



## **Transcript – Hugs from Dr. Love with Paul Zak - #334**



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Speaker 1: If you are a regular listener of Bulletproof Radio, you've already heard the list of the top 10 Bulletproof Biohacks. Let's talk about number 9; fun hacks for the Bulletproof mind. Hanging upside down, also known as inversion therapy is a simple, natural way to enhance performance. Plus the inverted stretch, which is called decompression, is a really good way to keep your back in good shape. You can use an inversion table or you can use gravity boots, but the only inversion equipment I recommend is from Teeter. With my Teeter inversion table, I can easily and securely invert for just a few minutes a day, getting that vital oxygen to my brain which is so essential for optimum focus, concentration, mental energy.

That's not the only thing. It makes my back feel great too. The Teeter gives a full body stretch, using gravity and my own body weight to elongate my spine and to take the pressure off the disks so they can plump back up. Less pressure means less pain. If you have back pain, even if you've been lucky enough to avoid it so far, you really need a Teeter to invert every ache and keep your back in great shape and moving at your best. For over 35 years, Teeter set the standard for quality inversion equipment designed with innovative features that let you get the most benefits for your time. They are giving an amazing offer just for Bulletproof listeners. For a limited time, you can get the Teeter inversion table with bonus accessories and the free pair of gravity boots so you can invert at home or take the boots with you to the gym. To get this deal, which is a savings of over 138 bucks, you have to go to [getteeter.com/Bulletproof](http://getteeter.com/Bulletproof). You also get free shipping and the 60-day money back guarantee and free returns.

There is absolutely no risk at all to try it out. Remember, you can only get the Teeter with bonus accessories and a free pair of gravity boots by going to [getTeeter.com/Bulletproof](http://getTeeter.com/Bulletproof). That's [getTeeter.com/Bulletproof](http://getTeeter.com/Bulletproof). Check it out.

Speaker 2: Bulletproof Radio. A state of high performance.

Dave: You are listening to Bulletproof Radio and I'm Dave Asprey. Today's cool fact of the day is that researchers in the UK measured the testosterone and cortisol levels of 17 young male stock traders to see how they linked to behavior. What they found was a positive connection between testosterone and profits, but cortisol, the stress hormone shot up, not because of losses but because of the anticipation of market volatility and the possibility of bigger profits. Basically, these stock traders were tweaked all the time as far as I can tell.

Before we get into the show, if you've been listening to the show for a while or even reading the blogs, I've talked a lot about the benefits of being electrically grounded to the earth, we call it earthing. Now there is something called earthing sandals and they bring you the experience of living grounded to the earth the way all life has evolved on the planet throughout time. With the new earth runner sandals, there is a minimal out sole and a conductive grounded lace that allows you to stay true to comfort and freedom while going barefoot and not being limited to where you are allowed to go with normal shoes on. Earth Runners' simple design is inspired by ancient Huarache sandals that were featured in the famous book, *Born to Run*.

It's actually a design that was used by the Tarahumara Native American Indians. The reason they work is that there are 2 parallel stitches of silver coated conductive thread that run up the entire



length and they are tied to the bottom of the sandal with a copper plug that keeps you grounded. You are still wearing shoes, but you are able to get the electrical benefits of being barefoot. It's really comfortable and there is a minimalist design that has something called a zero-drop sole that allows your foot to move naturally and it gives you a really wide toe area so your toes can split out the way they were supposed to.

Normal, modern rubber shoes interrupt your body's ability to connect with the earth and it actually has biological consequences. When you are probably connected to the earth, you can work with the Circadian rhythm of the planet for 24 hour cycle because you are able to pick up the shoe-man regimens via earthing shoes which allows you to slow down and calibrate to a more natural alpha brain wave state. Go to [earthrunners.com](http://earthrunners.com) and get 10% off your next pair of earth runner sandals by entering coupon code, [BulletproofTen](http://bulletprooften.com). That's [earthrunners.com](http://earthrunners.com) and enter coupon code [BulletproofTen](http://bulletprooften.com). You heard about the Bulletproof 4th annual Biohacking Conference? About 3 and a half years ago, I invited a hundred people to come and spend a day with me hacking themselves in San Francisco. This year in Pasadena, California, on September 23rd to 25th, we are expecting about 3000 people coming to hack themselves to upgrade their biology.

You get to actually play with the toys, experience them, and learn from leading experts and cutting edge tech firms, stem cell discoveries, virtual reality, sleep hacking, neural hacking. All sorts of cool stuff. If you want to radically change and improve who you are and what you are capable of doing, come and check it out. This is my favorite event of the year. I put it together so I could hang out with all the coolest people I can imagine and they all come together in one place; [bulletproofconference.com](http://bulletproofconference.com) is where you can find out more.

Today's guest is a friend and an amazingly cool guy. I met him over dinner when I had no idea what he did. He walked up and gave me this big hug and I'm like, "Wow, this guy is like a major hugger here." It wasn't just like a little hug, it was a big hug. I said, "Why do you do that?" He's like, "Oh, it's good for you." He was pretty vague about it because he wasn't allowed to tell me what he did for a living at this dinner. It was a cool dinner called an influencer dinner put on by another friend Jonathan Levy. This is where there is all these influential people in a room and you don't know what they do. I met Paul Zak there and Paul was sitting there hugging and I didn't know that he's basically known as Dr. Love for being the primary force behind the discovery of oxytocin and what it does for us.

It turns out hugging makes a huge difference for you and it raises oxytocin. You might have seen Paul's talk called the Moral Molecule that had a million views as a TedTalk. He wrote a book in 2012 called the Moral Molecule. He wrote a book called Moral Markets in 2008. Looking at our values. One of the more interesting guys I've met in the last year because Paul has degrees in math and economics and neuroimaging from Harvard. You don't see a lot of people or professors of neurology and professors of economics in psychology and management at big universities. Paul is basically a total badass, pulling together all these disparate things and actually fun to hang out with.

Paul, welcome to the show.



