

The Tim Ferriss Show Transcripts

Episode 3: Kelly Starrett, Justin Mager

Show notes and links at tim.blog/podcast

Tim Ferriss: We are fucking live at Casa Ferriss, and this is the first podcast threesome that I have dared to venture into. But I have two fine gentlemen, two scholars and gentlemen. Because you're a doctor, professor, Dr. Mager. And yes, I've been fucking with the audio and it took me so long. We've already had two and a half glasses of wine on empty stomachs, but I think this is going to be a good session. It's an experiment, like everything else. So, it'll take us a little while to get past the awkward formality of this extremely clumsy podcast intro, but, Kelly, for those who don't you know, who is Kelly Starrett?

Kelly Starrett: Dancer? Well, you can't see on the podcast that these are my real calves.

Tim Ferriss: Even through the table, I can feel them pulsating, engorged calves.

Kelly Starrett: People may know me because I showed up a little bit in *4-Hour Body*. You sent a tweet out in the universe, "I need some deadlifting help." We kind of went down the rabbit hole a little bit on that.

Tim Ferriss: I have tight quads. My back has been out of shape.

Kelly Starrett: You're a male athlete, check the box. Our handle is @MobilityWOD. We started a little project on Open Source. "Why doesn't everyone know how to fix themselves?" I'm sitting here with Dr. Mager, which is so good.

Tim Ferriss: And we have this Bermuda Triangle of knowledge sharing. We've all known each other for a while.

Kelly Starrett: What's interesting is the shift for me is we kind of we're gearing up and talking about this, is the shift away, personally, around performance. I've sort of been obsessed and a performance whore for as long, "Let's lift more, let's go faster." That's always our proof of concept. You're in a better position, let me show you because you can generate more wattage. But I have to be honest. I feel like that's this 1 percent and that the people we need to be talking about are our moms and dads, people who are in pain, how to prevent this stuff in the first place. This is a bigger conversation.

Tim Ferriss: Now, you're co-founder, co-creator, co-conspirator of SF CrossFit?

Kelly Starrett: Yep. With my wife, Juliet.

Tim Ferriss: That's right. Sweetheart and can probably out-lift me also. As well as your-, how old? Five-year-old?

Kelly Starrett: I have an eight-year-old and a five-year-old.

Tim Ferriss: Yeah. I think your five-year-old can also out-front squat me.

Kelly Starrett: Can I jump in just for one second? "60 Minutes" has been following us around since October. And they were like "Hey, can you show--"

Tim Ferriss: Since October? That's a long time. That's a lot longer than "60 Minutes." I had to pull it because everyone gives me the 4-Hour shit.

Kelly Starrett: Do they really? Funny how that works. I don't know how many hours they're going to use, but the best moment for me was we have...they were like "Can you show proof of your concept with a correspondent"? I was like "No problem." Let's do something easy like picking something up. So, here's this bar. Everyone should be able to bend over. Keep your back flat. Everyone agrees you shouldn't round your back when you lift something heavy, right? Well, that actually is easier said than done. And, of course, she just rounds and rounds. And just teach her "Hey, just gotta to be able to reach into the crib without rounding your back and pick up your baby."

Tim Ferriss: Just hit her with the birch stick?

Kelly Starrett: Basically [inaudible]. And she couldn't do it. On camera, everything's there, live. And I was like "Well, why don't we pull in an athlete who can do it"? So, I was like "Georgia," my eight-year-old. She comes right in, she must be my daughter, doesn't even flinch on camera. Like producers, microphones. Just deadlifts it up. Like 25, 30 pounds, not a big deal. And she kind of looks at the correspondents like "What's your problem"? And literally, you can see the producers back and they're like, "That's good TV." I have daughters, we don't want them to be professional athletes. I'm interested to get your takes on this. If you could have a kid and we'll ask this later on, but would you let them be athletes?

Tim Ferriss: That's a great question. Well, we'll come back to that. Because I think that's a big topic. That's an important topic. But before we do that, part three of this amazing trilogy. Dr. Mager, Dr. J, Justin. We've known each other for a while. You've been my doctor for many different things. Help me review blood tests and all the ridiculous, various, masochistic things that I do to myself. What appealed to me about your background, among other things, is you do have a sports background yet you also have a practicing medical background. And I think that combination sort of allows you to understand the malfunction that I have, which is this compulsive self-testing. So, I'm really happy that the three of us are here because I feel like you guys cover so much complementary ground. But maybe you could

give people a little bit of background on yourself and just what you're up to these days?

Justin Mager: Just as you said, we'll henceforth refer to me as "Justin," for Christ's sake. I will refer to myself in the third-person as "Justin." I have an exercise physiology background and degree. And really, I had no agenda towards medicine. I was just kind of curious to go to college after my football career was not going to make it much further than high school. But I was interested in human performance and just human experience like what makes alive, what makes us tick?

Kelly Starrett: True or false, did you have a pull-up rack in your office?

Justin Mager: I do, absolutely.

Kelly Starrett: There you go, bam. New screen device, do you have a good doctor, yes or no?

Justin Mager: When you showed up, you were like [inaudible].

Tim Ferriss: Is my doctor going to die before I do? If yes, find another doctor.

Justin Mager: Right, absolutely. So, I actually just wanted to study physiology. How does our body work and how can we have it perform? And by the way, my fifth year of undergrad...

Tim Ferriss: I was on that plan, too.

Justin Mager: Absolutely. Fantastic. That's a lot of fingers and toes. I overheard two classmates behind me just lamenting how difficult it was to get into physical therapy school at the time. And they said "Wow, it's almost as difficult as medical school" and we have all the prerequisites. And it was a first time in my mind. I'm like, you know what, I don't really want a fucking job and I'm really interested in the human body so why don't I just kind of delve into med school? So, I looked into it, took the few remaining classes I need to get and went into it. I had no idea. I didn't even have healthcare growing up. No concept of it.

Kelly Starrett: My father's position, my grandfather's position. I was like, "No way I'm going to PT school." That was like med school, no; PT school yes, it's so interesting. You just need to know one doctor so I think I'm like -, and Mager is my doctor, too.

Justin Mager: Here we are.

Justin Mager: Absolutely, that's scary.

Tim Ferriss: I hope he hasn't been looking at your blubber.

Kelly Starrett: True fact, has he?

Justin Mager: You're definitely going to live through the weekend.

Tim Ferriss: True or false, Kelly Starrett eats more fish oil than fishes can consume?

Justin Mager: Anyways, I went through the training with some interest in orthopedics. But the more I got into it, the more I was still interested in sort of, okay, what makes us well, what makes us thrive? I mean, it just made the most sense. So, that's kind of what I went through. I became interested in endocrinology because I just felt that if you can kind of understand the hormone systems and how they would have such local effects on cells and global effects directly on your physiology and secondarily, on your behavior, which obviously, is going to feed back and affect your physiology, it made the most sense. And I also became really interested in, kind of, Eastern philosophy. I've always been sort of a searcher and I found it fascinating that the chakras that are described in yoga culture, ayurvedic culture, correspondent to these nerve plexi, which are these little mini brains outside of our brain and also, these endocrine hormone glands.

And so, I came across some work from Joseph Campbell and Heinrich Zimmer [SP] where they're talking about the relational issues of the chakra and it just made so much sense, so that was my intention. Other than once I got further along in the conventional medical model, I just could not understand their black and white ideology. We're going to treat the absolute abnormal highs and the absolute abnormal lows, but this very wide range of grey that we all live and function with, we're not going to touch that. That's normal.

Kelly Starrett: If you're listening and you don't know-, people may not know, but you have worked as a functional medicine...basically, let me just tell a back story. My wife, after her second child, basically bled to death during birth and had seven transfusions, I think. And when we finally bumped into Dr. Mager, Juliet's hematocrit was terrible, ferritin was zero. I mean, just really low. B-vitamins tanked. And you were the physician who started to put the pieces together in taking this global approach. And I was always like, hey, why are we working mechanically as a physio off the limits of your range? Why can't you just be full human? And he was the first person I had ever run into as a physician who said, "Being down at this bottom end, that means you're alive. That's the RDA." The minimum dose of Vitamin C to keep you as a human being, that's not thriving. And you changed my family's life. You resurrected Juliet from headaches and death and all the gnarliness back into a full-fledged woman.

You changed so many of my friends' lives by just taking a bigger picture, which is what we've got to get people to do. That's what's so interesting.

Justin Mager: I appreciate that. It's very humbling because the more that I look into things, the more blown away at the complexity of trying to understand how all the pieces of physiology work together and how the human body works together. And to me, I

think that looking down the road when we start leveraging the power of technology intelligently to apply it to health and human performance. We're going to have some really incredible finds. But one thing that we had said off-recorder, I should say, is that when we're looking at high-end performance, it is so fancy and it is beautiful. It's a beautiful art form to see people perform at their highest. But I think that where humanity and where we as individuals stand to gain the most is to actually take those principles and apply it to the rest of us, you know what I mean? So like, whereas like you guys, Tim, you're out here experimenting on the fringes of physiology and what limits can you push?

And Kelly, you're over here working with really impressive high-end athletes and military and all the people that you've shared with me that you've worked with. And you're trying to get that extra 1 or 2 or 3 percent that's going to make a difference between a 10th place finish at the CrossFit games, say in a second place or first place finish. When you can actually take those same principles and apply them to the rest of us, then you're going to see 30, 40, 50, 60 percent gains in function and health and vitality.

Kelly Starrett: People don't understand that it's not-, we move the needle 1 percent. I read your book, *The 4-Hour Body* legitimately and was like, "This is like reading best practice." Because you basically took "Best Practice" for people. And I'm not eating cinnamon and doing squats in the stairwell, but you get the idea. We all have our own brand of weird, so that's my choice. But what you did was really give people a manifesto for pulling out the big holes about, "Are you sleeping enough?" The more and more I realize is you can't cheat your physiology, you can't deny your stress level. You can't deny your sleep. You can't deny your nutrition. You can't deny your hydration. You can't devalue your movement practice. Now, having written a book...

Tim Ferriss: A big book.

Kelly Starrett: A big, heavy book and we're on the second edition.

Tim Ferriss: Congratulations.

Justin Mager: I'm on the second page.

Tim Ferriss: I'm on the third, fourth.

Kelly Starrett: Be careful what you ask for, but that book's tough.

Justin Mager: Again, I keep reading it.

Kelly Starrett: When I think about the daunting task about putting ppl out, of getting this out of the way. Because we were just talking to someone the other day, our next-door

neighbor who has chronic headaches, is out of shape, is French, eats a wretched diet, doesn't exercise, and she's getting botox injections in her neck.

Tim Ferriss: In her neck? Why in her neck?

Justin Mager: Because the neck is causing the tight muscles causing the headache.

Tim Ferriss: I thought maybe she had turkey neck, so she was tightening it up with the botox.

Justin Mager: You just have to tap the [inaudible].

Kelly Starrett: But I think the problem is the people, there's so much misplaced precision. And you've said, why aren't you looking at this? How are you measuring lifestyle nutrition? You are saying, why aren't you just doing these basic things and why can't you experiment on yourself? I think there's a tight change where people are being responsible for their own health and nutrition differently, because we have access to technology. The [inaudible] movement has qualitative self, has blown open what's possible. You really get permission to think of like [inaudible] one like I'm going to stop eating carbohydrates and see what happens, like you have that right to tinker. You came in and we're like "Hey, we can measure that." And if you're already doing this best practice, how do you know it's best practice? And that was what's so amazing because...we have complex friends, I refer them to Mager. I say, "You should really talk to what's going on, our guy."

And what this has really done is saying, "Once you pull out the roadblocks, you may need some additional help to reset the system, the stasis." But now, we're left with, "How do we deal with people who we know are going to be compromised?" Your job is going to compromise you because you're just under so much stress. You're a soldier, you're not going to sleep. You can't deny your Now what?

Tim Ferriss: And if any of you can hear the odd "tak tak tak tak", that is a senile cat that lives above me that loves playing with a screwball, so there you have it. That deserves more wine. Thank you, Kelly. Justin?

Justin Mager: Yes?

Tim Ferriss: I really do want to call you Dr. Mager, which just sounds so credible, which you are, of course. So, I just want to ask you, of the common practices that you see in medicine, particularly as it pertains to blood testing or testing, in general. Just establishing a baseline, figuring out where you are, what are some of the tests that you think are neglected? What are some of the common, perhaps, mistakes or glaring deficits of how traditional medicine approaches testing? So, you can tackle that from any direction. I'm just trying to figure out...because there are a lot of people listening, I'm sure, who go to the doctor once a year. They get a

snapshot. There's no trending. If they're in range, see you next year, that's it. You know what I mean?

Justin Mager: The Check Engine Oil light is not on. Carry on.

Tim Ferriss: Exactly.

Justin Mager: It's a huge box to open. But a couple of the things that you kind of alluded to with even as you kind of lead into that is that, one, first, there's a psyche and an ideology that we want to judge things as good and bad. And so, there's this idea that inflammation is bad, this is good. High cholesterol bad, low cholesterol good. One, you have to understand what blood testing actually represents. So, first of all, the first thing, it's a snapshot. It's a moment in time and we're not an object, we're a process. So, you have to understand not only...you have to understand the context of what the person or the individual is in, comparatively to...

Tim Ferriss: I'm listening and I'm going to get us more great extracts.

Justin Mager: Absolutely. You see something...there's some literature that suggests that if you have high LDL cholesterol, you can actually build more lean body mass at a quicker rate. So, if you're in a strength-building phase, it actually might be to your advantage to actually have that present. So, you need to know context. You need to know that it is a snapshot. I actually think that it's a tragedy that testing is so damn expensive, given that technology in fields like information technology and computers has increased exponentially at such a better price point. We need people to get many more data sets. And there are companies like Theranos that are out there trying to break that barrier down. So, I want more testing, I want context. And then, you have to understand what the marker actually represents, not just a judgment of whether it's a good or bad marker. What the hell is cholesterol? I like to ask that to physicians, especially if they're antagonizing me about my practice methods.

