

Why Movement Matters with Katy Bowman
PMR 137

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Tony: Hey paleo Nation, I'm Tony Federico and you're listening to Paleo Magazine radio, the official podcast of the original Paleo Lifestyle Publication. The 2016 Ancestral Health Symposium is in full swing and in just a couple days I'm going to be giving a talk called get up, stand up. A brief history of sedentarism and why movement is good medicine. If you're at AHS I'd love for you to check it out and if you do be sure to say hi. If not I've brought you the next best thing. Today's episode of PMR is the second half of a two part series dedicated to the Movement Movement. The last episode featured Mobility WOD's Kelly Starrett and today we're featuring Katy Bowman, of nutritiousmovement.com. Katy is here for her second PMR appearance and on today's show we discuss: the relationship between fossil fuel consumption and sedentarism, the effects of outsourcing the physical work of making food, textiles and technology. Why an hour a day of exercise just isn't enough, why environment not our bodies is the problem. The limits of mainstream exercise science, how to build movement into life, the importance of stacking habits.

How a minimalist approach can maximize your life and a little preview of what you'll find in Katy's upcoming book Movement Matters, which is now available for pre-order on amazon.com. Before we get started I want to take a quick moment to thank the sponsor of today's show Morrocco Method. An all natural and paleo hair care line. Earlier this year we had Anthony Morrocco, the founder of Morrocco method on our show. Anthony and I discussed how his career as a hair stylist led him to develop an all natural hair care line. How you shouldn't have to sacrifice your health in order to have great hair. We also talked about some truly paleo hair care techniques.

Anthony: For thousands of years we washed our hair and we took care of our scalp but we certainly used oils on our skin and hair for moisturizers. For example I'm Italian, in Italy for thousands of years they've used olive oil, the olive oil is from the olive, from a tree, the magical part of nature. Then say in Africa people were using ... They would take bananas and smash them and put them in their scalp and hair and moisturize their hair. Hawaii they were doing coconut oil, South America would be doing avocado. Then the Alaskans probably will be doing whale blubber.

Tony: While you certainly could make your own hair care products from avocado, coconut, banana and whale blubber you might end up attracting some unwanted attention in the process. A better choice would be to take advantage of the decades of research Anthony has put into his Morrocco Method line. It's entirely raw, vegan, gluten free hair care products that include the award winning five element shampoo collection. Each shampoo is based on one of the five essential elements: air, earth, water, fire and ether. Each of these special formulas work together to provide your hair with the nutrients it needs to be healthy, shiny, clean and manageable. Go to morroccomethod.com today and use the coupon code paleo hair to save fifteen percent off your next order. All right folks it's time for some nutritious movement, Paleo Magazine Radio starts now. Hey everybody welcome back to Paleo Magazine radio, I'm here with scientist, mum, author, podcaster,

Katy Bowman. Katy welcome to the show.

Katy: Hi. Thanks. I have rooster, you got my roosters-

Tony: You got a lot of [crosstalk 00:04:20].

Katy: In the background. Yeah I do, I have a lot of them, [inaudible 00:04:23], chicken farmer.

Tony: You got a rooster in the background adding some authenticity to the recording. You're actually at a farm?

Katy: I am, I'm on my house. I have six roosters right now, I'm looking at them in my outdoor workspace right now.

Tony: Very cool. You've been on the show before, you were actually our guest on episode ninety two that was one titled to move your DNA. We'll link to that episode if people want to check out your previous appearance on Paleo Magazine Radio. In case somebody is listening to this and they didn't get a chance to check out PMR episode ninety two, do you mind giving us just a brief, little summary of your background and how you got to where you are today?

Katy: I'm a biomechanist which is my academic training which is a science that applies physical principles, physics, Newtonian physics, pressures, gravity, compression to biological or living things, trees, animals. I just happen to specialize or study in humans and specifically human movement. You have biomechanists who can make prosthetics and who work in metals but that's not really my field. My field has always been movement, I've always been interested in human movement. How I arrived at what I do now is I went through undergraduate school and in graduate school really I think interested in ... I came from an exercise background, a fitness background but then I became interested in disease, like what makes a disease? Biomechanics I would say is heavier on the mechanics than it is on the bio, you're spending way more time studying physics and math. You're doing a lot of math models but in graduate school I think I found myself really pulled more to the bio end of things.

I had to do a lot of study after graduate school to I would say really bump up my level of understanding of basic biology, cellular biology, evolutionary biology. I think I probably added ten more years onto my training just by reading lots of other textbooks and working with other professionals who are not biomechanists where I could make models. We always work with models or trying to model stuff. That's where I am right now, I'm trying to figure out ... The questions that I have they still pertain to the exercise or fitness world because I do love human movement but I think I consider human movement in very broad terms. It would be the difference between studying exercise routines and now I'm really interested in how does movement fit into biology? Now I'm considering how does movement fit into ... What's the role

of movement in the ecosystem, in environmental science?

