

Ep #91: Your Body is a Miracle



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Natalie Brown

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This is *Weight Loss Success* with Natalie Brown, episode 91.

Welcome to *Weight Loss Success* with Natalie Brown. If you're a successful woman who is ready to stop struggling with your weight, you're in the right place. You'll learn everything you need to know to lose weight for the last time in bitesize pieces. Here's your host, master certified coach Natalie Brown.

Hello everybody, happy gratitude month. That is how I think of November. I'm not really into American Thanksgiving, per se. I loved it when my grandma was alive. Thanksgiving to me was her. Her food, her sweet spirit, her warm home. So, after she died, it just lost its magic for me.

My husband and I have since turned Thanksgiving into a week to travel, and make memories, as a family. That are not based on food. Anyway, I digress. So, I'm not into celebrating Thanksgiving. I am really into giving thanks, and I like having an excuse to focus on it.

So, this gratitude month I am focusing on not making a random list of things outside of me that I am thankful for. But, on gratitude for my body, for all it does for me and allows me to do. So, I am doing a gratitude meditation every day this month; focused on gratitude for my body and really paying special attention to inviting the feeling of gratitude in.

I shared with you my struggles with this recently on the podcast. My block to feeling the feeling of gratitude. But I have persisted and worked consciously on it and my friends, it's getting easier and easier. As I am doing this, as I am meditating on being thankful for my body, I am noticing how often I am thinking about my body with more reverence and awe.

I have been watching and listening to shows and podcasts about our amazing human bodies, as well. I've noticed throughout my day; I am aware of little things happening in my body. Things my body does that just blow my mind.

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The other day, in the middle of my workout, at a really challenging point, I just felt overcome with gratitude for the fact that my body rises to whatever challenge I give to it.

I ask it to do really hard things and it just responds. It does whatever I ask it to do. What a gift it is to me, every minute of every day. It is keeping me alive without me really having to do hardly anything. I mean, I eat and drink water. But it is just churning along doing everything else, pretty much.

We get so caught up, so distracted, so misdirected, and start only thinking of our body as only having aesthetic value. We focus so much on how it looks, and so little on all that it does. I love the quote from Lexi and Lindsey Kite, "Your body is an instrument, not an ornament." Truly.

So, I want to dedicate this podcast to, and focus it on our miracle bodies, and hopefully you find something in here that blows your mind as much as it did mine. And gets you thinking not just about how your body appears but how it works, and how amazing it is.

One of the things I watched was a series on Netflix, called Human: The World Within. I just kept saying, no way, that is incredible, over and over. I learned knew things that I have never known in each episode. It was so fascinating.

So, I want to share some of the things that blew my mind most. I keep thinking about them as I am walking around in the world. And just marveling at all the mysteries the body holds that I never even and probably will never know.

So, some crazy things about your nervous system. There are 100 billion neurons in our brain and even more in our body. And we can train them to do anything. Everything we see comes into our brains as light through our eyes and then is transmitted to the brain as electricity. The electrical impulses are then interpreted and turned into our reality that we see, feel, and notice, by our brain.

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Every second, the eye transmits 10 million pulses to the brain. At a speed of 270 miles per hour. And then the brain has to figure out how to react to that information, right? The information is transmitted and then a conversation kind of has to happen about how to react and what to do. Our brain has to weigh the options, scan the memories for a past experience to use to help us determine what to do next. Or, come up with a brand-new solution because it is maybe a new experience.

Then, the neurons fire, communicating with electricity and chemicals that are released. New impulses are sent out to trigger the right muscles to react. This all happens in a split-second outside of our conscious awareness. All day long, constantly. Every neuron in the brain can form up to 10,000 connections with other neurons. And the connections change based on how much, and what we practice.

We have talked about this a lot on the podcast, right? The idea that we can create new connections and sort of strengthen those and let some of the old, non-useful ones fall to the wayside. It is happening all of the time.

When we first do something, the connection is temporary. But as we practice and the more and more, we do it, the chemical changes become structural. And the neurons can change shape and position. Pathways between different regions of the brain can strengthen with practice. Memories of how to perform certain tasks can last a lifetime, those connections.

That is why we use the phrase, "Like riding a bike." You do something you haven't done in years, and you know how to do it. Fear is triggered by the amygdala in our brain, and it sets a series of reactions in the body. Our pupils dilate to take in more light. Our heart begins pumping blood faster. Blood is rerouted from less essential organs to higher priority muscles that can kick or run, let's say. That's why you get butterflies when you are nervous, or scared. Because the blood flow through your stomach slows down, in order to go other places.

