels a bit better maybe when you get out.

Mark:

I think in terms of your health, there is nothing to be gained and actually probably worse, because that temperature is actually begins to be painful and that's not much fun. I wear gloves and shoes in the winter. I'm not hardcore at all.

Dave:

Got it.

Mark:

The only thing is, I think if you are in long enough that you get control over your breath here. Even when you are a seasoned swimmer, a seasoned cold person, you go in and you still you get that initial shock and it's a minute maybe, maybe a bit longer and you're past it. You think, ah, that's all right now. It's the same when you put your face in. It's a few seconds. If you put it, take it straight out, it just hurts. But if you put it in, you keep it in five, 10 seconds and you are past that initial shock, I think that's all you need to do.

Dave:

Mark, your book is called Chill, The Cold Water Swim Cure. It's so interesting to see the perspective of a medical doctor who's been doing this for 20 years and see what a difference it can make for all these different conditions. My call to action for you would be read Chill, The Cold Water Swim Care. Even if you decide you're not anywhere near somewhere where you're going to go for cold water swim, like you live in the desert, you probably want to incorporate more cold therapy via any mechanism you can get, whether it's cold face, cold shower, cold plunge, cryotherapy, just doing that a few times a week I think has long term physiological benefits that are worth it.

Dave:

It's okay to be a little bit lazy. It's also okay to make it part of your community time, where you get to hang out with other people who care enough about how they feel to go do it. I think that's the big point of the book is that you're getting the sense of community and the connection to nature and the physiological benefits all at once, which means it's highly effective from a time spent activity for you. Mark, thanks for being on the show.

Mark:

It was an absolute pleasure. Really enjoyed it.