How does our lack of movement translate to pollution? Like, "Why do you need to buy so much stuff?" "Well because you don't really move that much ... " I'm really interested in the way we convert food, if you think of food ... Probably people listening are maybe super well-versed in food sources and raw material sources. There's been a lot of work to convert that to fossil fuel. How many fossil fuel calories does it take to make a dietary calorie? I'm interested in how much gas is being used because you don't use your own physical body to get the stuff that you need for life? That's where I am right now.

Tony: I mean you go back a couple of hundred years and there was no gas being used, there maybe was some coal or people burning pit and various other things for heating their homes. In terms of transportation there's horsepower, they're converting grass into transportation versus fossil fuels. Interesting, what are your thoughts on that? Let's just go down that path for a moment.

Katy: That's the book that I'm working on right now, there's a lot of thoughts but I would say that you can really look at sedentarism ... On our last talk we broke down the difference I would say if I recall between ... There's always been this idea of active and sedentary. If you exercise you're active, if you don't you're sedentary. Recently it's like, "Well, it turns out that people who exercise and people who don't exercise are still sedentary almost in equal amount." They only differ in terms of movement, a very small percent, less than five percent of the day. We're just sedentary exercisers then there's been this Movement Movement of going, "Okay, you got to get more movement in your life and minimal shoes allows your feet to move more, maybe reducing some of the furniture in your house allows your body to move more throughout the day.

"Maybe you walk to work and maybe you ride a bike." There's this idea like there's activities of daily life that you could be using your body more for. Then now I'm doing the leap beyond that to look at the movement it takes for ... If you turn on a faucet in your house, that's all movement you use to have to do to move water around. What about your food? Where does it come from? Is it in your backyard? If you go to the grocery store and you buy things out of season, what country is that flying in from? Then I'm looking at the less popular aspects of it which is modern human slavery that's happening right now. There are a lot of other people on the planet, enslaved people and a lot of enslaved children doing the movement for the things that we just drive to the store to buy and that's not-

Tony: People are wondering what you mean by that, they go for textile workers and factories in Bangladesh or some other country where we don't see where our clothing is manufactured but somebody is happening to do that work.

Katy: Or the minerals in your cellphone, right?

Tony: Right.

Katy: Conflict minerals. It's a lot of stuff, it's textiles but it's also food. It's like sometimes you go to the health food store and something like cacao, cocoa, bananas, coffee, these are foods that have slave histories that are going on right now. Just helping people to become more aware and go, "How could you move more? How could you want more of the things that are local to you?" There's two levels to it.

Tony: We didn't mention it but I guess that's where the title of the book comes from, Movement Matters?

Katy: Sure. Yeah. It's about it, it really does matter-

Tony: In more than one way.

Katy: It matters in a lot of ways and it matters to you. There's a lot little things in the book that have just been coming out in literature like research wise about apples. Just the simple thing of schools trying to offer kids healthier lunches and they gave them whole apples and they wouldn't eat them. Kids wouldn't eat them because they said, "It was too cumbersome to hold, they couldn't hold the whole apple and [the work 00:11:23] to chew a whole apple was too much for their jaws and teeth." Because all our food is cooked in puree. What are the mechanical nutrients in food that we've outsourced to the blender?

Tony: The chewing and all the action in the stomach where it used to have to take place.

Katy: We're just slowly becoming sedentary and I'm also trying to explore how does that happen? How do we a culture ... Like in biology or biochemistry you're looking at growing something, our culture is functioned similar to a corporation. It's interested in perpetuating itself.

Tony: It's self-interested in a way.

Katy: It's self-interested sure, totally. How does sedentarism become more and more pervasive when the culture is made up of at least some people who are like, "I don't want to be sedentary." That's because I think we keep relating movement back to exercise and you can't really keep exercising more, you have other things to get done. You've got families and diets and your life. You can't keep living your life to exercise. I'm just saying nature used to pack in movement into life and how do we go about doing that a little bit more? Then how do we become aware of little things like ... Did you see the research on millennials? The grip strength of millennials is going down.

Tony: I believe it, I've shaken some hands recently and was not impressed.

Katy: Right there you go, slopping hands around everywhere. It's going down and

what I was most interested in is the way that it was presented in an NPR piece on this phenomenon of twenty year olds having less grip strength than the same counterpart in 1985. I've had clinicians working with the numbers and like, "Yeah it's like a seventy year old grip strength because now [in 00:13:17] your below thirty men and women ... The way that it was presented in NPR reporting on how the researchers and clinicians reviewing this material were going to use it was to update the norms of grip strength that that was the problem. It was like, "Well we got to update these norms." There was a line that actually said something like, "Health norms really need to be updated every ten years like fashion trends." That is-

Tony: That's kind of depressing.