- Paul: Thanks Dave. That was the nicest intro I've ever had in my life. Now I'm in your hands, I'll do anything. You've got me.
- Dave: Awesome. It was all authentic and real because our meeting in person was really cool. I, of course, didn't recognize you when we met, but I was familiar with some of your work. I'm like, "Oh, I just have dinner with Paul Zack. This is so cool." There were some other movie, celebrity people, but I didn't know who they were either, but you were way more interesting, just kidding.
- Paul: I feel the same way about you. We are innovators and inventors, right? We cling to each other because we get what the other person is doing. It was such a great dinner.
- Dave: Really was. The other guy ... There actually everyone was really fascinating, but the guy from MythBusters was there too. He was pretty interesting.
- Paul: Adam Savage.
- Dave: Let's get going. Your new book, is it okay if I talk about your new book?
- Paul: Sure.
- Dave: Cool. I know you are in the middle of editing your book, I'm in the middle of editing my book, but you never know when they are going to come out. Your comes out in January I think. I want to read it. In fact, if I can have an early copy I want to read it. I'll say nice things about it obviously assuming it's worth it, but it will be. It's called Trust Factor; The Science of Creating High Performance companies and I have a personal interest to do that because that's what I'm doing. When does it come out?
- Paul: Comes out January 17th, 2017. Hey that sounds like a nice ring to it.
- Dave: It does.
- Paul: Yeah. It grew out ... You probably know this as an entrepreneur, sometimes people think that we entrepreneurs or scientists here sit on the lab and go, "Oh, I've got a great idea." Actually, what we've done in my lab is try to be externally focused. Have a lot of ideas, most of them are probably crazy. We try to listen a lot to other people, so as you mentioned there like in my TedTalk, I did a lot of work on why we trust strangers. Neurologically, environmentally, what makes us trust strangers? We can't survive alone. What brain signals tell us why we trust other people and how do we understand what promotes or inhibits those signals? Trust, we've shown is a ... Economic lubricant, when trust is higher, then people actually engage in more interactions and some of those create wealth. Working on this, working on a lot of other things and then knock on my lab door, some executives came in and said, "We think trust is important for our company, could you help us understand how to create high trust cultures?"
- As you know, a lot of paperwork is done with drawing blood and using sensors to the brain. I said, "Sure, I'll come to your office. We'll take blood from your colleagues. They turn white. I

can't do that." We developed a way to measure organizational trust without taking blood using a survey and identified the factors neurologically that create trust, tried this out in a bunch of companies, run laboratory experiments and basically found a way to quantify culture and create constant improvements in culture by measuring intervening, by giving a structure understand what kind of cultures are really effective from the organization's perspective, from the employees' perspective, now coming to work is fun because I'm getting challenged and recognized, I'm growing. That's great.

Actually we've shown that high trust cultures improve societies as well. The triple bottom-line, how about that?

Dave: My first thought there is how do I sign up, Bulletproof it to get into this because I'm in the middle of culture building. My biggest challenge right now is maintaining incredibly high standards and level of integrity that I expect of myself and that I build into the products and to scale that as the company keeps growing to make sure that when people come in that they have that level of authenticity and integrity and trust. The T-word there you are talking about so that when you hand a job off, you know that they are not going to let customers down. We have a, in my mind a degree of fiduciary responsibility for them so if we bring someone in, we extend trust and they haven't earned that trust or they aren't trustworthy and they do something that I don't know about that doesn't serve our customers to the very best extent as possible, like there is a violation that happens there. You are saying you can quantify that in a way and hope to predict it.

Paul: My view of trust is a strategic asset in an organization. Somehow we think naturally we are going to get some kind of nice culture. People create culture. Culture is not a set of rules or norms that people create and people will create that wherever they are. It happens naturally. The book actually starts with me in Papua, New Guinea. We may have talked about this at dinner. I see a random experiment in a rainforest in New Guinea. Like this start with us donate and what I learned, besides the cool data was I embedded myself in their culture. All of a sudden, there is this chief with a fifth-grade education, he's telling me what to do and I do it because I live in his organization now. At least for a week I did.

We are very good organization men and women. We know how to do that. If culture is a strategic asset, we've got to measure it and manage it. If you don't manage your culture, your culture will manage you. When we get off the line I'll send you a link you are going to use to survey with your employees and you can get a snap shot of where is my culture now. It will tell you where to intervene to improve things. We are micro learning module so you can go in and do these interventions and change habits and we build this relationship between the people at your work. I call this creating the 3 am employee. You told me you are up all night editing your book. What I love is that when I wake up at 5:30, I check my email occasionally, just occasionally I get an email at 3 am from someone who works for me and they go, "Holy crap. You know this thing that we've been struggling with for 3 months, I just figured it out."

They voluntarily, outside of work time, stayed up until 3 in the morning, working on something because they loved it. Because it was important to the team. You can't pay someone enough to do that. You have to really be engaged with this team and this purpose. Why are we doing this?

How are we improving the world? How are we making a dent in the universe?

Dave: Very well said. I'm super excited about that and if there is a link that we can share with everyone listening and there is a good chance a million people will eventually hear this episode, so if there is a way people can sign up for something like that, I'd love to share it with them because I just wanted a few big entrepreneurs who listen to the show and probably 100,000 smaller ones who are just getting to the point where culture is going to matter for them.

Paul: Yeah, the link is ofactor.com. OFACTOR.com. Lots of information, free stuff, sign up for this and that. When I started doing this ... You know when you start a new project, you always want to make sure you are not diluting yourself because we can convince ourselves that we are brilliant. We sit in the office for 2 hours or 2 weeks. I spent a lot of time embedded in companies and talked to these entrepreneurs, talked to presidents, asked them what their problems were and I remember interviewing an entrepreneur who had started 27 companies. I said, "All those 27, how much did you think about culture? In half of them?" He said, "Zero." I thought about hiring the right people, generating profit, who my thunders were. Who my customer is, I never thought about it. I said that some of those companies have sucky cultures, yeah.

Dave: I can imagine. I've been in some very high growth silicon valley companies like employee 300 to 5000 in 2 years. My organization, I was a co-founder, I've grown to 1500 people in 2 years. Culture breaks when you do that and it's one of the things I think and most about Bulletproof so we can keep growing and still do the right thing all the time. I'm shocked, but anyone can start that many companies without thinking about culture.

Paul: He's very successful so obviously he knows what he's doing, but there is a margin there and particularly for the coming work for talent, you know this, man I want to get the best people and keep the best people and culture is a way that you can do that. From silicon valley experience that it's not just perks and free food, it's really building these relationships like in Google. It's not about the food necessarily, a part of it is saving time, a part of it is big long tables and you sit next to a bunch of engineers, you never met these guys before, you start having a conversation. Interesting things occasionally happen and that's really important.

