Ben Greenfield

Hey, it's Yuri and welcome to this special interview in the Fat-Loss Summit. Today I'm interviewing my good friend Ben Greenfield.

When it comes to fitness and exercise physiology and human performance, Ben is one of the smartest people on the planet. I'm telling you. If you've ever followed his work over at BenGreenfieldFitness.com and if you've read any of his articles, you'll know that he's the real deal. He's somebody who goes into a topic and goes deep. He gives you everything he possibly knows about that topic, and it's all research-backed. It's incredible.

If you read his *New York Times* best-selling book *Beyond Training*, you'll know what I'm talking about. If you haven't read it, it's an amazing, thick bible of fitness and human performance. It's awesome.

Here's the cool thing about today's interview. Ben is not going to be wearing a shirt, and I'm going to be wearing this weird, cool icepack vest on my torso. You might be asking why on earth I would be doing that. Today we're talking about a really, really cool strategy to help your body burn more fat by increasing your metabolic rate by doing nothing more than cooling your body. Yeah, I know it sounds kind of crazy, especially if you're scared of the cold like I am—believe me, I live in Canada; we get pretty cold up here.

Ben's going to show you how to harness cold temperature to actually speed your body's ability to burn fat. This is fascinating stuff. Ben is going to bring it. Sit tight, maybe even bring the thermostat down a little bit for this one, and you'll see the benefits why.

I'll see you in the interview. Let's get started.

Yuri: Guys, welcome to an unusual interview in the Fat-Loss Summit. I'm here with my good friend and fellow *New York Times* best-selling author and amazing overall guy and really, really smart fitness dude, Ironman triathlete, just really, really awesome Ben Greenfield. How's it going, buddy?

Ben: It's going well. I've got my goose bumps going on.

Yuri: You guys might be watching this and wondering why is Ben without a shirt on, why is Yuri wearing this odd icepack-like, shoulder pad contraption. What we're talking about today are the benefits of cold thermogenesis as it pertains to fat loss and overall health. Let's jump into this. Ben, how did you come across the benefits of being cold? Why should we spend more time shivering?

Ben: Well, unlike a lot of people who I think are probably discovering this kind of stuff these days reading magazines or leaflets from cooling-gear companies, I just discovered this from growing up in north Idaho and going out in the snow and the rain and the cold and figuring out intuitively that the more I did that, the better I felt in terms of my ability to maintain low body-fat stores and also the ability to keep myself warm. Something was happening physiologically—I didn't really know what at the time—that was actually helping me to heat myself better when I got into cool environments.

Later, probably three years ago, I had a guest on my podcast named Ray Cronise, who's this former NASA materials engineer. He kind of gave up working at NASA to delve deeply into the science of cold exposure—cold-water immersion, cold showers, cold walks—and the effects that has from a health and fat-loss standpoint and even a sports-performance standpoint on the body. Since I spoke with him, I've really taken a little bit more of a deep dive into this stuff. Literally.

I just got done with a swim in my pool, which is not super-duper cold, but it's enough to where if you're in there for about 20 to 30 minutes, you get out and you're slightly shivering or goose-bumping; it's at about 60 degrees. I do most of my showering in complete cold water. I try not to go near the hot-water side of it. Because I live in Washington State, unlike, say, Florida or somewhere in the Bahamas, the water is actually cold when it comes out of my shower.

I wear the cooling gear, like you are, especially in the spring and summer, when things start to get warm, when I'm at work, but it's not cold. Right now, my office is at about 55 degrees. It's in a daylight basement and it stays nice and cool down here. If I do something like a cold shower in the morning or the cold swimming, like I did this morning, and then I work with my shirt off, I'm able to actually burn more calories and delve into some of the other benefits I imagine we'll talk about when it comes to cold exposure.

That's really kind of how I got into this initially. It was just being in the cold, suspecting that it did something for me, then getting a guy on my podcast, and taking a much deeper look at things after that.

Yuri: Yeah, it's pretty cool. I've grown up in Canada, Toronto, my whole life, and it's terribly cold in the winter. What I've realized since going deep into cool thermogenesis in the last little while is that it's a mind-set shift. It's just saying instead of complaining about the cold, this actually has a lot of benefit, and I'm just going to enjoy this. For me, that's been a huge shift.