Katy: It's a misnomer that I'm like, "Well the good news is we're all stronger next year." Relatively speaking but the bad news is we don't have a very good set of tools for observing how the human species is functioning. That's always my interest biologically is what's happening to humans as a species? Not necessarily one particular group over another but what are the trends? When you keep adjusting everything downward and make your medical norms, one thing that doesn't necessarily translate to biological norms. That's what Movement Matters is about and that's the head space that I'm in right now because I'm almost at the [end 00:14:28] of that book.

Tony: Here's a question ... I mentioned it to you a little bit before we started recording today. I just had K Starr, Kelly Starrett recording, his episode's going to be coming out right before your episode. it'll be one week him then next week your episode will be out. One of the things he was talking about is just observing kids and how they run around and they play and they're active. They have all these movement drives then they get into school and they're having all those drives tamped down, sit still, be quiet, get in the desk, that whole deal. I'd wanted to ask him this question but I didn't get a chance to, I'm going to ask you. How much of our movement motivation ... How much does that wane just as a biological function? Let's take our current modern environment and society and labor saving technology and all that stuff out of the picture.

If you go back and you look at some hunter, gatherers do we see that we follow the typical animal model of playful, energetic kids then gradually descending into more and more laziness or economy I guess you could say as we get older just as an animal? Is that at play because if you talk about how corporations and the market place as a whole is capitalizing on saving us from moving, are we playing into that I guess is my question? Is it an appetite for laziness? Are we hungry for sedentarism?

Katy: I'm not an evolutionary biologist or even an anthropologist, my answer is going to be skewed through my own understanding of these things. Economy is a tricky word, I would say that if you're observing hunter and gatherer populations and there's a great book that I use a lot which is a compendium of literature on hunter, gatherer childhoods. If anyone's

interested there's a book called Hunter and Gatherer of Childhoods. I read no parenting books except for that one, it's not even a parenting book I figured I'd get enough of my own culture's perspective. To see other things like breast feeding and co-sleeping and grief and play and how those things play outside of my culture. I wanted that extra data points, it's a great book.

Tony: We'll link to it in the show notes, I was able to find it pretty easily.

Katy: That's amazing, you can definitely multitask. The play, culture's play there's definitely play, we play. I would say that a lot of the play that you see in hunter, gatherer tribes based on the literature that I've reviewed no direct of observing any tribes is it's play that serves a later purpose of acquiring a necessary skill. I don't think that you see a huge decline in movement overall in populations because movement is very much required for survival. You don't have the options, I would say that all of our physiology is probably working one hundred percent the environment socks that we're in. We're behaving perfectly as you would expect for this environment. We're not flourishing, the physiology it's demonstrating or exhibiting symptoms of deficiency in what I consider nutrients. Which is any necessary input whether it'd be movement or nutrition or sunlight or community or touch. All these things I really consider to be essential cellular responses in the same way that we understand dietary compounds, chemical compounds.

Kids are throwing ... They're not doing that much different type thing. They're climbing trees, they don't have the responsibilities placed on them, they're not required to bring home so many tubers or whatever. At the same time the games that they're playing are basically child versions of what their grown ups are doing. They're maybe stubbing lizards, they're collectively tracking those down, they're still digging and playing and I've watched my own kids. I think of my own child ... What are the games that I played? I played bank, I played supermarket, played family. My natural tendency to play might very well be just a natural mimicry of what the grown ups are doing around me that that's the actual feedback of you're going, "Oh, what are the grown ups doing? I want to do that." I become better and better, more economical where I can do what the grown ups are doing with less ... I'm not faking it so much, I become more efficient in that.

There's a lot of movement in hunter, gatherer children and also my own kids because you brought all this energy and they're watching and observing everything. They're like little pattern recognition machines and they're just doing it. If I guard in, if I'm playing by ... Training on the equipment in our backyard, they're simply doing what the grown ups around them are doing or-

Tony: Like wise if you're on your cellphone they're going to get that too.

Katy: They want to play cellphone, they want to play the thing, they want to play work, "I want to type, I want to do this thing." Because I think it's a very natural thing to be training from the get go of what the grown ups around you

are doing for survival purposes. I don't think that there is a natural tendency towards sedentarism, I do think that there's a natural human tendency towards expending as little as possible, that's why-

Tony: That's what I was getting at.

Katy: I do. I do think so. I think that it's your natural ... That's why I took the couches out of my house, it's natural to want to conserve energy. I don't think that there's anything in you intrinsically that makes you move more than what is necessary because that's not sustainable biologically. That's why the habitat sucks because the habitat and the way we've set up are getting our needs met externally through other people and also the environment, the things we're buying and placing in our houses, we're overly comfortable which ultimately leads to discomfort ironically.