Dave: What happens with distributed teams? I'm running into that a lot now, when teams are all over the place. Some of them are at our headquarters in Seattle and the rest of them are all over, what does Skype and video conferencing do to oxytocin and do to trusting companies and things like that? What's your take on that as a guy who has to have studied that.

Paul: Great science question. We've actually run experiments where we've looked at in-person communication compared to say video, Skype like we are doing now, text, it turns out that we are such social creatures that whatever kind of communication we have stimulates the release of oxytocin. Including tweeting. When you tweet out, you've got peeps out there. I felt like I haven't tweeted in 2 days, Oh my gosh, my people need me. Our brain processes oxytocin, we feel connected. Having said that, from research outside my lab, as you know, going to Seattle, seeing the people in person, once a quarter at least, it's really important for some reason. For the people who work with me, I love the daily huddle. I don't know about you. The 10 minutes stand up, what do you want to do today, how's the going, what happened yesterday, what help

do you need from me?

That really keeps people on target and you can certainly do that via Skype as well. The basic punchline is, the higher the betterment of the communication, the bigger the connection from a neurologic perspective. In person, great, Skype, not quite as good. Text, not nearly as good.

Dave: Okay. That's way cool. Everyone listening, that matters. Open up your video instead of just talking on the phone or sending a text and if you are one of those people who basically dreams and text messages you might want to start dreaming on video conferencing, it's better.

Paul: There we go. Travel, you still have to travel. A lot of people make that mistake that I can grow my social media empire. I'm like, "No." The way Bulletproof has grown is I've spent 100 plus days a year on the road connecting with people in person because that's the way you make connections.

Dave: You studied something called neuro-economics which I think most people listening to this probably don't even know what that is. I wanted a little bit of your background story because ... I don't know how to put this in a different way, but you are a weird guy.

Paul: Yeah. Totally.

Dave: That's a complement coming from me.

Paul: You are weird like me.

Dave: Totally. You've studied pretty advanced math and economics and then you've cut over to neuro-imaging and neuro-science, why? Were you dropped on the head as a child? Not really, but what motivated this because it's fascinating and weigh cool, but what made you do that?

Paul: What the hell! A couple of things. First of all I have 3 sisters and no brothers and I had a father who is an engineer. I've actually spent most of my childhood, my dad and I are in the garage building stuff. That's just natural for me to build things, but my parents had no money so I was putting myself through college and I have a nice advisor who thought maybe I should think about graduate school, but here is the math classes I've got to take to get prepared for economics and you have to do another field in economics, sorry, maths, which was I didn't fail in biology because I love neuro-science, took a bunch of neuro-science classes. I started doing research in biology and neuro-science as an undergraduate because I was poor. There was research money. Professors had grants and they would hire me to do research and run simulations and build and whatever.

From the very beginning just out of sheer poverty and maybe curiosity, I was interested in this. Their PhD in economics, very traditional school, University of Pennsylvania and then lost my advisors. All of a sudden I went from being the bio boy to "who the hell are you?" I didn't know what to do, so I went back and started taking more classes in the bio department and no one knew what I was doing and no one told me it was a stupid thing to do and then helped start this field called neuro-economics. Because I'm really interested in what the humans are doing and I



love economics, but the underlying assumptions of economics are insane from a modeling perspective. Infinite knowledge, infinite brain capacity, infinite amount of time, what world is that?

To me I'm not interested in what I call imaginary economics, I'm interested in solving problems. I found that by using findings in science I understand how people make decisions which is what economics is about. I could be a more effective, scientist, scholar, or problem solver. I think. I hope.

Dave: You are reminding me in 2002, I was getting my MBA at Wharton, but they flew the professors from Pennsylvania out to San Francisco, so I didn't have to actually commute, it would have been a long commute. I was doing the business, grad, whatever, statistics class. I wanted to do what what would now be called neuro-marketing because I had an EEG machine, I already had it for 5 years and I wanted to see what will our brains do when we are looking at ads and then just ... I've seen a random data source to do co-relation analysis for it and no one in my study group seemed to have any clue to what I was talking about and just didn't want to do it. I was like, "Oh, this is so cool." It turns out it would have been one of the first neuro-marketing papers out there because it didn't have a name, but you took it up a level to neuro-economics to get rid of all the weird assumptions that are made from 100 year old economics and Adam Smith and all that stuff, like theories of rational actors even though we are not rational creatures. How did oxytocin tie on all of that?

How did you get from the economic side of thing into oxytocin? That's still not clear in my mind.

Paul: I wish it was a great story. No, I was working on a couple of projects. One on trust across countries. I was in biology underlying the economic decision. That actually is more explanatory than either of those fields alone and so we started building these models and it had an impact and world bank flew me out. At the same time I was working on other factors that I thought economics and biology could inform us on, like how much do we invest in our children and what we call human capital, where does that come from? How much is that genetic, how much is environmental? Going to a conference, with a well known anthropologist named Helen Fischer, who's written a number of books, Anatomy of Love I think it's her best known book and I was talking to her about my work.

Up in the Sierras for the summer, there is a bunch of mountain bikers and then 2 people in business casual clothes. You are definitely going to your conference. Blah blah blah, she said, "Have you ever heard of oxytocin?" I said, "No idea." She said, "Tell me about it." I go back to my hotel room and literally missed dinner. I'm like going on pub med I'm like, "Holy crap. This is the signal I've been looking for to understand why I trust Dave, but I don't trust your engineer Bob who's a sketchy guy." I can just tell. Our brains have to have some signals that tells us when it's safe to interact, when it's not, when I expect you to be trustworthy when it's not. Lots of animal literature, zero done in humans for a variety of reasons. There is no medical reason that takes pre-term labor to think about oxytocin, there are no disorders.

It was just sitting there on the shelf, there is no way to measure it acutely and I had to work out a protocol to do that, but once you have that measurement tool, you can really go to town.

Dave: When you went to town, you reveal it as a trust hormone or the moral molecule, why do you call oxytocin the moral molecule?

Paul: Great question. What we found is that, just like in animals, humans when they encounter another member of their species or actually other species like dogs and cats do, but anyway, I interact with another human and I'm getting signals from you unconsciously that say Dave's totally safe. My brain produces oxytocin, that motivates me to interact with you. The benefit of interacting is we might become friends or do a project together or hang out or whatever or the cost is you might kill me or I don't know. Punch me or something. We are constantly balancing this and oxytocin moves us towards, hey interact, it could be value from that while at the same time that fear system says, "Hey, be a little careful." When I get a positive interaction from you, my brain creates oxytocin, it increases my sense of empathy. Now I'm more motivated to interact with you, I'm more emotionally connected to how you are feeling which makes me a much more effective social creature. Not only can I forecast what you might do cognitively, but now I'm starting to share some of your emotions, so now I get a sense of your feeling states.