Ben: It's interesting what you say, too, about the mind-set shift. When you look at sympathetic nervous system activation, like fight-and-flight nervous system activation, a big, big part of that is brought on by our vagus nerve's interaction between or central nervous system and our environment—our periphery, our skin, our heart, our gut. All of that communicates with our brain and our central nervous system via the vagus nerve. Now, if the feedback is stressful—like, let's say cold water against your skin, for example, is sending a stressful signal to your brain via your vagus nerve—that activates a cortisol response, it activates a stress response, it activates that running-from-a-lion response.

There's actually a term that's given to this in science when it comes to water specifically or cold exposure specifically called the mammalian dive reflex. It's that sharp intake of air that a baby takes when it comes out of Mom's birth canal; it's the same sharp intake of air you take when your face hits cold water or when you jump into cold water, when you turn on a cold shower.

If you're able to consciously get yourself into a state where you're inhibiting that mammalian dive reflex where you are, through breath control, through your mentality before the cold water hits your face or before you get into the cold water, you're consciously lowering your heart rate, the same way that—pardon the violent analogy—say, like, a sniper would before they're going to take a shot. Those guys can consciously lower their heart rate; they can control their nervous systems through their breathing and their thought patterns.

By engaging yourself prior to cold-water exposure to be resilient, when you get exposed to it, to *not* take that sharp intake of breath, but to just get into the cold shower or get into the cold pool or take off your shirt in a cold room and not think anything other than, hey, this is perfectly normal, you make yourself more resilient to stress and you train yourself how to consciously regulate your nervous system, specifically that fight-or-flight response. It's a really good stress-control strategy as well.

Yuri: It's interesting, too, because I dated a girl who was from Russia for a number of years when I was in high school. I remember her dad was in the military, and then when they moved here to Canada, he obviously was no longer in the military.

I remember speaking to them on several occasions during the wintertime. I would complain about how cold it was, and they were like, "What are you complaining about? This is just the way it is." I've known a lot of Eastern Europeans who just become hardened to the environment; it's just because that's what they know, and they don't even fuss about it.

Ben: Part of it is getting psychologically hardened, but part of it also—and this is the interesting thing I think a lot of people don't realize—fat cells don't really die. There's very little evidence in the literature that you can experience what's called apoptosis with fat cells, actual death of fat cells. Instead, when you lose weight, whatever fat cells that you've created simply shrink because you're sucking the fatty acids and the energy out of them when you're exercising or eating fewer calories or doing whatever it is that causes you to lose weight.

However, there is one thing that can cause fat cells that would normally be just waiting there on your waistline, waiting to store away fat and calories that you eat, there's one thing that can cause them to get converted into a more metabolically active cell. That is cold exposure. What it can do is take white adipose tissue, or white fat cells, and convert those cells into brown fat.

Brown fat is not only more dense and less likely to create an aesthetically unpleasing appearance—if you have your shirt off or trying to look good in a swimsuit or whatever—but it also will take calories and use those calories that you eat to generate heat rather than, say, like ATP or energy to contract a muscle. What you do is increase your metabolism and you increase your ability to generate heat and you increase your conversion of the white fat cells into the brown fat cells. When you see someone who, say, has been exposed to cold a lot during their lives and it doesn't bother them as much, it's not just psychological; it's that they actually have more brown fat tissue.

One of the things that you'll hear a lot of people say, when I look at a polar swimmer or one of these people who spends a lot of time swimming in lakes or the group in San Francisco—I think they actually are called the Polar Bear Club or something like that; they swim in the Bay down in San Francisco—they're kind of chunky. They have this thick layer of insulator brown fat. People get concerned. They say, "If I start doing cold exposure, aren't I going to get chunky? Is my body naturally going to start to create all this fat to insulate me?"

The answer is yes, if you're in a state of caloric excess. If you're giving your body enough calories to where it can satisfy all of its metabolic needs, but then it has some left over to create fat, if you are using cold thermogenesis, your body is more likely to use those excess calories to create brown fat rather than white fat. But if you're combining cold thermogenesis with caloric restriction or even caloric balance, you will lose weight.

You're not going to create more brown fat; you're going to convert some of the fat that you already have into brown fat, but that actually has a leaning appearance, assuming you're not creating a net excess of fat, period, which you won't be if you're not in an excess state of calories. Basically, the idea here is that it's not going to make you fat unless you're eating too many calories, but if you're restricting calories or if you're in caloric balance, it's simply going to improve your appearance.