Tony: That's why I like your movement as nutrition analogy so much because I can see so many parallels between the paleo food perspective. Me personally for so long I thought I was broken because I couldn't control my consumption of processed, refined, baked goods. For example, it's like if you put a box of oreos in my pantry I just can't control myself around it. I thought that that was a willpower issue, I thought that was a personality fault but then I get into Paleo and I'm like, "Oh, it makes perfect sense for my biology to crave these nutrients." Because the natural kind of stock gaps of fiber and chewing and all these other things and water content that would be in place and the whole food are extracted out. Of course this food would lead to that response. It becomes a very logical thing, it becomes very understandable why people wouldn't be able to moderate their consumption of these processed, refined foods.

Going from that perspective to then looking at food as a nutrition as well it makes sense that we would take the opportunity to be sedentary if given it. If there's less of a demand imposed by our lives that we wouldn't just naturally want to move more to compensate for it. It seems like that as you said wouldn't have made a lot of biological sense going back to prehistory and to our ancestors. If somebody ran around more than necessary they might not have survived the famine that probably took those people out. There probably were people like that, that's very interesting. I like going down the wormhole of some of these thoughts about movement and exercise and everything. Let's talk about how you incorporate more whole food mandatory movement nutrients into your life. I saw the page on your blog nutritiousmovement.com called a day in the life, can you talk about that?

Katy: I get so many questions about what is a movement? I think that if you had a picture of what a whole food diet looked like, meals of whole foods compared to fast food bags with supplements sitting next to them, you could see the difference. There's not a lot of highlight I don't think of, what movement looks like outside of an exercise program. You can follow anyone on Instagram and see amazing workouts but I don't think that you can see a life rich in movement. It's like you see what people do for that hour. I use that page a

day in a life and my Instagram account to show how I'm ... I call it stack your life, it's permaculture principles of how I've put the natural movement back into my life, how I choose to live on a day to day basis. A day in a life was a photographer followed our family for a full day to show what it looks like at least on a summer day.

Tony: That's awesome. This is a legitimate actual bit. This wasn't-

Katy: It is a legitimate day in my life, it wasn't a posed or anything like that, it was how I do it. I'll get up early in the morning, I don't go hang out with girlfriends ... I don't really have any a lot of sedentary hang out time. I'll start my morning with ... I'll take my coffee on the go and I'll go hang out with a friend for an hour while we ... We'll walk like five miles and I'll usually stop and do a couple of errands on the way. Dropping some things off, swinging by the post office because I'll need to do that for work anyway. I might as well make my walk serve a purpose beyond the walk itself which is for me the defining difference between exercise and movement. Exercise is movement done exclusively for the purpose of reaping the physical benefit, you're not meeting any other need of your day.

Tony: That's like the supplement form of movement.

Katy: It is. Exercise is just like, "I'm going to take this isolated chemical compound." It's not going to meet my water needs, my fiber needs, my calorie needs. It's just going to meet this extracted need. You got rid of the oreos I imagine out of your cupboard, I got rid of chairs and couches out of my house. If I go on vacation and stay in a VRBO, I am all over a couch like white on rice. Who doesn't love comfort and to not have to use your own muscles to hold you up and that relief. I feel like I'm biologically wired to do nothing. I just got rid of it just in the same way I imagine someone trying to eat a whole food, like nourishing diet, you're not going to keep junk food on hand. I was like, "I have all these furniture on hand that I could probably think myself out of sitting in a chair." My kids couldn't, they don't even know. They have grown up in a house with no furniture, [crosstalk 00:26:19].

Tony: To take that you might be able to think yourself out of sitting in a chair for a day or two but for two or three months, six months, a year, for the rest of your life that's a tall order and it's a big willpower ask. I feel like that's where we get so caught up. Why I like what you're doing which is, "I'm just going to rebuild my environment." Rather than, "I'm going to willpower my way through this." Because really willpower is not sustainable, it just seems like you can get through some situations just by guiding it out but if you want that long-term change you really got to change your surroundings.

Katy: willpower is fairly unnatural-

Tony: There you go.

Katy: If you're trying to work with nature, like I said most humans ... The way

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humans were behaving they weren't like this. I think we project a lot it's like, "Wow." We just got [inaudible 00:27:14] a lot of family bush craft stuff. These guys that we're working with they had taken themselves out of their comfortable homes and they were living in debris huts and eating snakes and tubers. After the tenth day one of the guys just ran screaming for town going, "I'm going to go get a ice cream." He broke. I think that we're asking ourselves in our unnatural environments to further behave unnaturally and failing everyday, you're not even ... Sorry about-

Tony: You mentioned it in your book how people will sit down in a chair all day then they go out and they do all this exercise. Then that could actually hurt them more because you're taking one unnatural thing and stacking it on top of another unnatural thing.

Katy: We have this idea, we are atoning for eating, eating is a biological imperative or movement is a biological imperative but we use one to atone for the other. We're disgusted with what we it-

Tony: Paying penance.