I say, "Hey, what does cholesterol do?" And it's interesting because a lot of them will take a step back and they'll fumble because they're so indoctrinated into the algorithm of "All I really need to do is identify high cholesterol and treat it" versus understanding what purpose it serves in the human body. So, when you're asking, Tim, what markers I would look at, it's tough. I can tell you what I look at most commonly.

Tim Ferriss: I'd love to hear that.

Justin Mager: I look at things like homocysteine, which is a marker of metabolic efficiency. And conventional medicine looks at it as if it were elevated, it can increase your risk of having blood clots and strokes and heart attacks. But, really, there's this common cog in the human body that takes carbon units and transfers them to

other molecules, whether we're building things in the body. And so, the ability of the body to actually do that is called methylation. It's donating a carbon and a hydrogen. And so, methionine is an essential amino acid. It's a main donor. And then, you have B12 and folic acid which are vitamins that are crucial for recycling that process to keep the metabolism going efficiently. So, I look at it. And that's something where, with Juliet, when we looked at her homocysteine levels, they were tremendously higher than you would want. So, then we said "Okay, wait a second? Is she B12 deficient? Is she folic acid deficient? Does she have a gene variation that doesn't allow her to activate the folic acid properly?"

And so, we went down those paths and we kind of uncovered that and sort of gave her body a break, gave it some relief. And it allowed it to actually catch up metabolically, which, strangely enough, improved things like her mood, correct?

Kelly Starrett: How about her awesomeness? First and foremost is that -- in my education was given a cursory goal.

Tim Ferriss: Eye contact, thank you.

Kelly Starrett: To be [inaudible] here.

Tim Ferriss: I'm really glad that I got that.

Kelly Starrett: I don't want bad sex for you, believe this. Again, I had to dig and go back and sort of review. I think one of the problems is and I think you've done a good job with this Tim is that you said, "Hey, look, could we give people better ideas, they'll make better information and make better decisions. You absolutely just empower it, and people don't have any of the information which is free, which is available and now it's easy to front. When you started four hour body, it was waste land, when you started it.

Tim Ferriss: Super tough.

Kelly Starrett: And now you have to honestly say that now how many years later, so when did you start to write that book?

Tim Ferriss: 2008.

Kelly Starrett: To 2000- now, it is a complete different universe.

Tim Ferriss: Different landscape.

Kelly Starrett: When you can go get Gluten-free magazine. [inaudible] something has changed. If that's changed and people are taking fish oil, you have to educate yourself because you're not asking physician to develop a relationship with your physician and hoping that they're going to initiate this conversation, you're

wrong. And this is I think-, the real issue is that you've got to. . . it's on me to ask for some of these basics.

Tim Ferriss: Oh definitely, and I think also and Justin, I love your two sense on this but I imagine I'm somewhat compulsive with my blood testing. I've toned it down a little bit but I mean I used to feel like every two to four weeks. Great that I was just pretty fucked up stuff for myself but now it's just once every two or three months.

Kelly Starrett: It doesn't kill you. It makes you stronger.

Tim Ferriss: That's right. Hormesis, it's kind of like Princess Bride like I slowly take small amounts of poisons so that. . .

Kelly Starrett: [inaudible] it goes against.

Tim Ferriss: Exactly. The Sicilian. When death is on the line, then you win the game. But how often do you feel people should. . . and I agree with you that it's kind of silly how expensive it still is to have proper blood testing done and I'm actually involved with a company called Sano Intelligence, which is hopefully going to develop, basically what looks like a nicotine patch. They can do tracking [inaudible] markers and trending [inaudible] markers 24/7.

Kelly Starrett: Amazing.

Tim Ferriss: We'll see.

Kelly Starrett: Obviously sucking up.

Tim Ferriss: Yeah. Like I'm absolutely right.

Kelly Starrett: How do you know what you know? Honestly, people say diet and exercise. I love this [inaudible] and he's like, "Oh yeah, which diet and what exercise?" Fool. And you're like, "Really?" And you mentioned something that was relating. I don't know how much you stepped on this or not but there is a genetic component to this whole thing. It turns out, wait for it. I don't process saturated fats like everyone else does.

Tim Ferriss: Right. You do?

Kelly Starrett: Yeah. I can eat bacon five meals a day and come out on [inaudible].

Tim Ferriss: So, how did you figure this out?

Kelly Starrett: Because I have my blood tested and I had some of my genes tested. And you know what they said was you don't handle the saturated fats, you need a little bit less saturated fat. You should be lean paleo or lean-ish, right?

Tim Ferriss: Correct. So how did you change your diet, supplements, et cetera, as a result of that?

Kelly Starrett: It's as a major, for me that's a [inaudible].

Justin Mager: Yeah. I like it just really flush...

Kelly Starrett: I don't mind if you will freak with the flush like it's kind of feels [inaudible].

Justin Mager: You actually take some more and flush again.

Tim Ferriss: Nice and flush.

Justin Mager: You just wait until you menopause, it's going to be truth.

Tim Ferriss: Yeah.

Kelly Starrett: What happened was that I stopped eating as much bacon. The feces for me when I ran to the Mager the first time. . .

Tim Ferriss: I thought that was an exaggeration of bacon five meals a day.

Kelly Starrett: No, really, it was, and I stopped eating as much red meat because all the red meat I was eating was mostly grass-fed but as long as it wasn't.

Justin Mager: Yeah, sure.

Kelly Starrett: And so I made decisions. I start eating more fish, I started eating more chicken, I started eating more leaner things and that has made a difference. But I was living the lie that I see so many people living or like, "I can live on five hours sleep." Oh really? There's not a single study we need only five hours of sleep. Oh Bill Clinton, I'm like, "Yeah, and he had a fucking heart attack."

Justin Mager: And plus he's a fucking android, I mean he's like he is bishop from alien.

Kelly Starrett: He has coma, heart attack.

Justin Mager: Yeah, both.

Kelly Starrett: He died. We kept him alive. Stop that. But I think I stopped. . . I was traveling and not sleeping. This is interesting, I worked with San Jose Sharks. Mike pretends as the great [inaudible] really integrated approach. But the sharks have

to travel. As a hockey team, they're to travel in all the time zones and they sort of work in the [inaudible] at Stanford and Stanford, [inaudible] they're doing progressive integrated approach which will bring back as I have said earlier, but the Stanford people say for every hour of time change and all the people who are listening who are time travelers, they travel from East Coast to West Coast, it's entire day for every hour. And I started to taking my. . .

Tim Ferriss: So what does that mean? So if you travel 5 hours across country. . .

Kelly Starrett: It takes you 5 days to normalize again. That's how. . . if you've seen the stuff. . .

Tim Ferriss: What if you fuck with yourself? Here we go, if that's what you want, with like Melatonin.

Kelly Starrett: We can optimize and you're still. . .

Justin Mager: And fasting might help too.

Kelly Starrett: Right, that's right.

Justin Mager: And we really come back to that. So don't forget or you can go for it.

Kelly Starrett: How do I minimize the compromise which is [inaudible].

Tim Ferriss: [inaudible] be a little place for two days, right?

Kelly Starrett: Right, Sharks said, we fly back and now you're screwed again, and all you have to do is you need a blood glucose meter, which I think is the cheapest form of testing. Oh really, you want to find out what the real truth is about your life? Go pay \$12...

Tim Ferriss: Go to Walgreens and... Yeah, exactly.

Kelly Starrett: So I started taking my blood glucose, eat like a monk, okay, I'm knocking [inaudible], I'm going to eat cookies, I'm going like. . .but I would come back and my blood glucose will be 99 because I was just being fucked up from the travel and I'd be like, "Oh, pre-diabetic, that's great," and I'm doing everything right and I'm pre-diabetic and I would be true pre-diabetic for like 24 or 48 hours.

Justin Mager: Wow.

Kelly Starrett: And now, I have a glass [inaudible] wine because that's how I'm coping with the sympathetic stress, and you can see how I certainly cycle into this piece. I stop sleeping more, I have to travel less because that be able to make some changes. I sleep plus nine hours a night.

Justin Mager: Yeah, me too, me too.

Kelly Starrett: And everything has changed. People always ask me like, "Oh, you only sleep like two hours a night. I put on 10 pounds of muscles."

Justin Mager: Like it's like a waste of time. I'm like no, no, no. I love it.

Tim Ferriss: In what period? How long?

Kelly Starrett: Since October.

Tim Ferriss: That's a lot. You're already pretty [inaudible]. Like one of your [inaudible] my body weight, I should guess.

Justin Mager: There was a study I think about two years ago now where they calorically restricted two groups of individuals and the intervention was that they restricted, they allowed one group to sleep 8 hours. They restricted to sleep up to five hours in the second group and they both lost about the same amount of weight. Actually the group that slept five hours a night lost like two kilos and the group that slept eight hours lost 1.9 kilos. What they did that was more sophisticated was the body composition. The group who slept five hours lost 60% more muscle, 50% less fat than the group that slept 8 hours. So there's huge, no doubt. You know what I mean that getting that integration time and getting that sleep and that repair that recovery, I mean I always use the heart as a nice example of life where people were like, "The heart is always working." It's beating every, you know, as soon as it stop beating, you start beating.

But no matter what the heart rate is, it maintains a one-third work, two-thirds rest ratio. And so that's a great kind of thing that I think we should bring into our lives and it's one of those things where I actually think that some of the work that you started with the self-experimentation and then when you start having the personal digital health.

Tim Ferriss: Was it Frio, that sleep thing?

Kelly Starrett: Zeo.

Tim Ferriss: Oh Zeo, yeah. It's unfortunate, they went out of business.

Justin Mager: It's so good.

Kelly Starrett: It was good. I really enjoyed that.

Justin Mager: It was ahead of the time. [inaudible] He understand on what goals. . .

Kelly Starrett: Right, not to like totally blows off track but there is no track so there's no fault there. It's unfortunately when you have fantastic ideas and implementation that are just two or three years early.

Justin Mager: It was two or three years early.

Kelly Starrett: And as a result, it's really expensive, right? Because the componentry especially in say hardware hasn't become cheap enough, mass adaption isn't there, like quantified self. I was at the very first quantified self meeting, I think it was in 2008 at Kevin [Kelly], I was fanning a reward in Pacifica just in a living room with 20 some people on a whiteboard and I talked about [inaudible] and it freaked everybody out. It was great. And it was a weird French thing then, but now, how many people have Nike fuel bands? How many people have [inaudible] bands? How many people have fit bands? And it's becoming normal thing. And I remember people were asking me. They're like...

Tim Ferriss: How about counting macro-nutrient blocks, that's Q.Sing.

Kelly Starrett: Yeah, I mean like being self-aware.

Justin Mager: Yeah, and like what, so like Zeo was a few years ahead of its time and just as many are when you're on the front-line, it's like, all right, you're going to take that arrows first. You're just a couple of years early. It's just like there were MP3 players before the iPod -- too early. And then [inaudible] came in and it's like thanks for doing a lot of free R.N.D. for us, that looks really promising. Now, we're going to kill you. Here's what you can do. Have a cup of coffee at 1 o'clock in the afternoon, see how [inaudible] in your sleepiness. Don't drink caffeine after but you keep your caffeine in the morning... I mean, you can test this. The Zeo was a great way of actually measuring it and seeing it, the quality of your sleep. It sucks when you have that 4 o'clock [inaudible].

Tim Ferriss: This is something that Seth Roberts has talked about a lot, who is a professor from Berkeley. Have you guys have ever met Seth?

Kelly Starrett: No.

Tim Ferriss: Interesting guy. He's a very, very smart guy. He wrote a book called The Shangri-La Diet, which sounds almost as bad as the four-hour work week in terms of like information, or I'm sorry. . .

Justin Mager: I named becoming a Supple Leopard because of you, motherfucker.

Kelly Starrett: Oh, it's perfect. No, I like your title.

Justin Mager: Catches in your car, you can't forget it. People are like what's a Supple Leopard? For our body bitches.

Kelly Starrett: Yeah.

Justin Mager: Seriously. That was easy. Thank you very much.

Tim Ferriss: And it's like the more like infomercial product sounds, the more [inaudible] going to get out of it. So Supple Leopard is fucking money. I like it. Where the hell was I going with all these?

Kelly Starrett: The Shangri-La Diet.

Tim Ferriss: That's right. So Seth noticed that if you consume calories, it could literally be sugar waters, sucrose in water. If you consume calories that are disassociated from a known food and you pinch your nose so you void the olfactory portion of it, you can inhibit your appetite by 40% kilo calories consumed per day. It's fucking wild shit, right?

Kelly Starrett: But how do we dissociate that in the first place?

Tim Ferriss: Yeah, but what's so fascinating, I mean the point that Seth has made before is that Science is good at testing hypothesis, traditional Science is not good at coming up with novel ideas, if you want to and I think that the American public and just the global public in general but I think especially in the U.S. in lieu of religion has come to treat like "Science" in quotation marks as like the church, the gospel. And therefore they're like, "Oh, how do you know that?" They have a couple of buzz words that they can turn around which is like, "Has there been a double blind placebo control blah blah blah on diet?" And you're like, "No, because of the following hundred reasons. No one can profit from it, therefore it's hard to find fundings. Secondly, it's launched to do the study, really expensive. Thirdly, it's observational, so blah blah blah, they can't really. . .they can infer but not prove cause and effect, blah blah blah blah. So what that means is like if you really want to figure out like is coffee fucking at my sleep?