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Emotional memories are stored in the amygdala as well and will recall stored memories in a moment of fear to help you know how to react. The sympathetic nervous system is that fight or flight. But our parasympathetic nervous system is in our control. The sympathetic is automatic.

So, we can kick that in to help us calm down by taking deep breaths, getting present in the moment; that is how people can go through extreme emergency situations and not freeze, right? Be able to calm down and do what needs to be done.

Our spinal cord is like a superhighway that connects the brain to the rest of the body. It has 31 pairs of nerve fibers that connect to our extremities and organs. The way it is laid out allows the brain to interact with every muscle, organ, and cell in our body. All neurons in our body are interconnected. That allows us to sense what is always going on in the outside world.

Our nerves are super delicate, think about your spinal cord is nestled in bone and it's suspended in liquid to absorb shock. It is the most protected part of our body. Nerve fibers send a specific signal to your brain that says pain. When you feel pain, it is those nerves signaling to your brain that pain is happening.

This is the thing that I think is so cool. The brain sends back a separate signal, so you get the pain signal sent to the brain from let's say you hit your knee on the table or something, right? Your brain sends back a separate signal down a different track of the spinal cord to control the motor function where the pain originated.

So, when we touch something hot; you retract your hand immediately, right, without even thinking. That is what's happening. We get the pain signal that goes to our brain and our brain sends back a signal that says, move your hand. Instantaneously, it is so amazing.

Your funny bone isn't a bone. It is a cluster of nerves. Which is why when you hit it, you get a tingling all down your arm. It's the nerves getting pinched and then firing over and over in confusion. Isn't that so crazy? The

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same thing is true of your foot falling asleep. It isn't a lack of blood flow, or circulation like most of us think. It's a compressed nerve.

There was this amazing story about how this guy, who lost his arm below his elbow in a car accident. But still had—You've heard when people lose limbs that they have that kind of like ghost limb syndrome where they still feel sensation and tingling. He said one time he was at the beach, and someone threw a frisbee and he went to catch it with the missing hand. Because his brain kind of still thinks it is there.

So, there is this amazing lab in Florida, that is using him kind of like a guinea pig to try this new technology where they connect to those neurons, right, that are still connected to the brain. And have his brain use those electrical impulses in the nerve fibers that are still there. But just not connected to a hand to connect to a prosthetic. That he now cannot just use to—I mean you have seen people use a prosthetic to open and shut and grab things. But he is using one that can actually sense touch.

So, he can grab with this prosthetic, and squeeze something blindfolded and be able to tell what it is. Whether it is a block of wood or a soft block of foam, which most disconnected from nerve prosthetics the regular prosthetics can't tell the difference of.

They'll squeeze just as hard to a block of wood as they will to a block of foam, or a hand, whatever. So fascinating. So, they are able to create a continuous neuropath using electricity from that prosthetic hand to his brain. And he is able to sense touch and pressure. So cool.

Some amazing things about your circulatory system. This kind of—I think this whole episode blew my mind the most. Just in thinking about my body exercising and just existing and my heart and the fact that I love this quote from one of the experts on the show. “Your heart is billions of cells beating for billions of times in a lifetime, never pausing to rest.”

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I think—I obviously know my heart is always beating, but my mind was just blown at the idea of that. That even when I am at rest that my heart never does. So amazing.

Our cardiovascular system keeps us going, 24/7, 365, without us ever having to think about it, right? We can go three weeks without food, three days without water, and we can't even go three minutes without oxygen. All of our cells contain an engine that burns oxygen for fuel. We breathe it in and then our blood, powered by our heart, takes it to all of those cells. Our cardiovascular system's network of vessels inside our bodies if we laid it end to end. That would be 100 thousand miles long. Inside of our bodies, so crazy.

Your heart is the first organ to start functioning, and the last to stop. It beats more than 100,000 times a day. It's in essence two pumps, side by side. One takes blood in, and one shoots blood to our lungs to get oxygenated and then back to the heart to get pumped out to the body. After a minute, it all comes back to do it again. That cycle happens every second of every day.

During exercise, our heart speeds up so we can get more blood flow for more oxygen to our tissues. And the efficiency of that oxygen transfer from blood to tissue increases, so muscles can use the oxygen more efficiently. Over the course of a day, blood will travel about 12,000 miles through our arteries and veins. It is a system of constant motion. Even when we are at rest, it never is.