Katy: We pay penance through moving. I was like, "You've set up both food and movement." Wonderful things that nourish and sustain you as negatives, it's just seeing everything around you as a problem. I'm like, "I'm going to see myself as working perfectly." I might just be suffering from high self-esteem I'm not sure but I feel like physiologically I am not the problem. The problem is the environment, instead of maintaining my environment, I'm trying to shift my brain and push it to behave in this particular way, I was like, "Well I'm just going to make a few tweaks to my environment." Let my natural behavior demonstrate itself then my choices were always for the health. I don't have any more willpower than anyone else, some day you and I can sit down with some oreos to prove it but I feel efficient.

That was the most efficient thing I could do, that's what that page is just showing is small things. I got rid of all the shoes in my closet that were reducing the movement of my foot. I was like, "Why wouldn't I if I'm already out and walking around, I want to move as much as me as possible?" I just made small shifts in the things that I do everyday to facilitate more movement rather than adding more bouts of exercise to my unsuitable habitat or lifestyle.

Tony: Really it looks like a beautiful day. It starts off with a walk first thing in the morning with your friend and you're out walking through fields and glistening drops of water on the spider web. Then coming in to eat with your family and everyone's squatting on the floor and interacting. Then as you do your work you're either on your low table in different positions or standing in different ways. You've got these cool monkey bars in your house which I'm super jealous of, it looks very fun honestly. If you ever need a large new child-

Katy: Adopted child.

Tony: That you need to adopt, I'm definitely going to submit myself for consideration there. It looks like you're having a great time. Now, do you feel like that is the case for you? Is that your experience? Do you feel like you're having fun and enjoying it or are there days where you're just like, "Man, I'm tired I wish I had that lazy boy or I wish I had that couch back?"

Katy: That's a great question, having lived my entire life the other way I would say that I am much more relaxed and healthy and joyful feeling about my life day to day. I think it really does come down to time, if you can't see how to add multiple objectives into the same period of time then you're constantly feeling behind and rushed and that you failed to meet a family obligation or a work obligation or a personal need. There's this constant state of dread or guilt or lacking or failure that I used to have that I don't have anymore. Everyday I'm just tripping out going, "I can't believe it's this easy." Because I think the thing is we went minimal and there's an essay on this in this book of essays where minimalism is really maximalism. They call it minimalism because it's less, less stuff in my house or whatever but it means more of my needs in the same period of time. Which isn't to say that I have regular bad days, good days like everyone but those days don't arise because of my failure to meet my needs.

I think for a lot of people that's a big source, if you made a list of all the things you wanted to do to be healthy I can just meet them or with ease. I think that a lot of people are exhausted trying to meet their needs. Flopping on the couch is a really immediate way of meeting an exhaustion requirement in the same way that probably eating a couple of oreos is a way to overcome poor nutrition. You throw some sugar [inaudible 00:32:37] to ramp you back up but it's short lived. In that same way flopping on the ... I've never gone, "Man, I wish I just had a couch to land." When I'm tired I will just go to bed for the night which is probably what I should have done but normally because the couch is so comfortable I'll sit and watch TV for a little longer. It's a perspective, I would say that my day in a life was ... You can see the mechanics of how it works but it really is more just a perspective of how to adequately meet your biological needs.

Tony: What about your family? What do you see with maybe your kids versus some of the other neighborhood kids? Your husband seems pretty on board as well but you could probably speak to that as well.

Katy: That's essential. I couldn't do it if he wasn't fully on board. I don't have to negotiate that, we're both of the pure same interest, that helps. The question I get the most often is like, "My spouse is not on board what do I do?" I'm like, "I don't know because I'm not a marriage counselor, I'm not sure how you reconcile that."

Tony: You're a movement person not a marriage person.

Katy: Exactly. I don't know except I have suggested this idea of making a personal

mission statement and a family mission statement. I imagine that most people out there have a job, work for a company, own your own company. Your company probably has a mission statement and the best advice I ever got for actually a nonprofit that I was on was any time you go to make a decision ... Decisions are tricky ... You refer back to this mission statement and that helps you make your decision. Because if the decision seems to be going against any aspect of what you want for your life, what you've stated you want for your life then it makes it very easy to make a decision. I think that families could get on board more with doing the behavior that they themselves say they want by having something objective to reference, some external reference point.

In the same way I teach alignment for your feet or your knees or your hips. The only life alignment tip I can offer is get your own personal mission statement down and work together with one as a family. Because then they themselves will be able to see aspects of their lives that are working against what they themselves desire. They just don't see perhaps the link between the two. As far as my kids they are extremely dynamic, they have the freedom to be dynamic. Kids are strong, they go to nature school, they are around a lot of other kids who they don't have indoor stuff. I think the most objective defining characteristic I could make is looking at things like joint ranges of motion. They've never been in regular shoes, they've never had furniture and they walk many miles. That's another thing, they walk three to five miles everyday alongside us. Not on that morning walk but throughout the day we do a lot of stuff on foot.