When I do that, it turns out I'm going to treat you better. I am much less likely to treat you badly. I'm more concerned about your welfare and tangible ways. We've run hundreds of experiments measuring oxytocin and actually as you know, manipulating it pharmacologically so I can shoot into people's brains and we can turn on these positive behaviors like turning on a garden hose.

Dave: I actually tried that. Just probably 4 or 5 years ago, I was testing about 50% low on oxytocin and don't ask me to remember what lab this came from, this is 5 years ago or so. All right, I tried sub-lingual oxytocin relatively low dose, but I did it for about 60 days. I didn't feel a thing, but I know other people have done oxytocin nasal spray and they are like, "Oh my God" it changed my life." Why the difference in oxytocin responsiveness between individual people and what should you feel like if you took a big hit of ... If you snorted a line of oxytocin to create a bad analogy there ...

Paul: Yeah, we developed the first oxytocin inhaler for research use. There was one that was around to help women start pre-term labor, but we optimized basically that impact and in those ... You want to get this stuff into the brain. That's where the receptors are primarily and the nose is a portal to the brain as you know because of the immune system, the blood brain barrier is a little looser there. The gut will break down oxytocin to very simple molecule, so once it gets into the gut it's gone, it's just broken down, it doesn't get into the brain. It's got to go through the nose. You can get a little into the brain IV, but I don't think you want to be sticking needles in your veins.

Dave: I'm okay with that.

Paul: That's another conversation. I tested probably more people on Oxytocin anybody in the United States and we've never had one adverse effect, no tummy ache, no headache. Why? Because your brain makes this anyway. We are actually sledge hammering you with the dose because we want to study you experimentally. Now a real fact, a little bit of relaxation, people tend to yawn

a little more. The receptors for oxytocin near the yawn area in the brain stem, but basically you kind of mold over other divide where all of a sudden, are you my friend Dave, are you my brother Dave? Give me oxytocin, you are like my brother. Like, "Ah, I know you. You are a good guy." There is no high associated with it, just assumes a sense of relaxation. Interesting side effects if i may share those with you.

About 20% of men we give oxytocin to ... Back story, Nature is Republican, you are aware of this, right? Probably is not voting for Donald Trump, I don't think, but nature is conservative because it uses the systems that have one purpose for other purposes. Oxytocin originally evolved in the mammals to facilitate live birth and care for offspring. How do you create live birth? People have to have sex. The receptors for oxytocin in the vagina in the penis, it's released in loads when you have an orgasm.

Dave: Did you really just say that?

Paul: Sorry! It's use of words.

Dave: Keep going.

Paul: It's plentiful in the brain. People are enjoying each other ...

Dave: That will be tweeted many times Paul.

Paul: Oh my God! Sorry. Little Freudian slip. About 20% of men we give oxytocin to, will get erections.

Dave: Really!

Paul: Yeah. Because instead of all of it going to the brain, some of it goes into the peripheral blood and it will bind to a receptor, so I always tell the research assistant, we are doing the experiments you don't want to know what's going on down there.

Dave: Tell them to wear short skirts and see what happens. I've got it.

Paul: Some women can lactate when we give them ... It facilitates milk flow, it's pretty rare, but you just have to have high enough estrogen levels. All these things are ...

Dave: I had no idea these were scientific facts. I didn't experience either of those fortunately from, not from oxytocin, but okay, what would happen if we went to a prison environment and we offered nasal oxytocin to everyone else. I'm thinking of an environment where there is lots of trauma and lots of unhappiness. What would happen other than erections?

Paul: We studied that. We looked at the developmental effects. Again, in this if you will Republican brain, my little joke. If you are not in animals, if you are not getting enough nurturing then the receptors for oxytocin atrophy because you don't need that nurturing system, you are not getting cared for. We tested that in women who as children who were severely sexually abused and indeed about half of them don't have an intact oxytocin in excess system and they all have

at the same time PTSD basically ...

Yeah, dysfunctional social relationships, depression, a lot of borderline personalities. Last summer, we spent a couple of weeks at a treatment facility in Wisconsin for criminal psychopaths. We stimulate oxytocin with a little video that will stimulate the brain to make oxytocin and took blood twice from 161 of these guys and what we found is no oxytocin release on the stimulus that 90% of population, it will spike your oxytocin.

Dave: From a video?

Paul: Yeah, from a video. We can talk about that in a second, but what do psychopaths lack? Classically, empathy. I'm a psychopath, I can treat you like a means to an end. I can take your money or I can take your drugs or whatever I want because I don't feel anything for you, but if you or I did that to each other we'll feel like, "Oh my God! I treated Dave so badly I feel awful." They don't get that, so they don't have that internal moral compass that we do which seems to be driven by this, what Adam Smith called fellow feeling or empathy.

Dave: This is so fascinating. I'm amazed that you went and you did this study on psychopaths. What a fascinating quarter case? Now I understand why it's called the moral molecule for sure. How does it affect my individual decision making? If I'm on oxytocin or I just naturally have higher levels or I've been hugging a lot of people or I just had sex whatever. What is that going to do to me over the short term, over the rest of the day, over the rest of the week, how does it change me?

Paul: Great question. The secondary question, the follow up question is why don't we just drug everybody with oxytocin?

Dave: I was going there. Take fluoride out of the water, put in oxytocin in and we'll all be good.

Paul: Your brain's production of oxytocin stays active for about 20 minutes, 20, 25 minutes. I like to say, hugs not drugs, I don't want to drug people. I stimulate oxytocin in somebody and for the next 20 minutes, you've narrowed that divide between yourself and others and it's interesting. It's a fairly blunt instrument. We've done studies where a positive interaction with one person or they watch a video causes your brain to make oxytocin. We measure that same change in blood and also now you are nicer to other people who aren't even involved in you. We did studies with massage therapists. We help people get massages by professional massage therapists and then they interact with a complete stranger who didn't give them a massage and we used money a lot of times to quantify how much you care about somebody else.

They are showing money easily. They know what they are doing. They are cognitively there they just don't care as much. Just like you melt with that self other divide.

Dave: How long is the video?