Once blood has traveled down the arteries to all the cells below the heart. It then has to travel back up to the heart, against gravity. And our arteries that take the blood back out to the body from the heart rely on the heart to pump the blood through them. But the veins have to rely on the muscles, electrical signals from the muscles. The muscles are the engines that get the blood back to your heart.

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So, when you tense your leg muscles, they propel the blood upwards. But it only works if the muscles are active. Which is why sitting for a long time on an airplane, or if you have a desk job, becomes problematic. That blood isn't getting pumped back to the heart with very much power.

The heart is self-sustaining. So, it pumps blood to the body, but then back to itself. That's also what it needs, is the oxygen from the blood to, you know, help the muscles fire. The heart pumps out five to six liters of blood a minute. Constantly circulating, with new oxygen that is breathed in every second.

Red blood cells are the only cells without a nucleus in our whole bodies. They're filled with a protein called hemoglobin. Hemoglobin is able to grab onto the oxygen we breathe and let it go at the right moment as it moves through our body. The crazy thing, that I learned from this, that I didn't know, is that hemoglobin inside all of our red blood cells circulating throughout our whole bodies is toxic to the human body. If it escaped even the tiniest amount, it could kill us. Isn't that so fascinating?

We have little brains all over our body, neurons. It was recently discovered that there are about 40,000 of them on the heart. Which means, the heart has its own brain, of sorts. The heart has nerves that come from the brain as well as nerves that go to the brain. So, it can be very responsive. It can beat faster or slower depending on the needs of the body.

When we lose blood, these neurons on the heart send signals and respond immediately to keep the body's cells alive. Your heart brain respond by beating faster, the breathing becomes shallow and quick, and hormones flood the blood vessels in the skin, causing them to constrict. The blood moves inward to keep vital organs alive. Which is why skin turns pale when people lose blood.

The heart is connected also to our emotional state. We feel panic immediately in our heart, right? Which is evidence that the heart is smart at being connected to our emotional state. The brain and heart are connected

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by the vagus nerve. The majority of messages in the vagus nerve, come from the heart to the brain. Positive social interactions light up the vagus nerve in the heart.

People who experience intense emotional disturbances, like grief after the loss of a loved one, or a breakup, can experience changes in the shape and strength of the heart. They call it broken heart syndrome. And the heart actually changes into this shape of a Japanese pot that has a narrow, or opening kind of a bigger bottom.

They think this is likely due to a large shot of adrenaline, from the brain to the heart in the moment of discovery of whatever trauma, whatever emotional disturbance happened, that weakens the cells of the heart. But this is the fascinating thing to me. I think, when the emotional state returns to normal, the heart can too.

The heart can change back shape to its normal shape once the person has kind of processed through and the emotional state returns to normal. It's so interesting. A positive emotional hormonal shock can also affect the heart in the form of oxytocin. It can put your heart at rest, and it helps reduce inflammation in blood vessels. So, little shots of oxytocin when we feel love, throughout our lives can have a therapeutic effect.

I think this is true of love that we receive, love that we feel coming from someone else or feel for someone else. But I think it is really important to think about how that is a gift we can give ourselves. We can give ourselves little shots of oxytocin, as we have gratitude and love for us, too.

Some interesting things about your digestive system. Your saliva binds the chewed food into a mass that can then be pushed into the esophagus and the muscles in the esophagus as they relax and contract and pulse the food down into the stomach. Those pulses are so strong that they can even work against gravity. So, if you hang upside down and swallow, the food still gets to your stomach. Isn't that crazy?

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Stomach acid is so strong it could dissolve metal. Muscles can change glucose into fuel without oxygen. All other cells need oxygen to utilize the glucose. Fasting allows your digestive system to take a break, and it also helps our cognition and our ability to learn. After eight hours, the liver runs out of sugar, out of glucose to process as fuel, and the body has to tap into fat stores.

The thought of food, or smell of food even can cause the body to release digestive enzymes. We don't even have to be eating before we even start. When we smell, or even think about food, that can happen.

Five times as many neurons are in the gut as are in the spinal cord. So, we talk about the heart having a brain. Your gut also has a little bit of a brain going on. 90% of the feel-good hormone serotonin is produced in the gut. 10 trillion bacteria live in our gut. Your immune system is in your gut, 80% of the immune cells that are in mucous barrier that protects the gut.

Your microbiome is controlled by 300,000 genes. By comparison, our DNA comes from a pool of only 20,000 genes, only, I say; 20,000 is still a lot. But I think this is so fascinating, that our microbiome, our gut, has multiple times the amount of genes controlling it, than even the DNA in our cells. I think this is something I definitely want to learn more about. It is so interesting to me.