In this book I did an article on ... You would probably just go to study kinesiology and anatomy too. We're given a book called human anatomy and physiology and it tells you your joint range of motions limits. You just learn that then you're working with clinicians and people and they're like, "This is what human ankles do, it's in my human anatomy and physiology book." Then boom they study what are clinically now and literature referred to as weirdos, weird. Are you familiar with the weird term western educated industrial rich democratic. That's the group of people that most health anatomy data is collected from, like sociology-

Tony: It's the people hanging around universities.

Katy: Psychology and we're such an outlier compared to other humans. There's an article ... I'll see if I can find it for you to link it, I think it's called Are Americans Weird? It's like we've been doing the equivalent of studying penguins and thinking that we were studying birds. When we looked at populations that are not us, then all of a sudden the Twa, they're a group of hunter, gatherers that still climb trees that they have the exact same ankle structure as us. Meaning they don't have a different genetic ankle, they're just a modern people like we are but they use their ankles in a different way and their range of motion is different.

We've got this really fixed ... We project our sedentary norms on top of

humans then we're teaching other weird humans like, "No this is just how humans are." The whole you are how you move which is really the message that was in move your DNA, it gets lost. We're trying to make sense of humans and how humans should be and what humans are supposed to be. I just thought it was interesting where my daughter's ankles measured the same as Twa.

Tony: They did?

Katy: Yes, she has a Twa like range of motion. I put a picture of it, ironically she was climbing this cement wall next to the library. We do regular things like go to the library but we let her be bare foot and she climbs up the ten feet on the six inch wall. Her dorsiflexion was just sick I was like, "I need to take a picture of that right now." Then when I was doing research for this and saw the difference between adult men and women and adult men and women in Twa then I pulled up the CDC ... I think the CDC has a joint range of motion norm for everything and pulled up ... For her peer group what the norm was she was right there with adult Twa. That's already different than her American peers.

Tony: It's interesting at my work which is more of a traditional gym, there's a couple older Chinese Americans who they immigrated to the United States and they're maybe in their 50s. One he's about fifty, sixty then another guy is probably in his 70s, 80s. They both have awesome full squats. Drop all the way down, heels stay down, the back's nice and flat. Unfortunately most of the middle aged Americans who are twenty, thirty years their junior the idea of getting all the way down to the ground in a squat it's just unheard of. Even more so they think that it's dangerous but it's going back to what you said where the dominant cultural perspective is actually not the real human potential. It's just this specific subgroup of humanity.

Katy: It's humans and it should just be linked back to behavior. It's not even really Americans, it's Americans who've behaved a particular way-

Tony: Just as the western diet it's not exclusive to America, we export that then people have the same problems we do.

Katy: It all just comes down to better definition of terms. If you're going to write a paper about a lack of hip and knee, I'm all for that, data is great. When you say that it's a human norm or a norm for an age it's really better to clarify who you measured or even if it's not clarified if you're reading literature that you really tune into that, that these things matter. I would say most scientist are keen to ... When someone is describing what a methods is that that's what they're saying, is this is the population. That's not how it really gets translated in the media, the media is like, "No, this is how it is." It's just awareness, I would say that awareness because you know you are how you think too. When you start to set these parameters for your limitations of behavior and have this really concrete like, "Well, here's my textbook. This says ... " You have to keep in mind that it's all being filtered through a

particular perspective, you can't do science above the culture that's doing it, you just have to be aware of those things.

Tony: I think that's a great point to make and speaking of media something I just wanted to talk to you about is this new thing that we're seeing in the media about sitting is the new smoking. I'm sure you have thoughts about that and you actually have a book on the subject which I haven't had a chance to check out yet. Do you think that sitting down is bad in the way that a Doritos is bad or do you think that it's bad in the way that eating just fish everyday for the rest of your life might create deficiencies in other nutrients? I guess my question is is it just too much of a thing or is it the thing itself is detrimental?

Katy: I definitely think it has a lot to do with frequency. If we're going to talk about natural human states, stillness is definitely a natural state and so is sitting. I think that if we talked about sitting, if we could delineate sitting into two categories: one would be stillness as being a component of sitting that I think that a lot of the research on sitting, were you to take those same populations of people and put them in a chair of a different geometrical configuration or just had them standing all day that if you had repetitive stillness you're probably likely to see a lot of the same trends. In move your DNA I broke this out a little bit, there's two things going on I think with sitting: one is the stillness, it's an abundance of stillness, the second is I do think that there is an adaptation to repetitive positioning, the same positions.

If you had a chair that allowed you to sit into seventeen different positions and you cycled through them I don't think that you would see the same effects. Because I think that there is a tissue adaptation even on the blood vessel geometry that's affecting plaque accumulation, that is delineated or delineateable I would say but we're not doing at that level yet. I don't think it's like a Doritos, I think it's a completely natural thing but I do think it is a one nutrient. A nutrient isn't good or bad, you can kill yourself taking too much vitamin D, it's about frequency and distribution, that those things are at play too. That all being said, one, I'm sitting right now but I'm sitting on the floor-

Tony: I caught you at a rare ... I was going to say.