Paul: The video is 100 seconds.

Dave: Can I play this at the Bulletproof conference?

Paul: Sure.

Dave: That's so cool. All right.

Paul: People will cry though.

Dave: It's good. That's perfect. Oh my God! That's amazing. We are so going to give everyone a hit of oxytocin, 3000 people all in the room at the same time. That is amazing Paul. Afterwards I'll hook up with you on this.

Paul: Afterwards we'll do that

Dave: Yeah.

Paul: I've stopped by large showing that video in conferences and I will tell you why. You are in LA right now is that right?

Dave: The conference is in LA, I'm at my farm on Vancouver Island where I live.

Paul: I've got to come visit you there.

Dave: Anytime, yeah. There is this all lab here for hacking.

Paul: Oh my God! Okay. We are going to do that. We'll do it sometime this year. I showed it at a law conference in UCLA and several lawyers who watched the video actually cried and you are aware ...

Dave: I'm sorry, I didn't think they could cry, what the heck? Okay.

Paul: I've gone too far. I have to stop. At least some lawyers actually have oxytocin, how about that? It's really effective. It's a little video about a father and his 2 year old son and the son is terminal brain cancer and the son's been treated. We've got it with permission from Saint Jude children's hospital. These are not actors, they are real people, the little boy's name is Ben and he's actually now died. The father is so moved by the situation the son's in, but he has a crisis. I won't give away that whole thing, but it has a hero's journey; a classical story structure and something very heroic happens in this video. Anyway, in 100 seconds, if you are not super stressed out or just not paying attention, this is going to grab you by the heartstrings and for parents it's terrible.

I showed it to my class about a year ago. I've seen this video 150 times at least. We studied it using every method possible from blood draws, we have MRI, you have no idea. We've used it in psychiatric populations and it's really a very consistent ... The most consistent oxytocin stimulus that we shared it many people, many scientists. Anyway, I gave my class and all of a sudden I'm tearing up. I don't know, maybe I was tired or I was missing my kids or something and I'm like, "Okay, we've got to take a 10 minute break." It's pretty powerful.



- Dave: Wow! What percentage of people get an oxytocin raise from it?
- Paul: We found about 90% of the people will get an increase in oxytocin.
- Dave: This is so cool. We are going to hack 90% of the audience at the Bulletproof conference all at once in the first 10 minutes of the conference. That's cool.
- Paul: You are going to tell me what happens for sure, take a video.
- Dave: There will be a video. Absolutely I'll share it with you Paul. I'm grateful that you are going to let me use the video. This is going to be so fun. Did I mention Bulletproof conference.com? All right, if you weren't going to go, now you are going to.
- Paul: I'm coming. I'll come for the first day at least.
- Dave: You've got a pass Paul, no problem. Any time.
- Paul: I'm there.
- Dave: Where are you based right now?
- Paul: I'm outside of LA, so I'm in ...
- Dave: We are in Pasadena, so it's just a quick drive for you.
- Paul: Yeah, easy.
- Dave: That's so cool. All right. We talked about individual decision making, we are talking about how we can hack my oxytocin. I'm going to be more in the zone. Let's say that I take my senior executive team of Bulletproof and I sit everyone down, my next 2 hour All Hands, my next 2 hour call, I play the video at the beginning. I say, "All right guys. We are going to watch this together. How is it going to change our group decision making after we watch it?"
- Paul: I'm going to disagree with the premise of the question I'm sorry. You could do that and for 20 minutes people will probably be a little nicer to each other, they might be more open to sharing. The reason we started doing the work on organizational trust is because you can't show up an emotional video every week. First off, right away you can't take a little ball of cancer kid and walk him around your office, I mean, it's just not appropriate, right?
- Dave: Of course I hear you.
- Paul: We started thinking about, I lied to you I'm a hacker, so how do I hack this brain system so that people at work are more effective. From the neuro-science experiments we run and from lots of other people, we put together a framework so that at first we can measure trust and it's 8 constituent factors and that for each of those factors there are lots of interventions we've

identified. Most of the people have tried and I read a gazillion books and I stole from somewhere. That's going to juice this system, so let me give you a concrete example, the 8 factors somehow magically Dave spell out oxytocin. I don't know how that happens ...

Dave: Randomness.

Paul: Just a good luck of life. The first O is for ovation, that's our word for recognizing people who meet or exceed their goals. Okay, that's not not new, that's just recognition. I will learn that the first day at the Wharton MBA except the neuroscientist gives you specific and actionable ways to get the biggest bank or the bank on the brain and all behavior. Ovation that is closer in time for the goals being met. That is unexpected, that is public. That is tangible. That is personal. All that puts a bigger effect on the brain both on oxytocin and the dopamine system and now you are setting up a desire to be rewarded again in the future. You are laying down pathways that say, "An organization where we hit the ball out of the park, it's awesome." How do I reinforce that? We are going to do something that adds up. We are going to go tandem sky-diving with my team this week because we just finished this awesome 3-month project.

It was like, "Holy crap, we can't do that." We are going to do it as a team. I actually took my class tandem sky-diving one year. Crazy. All certain people are together. Like all brain systems, this stupid, lazy Republican brain that we've got evolved in, there is no reason to make oxytocin lest I had a moderate stressor that motivates me to work together as a team, so as a team leader you need to set expectations that are difficult, but achievable, that brings the team together and then when they reach those expectations, when you hit the goal, and now take a day off celebrate, bask in how great this is and then reset and a couple of days later restart. It's really this ... It's like working out. I'm going to push you hard. When you get there I'm like, "Yeah, great. Let's go celebrate." Then recovery time and then working out again.

Dave: That was the O in oxytocin. The X is expectation. What does expectation do?

Paul: It's really giving your brain an opportunity to make oxytocin as a team. It's setting these goals that are concrete, difficult, and achievable. As you know, stress is not a bad thing. Chronic stress is bad, but challenge stress where I have time limited goals, I know when I'm done, your brain loves that. That's tandem sky-diving. Actually that's ... It's any sport you do. Setting up goals that work so that they are hard, but achievable, not always, sometimes you want to have these egos, that's okay. Sometimes it gets this stuff done, but setting up challenges for individuals and then giving them lots of feedback on those challenges, so it's really seeing the leader as a coach, as a mentor, as a problem solver, as opposed to as a dictator. I really want to empower everyone on the team to be a decision maker, to innovate, to make mistakes.