Some fascinating things about your immune system. The oil that sits on the skin is antibacterial. Your skin is that first barrier for your immune system. We have about 20-ish square feet of skin, on our bodies. Below our top layer of skin is a layer 20 times deeper.

And if anything penetrates that by getting scratched, or poked, or whatever, your immune cells sense any foreign antigen that enters immediately. And blood rushes to the damaged area so that white blood cells can swarm in and kill the microbes by eating them. I didn't realize that the white blood cells—I knew they were involved, obviously, but I didn't know they were eating the microbe. I think that is so interesting.

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Then, the body has to repair the place where the microbes got in, where that cut was. It has to create new skin, right? Skin is constantly regenerating. 40,000 skin cells are shed per minute, and 50 million every day. That is kind of gross. It is kind of gross. No wonder there's so much dust in my house, right? Cells that repair the cut have a memory. So, a place that's been cut, or roughed up, or scratch before can heal two times as fast.

Water is essential for your immune function, to everything really, especially to clearing out toxins. Now, this is so interesting. Our T cells, which are part of our immune system, are tiny little power houses. They can make antibodies against other diseases. They work with signaling to other parts of our immune system when it needs help. They can kill cells that are bad on their own. They can inject them with the toxin that kills them. They can remember things to prevent future infections, or diseases.

They're born in our bone marrow and then they go to the thymus to be trained. So, some lead as those assassins that kill the cells. Others come out as intelligent, for fast detection and execution. The thymus is larger in kids, and peaks in teenagers because that is when the most exposure and training in T cells is needed.

There was this really amazing story about a kid who had been diagnosed with leukemia at eight. He went through three and a half years of chemotherapy. The cancer came back when he was 15 and then again when he was 20. And a physician heard about it—an oncologist, and came to ask him if he would be interested in trying immunotherapy, which is kind of a new way they are treating cancer.

Where they take these really super smart T cells and they train them to fight the cancer cells, specifically. So, they mutate these T cells and re-inject them into the body, and it took three months after doing this process for him to be cancer-free. Isn't that so amazing? So, to be able to use the power of our own immune system, our own bodies, to fight cancer, like, that's mind-blowing.

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Okay, some amazing things about your senses. All sounds become electricity, pretty much all inputs, right? Become electricity, that's what is inputted into our brain. Then our brain combines that signal with data from other senses to orient us to the world. Our previous experience adds to our sensory experience, right? Those electrical impulses come in, but then our brain uses other information to kind of put it all together.

Touch also becomes electricity and sends a signal to our brain. So, our brain can interpret what it is. It can encode an emotional aspect of the touch, or whether it is just a mechanical touch, right? You've had the experience of, you know, when that person that you like, that romantic interest touches your leg, versus just a random person on the subway touches your leg. Totally different experience in your brain.

We can sense the difference between a hug and a pinch. Or, one of those different kinds of touches. All of our senses can create emotion. One of the most potent emotional triggers is smell, though. Smell can reveal things buried deep in our unconscious mind, right? You can smell something and be immediately taken back 15 to 20 years, you know, to the time you were five at your grandma's house.

We can detect close to a trillion unique smells. Smells start out, right, as just pieces of air. Molecules that then waft into our nose and then cilia the little hairs in the nose pick up the molecules and direct them to receptors under the lining of the nostril. Whatever you are smelling is picked up by certain receptors and sent to the brain. Then, our brain processes the information, and the specific smell comes into being. We recognize it and name it.

Smell is 10,000 times more sensitive than any other sense. Did you know that? I didn't know that. I think that is so amazing. I knew that about my dogs, I did not know that about humans. Most senses are processed by the thymus. Smell signals bypass the thymus though and go straight to the olfactory bulb which connects to regions that are responsible for emotions.

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So, this is why smell has the ability to create feelings on a subconscious level. It's bypassing the thymus and going straight to the place where those regions are connected, those emotional regions. Smells are visceral, we love some, we hate others. This is a gift of evolution to help protect us and warn us of danger. We could smell if something is rotten, or if there was smoke and a fire nearby, right?

It takes about 30 minutes for the retina to adjust to darkness. So, in those 30 minutes you know you have had the experience of turning off the light and still being able to walk out of the room or whatever, right? Your brain will kind of put its own images of where things should be before your visual receptors acclimate.

So, it is basically projections of things in our environment. So, if you're to walk through your dark house that you are pretty familiar with that's why you can do that successfully unless there's an object your brain didn't predict.