Yuri: That's pretty cool. I was at an outdoor spa about an hour away from my house with Amy, my wife. It was kind of a combination of hot tubs or hot springs and really, really cold pools. We spent the day just going back and forth between the two. By the end of the day, we were *starving*, and we had a big breakfast, big lunch, and we were just famished. Everything you're talking about here makes total sense because your body's becoming more metabolically active when you're putting yourself in those situations that are a little bit more stressful.

Ben: The hot-cold thing is really interesting for a couple of reasons. First of all, that's something that you can replicate without necessarily going to the hot springs and the cold pool. That's a great experience; it's good for everything, from hangovers to appetite—well, in your case, giving you a bigger appetite. You can replicate that at home by doing what's called a cold-hot contrast shower.

This is something I originally heard from this guy Ray Cronise, who I was talking about at the beginning of this conversation. What he does with his clients, who he's using cold thermogenesis technique for fat loss is, in the morning and evening, they do a five-minute shower that's comprised of 20 seconds of cold, followed by 10 seconds of hot 10 times through.

Some people go even as far as taking a stopwatch or timer or one of these vibrating watches that you can set up to have intervals so they'll know. When I do a hot-cold contrast shower, I just kind of feel it out. I'm cold for a while, then I'm going to go hot for a little less long than I did cold, and then back to cold. This hot-cold contrast shower is something that you can do every day.

In addition to that, one of the things that you get from the hot and cold switching to an even greater extent that you get just from the cold is a big dump of what's endothelial nitric oxide synthase. That's a precursor to nitric oxide, which you can basically think of as being Viagra for your muscles.

You vasodilate a lot of the muscles around your body, and when you do the cold, you constrict, and when you do the hot, you dilate and go back and forth. What happens is you get better glucose and oxygen delivery to tissue when you do that. It's almost like taking a fire hose to your arteries in the same way that you might get when you do an interval training session or exercise.

There's this really cool cardiovascular response that might be part of the reason in addition to the cold why you had the bigger appetite. You're simply shoving more glucose in the muscle tissue. You get a little bit of a hypoglycemic response. Ultimately, it's another really, really cool way to use this technique.

Yuri: It's very cool. With the shower, you're talking about very cold to pretty warm? It's not somewhat cool to hot? You want to shock the body.

Ben: This is one of those things that we can't say there's been clinical research on. It's all anecdotal and n=1. I actually had Ray speak at a conference that I did here in Spokane, and he showed some of the fat-loss graphs from his clients who are using this technique.

Again, a lot of anecdotes; I don't think there was a control group or anything like that. But he was only using around 55 degrees for the cold, which is actually not teeth-shattering cold, it's not icy, icy cold, but it's pretty cold. Most showers will get down to 55 degrees. And the heat was just warm, it wasn't burning-hot or scalding-hot, which actually isn't that great for your skin or hair, really. It was just warm. In this case, it was kind of warm but kind of cold; it wasn't a shocking switch.

Yuri: Nice. When I was working at the University of Toronto with the men's soccer program, one of the things we instituted was ice baths that the university had brought in. It was, especially during preseason, when we going twice a day, six days a week, the guys were jumping in there after training, and they felt like a million bucks after spending a couple minutes in there.

Let's look a little bit deeper as to why cold therapy or cold thermogenesis, what it does at the muscular level, inflammation-wise, with the immune system and how that's beneficial to anybody watching this.

Ben: Sure. You will find that a lot of the research—and, in this case, even research that came out as recently as this week—will argue that ice baths don't actually work when it comes to shutting down inflammation or improving your performance the next day. One of the flaws I think takes place in many of those studies is they're being done on subjects were not in a state of, in my opinion, a high-enough amount of fatigue for those ice baths to have much of an effect.

For example, the most recent study, they were simply fatiguing people's wrists, like wrist flexion and wrist extension and then submerging that wrist and forearm into cold water. What they were observing that there wasn't a decrease in inflammatory cytokines and there was actually a loss of an improvement in muscular endurance and strength in the people who were doing that. But then when you take a soccer player who has finished 90 minutes or two hours of practice and their core is hot and they've got a much greater state of full-body inflammation and muscle damage, I think that it's a night-and-day comparison to some of this white-coat research that's done in a lab with people dipping their hands into cold water.