I love the ... We do a monthly "Congratulations, you screwed up!" celebration. What was your biggest screw up this month? Yeah, let's talk about that because if you are not screwing up, you are not trying hard enough. I'm loving the screw up. It's great. It's that kind of thing. We want you to innovate and I want to use the knowledge of a crowd to get the best improvement in processes. Just because I sit in the chair in the corner office, doesn't mean I have any more knowledge about anything than you guys who are doing this stuff everyday and not thinking about finances and the next customer and growth and running a radio show and all this kind of



thing. I really want to empower all that on the ground knowledge so that we are really effective at what we are doing.

Dave: Setting expectations is really important. One of the things that new employees always find at Bulletproof, they'll come in and say, "What should we do?" I'm like, "Here is the deal. I'm the CEO. I haven't studied the problem. You've studied the problem, so why should I decide what to do?" I have this mantra, it's like what do you think? Pretty much any time you ask me a question, and you haven't already done the thinking yourself, I'm just gonna ask what do you think? Then I don't have to do the thinking because actually I'm paying other people to do the thinking and that's the expectation that I'm setting. Then we can talk about it once they say what they think. I don't know, we could do A or B, I think A is the right answer for these reasons, great.

I'm probably going to agree with you or I'll say, "No, you don't know about these other reasons, let's do B," but if it's presented, I don't know what we should do A or B, most people, I think will generally pick one or ask for all the information they need to make the decision, but I'm actively repelling decision making unless I'm the only one who can make it. That's part of the expectation I set for my team. Is that effective or am I driving down oxytocin unwillingly.

Paul: No. It's very effective in a couple of different ways. You are empowering other people which is showing them trust. You are driving their oxytocin up and you are also not inducing the chronic stress of as a leader of behaving like a dictator and forcing knowledge down to people as opposed to you have more than one person that works for you. Why not take all that knowledge and let it filter up to you. I think that's the important part. Hacks as we talk about hacks, the last N in the oxytocin acronym is for natural and this is about how you lead an organization because you are a natural leader. Part of that is, not only empowering the people around you, but being vulnerable. When you said, I don't know what's fast, you figured it out. You are saying, "Look, I can, I'm not in the corner office. Actually I don't even have an office. I got rid of the office. I want to move. I want to be constantly at everyone's steps."

I'm on the move constantly like you are. I want you to know that I don't know everything and when you do that you go, "Oh, yeah, we are all on the same team. We are all going to try to figure this out together. Again, you or I may know some things about the business that someone else doesn't, that's okay, but they may know a lot of things I don't." In fact, for sure they know a lot of things that I don't. Let's combine that knowledge set and see what the best decision is and also take ownership of the mistake. There is something a psychology called the Pratfall effect of that. It turns out that people who are too perfect, too beautiful, too smart, we hate them because they are not like us. They are like freaks.

I remember I was in New York once a couple of years ago and I'm walking up 5th Avenue after a meeting and I'm looking around I'm like, "Holy crap! These people are too beautiful." 6 ft tall model, it's fashion week. I didn't know. All I see is like male, female models who are the most gorgeous, genetic anomalies you've ever seen your life and then I'm like, "Oh, gosh! Now I hate them." It's not fair. They are probably stupid, who knows? That's the bad behavior.

Dave: Shades of zoo lander right there.



Paul: Anyway, as a leader if you make a mistake and own that mistake, a pratfall, confident people actually like you more. An example is John F Kennedy right after the Bay of Pigs invasion which failed, he went on tv and said "Here is what happened. I got advised. I thought it was a good idea. I blew it. I wasn't a very good leader and I want to get better and I'd like your support so I can learn how to be a better leader. I'll certainly learn from these mistakes," and after that, here is a prove of where things went up. Because I'm doing my best. I thought this is a good idea, turns out it was a very very bad idea. That little pratfall, that little imperfection is really actually attractive. It also takes the pressure off leaders in the work that we are doing which is if you empower the people around you, you don't have to be a demi-god, you don't have to know everything. All you are doing is moving the business forward, do the best you can, listen a lot, and empower people around you to make decisions and also make mistakes and not have blow back from it.

Dave: We celebrate failure. That's part of the Bulletproof culture. Even when I put my kids to bed at night I'm like, "So what did you fail at today?" They'll find something, like, I don't think that was really a failure. Failure is something that you've really worked on doing that just didn't happen the way you wanted. They scratch their little heads trying to find one. The idea of being, if you didn't get one of those, it wasn't a very good day. They finally internalized that. I'll tell you when they are 25.

Paul: Same thing with my kids. Not exactly the mistake thing, but I just refuse to answer questions with them. Like when they were little thinking why is the sky blue? How would you figure it out? What experiment would you run, what source would you go to. I can tell you and you won't remember it, but if you do it, it experiential. I think the same thing will work. I could tell you how to do something or I can say, here is the training and here is this new task certainly outside your training, give it a shot. As long as no one is going to get hurt or injured or something, I think that's a great way to learn and then it becomes your, you own this thing now. You've figured out. The important thing is during ovations is to share that with the rest of the team. Here is a concrete, but stupid example from my lab. When we started, we do a lot of blood work.

We take blood, we design a system. We have a divider, blah blah blah. Now my lab is so big that I'm not in every experiment. I may design them, but I'm not there. Anyway, I come back from some trip and the blood room is completely re-arranged. We used to have one chair under a divider, there is 2 chairs in a divider and there's 2 sets of blood draw kits on each side. I said, "Okay, what's happened here? What's the deal?" They are like, "Oh, we realized that we are wasting a lot of time when the person who got their blood draw, the next person sits in the chair, someone has to pull up the sleeve, the it is really slow. So we have a prep person and they go chair to chair." Brilliant! Why didn't I think of that? Because we were never doing high volume when I set up this system.

Yes, innovate, I love it. We always do that now. It was like forever, I forget now when we had that idea. Yes, let's not waste time. I want that chair to be hot, get the people in and out, draw the blood ...

Dave: Can people send blood to your labs to get oxytocin test now or is it just for university research?

Paul: That's a good question. Oxytocin has this double life like many other neuro-chemicals, serotonin, dopamine. The reason there is no blood test for low serotonin in the brain which may or may not be associated with depression, is because serotonin is the major gut neurotransmitter and 99% of what's in your body is in your gut. They give you a blood test. For serotonin I can measure it, but I'm going to get what's in your gut. People who take SSRI sometimes will get things like diarrhea because you are splitting up the gut motility. Oxytocin binds to the peripheral nervous system to the breast to facilitate milk flow, to the uterus to contract during birth, that's the hormonal effects, but it's made in the brain and in the brain it's functioning as a neural modulator. That is it changes the activity of networks of brain cells.