Katy: No, I'm sitting on a BOSU, I'm definitely moving but I'm not leaving this place. Part of me is still, part of me is moving. I just think it's much more complicated than the headline. However, I am a big fan of developing standing workstations although I'm more proponent for a dynamic workstation-

Tony: Got it.

Katy: Which is the ability to work in many different positions then also think about how to get some of your work done outside, on the move, things like that.

Tony: That was going to be my next question which is what do you think about

going to a standing desk as a solution "for sitting down too much" I can expect that you're going to say, "Well, you don't want to just trade one stationary position for another." That's what you mentioned is the dynamic workstation, could you explain what you mean by that and how someone could maybe visualize what a dynamic workstation looks like?

Katy: I have what I consider a dynamic workspace which is in my office, I have a standing workstation but it's not only a standing workstation. I figured out ways to move parts of me at least while I'm standing there. I have a textured mat that I can shift and stand on, I'm super mindful of my posture while I'm standing. I've seen a lot of ads for standing work desks where people are: one, wearing high heels, whether they're men shoes or-

Tony: That must get you.

Katy: It gets me because I was like, "Man those shoes were barely acceptable when you were sitting down, the fact that you're going to stand in them for eight hours just your achilles tendon and the cuff and the lumbar spine and the pelvic adaptations to high frequency of disposition, it does. I'm just like ... I don't want to write a letter or anything but you might want to consider this. I definitely keep my feet and my legs active while I'm standing there because one of the things that I think people have forgotten perhaps is a lot of people used to stand for work. In factories, the research on factory workers, nurses, who spend a lot of time up on their feet. The injuries that are associated with extended periods of standing, all of that was part of ... All of that data was part of the migration to people to chairs. It's like we don't want to depict that-

Tony: There's this huge push, let people sit.

Katy: I know.

Tony: Just as now we're saying, "Get up out of your chair." They're saying, "Get into a chair."

Katy: It all depends on perspective, we'll go up to standing. I was like, "Let's pay attention the last a hundred and fifty years of data plus this stuff that's coming out now on people who have to stand all the time and recognize that." Perhaps it's work that's the problem, it's the fact that you have to be ...

Tony: Hear, hear!

Katy: How can we solve this problem a little bit ... Exactly. "Let's go." With that they went to the woods. Understanding the mechanism, it's not about sitting or it's not about standing, it's a high frequency of repetition. We think of repetition as having to involve a twisting motion or a back and forth ick but really it's just you're loading your cells in a repetitive way, every single day. Ergonomics is the science of trying to figure out ... It's not the science of trying to figure out how best to use your body, it's how best to position your body for long bouts of being still, huge difference.

Tony: Which is not really an ideal thing.

Katy: No it's not. Your premise is already flat although you're doing it within the context of the assumption is you have to be there at work for eight hours. At the end of Don't Just Sit There which is the book on this whole thing that we're just talking about with dynamic workstations, is this is there a way to change that environment for you? Instead of trying to solve the unsolvable problem and spinning around in the circle going, "Do I stand all day or do I sit all day or do I half stand, half sit?" It's like I really believe that this problem is more solvable, other countries are looking towards reducing the work day, walking meetings are now becoming a thing.

Tony: I like it.

Katy: I have a home office, I also have a non-home office and I fully admit and understand that I don't have a traditional nine to five job. However, I don't think that people really consider the fact that, "Maybe I could go to my boss and talk about some of these things, maybe we can problem solve." Think outside of the box and be more creative especially when you've got literature about sitting and standing and walking, boosting creativity. You have all that on your side it just takes someone willing to do the leg work ... Pun intended ... Of making a change to the habitat which includes the status quo.

Tony: It's so funny that you mentioned the status quo, I actually went to my HR and was like, "Hey, I want to get this thing. It's a stand study." Just like this little desk that I put on top of my desk so that I have the option to stand while I'm doing administrative work at the gym which unfortunately is more than I would like but it's part of the job. The response that I get when people walk by in my office and see me standing it's really interesting because it challenges the status quo. What you were just saying there and there are some people that are super excited and on board they're like, "Uh, that's great, great example that you're standing." Then if I ever get caught sitting people are like, "Oh, you're sitting down." It's like I got busted. It's just like if someone ever sees me eating something that's not "paleo" they're like, "Oh, what about that cheese burger?" Or whatever.

It's just interesting how there is this desire to fit in and unfortunately fitting in nowadays means fitting yourself into a sedentary lifestyle. I think when you take a chance like you did to really re-engineer your environment, re-engineer your life on a fundamental level you also have to be willing to maybe field some criticism. There might be some people that think what you're doing is bad or they even get offended in the strange way that people can get offended by things that they don't understand. Have you ever dealt with any of that personally? Has that ever come up either online or people that you've come across in person?