You have to do it yourself. It's not going to be sponsored by the government or the N.I.H., sorry. It's just not going to happen. And if it's going to happen, it's going to take 5 to 10 years. So guess what? Surprise, you're responsible for your own life and you need to test it yourself. The good news is with tools whether it's a Zeo or you could use a band and this is inference obviously but that measures movement. You can get an indication of what might be, say, deep sleep. And that's really empowering. I mean, I'm just like so excited. I cannot wait until we get to a point where you can track important bio-markers without a phlebotomist right, because right now, it's like that's just expensive. It's a lot [inaudible], it's a lot of mailing.

Kelly Starrett: And it's not on the time, like it's not right now, everyday. There's a lot of distance between the cup and the lip. You know what I mean.

Tim Ferriss: Wait, wait, explain it. I like how that sounds.

Kelly Starrett: Many [inaudible] between the cup and the lip, that's the joke but like. . .

Tim Ferriss: I have never heard that. I'm so embarrassed. I feel uncultured.

Kelly Starrett: You are sitting with two doctors. Even though you are the most experienced amongst us. Just to let you know, if I see again, a [inaudible] in three months or once a month because I'm really had it a curve. There's a lot that goes on. How did I managed that piece of work? I went to two weeks, my kid didn't sleep. I think what's interesting now is we're seeing so many people who called it best practice. I'm like, "Are you a monk?" Do you not like. . . I started playing around with Restwise, [inaudible] this guys at Restwise.

Tim Ferriss: Hey, what's Restwise? I don't know.

Justin Mager: Well, it was a . . .they came up with a really good algorithm for are you recovering from your workout or not?

Tim Ferriss: Is this like heart rate ability testing?

Justin Mager: No, there's no H.R.V. They look at S.A.O. too so your auction saturation in the morning because if you dipped a couple of bits then you saw inflammation in your lungs so you could actually. . .you know that question, the [inaudible] question, we figured this out because we were watching it. I have a cold, do I exercise or not? You know what I'm talking about?

Tim Ferriss: Yeah, yeah.

Justin Mager: And 50% of the time, you gamble and you're like "bam!" about that...

Tim Ferriss: I thought you're making [inaudible].

Justin Mager: No, that's [inaudible] ... gambling.

[cross-talk 00:35:10]

Tim Ferriss: I exercise and I get sick. Well, it turns out that you just track, you get little auctions on eBay or on Amazon for like 10 bucks now, right? So that's technology has brought down. If you dip one or two points, you see an information along which indicates the severity of your cult. That is not upper respiratory, it's starting to go lower respiratory and now you shouldn't breath hard because you're going to blow that out and we just thought. . . For us that's just like, "Hey, don't exercise if you see this thing," and people were able you to [inaudible] but they looked at that heart rate in the morning, resting heart rate,

you see a little marker, soreness, whole bunch of things, it took like 45 seconds to kind of do the [inaudible]. But our daughter used to come charge us in the morning and we go from zero to I'm awake, holy shit! Like what's going on! And my heart rate would spike every morning. I would lay there, you've taken my heart rate.

And we're like, well, this is fucked and like so . . . I think this is the problem. I asked every single professional team and I go everywhere. I'm like, "Do you use heart rate variability, do you use some kind of metric with your phone [inaudible] or somewhere else looking at heart rate?" And they're like, yes or no, because it's so sophisticated but we're getting a snapshot of a 22-year-old who drink, you know, went out drinking monster Red Bulls and it's a lot of misplaced precision.

Kelly Starrett: Yeah. There's a couple of things that I want to call on that you brought up like one instance that the interesting thing is that I think that one of our problems in progress, in no matter what field we're talking about is just that we assume that we know what the hell we're talking about. We're going to perfect, you know, further. Absolutely. Because you just say we wanted to look at this and observe, I mean in all these big break-throughs in Science and Medicine, oftentimes, our kind of these observations that are unintended observations. See, I was in Viagra being a huge one.

Justin Mager: Penicillin?

Tim Ferriss: Penicillin being a huge one, right. So I think that when you're talking about digital health technology or self-experimentation, the opportunity there is discovery and when you have an end of one, you have self-discovery. When you have \$5 million end of ones then you have collective discovery and so I actually think that like how to tracking in personal health devices. I think it's actually going to be part of like the next human rights movement where we actually get to understand and know how damaging some of the aspects of society and work in our work life balance and all that stuff actually really impacts us. Another thing that I thought of. . .

Kelly Starrett: 100% of everything.

Tim Ferriss: Another that you actually bring up that I think is a good counter point is that I'm actually working with an individual, Sami Inkinen who was one of the co-founders or Founders at Trulia, the Real Estate website and he is really big triathlete and he and his wife, they actually decided that they're going to enter into the open ocean rowing race from Monterey to Hawaii and they don't have open ocean experience and then they're going to do it on a low carbohydrate diets to bring awareness to kind of like the dangers of fructose and high carbohydrates and that's where thing in their expedition that's called fat chance, it's really interesting.

Kelly Starrett: That's a lot to take on.

Tim Ferriss: It is. No, it's amazing. And actually. . .

Kelly Starrett: It's risky, trains whole last year using You Can. That's modified starch.

Tim Ferriss: Yes, super starch. I've got some You Can over there.

Kelly Starrett: Yeah. I mean, these modified starches now, you know, and that's the high jack we were saying. It's just so interesting that like people are tinkering with millions of dollars on reward.

Justin Mager: Right, no absolutely, I mean. . .

Tim Ferriss: I'm going to ask for a second, who's Sobrinski?

Kelly Starrett: Sobrinski, the track superstar.

Tim Ferriss: Ah, that Sobrinski, the cycling bad ass.

Justin Mager: Okay, cool.

Tim Ferriss: That works for [inaudible] Mark Sisson because what we're finding is now, as you said. . .

Justin Mager: Where's Mark? Oh, cool.

Kelly Starrett: N of 1 becomes N of 500 and N of 1000, we start to know patterns. It's about pattern recognition.

Tim Ferriss: It is.

Kelly Starrett: And you can't eat like a douche bag, if you're an endurance athlete buffering it with exercise and all the sudden you stop and woop, you fall apart, like you have to come out unharmed at one rep or a million reps or a million days because you're going to be 110 if you're in a pre-diabetic and you're 40's or 50's because you're a [inaudible] eating exactly what they told you to eat.

Justin Mager: Jellies.

Kelly Starrett: We didn't know. Okay, how many jellies do I need? I mean this is so interesting.

Kelly Starrett: So to finish what Sami, one of the things I really appreciate when I first met him, we were talking and he said, "Look, I was training for a triathlon and I started doing heart rate variability and tracking in and just really getting very

comprehensive about what he was doing and he was trying to figure out what his edge for over training and his training volume was. And he said at the end of like 9 months of doing all of these different basal body temperatures, morning heart rate variability, he said that what he found was the most reliable source of information for him was when he woke up, what his instinct was. How did I feel today? And he said that that was the most reliable indicator of how much he can push volume and train.

Kelly Starrett: Wow.

Tim Ferriss: And the beautiful thing about that is that, you know, some people would say, ah, well then look at all that bullshit of heart rate variability and stuff, which I think is a fantastic piece of information. I also think that mental emotional states really can influence that just as much as physiologic states like over training and so it's tricky, right? But at the same time, his journey of looking into this led him into a heightened state of confidence in his inner compass. And to me, I think that that's ultimately the victory, because a lot of time's when I'm working with really interesting people and high level executives and people that can kind of spend some of their resources into kind of looking and analyzing and all this technologically advanced tools and data which is really fun. At the end of the day, what I really want to give back to people is kind of this empowerment that listen to yourself, get involved with yourself, have a high expectation for your life and for your health and for what you can achieve and go after it. You don't need all the technology.

Justin Mager: And start knocking off the big ass, heavy boots you're walking around, because you can't hear it because you're hung-over from your Ambien sleep. You know, you can't hear it because you drink five nights a week. You can't hear it because you haven't slept. You can't hear it because your diet is shitty and you don't move at all. You don't even have a movement practice. I mean, I think that's, you start to be able to . . . you really, if you eat like an ass, Tim, you know it.

Tim Ferriss: Yeah. Of course.

Justin Mager: I got heartburn and diarrhea, and I'm not saying it's not worth it, because sometimes it's worth it. But I know what's coming down the pipe, right? Literally.

Kelly Starrett: I have a dumpling evening coming in tomorrow. I'm like, all right, all right, let me gird my loins, my GI tract. I'm ready.

Justin Mager: Bring me my brown pants.

Tim Ferriss: This might be too medical, but what still fascinates me is how much, you know, hot wings burn my lips and my asshole.

Justin Mager: I like that.

Kelly Starrett: Just a little 12-hour dilemma.

Justin Mager: We were having Chinese food with Georgia and Georgia has . . . I've been weaning my daughters . . .

Kelly Starrett: Your daughters?

Justin Mager: . . . onto hot food.

Kelly Starrett: Now this is the five year old or the year old?

Justin Mager: Yes.

Kelly Starrett: Which one? Can't be both.

Justin Mager: Georgia. Old. Both my kids I'm weaning into hot food. But Georgia was like-, Frank's Red Hot was her gateway drug.

Kelly Starrett: Yes.

Justin Mager: And now, literally, I saw her sneak my Belizean habanero sauce. She put a little dot on something the other day and I was like, do I mention it? Like, I just let it go and just pretend I didn't see it. But we were having Chinese food and I was, like, Georgia, take a spoonful of this hot chile paste. And she's like, no, no, it's like \$20. And I was, like, \$30.

Kelly Starrett: Now how old is this daughter?

Justin Mager: Eight.

Kelly Starrett: Nice.

Justin Mager: And I was, like, \$50.

Kelly Starrett: That's a fucking, that's like a Scrooge McDuck backstroking through a fucking pool of money . . .

Justin Mager: I know. I know. And, literally, I just kept going higher and higher and then, literally, she starts to go for it. And I was, like, you know that's going to be hot twice. And she was like, what do you mean? And I was like you've never experienced that? I had to explain to her the ring of fire. And she's like there's not a lot of money, Dad. Sorry. She walked away.

Kelly Starrett: Wow. She sounds like the next Warren Buffett. That's an amazing . . .

Justin Mager: I was, like, that's a lot of money.

Tim Ferriss: She has the intelligence of Juliet.

Justin Mager: Did you ever see that experiment that you could ascertain self-control?

Kelly Starrett: Oh. With the cookies.

Justin Mager: With the cookies. Did we have this conversation?

Kelly Starrett: No. We didn't, but I know exactly . . .

Justin Mager: Well, you know the experiment.

Kelly Starrett: You should talk about it. Go for it.

Justin Mager: So they basically . . .

Kelly Starrett: This is amazing.

Justin Mager: They basically said that if you could delay personal gratification . . .

Kelly Starrett: . . . and, like, success in life.

Justin Mager: If you could delay personal gratification then that really was a good measure of how you were going to do in life. You know, because I would work hard towards a goal that is transient or in the future.

Kelly Starrett: Yes.

Justin Mager: And you can measure that in kids if you literally gave them a cookie and said, if you just wait, I'll give you two cookies and, literally, Georgia was like, how long do I have to wait to get three cookies?

Kelly Starrett: That's beautiful. Beautiful.

Justin Mager: She was on it. And I got bored, and I was like all right, here's three cookies. This kid is obviously like . . .

Kelly Starrett: Wow. That's amazing.

Tim Ferriss: That's interesting. You know, for men, that instinct of how you feel in the morning. People are just out of touch with really the gut instinct. It really is true about so much...desire training... I'm 40 now. I just turned 40. And so much, like . . .

Kelly Starrett: It's going to be a good day.

Justin Mager: Congratulations.

Kelly Starrett: I just turned 40 last month.

Tim Ferriss: Hey, there you go.

Justin Mager: I'm nipping at your heels. I'm 36. I'm getting there.

Tim Ferriss: Jesus sat under the tree for how many days?

Kelly Starrett: I don't know.

Tim Ferriss: 40 days. Buddha sat under the tree for how many days?

Justin Mager: 40 days.

Tim Ferriss: It wasn't the tree. It was the desert. But it turns out 40's is this purification. Like, it's a serious...

Kelly Starrett: I would use it. Absolutely.

Tim Ferriss: Rome believed that the 40's when life began. Like you lived now that you're 40. But one of the instincts, some of the best coaches in the world. It's so interesting when you hear, you understand what the masters say. You have that zen coin, you know? Like when the frying pan is hot we cook. And the coach knows when you're doing well or not well based on the day. And it doesn't matter what metric it is. It's a lifetime of pattern recognition. It's data chunking. It's all the things that we think are important. The coach says you're not moving well, we're going to back off volume and we're going to back . . . And that's why it's so important people have coaches when they can do it.

Kelly Starrett: Well, here's a question for you. In your experience, and we can talk about specific to high level athletic training. What makes a good coach? In your mind. What's a good coach? What characterizes a good coach versus mediocre coach or great coach? What makes a great coach?

Tim Ferriss: It's some intangible, can you understand what you're seeing? I think that's really the thing. Because a lot of people are really good at . . . I know some really, really talented programmers who read the studies from the 80's and the Russians, but they don't know what they're seeing. And then also, there's . . .

Kelly Starrett: So they're good at prescribing, but not observing.

Tim Ferriss: Yeah. And then there's a huge psychosocial component to this whole thing. And to pull that out makes you an ass. You know, like . . .

Kelly Starrett: What do you mean?

Tim Ferriss: If you don't know what's going on in your athlete's life and how to motivate or back off or meet the needs. Like, you know, if you're a good therapist, you immediately match the posture and position of your patients.

Kelly Starrett: Yeah.