Like I have a dog who loves toys, and her toys are strewn about my house most of the time. So, I can walk around my house in the dark knowing exactly where everything is but almost always step on a toy. Because my brain is not connecting that it is there. It is not usually there, right? So interesting.

There is a small subset of ancient ganglion cells in our eyes, this blows my mind. That were discovered in the year 2000, that was just barely, if you think about the science and what they've known about our eyes for probably, you know, I don't know, I will guess a century. So, these ancient ganglion cells they sometimes jokingly refer to them as like frog cells in our eyes.

They're photo receptors, which were completely missed in the study of the retina. So, you know, they knew about—before the year 2000, about the rotten comb cells in our eyes that take in the light, detect the color, and shape, and then turn that information into electrical impulses that are sent

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to the brain to interpret and make sense of and build the image that we recognize.

But these cells, these ganglion cells specifically detect the light environment subconsciously and relay that information to the circadian centers that help us regulate our bodies to the 24-hour light-dark cycle. I listened to an entire podcast just about this, about light and our eyes and the circadian system. It was so fascinating. It's on the Huberman Lab podcast.

I will link it in the show notes. So, you can look it up if you are interested. It's always mind blowing for me to listen to people who have extensively studied something super specific in this case, light, our circadian system, and our eyes. I mean I have a body and a brain, and I probably understand one millionth or less of a percent of what is happening in it. The more I learn the more blown away I am and the easier it is to be grateful for it, I feel like.

I have a couple of exercises for you and an extra challenge if you are up for it. First, I want you to take a few minutes to make a list of what you are thankful for about your body. Now, I am not talking about trying to love your stomach that you actually hate and can't stand the site of. Let's pick some more neutral parts of your body and think about function over form.

Write five things you are grateful for about your brain. What it helps you do, learn, know, et cetera. Write five things you are grateful for about your eyes. The beauty they allow you to see, the wonders of nature, the faces of your loved ones. Write five things you are grateful for about your ears. Not only do they allow you to hear music, laughter, and wind in the trees, but they also help you balance and stay up right. Write five things you are grateful about your nose.

All of your favorite smells and the associated memories and emotions. Write five things you are grateful for about your mouth. The conversations it

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allows you to have, the laughter, the kisses, the smiles, the delicious and nourishing food.

Write five things you are grateful for about your hands and arms; what you can hold and touch and life and carry, hug, and feel. Write five things you are grateful for about your hands and legs; all the places they allow you to go, sit, stand, drive, maybe dance, hike, or run. You can pick any neutral body part and focus on what it allows you to do and be in the world, not how it looks.

It may be hard to generate gratitude if looks are the only focus. So, go a little deeper. Meditation has been used as a way to understand what happens when you direct all of your resources towards something that is as internal as possible. Trying not to process any sensory information from the outside. Limiting information to just focus sensation. Detach from environment, cut off all senses, and go inside.

So, you can turn that exercise you just did of five things into a meditation as well. Go somewhere quiet and comfortable sit or lie down, turn on some lovely instrumental music set your timer for five to 10 minutes and then start with five deep breaths. Where you inhale for two, hold for two, and exhale for two counts, slowly and deliberately. And then go from head to toe, part by part, and think about all you have to be grateful for in your body. Focus on breathing in gratitude and sending it to those parts as you exhale.

Another exercise to try for more body gratitude is to write a letter from your body. Imagine your body wanted to tell you something, what it needs, loves, wants, what frustrates it, what it is thankful for. Don't overthink this exercise just write the first things that come to your mind.

Okay lovelies, I hope you spend some time in gratitude for the amazing vessel you live in this month. It works so hard for us. It deserves some love and thanks. More love is what my new program coming in 2022 is all about. I am going to teach my clients how to reach their health goals while

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developing huge love for themselves and their bodies. I am so excited about it. I have a growing waitlist full of women who are excited to do this work and lose weight with more love for them.

If you want to join them, and get some exclusive gifts and tools and help, as well as first access when applications open in January, just head to itbeginswithathought.com/waitlist. The very first thing you will receive is my Navigating the Holiday's toolkit. That will help you really connect to what matters this holiday season and avoid the weight gain and struggles with food that we so often feel this time of year.

Okay everybody, see you soon.

Thanks for listening to this week's episode of *Weight Loss Success* with Natalie Brown. If you want to learn more about how to lose weight for the last time, come on over to itbeginswithathought.com. We'll see you here next week.