In that case, you get a decrease in core temperature, which can help the body heal a little bit faster, but interestingly, for people who are exercising in the afternoon and evening, that can enhance sleep, where a lot of neural repair and recovery takes place. One commonly known element of proper sleep hygiene is to make sure that your body is not all hot and sweaty before you go to bed, keeping your room cool, but also doing something like a cold bath or shower if you've had exercise in the later afternoon or early evening is also a good idea from that standpoint.

From an inflammatory standpoint, absolutely. You can get greater removal of metabolic-waste by-products out of the intramuscular spaces because what happens is you actually get that vasodilatory, vasoconstrictive effect, assuming that you're doing the ice and getting out and preferably actually take a warm shower or something like that. You come in hot, cold, then hot, until you get that shuttling of inflammatory cytokines. An ideal scenario, if you're looking at athletic performance, you would actually be going from cold to hot. The ideal scenario would be to have two tubs side by side.

That's the setup I have at my house. I have my cold pool and then my hot tub. On a typical Wednesday, for example, I'll swim for eight minutes in the cold water, get out, go to the hot tub for two minutes; back into the cold water eight minutes. I'll go through that for a 30-minute protocol, three times through. That gives you an even better blood-pumping effect when it comes to inflammation.

You also get a release of some hormones that can assist with appetite control and with the release of energy from fat stores. The former would be an up-regulation in leptin, which is a hormone that helps you to regulate appetite, and then the latter would be adiponectin, which helps you use fat for energy.

Then, of course, there's the catch-22 because it's well known that swimming in cold water in general up-regulates your appetite. You have to be aware of that. When you get out of the cold, you're going to be hungrier than normal. If you don't know that and you're not aware of it, then you could overeat or negate some of the effects you were going after if you were doing this not just for sports performance but, say, for fat loss.

You'd want to have foods around that you can kind of chew on that aren't high-calorie. You can do things like sparkling water and gum; you can do carrots and pickles and green tea or coffee or hot tea. All these things that kind of allow you to keep your munching busy without actually putting a lot of calories into your body. Interestingly, I just discovered miracle berries. Have you heard of these before?

Yuri: No, I haven't.

Ben: They make anything sour and anything a little bit low-calorie taste very sweet and satisfying. You simply dissolve one of these miracle berries on your tongue. I thought it was a complete hoax, and then I tried this. Things like lemon tastes like a sweet orange. A lime tastes like key lime pie. You can potentially just pop a miracle berry after you get out of the cold and go eat a lemon and you'll be good to go.

Yeah, to answer your question, from a sports-performance standpoint, it's primarily a release of inflammatory cytokines, a dump of fatty acid stores into the body that you can rely upon for energy, a decrease in core temperature, which helps with nervous system repair. Those would be some of the biggies.

Yuri: What's interesting about this is that it flies in the face of convention. You're talking about how cooling your body temperature before going to bed is actually going to help you sleep, which makes complete sense, but then these old wives' tales of taking a warm bath before you go to bed, having a hot cup of milk, we think we need to be warm and drowsy before we fall asleep, but it's obviously not the way it works.

Even with the idea that just spending more time being cold is actually really beneficial to our health instead of, like our parents, maybe back in the day, "Oh, don't go outside; it's too cold. You're going to catch a cold," and all this stuff. It's interesting to see all the research that's come out to actually support the benefits of cold therapy and cold thermogenesis.

Ben: Yeah, and to be fair, it is a hermetic stressor, which means it's something that, in low doses, is good for you. But if you were to go out and spend two hours in a cold pool, you probably would have enough of a stressor present in the same way that you wouldn't want to go out and spend four hours on the beach in the sunshine in the afternoon for you to have a deleterious effect. In this case, it's system suppression and you'd probably come down with a cold or fever or something to where your body is saying, "Hey, we're going to slow you down so you don't do this again."

And then regarding crawling into bed at night or warming the body with warm milk, my rule is that I know I'm at an ideal nighttime sleep temperature in terms of the temperature of the room if, when I take off my shirt and pants and get into bed at night to sleep, it's uncomfortable. Where I want to get under the covers because it's a little bit cold. That's the perfect temperature to be at.