Tim Ferriss: So if someone comes in and talk, I'm up like this and if someone comes in with . . . I really will match their affect and tone pattern and I speak very slowly and you have to relate. And literally, people would peg that I'm a big guy. I'm 6'2", 230. And people would be, like, meat-head. And then they'd be, like, wow, I didn't realize you could work with that 98-year-old woman. And I was, like, well, turns out I'm a person and relating to that person is what's most important. Not one size fits all. It's that coach who can motivate and underneath that, how do you codify that and teach that systematically? It's tricky.

Kelly Starrett: Super tough.

Justin Mager: It's a science and art.

Tim Ferriss: 100%.

Justin Mager: Every aspect of life has that science component and it has that art component. I mean, an hour before I came here tonight, I have a high level executive in San Francisco say, I need to stop over for five minutes. He comes and he describes having chest pain. You know what I mean?

Kelly Starrett: That's an intense five minutes.

Justin Mager: Yeah. Totally. And he's, like, I called my cardiologist and he said go to the ED. Emergency Department. And I was, like, yeah, that's a pretty good recommendation. Why risk it? But he was, like, well, one, I have a giant meeting tomorrow and . . .

Kelly Starrett: I don't want to be in the ER.

Justin Mager: And we talked it out and that sort of thing, you know, and ultimately, he is in control and it's why I like working with executives in the sense that they have a good sense of destiny and they have a lot of sense of personal responsibility. So, on one hand, I checked in with him. I'm like, look, a lot of people are in denial of what's going on and I don't want you to be in denial. And he checked in with that. But I also did say to him that, you know, one of the things that I appreciated

when I worked in the hospital, say, was that I had a sense of instant recognition of a sick animal. So when they come in and they look sick, I'm like, okay, something is really wrong with this individual. So then you start really digging in versus he didn't look like a sick animal. You know what I mean? And so I at least shared that with him. I didn't want to give him false confidence, but there is an art of knowing that non-verbal, that it's just kind of you're just with somebody.

What you just said was really cool, because I came across an Edgar Allen Poe quote and he said that if I really want to know what another man is thinking, I fashion my face and my posture as closely as I can to what they're showing me and I just kind of see what emotions arise. And you know people that way.

Kelly Starrett: And those things are integrated systems. Why shouldn't they be? You know, literally, what was that great study that was like slouching causes cortisol to rise because it's a defensive . . .

Justin Mager: It's posturing.

Kelly Starrett: It's a posture. Absolutely. But people have forgotten that the brain exists for one reason. To move you through the environment so you can interact, feed yourself. Cognition bootstrapped on top of that.

Justin Mager: Fuck things.

Kelly Starrett: That's right.

Justin Mager: I think those are two requirements.

Kelly Starrett: That's it. That's the first base and then cognition is bootstrapped on top of that. Feed yourself. Reproduce. Run away from danger. Right? Not die. Have lots of sex, comma, but those things are vertically integrated.

Justin Mager: True.

Kelly Starrett: But what's happened-,and Daniel Coyle's book was fantastic.

Justin Mager: I'm sorry. Say this again.

Kelly Starrett: Daniel Coyle's book. Talent Code.

Justin Mager: Oh, dude, this book has come up over and over again.

Kelly Starrett: No brainer.

Justin Mager: I still have not read it.

Kelly Starrett: Looking at skill is a biologic acquisition.

Justin Mager: Talks about these little Russian factories for tennis players and all that?

Kelly Starrett: Uh, you got to read that. You also have to read and everyone needs to read David Epstein's *The Talent Gene*. Brilliant, brilliant, brilliant. *Sports Gene*, maybe. *Sports Gene*. You'll find it like really looking at this genetic component to chunking, learning.

Justin Mager: Huge.

Kelly Starrett: Huge. Like, you have a skill, but you also have an innate ability to learn a skill. Right? What makes you you. If you ask my wife, what are my two skills, she'll say I can mimic anyone, which allows me to understand how you move and why you move. It really has changed my practice.

Justin Mager: You don't want to mimic me, man. You'll fuck up your head.

Kelly Starrett: Like, I literally became obsessed and watched Lincoln and I watched Daniel Day Lewis walk like Lincoln.

Justin Mager: Amazing.

Kelly Starrett: And I left walking like Lincoln. Walking like Daniel Day Lewis walking like Lincoln. And I was, like, that fucked him up. Juliet was like, you've got to stop doing that. And I was like, that guy had these problems and I was, like, he lived in that weird posture and then I had pattern recognition and being able to mimic those things really, really matters.

Justin Mager: Yeah, absolutely. Actually, I was having a conversation with Dana Carvey one morning.

Kelly Starrett: Dana Carvey? Like Church Lady Dana Carvey?

Justin Mager: Yeah. Church Lady Dana Carvey.

Kelly Starrett: Nice.

Justin Mager: And one of the cool things he said to me. We were talking about his impersonations.

Kelly Starrett: He's insane.

Justin Mager: Yeah. He goes really, you got to . . . it's pattern recognition. And so he like broke into talking to me from the voice of Barack Obama and he was just having a

conversation with me just following the intonations and the ebb and flow. You know, I'm not even going to try it . . .

Kelly Starrett: But it's pattern recognition.

Justin Mager: It's total pattern recognition.

Kelly Starrett: Caricature drawers, same, they identify the patterns. They see the patterns and I think that this is if you can turn that on yourself a little bit. I mean, literally, like, people are so easy to read and so transparent that...

Justin Mager: It's interesting because there's all these kind of mystical statements, too, that it's like if you know yourself, you'll know all people. And it's that polarity, even in medicine, where we all have a unique set of circumstances. We have a unique set of genes. We have a unique set of environments, but we are overwhelmingly fundamentally human. And as soon as we kind of grasp that and find the balance point between those two polarities, that's when you really kind of grasp the whole picture. You know what I mean? Because I used to be such a big detractor of genetics. You know what I mean? I'm like, oh God, it's all about gene expression and that sort of thing. And I still think that that's one of the graces of it all is that you have your genetic disposition and, by the way, there's a lot of intelligence there in almost every gene when people look at it, they're like oh, that's a deficient gene. I kind of look at it like, how's that a survival advantage? And so, if you're, like, apoe genome type, it's one that quote unquote, "has the thrifty gene" so that you absorb every freaking calorie you can out of fat that's through your diet . . .

Kelly Starrett: It's a huge survival advantage.

Justin Mager: It's a huge survival . . . it's a superior gene. It just found it's way into modern life where we just have so much...

Kelly Starrett: So much availability. Donuts.

Justin Mager: That's the problem. You know what I mean?

Kelly Starrett: The Krispy Kreme friendly gene.

Justin Mager: So, understand it.

Tim Ferriss: Let me jump in for a second. So, this is a question I'm always fascinated by. You guys are both very world class at different but overlapping things. So, Kelly talked about his sort of two unique gifts among hundreds, I'm sure.

Kelly Starrett: At least three. At least three.

Tim Ferriss: At least three.

Kelly Starrett: I tricked a woman, Juliet to marrying me.

Tim Ferriss: Smart move. Definitely raised the average on the offspring. So what do you consider yourself world class at? Or gifts? What makes you different from other doctors?

Justin Mager: My honest answer to that is that I am extraordinary. Extra ordinary. You know what I mean? I feel like I came into life with a set of circumstances where I flew myself the life to kind of help me out. You know what I mean? And I did not have an ego. I had an openness that I wanted to just kind of-, I wanted to know. I wanted to survive. You know, I came from a broken home and kind of a borderline impoverished situation.

Kelly Starrett: Where did you grow up?

Justin Mager: Pittsburgh.

Kelly Starrett: Are you talking about my life or your life?

Justin Mager: Absolutely. No, no. And it's one of those things where, yeah, no, I resonate with what, we haven't had a long talk about that, but what I know of your life, you know, there's a lot of overlap and I think that that openness really just gave me that opportunity to have humility and to also have people recognize that in me and they just shared what was most hopeful. And there was no kind of agenda where I had a father that had this agenda for me and expectation and that sort of thing. People just interacted with me and they just kind of shared and they just felt that I was a comfortable person. So really, I don't like, I'm not comfortable with the idea of expertise. I think that life is intelligent. We are all amazingly intelligent. And it's not so much that it's . . . there's nothing that I have and bring to the table other than just a humility and an openness to it.

Tim Ferriss: Kelly?

Kelly Starrett: You know, you said something about coaching I just heard is what makes a good coach. What makes a good coach is you stop trying to . . . you don't make any value judgment on what a coach is doing. You try to start to solve or think of what problems the coach is trying to solve. And suddenly everyone becomes an open book. Because I like your work and I'm like, what problems is Tim trying to solve? What are you trying to solve? And I start asking the why behind the Q. The why behind the methodology. What this coach is seeing this set of problems and they prescribe something. This physician is seeing this set of problems and prescribing something. And suddenly the openness is that you can learn from everyone. If you're listening, you're watching, and you're asking that behind the

scene question. You'll never hear me criticize or critique a coach publicly ever, because that person is trying to solve a set of problems that are large.

I want to know what it is that they're seeing and what they're trying to prescribe and then we start to develop best practice out of that. And that openness, I mean, I don't know how many conversations . . . I still am blown away, we just had this offhand, throw away comment that your blood is filtered through your eyes every how many hours?

Justin Mager: I don't know. I mean, I would say that you filter four to six liters of fluid through your body at rest. And it goes up to 20 to 40 liters per minute.

Kelly Starrett: But all your blood goes to your eye?

Justin Mager: Absolutely.

Kelly Starrett: And your eye, you have to have UV. And one of the UV is a pathogen killer and what if, I think, you said that and I was like, holy crap. What if we're always wearing sunglasses all the time and we don't get UV and one of the reasons you have to get UV is for your vitamin D and these other problems, but what if it was really filtering your blood through your eyes. I mean, I just think . . .

Justin Mager: Absolutely. Because there are treatments that people take blood out of the body and run it through UV filters and put it back into the body.

Kelly Starrett: You said that and I was, like, I ban sunglasses in my house. Because I was, like, oh, you know you've started collecting these spider webs of information and trying to coalesce it into best practice. I mean, it really is . . . You had an idea where you're like, huh, I can experiment on myself and I can write about that. But I could start to work with these masters. I could start to establish baselines. You know, one of the kind of themes of today has been this baseline with testing. Greg Cook is a good friend of mine.

Justin Mager: Yeah?

Kelly Starrett: And we have really worked hard. We're actually co-writing a book about establishing movement minimums.

Justin Mager: Cool. I like that.

Kelly Starrett: Baseline minimums. And I love his example. You know, he's become a really dear friend.

Justin Mager: Where is he now these days anyway?

Kelly Starrett: Oh, he's just burning the world down in Tennessee.

Tim Ferriss: He's trying to do more stand up paddle boarding. He's a genius, but one of the things that he's saying is . . .

Justin Mager: Also, made a cameo in the...

Kelly Starrett: That's right. That's right.

Justin Mager: ...*4-Hour Body*.

Kelly Starrett: You know, if you can't . . .

Tim Ferriss: As did Justin.

Kelly Starrett: True facts. This notion. People thought he and I were really diametrically opposed and when he and I started talking, we were like, oh my god, we have these big problems we have to solve. If we don't collaborate and share sources, we're fools. And, he's like, look, do you remember in middle school when you bent over and your gym teacher screened you for scoliosis.

Justin Mager: Oh. Okay. All right. I was like, I'm not sure where you went to middle school. I was on the wrestling team and that didn't happen.

Kelly Starrett: Wrestling team. Right, so, your PE teacher was not very sophisticated, but screened you for scoliosis, right? And the issue is why have we been so divorced from . . . you know, how about this, men, if you're listening, if you wake up and you don't have a boner . . .

Justin Mager: There's a problem.

Kelly Starrett: Right. There's a problem. Yes or no? One or zero? Boner, no boner? You know?

Justin Mager: Right.

Kelly Starrett: And what the Jungeons would say is how was your dreams? Tell me about your dreams. That's how they greet you. So what did you dream last night? What did you process? Let's talk about it. And literally we should be saying to each other, did you have a boner last night? Did you wake up with one this morning? That's so bright line, know thyself. But if you ask that question, I mean, like, that's one of those data points that's so easy to know.

Justin Mager: Binary.

Kelly Starrett: Do I have a boner? Yes or no? I can then backtrack and say, I was stressed. I didn't have sleep, cortisol, food. Choose any one of the simple roadblocks, and I

can see immediately my function. I bet if you correlate a boner to like how do you feel today, you know--

Tim Ferriss: Pretty close correlation. Yeah. One to one, yeah.

Kelly Starrett: One to one.

Justin Mager: Not only does that simple--

Kelly Starrett: Yeah. Actually it's not only that simple kind of measure.

Justin Mager: I would encourage you.

Tim Ferriss: Actually, my sponsorship dollars go up whenever you say boner. I have no sponsors.

Kelly Starrett: It indicates deep sleep with good kind of growth hormone, FSH, [inaudible] with testosterone responsiveness, no doubt. Another interesting thing that comes to mind is just that, you know, when you look at kind of the class of drugs like Viagra, Levitra, Cialis, that help with erectile dysfunction for people, if you look at the medical literature it says, it's most effective in psychogenic causes of erectile dysfunction. Then when you look at kind of what the hell does that drug do, it preserves phosphodiesterase inhibitors, and when you look at kind of other animal models where they say like, you know, the water-boarding equivalent for rats is to kind of let them swim around in a fucking...

Justin Mager: Fucking to exhaustion.

Male Voice: Totally need a bucket.

Male Voice: Into exhaustion. Right? Absolutely.

Male Voice: No rat boner.

Male Voice: No rat boner there.