Katy: Yeah. Everyday. That is the consequence or the cost ... I don't know if I would see it as a consequence. It's just part of being a high profile person

essentially modeling ... We're a sedentary culture which means movement is counter culture, we don't take kindly to counter culture. Historically, counter culture is threatening, counter culture is belittled. Even like Paleo there's mocking, there's anger, there's all kinds of ... It's, "You're stupid." You ever felt like there's all these idea and it's like, "Wow." We're talking about doing things that most people on paper probably aspire to. I don't mean someone to the right, I aspire to a paleo diet or I aspire to having no furniture. Meaning that if you ask them, "What would you like to make your life better?"

They would probably put, "I'd like more relaxation, I would like more exercise, I would like to eat better." That they want these things but their perception and what's restricting them from doing them is so big that when they see someone else do it, I feel like it has to be packaged with some sort of ... It's all within them. My house which is a quirky house as you can see online. There's also a house tour at the bottom of the day in a life page, I will walk you through all of my house. Squat toilets-

Tony: Is that the video?

Katy: That's the video at the bottom, I'll give you a tour. We still co-sleep with our kids and I breast fed really late till my kids were three and a half, way counter culture, I'm pretty basic, regular person. It's like the way that I differ from most people is so tiny but it was in Good Housekeeping, they came. Good Housekeeping Magazine which is 1950s June Cleaver pearl. They came to my house and they did a whole feature on my house and that was a level of acceptance, really [crosstalk 00:52:33] culture.

Tony: That's pretty cool.

Katy: Which was pretty cool. Prevention Magazine did the same thing, what is a movement based lifestyle? That's in July, they did a twelve page spread on my movement based lifestyle and my weird house with river rocks. I could get texture when I walked in and out. If I said I went to a gym that had all these things that would be fine but to put them into your house is-

Tony: It's a whoa.

Katy: Weird. I recognize it's not about me, I certainly would never be like, "Hey, my kid has more dorsiflexion than you." It's not about being superior, it's not about being better. I have no element of condescending in my body. It's more like, "Wow, here's geometry and here's physiology, I'm interested in these two things and how to make them work within the context of my life and I'm getting attention for it and I write books about it." It's never like, "You should do this as much as ... Here's what doing this looks like."

Tony: I think it's what you said, it's whenever you do something that runs counter to the dominant culture and we see that in many different ways it's going to get people riled up. Hopefully, it gets them riled up and it gets them thinking and it gets them reflecting on their own lifestyles. Hopefully by seeing you doing it

and seeing in some of these mainstream publications and seeing that you are happy and healthy and your kids were having fun, hopefully that's an inspiration for them to give it a shot. Even if it's in some small way emulating the type of movement rich environment that you've created, I think that's a worthy cause. I appreciate the work that you're doing, putting yourself out there, putting your family out there to bring movement to the masses. Unfortunately we're out of time for today though Katy. Is there anything you'd like to mention before we go?

Katy: No, just always thanks for great discussions, I love coming in and chatting with you, it's fantastic.

Tony: For all of our audience out there you can check out Katy in the upcoming Paleo Magazine best of 2016 awards issue. Congratulations on best fitness book then third place in the best blog category.

Katy: All right. I was surprised about that, thank you so much, that was a shocker.

Tony: Nutritious whole foods and nutritious whole movements I think go hand in hand, you're in good company in Paleo Magazine, thanks again.

Katy: Thanks so much.

Tony: That was biomechanist, blogger, podcaster and mum, Katy Bowman. You can find out more about Katy by going to her website nutritiousmovement.com. Next week's show will be a Paleo Radio bite with Ben Phelps, Ben lost over one hundred pounds by following the paleo lifestyle and is now doing things he never could do before, here's a preview.

Ben: I started training martial arts because it was just something that I always wanted to do, I was super interested in it. It was one of the happiest moments when I could sign up because I was like, "I'm never going to go in there, I'm super out of shape." Because I'm in the best shape of my life now and I still struggle to keep up a lot of times in class. It gets pretty intense and I'm just happy to be at a point where I can do something that I enjoy and not be restricted by my weight at all.

Tony: To find out more about Ben's primal transformation you'll have to tune into next week's show. To make sure you don't miss it be sure to subscribe to Paleo Magazine Radio on iTunes or favored us on Stitcher. Once again I'd like to thank the sponsor of today's show Morrocco Method, I use Morrocco Method five element shampoo to wash my hair but I also think that it makes a great shaving lotion. If you love Morrocco Method products too take a pic of how you Morrocco and share with me by tagging my Instagram account at [Tonyfedfitness](https://www.instagram.com/Tonyfedfitness). Paleo Magazine Radio is brought to you by the Paleo media group, our show music features the song light it up by Morgan Heritage and Jo Mersa Marley. Paleo Magazine Radio is produced by me and on behalf of everyone at Paleo Magazine thank you for listening.