When I'm traveling and walk into a hotel room, one of the first things I do is dial the temp down to as close as I can get it to 60. I have even been at hotels before we're I'll call the technician or front desk downstairs if the temperature won't go below 70, which they'll actually do to some—and we're talking Fahrenheit here—and I'll have them come up and adjust it or put me in a different room that I can get colder. I sleep that much better. For me, sometimes that's an extra hour of sleep every night.

Yuri: Totally. Better quality too.

Ben: Yeah, exactly. Deeper.

Yuri: You mentioned hot-cold contrast showers. What are some other simple things our viewers can do at home on a day-to-day basis to tap into the benefit of cold therapy and cold thermogenesis?

Ben: Drinking cold water is a very easy entry point, but it's not very efficacious and not as efficacious as a lot of people would like to believe. Splashing cold water on your face, slightly more efficacious just as far as an entry point, especially to get used to that mammalian dive reflex. Switching from hot showers to cold showers or finishing up your hot shower with a cold shower until you get to the point where you're very comfortable with that cold water would be another good entry point.

Dialing down the temperature in your home. And even in the winter, when you're driving around in your car, getting used to being just a little bit cooler than what you would like it to be; that's another one. You can see that Yuri's wearing a fat-burning vest. Is that the Cool Fat Burner?

Yuri: Cool Fat Burner for the upper back, yeah.

Ben: Yeah. That covers the areas of the body that tend to have high amounts of brown adipose tissue deposition, which is that active brown fat that I talked about. That's really good, especially if you're working during the day and want to stay cool. That company makes one called the Gut Burner or something like that as well, which goes around your waistline.

Cooling gear that you can actually put icepacks and things like that in is also useful. The cold soaks are also a good thing; they're psychologically probably the most difficult of anything that we've discussed. I've found that I can psychologically handle a really good intense cold soak only about once a week unless it's post-exercise. But post-exercise, I can hop in there 5 to 10 minutes easy, because you're already all hot and bothered.

If you're just going to do a straight-up cold session once a week and get yourself to the point where you're shivering and your teeth are chattering, about once a week is kind of... I don't think you need to do this every day. If you're already dong cold showers and keeping your house a little bit cold, you don't have to go overboard. Just a cold soak once a week is fine. Those are some of the main entry points.

The last thing I would mention is feel free to kill two birds with one stone. Take up the sport of swimming, but swim in cold water or water that's really below body temp. That's what I'll do a lot of times because then you're getting the calorie burning and cardiovascular benefits of the swimming combined with the cold exposure, and it's a really nice one-two combo. Those are some of the main things.

Yuri: Very cool. I want to finish up our interview. This has been great. For everyone watching, I hope you guys got some really small things that can make a big difference in the long run.

My final question for you is: I got this e-mail from this organization that said, "Unfortunately, the human race is about to become extinct because of this obesity crisis that we're facing." They asked me, "Do you know this guy Ben Greenfield?" I was like, "Yeah, I do."

They want to know, Ben, what is the number one thing that you would advise them to do to save the human species from this overweight-obesity crisis?

Ben: Number one thing that I would do, the biggest low-hanging fruit for me would be to hack your environment so that you only sit when you're eating. The rest of the time, you stand. When you're on the phone, you stand. When you're working, you stand. When you're waiting in line at the doctor's office or you're waiting at the Department of Motor Vehicles, you stand. Just that simple change will up-regulate your level of lipase, one of your body's primary fat-burning enzymes, keep your metabolism elevated, activate a lot of smaller core muscles, and keep you out of that sedentary, seated position that's so easy to stay in.

Just try that for a week. Only sit when you eat. That's it. Breakfast, lunch, and dinner, you sit. The rest of the time, you've got to be standing, walking, lunging, kneeling, I don't care. Anything except sitting.

Yuri: That's awesome. That's been such a common theme in a lot of these interviews: the real trouble and danger of sitting. That's some great advice. And everyone can stand a bit more. It's not like you have to go out and get a gym membership, right?

Ben: Right, exactly.

Yuri: Well, I know you've got to run, so thank you so much for taking the time, Ben. It's been a great interview. For all of our watchers and listeners, we will have a link to what Ben is up to below this video. Be sure to check it out. He's got some amazing stuff, an amazing book called *Beyond Training*, which I highly recommend you get and read. I look forward to seeing you guys in the next interview. Thanks again, Ben.

Ben: Sweet, thanks.