Male Voice: Absolutely. [Laughing].

Male Voice: We call that rat flaccid.

Male Voice: How are you feeling? Rat flaccid?

Kelly Starrett: Swimming in a bucket. But, you know, that really decreases their brain's phosphodiesterase. So it's kind of really like, you know-- You had mentioned this, I think, before we started recording where, you know, you're really into kind of parasympathetic, sympathetic nervous system tone and it really gets back to

that. I mean, I'm really telling-- You know, to me, I'm more convinced that, you know, the mind directly influences the physiology or indirectly influences the behavior patterns. But it's really all about kind of understanding, you know, how your nervous system kind of interacts with your physiology. You got to get on it.

Justin Mager: I started going there-- You said parasympathetic, sympathetic tone. Let's just like break that down for people. When you are at rest, and you're in a good homeostasis, non-threatening environment-- When you breathe in, for example, your heart rate accelerates. When you breathe out, it decelerates.

Kelly Starrett: Correct.

Justin Mager: That is a good indicator.

Kelly Starrett: No, no. When you breathe in, it decelerates. When you exhale, it accelerates a little bit. Is that what you said?

Justin Mager: No, I think I said the opposite. Isn't it because it accelerates when you breathe in?

Kelly Starrett: No, no. It actually slows down.

Justin Mager: Oh, that's right. Okay. Slows down. Correct

Kelly Starrett: That's 100% right because you if you were trying to cheat the test at the grocery store, you hold your breath or-- Okay. All right.

Male Voice: So the problem is that people get into this state where there is no variability in their heart rate.

Male Voice: Right.

Male Voice: That's the heart rate variability in heart rate variability that people start to fire up their adrenals. They're in this fight or flight response. They're not sleeping. They've just played the game. They just had a meeting.

Male Voice: They're cinched out.

Male Voice: We see people cannot go to sleep. Like in one magazine, was it the Red Bull magazine. One of the best players for the All Blacks was bragging about how after big games, he can't fall asleep. He has to stay up playing video games all night. I was like, red flag.

Male Voice: Tired and wired. Right?

Male Voice: Oh, is that what it is?

Male Voice: Yes.

Male Voice: If you have a child, and you're listening.

Male Voice: Where you're not [inaudible].

Male Voice: That's right. If you have a child, you know this, that sleep begets sleep, that a tired kid will not go to sleep and will not sleep well.

Male Voice: Right.

Kelly Starrett: And so if your kid has a crappy night's sleep, you're in for another crappy night's sleep. I think what's so interesting for me is we started looking at this be-- I started becoming interested because so many of my professional athletes and my soldiers were coming back, were vampires, you know, literally not sleeping at night, especially, you know-- I was working with, just say, the military's elite, elite doing the scariest jobs. One of my friends deployed to Afghanistan recently, and his testosterone was 270, you know, and this is a guy who played division one football and like in the Rose Bowl.

Justin Mager: No androgens.

Kelly Starrett: Zero.

Justin Mager: By the way, if it's less than 300, and you're 60, it's treatment-level testosterone.

Kelly Starrett: Right. We want something like-- Was it 900 as the upper end? 800?

Male Voice: Well absolutely. No. I mean, I think 800 to 1000 is what I've--

Male Voice: I'd be pretty happy with 900.

Male Voice: Yeah. Absolutely. No. It's what's I've seen [inaudible].

Male Voice: [Laughing].

Male Voice: But then again, you know--

Male Voice: Right.

Male Voice: Fucking two bottles of wine twice a week.

Male Voice: So it's worth it.

Male Voice: Yeah.

Male Voice: Do you have a boner? Yes or no?

Male Voice: It's like a Krispy Kreme. Yeah.

Male Voice: So the issue though is that, you know-- So I started looking at what are the-- How do I impact that? What are the ways, without having to measure it, knowing that I'm compromised because I'm under stress because I have a newborn, because I don't sleep, because whatever-- How can I-- Because that's what I think what you did, was you removed-- For me, this is really why I respected you in a way that--

Male Voice: You're like, "I really had no respect for you up until the point."

Male Voice: Then what I think was so great is you removed even the need from-- Like, it was subjective so much. You said, "Hey, go get a blood test." But you also said, you know, "This is black and white. Do you feel better? What's going on?" And you just sort of removed like-- Why don't you even do-- You know you're compromised. You know your diet is shitty. You know you're not exercising. Take away the road blocks because we know you're already compromised.

Male Voice: Yeah.

Male Voice: This has been a real shift in my own brain, you know. I started-- Last year, I was in a Blue Angel jet in a shitty position. I sat-- I mean, I sat in a helicopter. I jumped out of an airplane, strapped to someone at, you know, 25,000 feet. You know what I mean? I just did all these things where I was compromised. I wore body armor for 10 hours. I was like, there's no way not to be compromised. So if I know I'm compromised, what then? And I think what was so great about-- It is so great about your thinking. It's like you basically struck the assumption that you're compromised. Why don't you do these steps and start to un-compromise yourself? Because you know you're compromised. At the very least, it may do nothing. At the very most, it may change your life.

Male Voice: Yeah.

Male Voice: You know, which is sort of this best practice [inaudible].

Male Voice: Simple self diagnosis. Right?

Male Voice: Right. Right.

Male Voice: And it could be just a few moves. I mean, that's what I appreciate about, you know, your teaching, whether at SF Cross Fit or through the wonder of the Internets is it doesn't have to be complicated.

Male Voice: No.

Male Voice: It can be as complicated as you want to make it, but it doesn't have to be complicated.

Male Voice: So actually I'd be interested to ask you. If people are going to do a self evaluation-- This is really nice. I'm very happy with it. So for those who are curious about the various clinking and so on going on, we have the Mascot 2008 from Napa Valley. This is from Will Harlan, H-A-R-L-- [Laughing]. Let me try that again. H-A-R-L-A-N. This is one of those edit sober-- No. What is it? Write drunk. Edit sober. Does not apply to podcasts, by the way. The Mascot 2008, really, really nice. We're having a 2010 Malbec Route 40 from Mendoza. I'm a sucker for that because I lived in Argentina for so long. But in terms of movement evaluation, minimal movement. What should people look at? I mean the basics, like the top three or four. Some office dweller who spends God knows how long, you know, seven to 12 hours a day seated in front of a laptop.

Male Voice: This is really 100% the healthcare crisis of the future. More and more research is saying that when you sit, have a sedentary lifestyle, sit more than eight hours a day, that's a sedentary lifestyle. That's the equivalent of like killing yourself slowly. It's smoking and jogging. The physiology is known to us.

Male Voice: Right.

Male Voice: That when you sit down, your leg musculature turns off.

Male Voice: Yeah.

Male Voice: Your blood glucose rises. You can see a spike, just because. Right? If people at home-- Have you ever sat on an airplane and had cankles? Have you ever had that? You got off an airplane, and your ankles were swollen?

Male Voice: Sure.

Male Voice: Yeah.

Male Voice: Well that's not the altitude. That's because you stopped contracting any musculature in your legs when you sat. It's the muscular contraction that dries all lymphatic drainage of your whole system. The whole system is wired for movement. Remember that brain analogy?

Male Voice: Right.

Male Voice: If you stop moving, then what ends up happening is you get stasis and congestion, which is a big problem. For me, for the athletes, I'm like, "Oh, now your ankles are congested, and now your Achilles is junky, and now your feet don't--"

Male Voice: What do you think of compression pads for flying?

Male Voice: No brainer.

Male Voice: Okay.

Male Voice: Wear compression socks. Wear compression pants. The compression pants get hot.

Male Voice: They really get fucking hot.

Male Voice: It's a problem. So very least, wear compression socks.

Male Voice: I have a buddy who wears-- Former kind of professional level rugby guy. He's just like fuck it. He wears like shorty-shorts with fucking compression pants underneath when he flies. I love it.

Male Voice: How much does he weigh?

Male Voice: He's a big dude. He's like your size.

Male Voice: Yeah, that's what I'm saying. He can do whatever the fuck he wants.

Male Voice: He's like, "I don't care." Exactly.

Male Voice: Say something. I dare you.

Male Voice: He's like--

Male Voice: Say something.

Male Voice: He's the Hulk. Yeah.

Male Voice: But, you know, I think that there's a best practice that you know you're going to be compromised. You know? I look at sitting as this-- You know, it's interesting. I worked with Esther Gokhale. You know? We've talked.

Male Voice: Who is that? I apologize.

Male Voice: She's the Gokhale method. She talks about sitting.

Male Voice: Oh, wait a second. Yeah, of course. Eight steps to painless back or whatever.

Male Voice: That's right. That's right. And she really is saying, "Look, we've lost this." I mean, look at the Victorians. They sat upright. You know? The Macintosh chair

is at a 90 degree angle. Then in the '20s, we start slouching. It became fashionable. Furniture design reflected that. We sort of lost this very uprightness, this integrated piece.

Male Voice: Yep.

Male Voice: We're doing a lot more sitting. God forbid, you're bending over, you know-- I just a study that adults are spending two and a half hours a day on their smart phones, in a Ford-flex, rounded upper back position, shoulders internally rotated, and docked in that position for two and a half hours a day.

Male Voice: Right.

Male Voice: And then when your shoulders are pinched, and you have neck pain, I'm like, "Go fuck yourself."

Male Voice: Well exactly.

Male Voice: Yeah.

Male Voice: That's why I need to go get a massage a week, just working on like my pec-minor and fucking internal rotation muscles.

Male Voice: Right. In that--

Male Voice: [inaudible] wants to punch me in the face.

Male Voice: That's right.

Male Voice: Yeah.

Male Voice: And that is the universal posture of somebody who's just lost. You cannot-- I mean, look at Wimbledon. Look at every winner. The winner cannot help but declare himself upwards and backwards.

Male Voice: Of course.

Male Voice: And the loser cannot help but declare himself forward and down and in involution. For people to not understand that the body and the brain is one integrated unit. The way that you treat your mobility and your body and your posture is directly influencing your physiology.

Male Voice: Oh, yeah.

Male Voice: It's insane not to understand that.

Male Voice: No, that's like my biggest-- Just to--

Male Voice: Yes. Yes.

Male Voice: Just to lay down one point is this like Cartesian duality of mind and body is total horse shit. It's just like, look. Your brain is an organ.

Male Voice: It's a system.

Male Voice: If you want to improve-- People ask me all the time, like, "What smart drug should I take? How can I improve my cognitive performance?" I'm like, "Fix your fucking diet." [Laughing].

Male Voice: And I'm like--

Male Voice: It's your posture.

Male Voice: Look at your body.

Male Voice: Yeah, yeah.

Male Voice: What are you doing?

Male Voice: It's just like-- It's the same system. So it's like if you want to improve your thinking, you want to improve your mental performance, improve your physical performance. It is one and the same.

Male Voice: And it's pretty cheap, and it's free. Sleeping-- We've just started playing with this, all the new mattresses. So A, I think that modern man needs to sleep on a soft mattress. This is going to piss people off.

Male Voice: So tell me.

Male Voice: Tell me. Yeah.

Male Voice: It's exhaustion.

Male Voice: That's a [inaudible].

Male Voice: So I am sleeping on a shitty mattress on the floor right now because I just moved into my place.

Male Voice: And how does it feel?

Male Voice: Let me retract one of my statements. It's not a really shitty mattress.

Male Voice: Yeah, it's like a hard mattress.

Male Voice: I need convinced.

Male Voice: I am sleeping in-- I have also been taking a very hot bath in sort of a Japanese-style "Ofuro" every night and magnesium. So I've been sleeping like a prince. But I have to buy a new mattress. So tell me. What should I do?

Male Voice: Let's back up and talk about sleep hygiene. One, is the room pitch dark? You can-- They've done studies where they-- You can shine a laser on the back of someone's knee, and people pick it up. It's light. You cannot have your phone in your room. You cannot have a T.V. in your room. It needs to be black, black as night. In fact, a good study just came out that showed that any light in your room can be the cause of so many problems around sleep, sleep apnea, some of this nighttime arousal problems.

Male Voice: Wait. Nighttime arousal? What do you mean?

Male Voice: I mean like--

Male Voice: Midnight boners? What are we talking about?

Male Voice: I mean, like [inaudible 00:01:13:42] kids, like it's too bright in the room.

Male Voice: Yeah, I agree.

Male Voice: You need to be dark. It needs to be quiet. So you know how cheap a night mask is? Like you're sleeping in a strange hotel as an executive.

Male Voice: You know, I hate it. I can't find a good sleep mask. If you have a good recommendation, tell me. But I have like shitty fucking airplane--

Male Voice: There's one that has a small one that's a cup that doesn't get in your-- I've tried all of them.

Male Voice: You mean like suntan bed type of thing?

Male Voice: Not so tight, but there are a couple that are just a little bit smaller cup, not very obtrusive, don't know you have it on. Earplugs. It needs to be silent in there.

Male Voice: Yeah, I have like 3M gunshot-worthy.

Male Voice: And toy this. There's a lot of good research recently saying that you should eat your carbohydrates at night because that helps boost serotonin, you know. So if you're going to eat, you eat at night.

Male Voice: That's what I've been doing, honestly, because I've been having these kind of business-y whatever the fuck, and it's like you'll have something Indian, you're like, "All right." Honestly I'm not going to be winning any body building competitions. So it's like, I'm going to have some brown rice [inaudible].

Male Voice: Give me some naan. Don't even go-- Just say naan.

Male Voice: Yeah, yeah.

Male Voice: You know naan. [Laughing].

Male Voice: So, but at night, as long as I'm basically intermittently fasting up until lunch, it's fine.

Male Voice: That's right.

Male Voice: Like body fat comp-wise, it's fine.