Base levels of oxytocin in blood or unrelated to levels on the brain. If I stimulate it, like using a little video, if I stimulate the brain to make oxytocin, the change in blood reflects the change in brain. That's the secret to our success, which is there are basically 2 neuro-chemicals in which if you are stimulated, the change in blood reflects the change in brain and oxytocin is one of those two. Wasn't that a lucky call? Just happened to be this very ancient molecule. The blood test would tell you only about what's in your peripheral nervous system. We do find that for people with psychiatric disorders, that they have a highly dysregulated oxytocin levels due to receptor problems. You can sometimes see that in blood. Often you can't see it in blood.

People which schizophrenia, social anxiety, sometimes depression will see dysregulated oxytocin, in fact very high levels of oxytocin at baseline. Always neurochemicals work on feedback loops so I make some, it binds to a receptor, it turns off the production. If the production is not being turned off, you have very high levels. There is potentially a receptor disruption. There could be other factors Dave, I don't want to diagnose people here, but anyway we find ...

The thing that we develop is an oxytocin stimulation test. We can use the ... Which is a very effective way to do ... Within a certain range and your oxytocin system is working properly. If it's not then either you are having a bad day, we should re-test or there may be some dysfunction. The system is plastic. We develop even as adults. You met me when I was a nice person, but I used to be such a ... testosterone in the opener, such a high testosterone, only by the numbers, I don't care what you think kind of person and I got a lot done, but I think I didn't have really good social skills and I've worked very hard as you know to be a better connector, to be more emphatic, to be warmer, and there is good evidence in animals that as you become more engaged with humans, particularly the number of oxytocin receptors will increase and you become a more emphatic person. Kids do it actually. If you have little kids, are these your first kids?

Dave: They are 6 and 9, yeah.

Paul: You know when you've had that little 9 year old, was a baby then all of a sudden, things outside that family life are less important. I became a much more patient person with my kids. Your oxytocin is getting spiked a lot. Your testosterone goes down when you have kids. You are changing the balance in your life which I think is ... For men in particular it's actually very important. Cause our testosterone are so through the roof high. We can be assholes, let's be

honest.

- Dave: I definitely used to be a pretty big jerk and I definitely didn't have an easy time with social connectedness either. Some recent study I just posted on Facebook talking about changes in genetic expressions from feelings of loneliness. Except that we never knew that, but wow, the inflammation happens when you are feeling lonely. Who would have expected that?
- Paul: I think we can ... I love that your whole goal in life is to be a bio-hacker. Maybe not your whole goal life, but we know one of your big focuses. I tried to do the same thing at least with this system. We can thoughtfully say, I need to build better relationships, I need to invest time in those relationships. I know you are certainly doing and I'm trying hard and I'm sure it will pay off. I went from being a jock to ... I have way too much energy for normal humans and anyway, to, I turned 50 recently, I had 4 people throw me surprise birthday parties. Who knew? I think that's a sign that I'm just getting better at those relationships, so yeah, that could be a goal.
- Dave: I have had one surprise birthday party when I turned 40 and it completely blew me away. I had never expected or had anything like that because I've never been ... I just have Asperger's syndrome level of connection issues. Huge difference to have that kind of ... It's pretty amazing. What about oxytocin and light? You can turn on neuro-transmitters. I'd use low level light therapy on my brain to turn on all sorts of interesting things. The color of light we are exposed to, sunshine, ultraviolet light, infrared light, different colors. I have ... Just going back, 10 years ago I got this set of lenses that change your transmitter, your neuro-transmitter levels based on lavender and yellow and different colors, have you looked into any of that?
- Paul: I haven't and I don't even know this literature. I would love to do some tests. I think offline we could hypothesize a little bit and it's something to do. Here is the big technological breakthrough is we now have developed a technology to measure oxytocin binding in the vagus nerve in the heart using wireless sensors. Now I don't need to stick a needle into you any more and so the testing for oxytocin and it's impacts is much faster, cheaper, and actually much higher frequency. I can measure a thousand times of a second using the medical grade sensors we have so I can really get very rich information, second by second on how you responding to a stimuli and we do a lot of work into marketing right now because of this, so I can diagnose that communication or an ad and say, here is where you grab them emotionally. They can't even tell you that, but in second 13, when the little boy shows up, that's when you start getting emotionally engaged in the sad and that's why you capture people's hearts and minds.
- Dave: Wow! I'm working on the new 40 Years of Zen program. This is a neuro-feedback based 5 day super intense, like upgrade every system you can. I spent 10 weeks of my life with electrons glued to my head. Like just developing self-awareness and it's changed who I am and what I'm capable of and I've done it with high-end clients for a while. We are doing a second rev of technology that's much more advanced than it used to be with heart rate variabilities, that's part of it and all, but I'm really intrigued by the stats of wireless sensors for this. Are these the kinds of things that are going to reach consumer grade. I have a 99 dollar heart rate sensors that I sell on Bulletproof and I see them use ... I recommend people use those to basically improve meditation because when you are meditating wrong your heart-rate variability changes.

Can I get one of these or do you see a day in 5 years where people will be able to get one of these heart rate sensors and actually meditate to raise oxytocin and when it's not raising you see results on your iPhone and it tells you meditate better dumbass.

Paul: Which always helps when you are meditated, right?

Dave: You are meditating wrong, bad. Is that actually possible with this kind of tech? I'm blown away.

Paul: I've got to come up and visit. That's exactly what we are doing this summer is we have a device, we build the algorithms, we've got an alpha test going on right now so that we can have a wearable, that has high enough grade data where we actually can measure, not only oxytocin, but really engagement more broadly understood. Hardly engagement is have to pay attention to you. The second is how to actually care about what you are saying? I have to listen well, I have to respond to you. We build algorithms and algorithm we call "zest" that tells us about the quality of that relationship and so we are ...

Anyway [crosstalk 00:53:59] ...

Dave: People listening, some of them are really seriously into biohacking, these conversations will be blowing you away if you are like this is where the world is going. This is so cool. All right, question for you then, I have a good friend, Joe Polish who runs the genius network and this is a group of high end marketing people and you just helped many people. Like Richard Branson and Tim Ferris and guys like that succeed. He's working on addiction and he's been looking really hard for a system that can tell you when an addict is about to go back to their habit, whatever their habit is; a sex addict, drug addict, alcoholic, whatever. It's oxytocin a part of the addiction cycle that we experience or is that all dopamine?