Male Voice: So when can you control-- We say, you know, you need a big breakfast. Well, it turns out, you don't need a big breakfast.

Male Voice: That's garbage. Yeah.

Male Voice: Maybe-- I like your model. Protein, 30 grams protein within 30 minutes. That's changed your family's dynamic a lot.

Male Voice: Yeah.

Male Voice: You need some protein in there because you've been fasting, maybe some fat, or just fat, whatever you're doing. Bulletproof coffee. If you want to put butter in your coffee, it's up to you.

Male Voice: Yeah.

Male Voice: Get diarrhea from the coconut oil, whatever. That's fine.

Male Voice: Dude, if I get M.C.Ts-- Tell me about M.C.Ts in your G.I. Tell me. It's a fucking-- You don't want to do that right before you go to the airport. Am I right?

Male Voice: Dude. So what we're basically saying is you add a bunch of coconut oil M.C.Ts to your coffee in the morning, you're like a goose. [Laughing]

Male Voice: Meaning, you're going to shit a lot, guys.

Male Voice: Disaster pants.

Male Voice: [Laughing].

Male Voice: But the sleep piece then is, you know, maybe some carbohydrate for dinner. Because you should probably-- You know, Mark's system is like, "Hey, just keep it on 100 grams."

Male Voice: Yeah.

Male Voice: You know? And good luck eating 100 grams of greens.

Male Voice: Dude, that guy is a specimen. I give him credit. I've met up with him. That guy is--

Male Voice: Yes.

Male Voice: He walks the talk.

Male Voice: But he also isn't freaked out. He likes coffee, a little sugar in his coffee.

Male Voice: Yeah.

Male Voice: But because the rest of his life is organized around some exercise and sleeping enough, it doesn't throw the whole thing out of balance.

Male Voice: Yeah.

Male Voice: You can buffer it. You know, we're humans of adaptation, and we confuse that adaptation ability for survivability. Right? For thriving. I think because humans are always, I believe, always working towards like thriving-- Otherwise, we would have died off a long time ago.

Male Voice: Yeah.

Male Voice: I mean, if you just care and feed the plant a little bit, you know, give the animal a little extra sunlight and a little bit of food, it blossoms again. I mean, that's really what we're doing. If you help regulate-- And one of the cheapest-- You're spending so much of your time asleep. It should be dark. It should be a little bit cold. What I would say is after--

Male Voice: What do you consider cold?

Male Voice: You set your temperature at 60s.

Male Voice: Okay. I'm at 64. I'm happy.

Male Voice: Perfect. Perfect. That's fine.

Male Voice: I'm sleeping well.

Male Voice: Just not hot. But what I would say is going to be hot fucks up your serotonin production, unless you go into a Japanese bath, or you take a hot bath so you cool off quickly, so that your blood is raised to the surface of your skin and then you have a rapid cooling period. Then you sleep really well.

Male Voice: So what's the rapid cool-- What are you doing?

Male Voice: I am getting out of a hot bath, toweling off, and then I'll continue to sweat. I'll take a hot shower, and after that, you're fucking cold as shit because you've gone from extremely hot to extremely cold.

Male Voice: Oh, okay. Okay. So this is the point, is that that cooling has to happen.

Male Voice: Yeah.

Male Voice: How do you sleep in a hot environment?

Male Voice: Horribly.

Male Voice: You sleep horribly.

Male Voice: Yes.

Male Voice: That's the point. So the hot bath relaxes you. It's one of the ways we've figured out how to hack that nervous system. I can tap into that parasympathetic response. People can go from zero to 60, and they pride themselves on it. Bam. I wake up. I have coffee. Bam. Cup of fear. Right? The cup of fear. Good to go. Get to go. But they cannot come down.

Male Voice: Yeah, yeah.

Male Voice: And we don't teach that.

Male Voice: Yeah.

Male Voice: So, you know, this is where I've said, "Hey, look. Develop a soft tissue practice before you go to bed at night." Turns out, like what, 10 or 15 minutes rolling around on a ball or rolling around on a foam roller kicks on a huge parasympathetic response. That's why I don't-- I'm saying stop rolling before you exercise. Stop it. Roll after your exercise to bring it down out of that sympathetic state.

Male Voice: Yeah.

Male Voice: If you have something that's grisly, you're not rolling. You're trying to break a gris so you can move correctly. Right? But tapping into that-- Work on your diaphragm. Diaphragmatic breathing. Weird how it matters so much for stress regulation.

Male Voice: What would be a-- How would someone exercise that or practice that?

Male Voice: Get a ball. Before you go to bed, put it on your body. Roll around on the floor for 10 minutes and see what happens. Have you ever had a massage? Yes. How do you feel after the massage? Like you want to fight someone?

Male Voice: No.

Male Voice: Your voice is all low. So this is really -- The piece is how do I affect my physiology through practice. Right?

Male Voice: Right. Right.

Male Voice: And, you know, working on-- So one of the problems with sitting is that it compresses your diaphragm in that crappy position.

Male Voice: Yep.

Male Voice: Now you have bad diaphragm function, which is one of the biggest assets to your parasympathetic response turning off. Right? Do you know the incidence of bladder dysfunction relative to pelvic floor dysfunction in America? It's a big problem. It's because we sit so much. So if we look at the pelvic floor, look at the diaphragm, both diaphragms in the same chamber which are compromised from sitting.

Male Voice: Yeah.

Male Voice: Right now, we have bladder continence, which is a billion-dollar industry with diapers for adults, for women.

Male Voice: I love diapers. I'm kidding.

Male Voice: Hell yeah.

Male Voice: Continue.

Male Voice: Sumo. I'm looking around. I see what you're [inaudible].

Male Voice: [Laughing].

Male Voice: This is a lifestyle hack. You know? And I think that's what's-- It's cheap. It's low. It's low budget. Sleep better, you know. Why don't you hack in your sleep quality?

Male Voice: Yeah.

Male Voice: You know? Without drugs.

Male Voice: Sleep is huge. I mean--

Male Voice: Sleep train. Sell me on that pillow top.

Male Voice: Oh, well-- Oh, yeah. Mattress and pillow. Jesus Christ. We got all--

Male Voice: Give me the soft. Give me the soft.

Male Voice: And I'm out.

Male Voice: Yeah, you did all this--

Male Voice: Oh, we're out of time.

Male Voice: You did all this misdirection. All right.

Male Voice: So what I think is that most of the athletes I'm seeing, most of the people I'm seeing are extension sensitive. We sit and we're trying to exercise, that puts us in - That means if your pelvis, if it was like a funnel, you're tipping your funnel forward all the time, and that's putting a lot of stress on the joints. Imagine if I took your elbow and grabbed it and extended it, hyper-extended it a whole bunch. It would get irritated. After a while, what's happening to your back.

Male Voice: Yeah.

Male Voice: So what happens is for a lot of time, we were seeing men, particularly who had a lot of disc pathology. They were lifting and exercising or working in these rounded back, and they were having disc problems. We found that if we slept them in extension, we put them in a hard bed, and they slept. But sleeping in a hard bed, by necessity, drops you into extension. People did better with flexion-related injuries around their discs. But I think what's happened is we've seen a shift, and people now, because they're sitting so much, their [inaudible] is tight, [inaudible] is tight, Q.L. is tight. The fascia has gotten tight.

Male Voice: Quadratus Lumborum.

Male Voice: Boom. What's happening then is we're also extension sensitive in the exercise we're doing. What's happening then is we're extension sensitive. What we need to do is sleep in almost like a hammock. You should wake up in the morning feeling awesome. You shouldn't have to get in the shower and be crippled to loosen up the lower back. And, I think people listening will be like, "Holy crap, that's me." I tell my athletes, "I want you to sleep on the softest surface you can get your hands on." And, that doesn't mean memory foam, because the memory foam locks you into extension. It means you need to be able to spend some time. Here's a quick test that I've developed... ready? It's very scientific.

Tim Ferriss: I'm ready.

Kelly Starrett: Lay on a bed at a Sleep Train or wherever you're going on your back. If you cross your feet, your bed's too hard.

Justin Mager: Dude, I do that every night.

Kelly Starrett: Of course, because what you're doing is you're getting out of extension. Or, you do the dreaded figure four, you tuck one foot underneath the other foot, like the Hail Hitler of your legs. You know what I'm talking about?

Justin Mager: I'll usually do the sole of the foot to the inside of the knee.

Kelly Starrett: Oh, very tree pose of you... very tree pose... very advanced system.

Justin Mager: That's interesting. Yeah, I need a softer bed, then.

Kelly Starrett: And, what this means... People are like, "No, put a pillow underneath your knee," and I'm like, "So, you need a prop to put you into flexion in your bed? Can you see how fucked that is? Why don't you get a softer bed?" But, check this out...

Tim Ferriss: Softer bed...

Kelly Starrett: Softer bed...

Tim Ferriss: What should people look for? Like, how do you find a softer bed?

Kelly Starrett: It doesn't matter. Whatever.

Tim Ferriss: Brand names, anything?

Kelly Starrett: Lay on the bed for as long as it takes. If you have to cross your legs, it's too... You may be... You should be able to sleep on the floor and get up and not be crippled. This is the issue. But, we're not those people anymore. We're not.

Male Voice: So, before bed [inaudible] lacrosse ball, hip flexor... What are like the top three.

Male Voice: I'm not even talking about trying to address your movement function or the mechanical problem. I'm talking about try to kick on your parasympathetic nervous system by doing soft tissue work.

Justin Mager: Okay, yeah.

Kelly Starrett: Like, the little massage before you went to bed. You know what I'm saying?

Justin Mager: So, where would you hit?

Kelly Starrett: So, check this out... we've talked...

Justin Mager: What's the...

Kelly Starrett: It doesn't matter. Put the ball wherever it hurts.

Justin Mager: Okay.

Kelly Starrett: Really, it's that...

Justin Mager: What are the most likely places to hurt? [inaudible], glutes...

Kelly Starrett: No, I think it's more...

Justin Mager: Your hip flexor, forehead...

Kelly Starrett: If you can tell that the tissue is normal... Well, you should see... we just [inaudible] the softballs into the temporalis and the masseter and people freak out and I'm like, "Oh, weird how that hurts. You've never worked on that tissue ever in your whole life."

Justin Mager: [Inaudible]

Kelly Starrett: Weird. So, this posture of sitting forward around your back... anyone who's been on a computer knows that position, "My neck is killing me." What happens is neck flexors pull your jaw out of position and pulls it back. And, it's one of the mechanisms for all the tightness we're seeing in the jaw and you're clenching your teeth. Guess what? It causes a cortisol response and you being stressed out... it literally is connected one to one that way. So, you're like, "Oh, wear a mouth guard." That will prevent you from grinding your own teeth down, but you're still fucking clenching your teeth at night. Why do you need a mouth guard? Start asking the question, "Why?" Well, it turns out I'm stressed and I sit in a shitty position and I don't do anything to manage that.

So, we just got a new bed and we took out other bed up to the mountains. All the new beds... you can get a moldable frame. It looks like a Craftmatic adjustable bed. And, I hate to say it, but there was a company...

Tim Ferriss: Make sure you're ready for 40.

Justin Mager: I'm ready.

[crosstalk]

Tim Ferriss: I'm ready. I don't have a boner and I sleep in a Craftmatic adjustable bed.

Justin Mager: Great, pass me the wine.

Kelly Starrett: That's a black out. But, you can raise the feet a little bit and put yourself and the soft mattress in a little bit slightly better position and sleep. And, what will happen... one of the things that wakes people up is lower back. They turn on their side.

Tim Ferriss: What does the first hour of your day look like? Do you have a ritual? Do you have a routine?

Kelly Starrett: I sleep until 7:00 every morning. I have two daughters. We have put it on them to wake us up. So, we put it on them and then just get my kids up for school, that's it. Hold on, there's more to that. We hot tub.

Tim Ferriss: In the morning?

Kelly Starrett: All the girls.

Tim Ferriss: What time?

Kelly Starrett: 6:45 to 7:00... My girls like to wake up and boom... hot tub... If you have access to hot... and, everyone knows hot shower... what's the old macho like, "shit, shower and shave."

Tim Ferriss: I haven't heard that.

Kelly Starrett: If you need to reset your whole system, shave your face, have a good one...

Tim Ferriss: Wait, but it was shit, shower and shave.

Kelly Starrett: Shit, shower and shave... like, you can change your whole life with a shit, shower and shave.

Tim Ferriss: What about you, man? Justin, what is your morning routine? Do you have one?

Justin Mager: I just got back on Vitamix. We grind greens into a tasty... you cannot eat enough vegetables as a human being.

Tim Ferriss: Vitamix is amazing. Have you tried... The two things I've tried, I want to know what your cocktail is... Athletic greens... I like a lot. I mix that with [inaudible] usually in the mornings because I'm lazy and I'm like... instead of laziness I call it [inaudible]. But, also mixing matcha with ice and water... just cold matcha. You like [inaudible], I believe? Last time we had...

Tim Ferriss: Last time you tortured my hips and we're at your house we had [inaudible], which was very nice. What's your routine? Do you have a morning routine, Justin?

Justin Mager: Not so rigid, as much as, like, I also have a soon to be seven-year-old, five-year-old and two year old and so it really just...

Tim Ferriss: Full house...

Justin Mager: It is. It's mostly waking to one or three of the children and I typically start with about 20 minutes of play with them. And then I basically will just get ready and roll into the office. So, I don't have like a morning movement ritual that's formalized.

Kelly Starrett: I don't think you should lift heavy weights in the morning. It just takes way too long to be prepped for that.

Justin Mager: I'm way too lazy. I feel like my pain threshold is so much higher based on all the amazing appropriated research from Russians. I feel like my pain threshold is so much later in the late...

Tim Ferriss: Between 2:00 and 4:00...

Justin Mager: Yeah, well it's... the way I've looked it is sort of... I'll have to look back. I wrote about this, which is why I absolved myself from remembering it. It's more like eight to ten hours after waking... so, for me, because I wake late, I tend to find sort of the 6:00 to 10:00 p.m. it is when I lift the most.

Tim Ferriss: That makes sense.

Justin Mager: Which isn't much. I'm like benching like 85 pounds... pretty sweet.

Kelly Starrett: How much you bench, bro?

Tim Ferriss: So, Kelly... functional movement wise... if there were one movement where you like, you know what, I want to see if you can function as a human being. Put

your feet together. Squat to the ground. That's it. Feet together, squat to the ground. You know why?

Kelly Starrett: Anything overhead? Hands in the front? Where are your hands?

Tim Ferriss: Let's talk about that. You can live functionally, hands by your face, right? You might be able to swim... you might not be able to swim. We're talking about just one movement, squat. Put a fist between your feet. Squat to the ground. Feet straight, right? So, it's a crucial component. We're looking at ankle flexibility. We're looking at hip flexibility, excursions...

Justin Mager: Pretend like you're a smoker in Vietnam, go...

Tim Ferriss: Sit down, have a smoke and literally, can you... For me, it's the most [inaudible] piece because it speaks to how far away from baseline? Can I take a poo in the woods? Can I have dinner in Thailand?

Justin Mager: Can you rest on your own frame?

Tim Ferriss: Right. And how about-, can I relate to people around the campfire? I mean, it's like so primal. And, it just says a lot about our function but if people are honest, they may go weeks and months without actually squatting all the way down.

Justin Mager: Oh, for sure.

Tim Ferriss: They just don't never use it. So, your body's like, "I don't need it. It's out of here." It's amazing. That single metric alone would change. You should be able to sit all the way down, butt to ankle and keep your back flat. You should be able to hand on hips low and[inaudible].

Justin Mager: And, not to push you this way, but one thing that I find is a fascinating topic that I'd love to hear some of your thoughts on is -- really this relationship to pain because I guarantee you, myself included, that if I tried to do that fist with squat down to the back of my ankles, ass to heels, I'm going to experience a lot of pain and discomfort.

Kelly Starrett: Well, the pain case is interesting. The resting state of the human being is pain free. You shouldn't have pain. A good article in the New York Times just came out like a week ago. It basically said that adults over 55 stop reporting pain to their physicians because it's like, "Oh, yeah I'm always in pain." And, pain is one of those bio-mechanical markers that we know for pathology. Unrelenting pain at night is one of the things that I'm like screaming pathology, like cancer or something insidious, right, really gnarly. But if you're moving poorly, your body's telling you something wrong with your mechanics if you're in pain and you should be pain free. If you push on a tissue, if you lay on a ball, grab a kid's ball, grab a baseball, and put it somewhere. It should not hurt to compression.

Anywhere on your body you should be able to put that ball and put a lot of compression on it. If your tissues are stiff, that's not normal. It feels like beef jerky.

It should be like layers of warm silk sliding over steel springs, that's our analogy. That's how your body should work. But, it's not. Right now, we're sitting on our butts. We're compressing all these beautiful tissues, right? Just, not normal. But, if you push on something and it hurts, the tissue is stiff and telling you it's stiff because you created a micro stretch underneath that compression. So, one of the ways that we know that you're not normal is that it hurts to compression. So, they should be pain free and if you move and something hurts, then that gives you information. It's testing one or zero by giving immediate feedback that something is wrong. And, the problem is we have zero baseline from which to work. A, understanding what is normal baseline movement being human and B, not optimal, just baseline. Like, I can do this and you should be able to do it cold. You don't need to warm up and prep.

Do Kindergarteners stretch before they sprint for the monkey bars? "Hang on a second I'm doing a dynamic leg swing." It's bullshit. That was the notion of Supple Leopard like a leopard attacks and defends to full physical capacity, instantaneously. It's full leopard.

Tim Ferriss: It sleeps 18 hours a day and then it goes.

Kelly Starrett: But of human beings, you should have that full physical capacity also, but we're not using it so we lose it. We don't know how compromised we are. You should be pain free and people should have a template for even taking a crack at their knee pain. If you have knee pain and they're like, "What did you do about it," and they're like, "I went and saw my doctor," and I'm like, "So, you saw that your windshield wiper fluid was low and so you went and saw your mechanic. What did the mechanic say?" What the fuck is wrong with you? Why didn't you add windshield wiper fluid? And, the problem is we have just disempowered people for generations. We have no idea of how to basically do the simple maintenance.

Justin Mager: Great, and what would you say between what I would call chronic stable pain versus an acute pain? Because, I think it's a big thing that comes up in my practice, where when somebody tells me that they have a joint that's in pain or a part of their body that's in pain, I say, "What happened?" And, if they don't have a story to me that's like, "I was kite boarding and it kind of ripped my shoulder and now I'm in pain," I consider that more of a chronic stable injury, correct?

Kelly Starrett: No, I think that's wrong. I think that the-, let me give you an example, is that... I sat in a surgery with a friend, John Welbourn, played in the NFL for 10 years. His knee looked like a garbage dump inside. Like a good garbage dump. No

ACL, moon rocks floating in the fluid, like stalagmites, stalactites, literally like bloody cortical bone showing.

Tim Ferriss: Yeah.

Kelly Starrett: And bleeding into the joint-space. Like the worst knee you can patch, right? Just so gross, no knee pain. And what I think people forget is how robust the engineering is. You know your iPad, you fracture, shatter the glass on the iPad, the iPad still works. You know, and that's the way your body is. It doesn't work-, it's a pain in the butt to negotiate that, you know, but there's so mu-, you know, if a horse gets a cold, you put the horse down. Right, I mean it's so touch-and-go. You know, you lose a lung, you still climb Everest. True fact, right that's actually been done.

Tim Ferriss: You like this 'true fact' thing.

Kelly Starrett: True fact.

Tim Ferriss: I like it.

Kelly Starrett: It's not a fact! It's a true fact. It's different. And, I think what we're seeing is, I think people have blown through their genetic inheritance. This tolerance for eating terribly for generations, for decades, and then all of a sudden, being diabetic. Or, or moving a certain way because your body, you're set up to be able to reproduce quick-, and your body's got your back, over and over and over and over again and all of a sudden, you've worn a hole in your knee-cap, but you're 27 and a runner, and your physician's like 'Hey, you should maybe stop running,' and you're like, 'You can't control me! You're the worst doctor ever!' The doctor is saying something so reasonable, she's saying, you know, 'You've worn a hole in a bone that's designed to be 110 years old, something's wrong.'

And I think pain is the same way. Sometimes we have people, who have, you know, bad arthritis, but I clean up their movement pattern and a lot of times, what people don't realize is, remember that brain piece is that movement and pain are the same pathways in the brain. And I could be wrong, but I think its DCML pathway, dorsal column medial lemniscus -- I went to grad school.

Tim Ferriss: I'll take it. I can't explain it.

Kelly Starrett: I could be wrong, but the problem is, that --

[Cross talk]

Kelly Starrett: someone will-- the issue is that, you know, when you injure yourself, you shake it out, right?

Tim Ferriss: Yeah.

Kelly Starrett: ...because the movement blocks the pain. And you can see this on YouTube.

Tim Ferriss: Oh, yeah. Absolutely.

Kelly Starrett: People get hurt and then they throw it away. Ah, ouch, and then run, you know, because the running blocks the pain signal, right?

Tim Ferriss: Well it's like when I fucked up my thoracic spine, I had this doctor, I mean, there were a bunch of issues when him, but he worked with a bunch of hockey teams. Anyway, he started tapping my trunk, and he's like, "Hey, can you feel your pain?" And I was like "No, that's really -- I don't feel anything." And he's like, "Yeah, exactly." He then proceeded to prescribe a bunch of fucking unnecessary temporary drugs. But it's amazing how much that movement or even palpitation masks pain.

Kelly Starrett: That's right. And so what we know about with chronic pain people, unlike we have pain during the day, "Oh, what happened"? I laid down in the bed and it was one in the morning and I woke up and my shoulder was throbbing and I'm like "What happened in bed?" What happened was that you stopped moving and your brain got the full impact of your pain and sensation.

Tim Ferriss: Got you.

Kelly Starrett: So, one of the aspects of this is, you know, movement and pain get mapped. So if something is going on painfully for over two months, over a month, it's a chronic pain state, chronic pain condition, and your brain starts to map the pain pathway with the movement motor pathway and those become conjoined. So [inaudible] started talking about this and one of the ways that we're able to help people get out of chronic pain is to give them a new motor program. i.e., you don't squat with your knees in. You move differently and your brain recognizes it, it's so sophisticated. You know, if you continue the iPad analogy, if you -- you don't need to know how the iPad swipes on and swipes off.

Tim Ferriss: Right.

Kelly Starrett: You don't need to know how the touch screen interfaces with the software. That's already happening underneath.

Tim Ferriss: Right.

Kelly Starrett: You need to know how to turn things on and off. So, if we can get people a brand new motor pathway, you squat a little more efficiently, maybe I get you off that hot piece of bone, and maybe I'll also give you, or put the needle down in a brand new motor pathway and its pain free. Because that boded well for us, I mean, it's

one of those survival instincts that if you're moving poorly, then your brain starts to remember how you got injured like this, even though the obnoxious stimuli is gone, every time you move, you still get the pain sensation. Like this is the chronic pain conundrum. And so what we do is, we burn out people's nerve roots, and we do radio frequency ablation and put them on--

Tim Ferriss: What do-- what is radio frequency ablation?

Kelly Starrett: They basically go in and--

Tim Ferriss: It sounds intense.

Kelly Starrett: -- they fry out with radio frequencies, like radio waves, they burn the nerves of people's backs. And then they're on --

Justin Mager: Like let's turn this off.

Kelly Starrett: Let's turn them off, let's just turn them-- let's pull the cords out. We don't know how to help you. The physician, and remember I'm at-- I'm a drinking wine physician here, the physician is on your side, and this is what people have forgotten. The physician is working to the best of their understanding; however, they also have a defensive-- they don't practice often times due to the litigious nature of the United States legal system. I mean, maybe you can comment on this -- it's just like, how much are physicians hamstrung from doing what they know is best because they fear some type of blow back?

Kelly Starrett: You can answer that, but how is a physician supposed to treat you in 10 minutes, or 15 minutes?

Tim Ferriss: Well, right.

Kelly Starrett: And you have carried your bullshit in the physician's office.

Tim Ferriss: Right.

Kelly Starrett: I don't sleep, I move like shit, I don't exercise, I'm stressed out, my knee hurts.

Kelly Starrett: Right. You know. And I would say there's a trained Cynicism that happens over time where you don't-- you don't believe that people are going to be willing and open and empowered to change. And so you just end up like managing who they are. You know what I mean? And so like, one of my big questions to you is basically like, is helping people to understand that there's a pain of injury and there's a pain of transition. You know what I mean? So, when like, one of your coaches, like, you know, Diane Fu, who I work with, you know when she teaches me new moves or proper biomechanics, you know, one or two or three

days later I'm like "Holy shit" you know, some of these muscles that I've never used properly --

[Cross talk]

Tim Ferriss: I'll adjust and give the outsiders insight.

Kelly Starrett: Well, I mean, Diane Fu is an Olympic lifting subject material expert. And so she teaches me how to move, jerk, and exercise? Diane is a coach at our gym --

Tim Ferriss: Yes.

Kelly Starrett: And, is the best Olympic thinking in the country right now.

Tim Ferriss: She is very smart.

Kelly Starrett: But also because she can coach kids up to elderly and she knows how to scale up and down and she, you know, works to the limits.

Tim Ferriss: So what's up with cross fitters and tattoos? I have to ask.

Kelly Starrett: You've seen Diane. Just a tattoo on a thruster, okay bro?

Tim Ferriss: Thruster, I like that. I'm gonna put that on my fucking --

[Cross talk]

Kelly Starrett: You know, you just bring it up because that -- you're going to be sore --

Tim Ferriss: Right.

Kelly Starrett: -- but that's okay. You know, people are so disassociated from their bodies that they can't make a correlation between I ate something and I feel like shit...

Tim Ferriss: Yeah.

Kelly Starrett: ... with I moved and I'm sore and that's okay versus I'm hurting. You know, they just don't have-- It's all clumped in to one thing. You know?

Justin Mager: My own personal story was, like, you know, strangely enough, like, roped into a flag football league by Bob Weir, the guitarist with the Grateful Dead, as insane as that sounds--

Tim Ferriss: As it happens.

Justin Mager: As it happens. You know, I sprained my left knee, you know what I mean? And from that it just created a series of musculoskeletal injuries.

Tim Ferriss: Let me ask you a serious question.

Justin Mager: Yes.

Tim Ferriss: Why did you think you were prepared? How did you prepare to play flag football?

Justin Mager: No, no. It was--

Tim Ferriss: I'm a doctor, I can do this!

Justin Mager: Absolutely. That left knee injury reduced my range of motion which converted over to my right knee, lost it's range of motion without pain and created this entire pain cycle where I became like the Tin Man. And I was like basically trying to rehab myself and doing some things but I basically came to Jesus and said, look I'm going to go down to Kelly's gym and I'm going to get some help. And basically, when I started working with Diane, she just basically started teaching me proper biomechanics of fundamental movements which included these Olympic and power lifting moves, right?

Tim Ferriss: That's right and what people don't understand is that if you drill down on the technique of any sport, it's the best expression of physiology. Coaches have hacked this from the other side. They know how to get the best out of their athletes, for longevity, for performance, based on what's the best expression of human beings. And I think that's the global-, of course there's some shortcuts, you know? NCAA is a great example of throwing kids on the bonfire because there's another kid coming in, right? That's exactly what we're seeing in the amazing business of [inaudible].

Male Voice: : It's amazing.

Male Voice: We'll pay you nothing....

Male Voice: Or the army.

Male Voice: And you can extend that to professional sports, too. We're going to put these professional athletes and we're going to pump them up with all these catabolic agents like prednisone and anti-inflammatories and let them go out there and ruin their bodies and compete.

Male Voice: That's the crazy thing, not to get into get into really controversial territory but I'm just astonished by how vilified anabolics are and then you have people taking cortisone injections every single match they play in the French Open.

Male Voice: Oh no, they don't get cortisone injections in the NFL anymore because people...

Male Voice: No, no, no tennis, tennis.

Male Voice: I know but people demonified the needle so now it's oral. And I'm like, oh great, that's better, less effective.

Male Voice: Thank you liver.

Male Voice: If any athlete is out there I've been waiting all along for player's associations to kind of actually stand up for that same thing, it's like nobody bats an eye about putting a compromised athlete with some type of analgesic or catabolic agent to break down their tissue to enable them to perform when nobody's allowing them the kind of technology and enhancement of science to give them some anabolic support. I'm not saying that you don't uncheck that system and you let people just take anabolics unchecked and pushed to limits. I agree there has to be some limits and there has to be something to monitor that, but at the same time but when you hear somebody like Rodney Harrison from the Patriots say, look, I'm a 36 year old athlete and I have 22-year-olds that are coming to take my job and if I'm enhancing recovery and rejuvenation from this brutal sport, you guys are going to come down on me and judge me about that. I think it's bullshit.

Male Voice: I have talked to coaches, high level coaches in the NFL that have athletes show up the next day after a game, primarily so they can move so they can metabolize the Toradol.

Male Voice: Oh, Jesus.

Male Voice: Dude, we don't even go out and drink after this event because you don't realize what's in your system.

Male Voice: Yes.

Male Voice: There's Toradols-- we've talked about this.

Male Voice: Which is a big anti-inflammatory.

Male Voice: Yes.

Male Voice: And I don't think what people realize is there's even a connection between the Toradol, the anti-inflammatory they are giving and the severity of the brain contact. These things go past the blood brain barrier. Suddenly, you start to see greater brain bleeds because of it. I mean, it's all messed up, we could go down this rabbit hole but I mean we are so naive about what is happening in the sport.

Male Voice: You have to understand that something like corticosteroids and anti-inflammatory that they are basically designed from a survival instinct to sell the fucking long-term farm to get through the current situation.

Male Voice: Yes, [inaudible] that could kill you.

Male Voice: Absolutely. It's really terrible that that's allowed to occur without the compensatory enhancement of recovery.

Male Voice: If you were listening and you go to the football hall of fame speeches, this last year, look at the number of coaches being crippled, Don Shula helped by four people across the stage to accept his award and that's because he played football and then led this CEO lifestyle of not sleeping, culture of machoism, destroyed himself.

Male Voice: Sitting down 16 hours a day.

Male Voice: And the stress and the poor nutrition, didn't support himself to be the highest level, highest stressed CEO in the same environment as like, hey, we've come through, we can keep these guys alive with Cortisol. It's a disaster and those guys are crippled. Remember, you have to come out unharmed at one rep or a million reps and how much about trauma, that's a sign. That stuff is going to happen to you, we're just talking about the [inaudible] disease.

Male Voice: Guys, I watched Jim Harbaugh. I was like, yes, I went to Candlestick for the last game. We had some kind of sideline passes, I watched Jim Harbaugh hobble onto goddamn field and I was like, man, this is the fucking quarterback, you know what I mean? How the hell -- what's the condition of the rest of these people 10, 20 years after?

Male Voice: So, this is just a random aside, but it's related. How does your work with high level military differ with professional athletes?

Male Voice: The same, we treat the military guys like all of athletes but with less resources.

Male Voice: Explain.

Male Voice: They don't have the option of eating well all the time. You know, so my helicopter pilots come in, Apache pilots, they're just being sent out.

Male Voice: What pilots?

Male Voice: Apache pilots.

Male Voice: Oh, Apache.

Male Voice: Apache helicopter [inaudible].

Male Voice: Yep, got it.

Male Voice: And I'm like, are you eating, yes or no? Have you had water today, yes or no? You know what I mean, [inaudible] the same thing, the amount of turnaround, guys are going to sit. So we look at them as having less option. So I expect more from the professional athlete and I expect that the military athlete, the high-end military athlete, the tactical athlete is going to be more compromised because they have fewer support sources.

Male Voice: The military.

Male Voice: The military. It's a disaster.

Male Voice: Oh dude, those guys are fucking amazing. Because of 4-Hour Body, I've really realized-,I've had interaction with two groups of folks that are very different but related. One is hedge fund guys. So, hedge fund guys are either like Jabba the Hut or they are like, I'm going to do The Iron Man three times a year.

Male Voice: And, they all listen to you.

Male Voice: And I want NZT so can you make me [inaudible] or on the other hand, you have guys who are drawn to certain aspects of 4-Hour Body like the ultra nerds chapter, particularly that are Navy Seals or Rangers or military guys and I'm just fascinated and amazed by how much those guys do on so little. Because they are like yep, you know what? My advantage, I'm good at metabolizing garbage so like I can eat anything and I can go run a fucking 50-mile run and that's what makes me superior. And it's really fascinating to see how much someone . . .

Male Voice: We've run this experiment though. So what is best practice? And the key is. . . My step-grandfather, step father-in-law whatever is an engineer. It's complicated.

Male Voice: I don't know what that means but I'm going to go with it.

Male Voice: But he calls it a boundary spanner. And you're a boundary spanner. And really, the problem is that we have these silent pieces of information, people aren't looking at best practice as [inaudible] because they don't think they can relate. And so, suddenly, if we can relate, those communities then we can start to drill down on what's best practice. Dean Karnazes is a buddy. Such a stud, a lot was made of the the fact that he would order a pizza one time and like run. That guys eats like a monk and then it matters less what does he need to eat? During the marathons, he knows his macro-nutrient combinations, he's got things that don't upset his stomach but like, boom, comes back to monkdom. So he controls what he can control when he can control it and then there's other times he makes the best decision available to him. So if that's I haven't eaten anything and the only

thing I have available to me is an Otis Spunkmeyer muffin, you're going to eat the Otis Spunkmeyer muffin. Eric Cressey said really well, he's a performance baseball coach.

Male Voice: Eric' is cool head. He can deadlift like a motherfucker, too.

Male Voice: He's a big, strong guy, we're homies. And he was like, look . . .

Male Voice: He's good at the shoulder mechanics.

Male Voice: Yes, yes. I'm going to give my kid pizza if that's the only thing I can fuel them with for the day. I'm going to make the best choice that I have and if we just have people make the best choice with the tools they have, already we see . . .

Male Voice: I'm so happy you brought out Eric because I remember I asked him some two liner question about the deadlift and I was like, you know my right sartorius is really bothering me because of blah, blah, blah, how should I modify my sumo. And he sent me a fucking dissertation. It was like 10 pages long and I was like, you know what, you have no idea how happy this makes me that you are so obsessive about lifting heavy shit off the floor.

Male Voice: The best coaches in the world are all talking. They're all talking and they're all comparing notes and they're all showing each other all of their data in our practices because we all realize that ultimately, the thing that matters is the programming. How many times a week do you need to deadlift? I don't know, that's up to you and your coach but not how to deadlift and the problems. So, people are really generous and people are still stuck in Web 2.0. I go like, it's my secret sauce. That's bullshit. 3.0 is people are like here's my model, here's my methodology. If I have something proprietary we understand but the real thinkers and innovators are just as transparent as can be which is exactly what . . .

Male Voice: Well, because the idea is worth next to nothing. It's the execution which is the hard part.

Male Voice: And if you have any confidence in yourself and your abilities, you don't have to hoard secrets. You share them, you know what I mean? And it's really the dynamic because there's always that continuum of growth and understanding and why do you have to create a proprietary product? Give it away. There's always going to be this advancement. Yes, a hundred percent. It's been exciting and the coaches that we feel like are closed minded and territorial or just really like, that's why the seventies and the eighties happened. Shit didn't get evolved. There's a real epoch right now. I keep talking about this epoch or renaissance where people are crossing boundaries. You and I, there's a physician talking to a physio talking to an entrepreneur bio hacker. But like we're all using the same language and working on the same sets of problems, how we improve the human condition. Simple.

Male Voice: Yes, it is.

Male Voice: I want to be pain free, I want to be lucid and successful and I want to be functional, really functional when I'm 110. And that's it.

Male Voice: And what you're alluding to, is that it's the intention and the expectation is kind of like the primal drive. It's like what do we want to create? Because at this point, in humanity, we've created all the current circumstances that we're experiencing and so really the big question is what are our expectations for ourselves individually and collectively? And it's the intention that's going to drive the questions. It's going to drive the inquiry, it's going to drive the answers, it's going to drive the investigation and that's really what's going to actually lead us to accelerating humanity, human potential and that's really what's exciting to me. It's not really about what you know and what you can commandeer it's really about the dynamic interplay of like throwing this out there to all of us as individuals and having us figure this out as citizens of humanity and pulling it back and sharing and bouncing these ideas off and incubating this and seeing what the hell happens. That's what excites me and there's all kinds of possibilities there.

Tim Ferriss: This is a fucking fun format, I like this. I think this is my favorite format so far. A bunch of stuff with this podcasts that I'm experimenting with. I don't want to cut it short but I feel like we probably need some food considering that we've had three or four bottles of wine, which has been really amazing. So I'm going to close with a couple of things because I feel like we should use some calories and then maybe we can do the Japanese soak. What are you most excited about these days? Kelly Starett.

Justin Mager: Starett, that is correct?

Kelly Starrett: Starett, we can violate the diphthong, it's not Starett. It's Starett.

Tim Ferriss: Diphthong. Bam!

Justin Mager: Dude, diphthong, fuck the diphthong.

Kelly Starrett: I think . . . boner . . . I think we can solve some significant public health problems and we're on the verge of being able to prevent a whole host of public health problems because the practices are getting easier. Let me give you an example. Obesity, childhood obesity's a gigantic problem in America. You can't mandate exercise in schools, you can't do it. There's not enough P.E. P.E. is cut. But if you had kids stand at their desks, that's it. Just stand at their desk, they'd burn another 50,000 to 100,000 calories a year, which is like 22 marathons. And suddenly, take away the chairs, kids stand and literally they don't fidget and we can manage this. And that's just best practice because you shouldn't sit anyway and you know

they do plenty of sitting outside of the schools, so if you take away the chairs, watch what happens. That's the kind of social change we're going to see.

Tim Ferriss: Cool. What about you, Jim?

Justin Mager: My bottom line of what I think that we have to face going forward is basically this question of realizing who we are and our potential individually and collectively and one thing that I heard when I was in medical school that I think is a really interesting thing, that impressed me, was I actually came across at like a 1984 lecture by Tim Leary, and basically, what he said was that there's this entity coming along called the intranet. That's what he called it and he said, look, it's going to connect us on a level that we haven't been connected similar to how the Gutenberg printing press disseminated printed books and information for everybody to take in by themselves and the development of written language actually helped humanity evolve. So there's this intranet, there's this connection on a global scale and a non local scale that we have and we're going to be able to share ideas and information where we wouldn't have been able to do it.

And he predicted that there's going to be a lot of social unrest that results from this and then he said that after that, we understand how to harness that power. And to me, what I'm most interested in is how that we can all come together as global citizens, start asking the deeper questions of humanity and contributing to this in figuring out big answers and accelerating human potential in the human race. And to me, that's what kind of excites me looking forward, that spans across all kinds of avenues, political, medical, social, whatever. Let's all get together, let's share our ideas, let's think critically and let's use our technology to accelerate what we can figure out and what our potential is and I think that's what excites me.

Male Voice: Smart dude.

Male Voice: You can't have six toes, can't have six fingers. Done.

Male Voice: Cool.

Tim Ferriss:: Well, we're going get some food, get you guys some calories. I think Thai food is on the menu. I was thinking, Kelly, of force feeding you a bunch of lentils, just to have legumes to give you a shift from the [inaudible] community but I shall regress from that and be more reasonable. Kelly, where can we find out more about you, what you're up to etc. etc. etc.? What should these billions of listeners check out?

Kelly Starrett: If you don't know where to start, we put out about 600 free videos on mobilitywod.com mobility w-o-d as in workout of the day dot com, you can search it you can subscribe.

Tim Ferriss: Including me stretching my quad on a car hood like a police officer.

Kelly Starrett: That's right, we did that, if you dig deep enough there's Tim, deep in the day trying to take on, that was your public service message, bro.

Tim Ferriss: That was.

Kelly Starrett: That's where to find us. You can't believe that if you start taking a crack at this yourself, you can fix it. You're that smart.

Tim Ferriss: Yes, agreed. Where should people check you out or what would you like to impart to these masses?

Justin Mager: You know what, my honest parting comment is not to check me out, just fucking look in the mirror and check yourself out. My aspiration is to go underground and be a ghost.

Tim Ferriss: That will result in a lot of people Googling your name.

Justin Mager: But anyways, empower yourself. Figure it out.

Tim Ferriss: All right, gentlemen, thank you so much.

Kelly Starrett: Pleasure.

Tim Ferriss: That was awesome, we're going to get some food. Ladies and gentlemen, we will talk to you shortly and soon with-, wait a second, let me re-phrase my English, shortly, I am sure with our next podcast and that is brought to you courtesy of wine. Thank you very much. Goodnight.