Paul: Great question. We actually have done some studies on this and other labs have as well. The question that drove me was, if you are in rehab, if you are an addict and you are getting treated, what you often see is that people have been addicted for a long enough time, don't draw on their support network to at least stay sober. AA. Forget about all the making amends and all that, a part of it is just a support network to say, I realize I have a problem and I want to have these people help me deal with that problem. It can be very effective. We find in long term stimulant use, methamphetamine, cocaine, is that the receptors for oxytocin that make it feel good to interact with other people, particularly in the frontal cortex are damaged or killed.

The reason why we are long term addicts particularly stimulant addicts don't reach out, I think is they just don't have the neural resources. They are not motivated. They don't get that kick that we do when we meet someone new, we see a good friend, we get a hug. There has been some very recent clinical trials using oxytocin to ease in with the symptoms, withdrawal symptoms coming on drugs, where some reasonably promising results. One reason that I'm comfortable around strangers when my brain makes oxytocin is because my physiologic arousal reduces and also my pain level, activation the brain's pain metrics goes down so it literally feels comfortable to be around you, isn't that weird.

Again, this is this clue G evolutionary system so your question I think is a great one which is

could I have a center that would say, "You are at risk now" I'm not sure. I think with enough research and some smart algorithms, it might be possible.

Dave: Here is the deal. There is a million dollars for you if it's possible. Cause Joe just put up a million dollars as an award, like an X price level award for being able to predict a relapse for addicts. The reason I was asking, it sounds like you [inaudible 00:56:54] with a sensor on fascinating stuff. I hope everyone listening is as intrigued by this thinking as I am because this is just cool stuff. If you are not intrigued, sorry, go to the next episode because this is awesome.

Paul: I think we are fascinated by 2 things. One is ourself. I've MRI'd my brain a zillion times and my wife's. I have my wife brain and my brain and I spent 5 or 6 minutes looking at my wife's brain. Looking for tumors. I don't understand why she is so crazy. My brain I spent hours looking at my own brain, "My God, my medulla is so weird shaped!" I've seen worse than that. Then we are seeing other people. Why do other people around us so weirdly interesting and sometimes crazy? That is a fascinating topic for social creatures and the census give us objective information that's not being filtered through our own bullshit. I think it's a great way to figure out, "hey you know what, my wife is really stressed out today." Instead of me bitching back at her, what she really needs is a hug or just a 20 minutes alone to decompress of whatever.

Dave: Or 100 second video. Honey watch this, I'll be right back.

Paul: It'd be great, yeah. It takes all the pressure off me then. I don't have to do any care-taking. Just watch the video you'll be good.

Dave: There is an ethical question here for you Paul. Is it ethical to hack your employees this way or hack your wife this way?

Paul: I gave a talk recently and I said I want to use, at a university, you know everyone is so sensitive right now, micro-aggressions. I can use one bad word in this talk and I want to give you a chance to either leave or [crosstalk 00:58:38] ...

Dave: Trigger one thing that you are going to say poop.

Paul: That's right. It starts with a P. That's right. I've used one word, starts with a P and that word is persuasion. I want to try to convince you in the next hour that persuasion is not a dirty word because every time I interact with any human being, I'm seeking to persuade him or her, at least unconsciously. If I did, I'd like you to like me. I don't know why, but I have some interests. Actually we have a lot of stuff we've got to talk about. We have a ton of stuff to do together. Every interaction involves persuasion. Whether you like it or not, whether you are thinking about it or not, you are still doing it. If we understand neurologically how to persuade people which is about 10 years of work out of my lab, then we can be more effective at it and oxytocin is part of that, it's not the whole answer. I think of you are transparent about it, I want to make the best case possible to you about say purchasing my new product.

You have a big brain, a nice big pre-frontal cortex. I'd rather make the case better than make it worse. I'd rather show you why it's great for you. Sure, it's going to generate a sale for me, but

I'd love to have you as a long term customer so I want to make the most persuasive case possible. In the end you have to decide. I can't coerce you. I'm not going to hold a gun to your head. If we are going to persuade people anyway, why don't we just try to do it really well. As long as we are transparent about it, like when we do micro-learning, before you do any micro-learning with your employees on improving culture, have a Town Hall and sit and talk about what we are doing.

We are doing this because we are thinking it will be better for you. You'll be more engaged with your work. More engaged with the people around you and we are going to be more productive and make more profits so you can keep your job and even get a raise. If you guys are okay with that, let's try it for 30 days and just see what happens. If it sucks or you hate it, let me know, but the last thing I want to do is drive you guys crazy because I hired you because I think you guys are awesome. As long as you say that and then give constant feedback, look if this is not working or you are tired of doing these surveys every month or whatever let me know, we can change it.

Dave: It feels like you are saying every time you are interact with someone you are hacking them on some level. Either you are adding value or you are not and I made that decision with Bulletproof Radio. I look at the number of downloads and number of hours and it's we are probably running our 42 million downloads of the show now, 42 million hours of human lifetime. I'm either a mass murderer, if I'm wasting people's time. Like hundreds of lifetimes or like I'm adding value, but at the end of the day, I'm somewhere on that spectrum, I'm probably not right in the middle. I am actively hacking people listening right now. Like the words we are choosing, whether they are conscious or unconscious have an effect on the people around.

The way you are moving, the way I'm moving, all of this is taken in by the people's nervous system as an environmental signal and it's going to do something to them. I figure that that's happening whether it's all unconscious or all conscious, it should just be all conscious so that we can actually do better things. The reason I ask about the ethics of this is that I also just enrolled or unveiled a program at Bulletproof, I'm hacking all of the employees brains where I took the neuroscientists from 40 Years of Zen and we have dedicated clinical grades, EEG, at the office for all the employees so that they can do high end clinical neurofeedback to improve themselves.

It's like it's a giant investment. Personally, just in terms of monetary investment, but it's a culture thing, but it is also like is it ethical to hack your employees brains? I thought about this for a long time and I said, "Well, is it ethical for me not to?" If it works and it's available and I could do it, then how could I not. I think there is going to be a lot written about this over the next 10 years about this idea.

Paul: I love it. I agree with you completely. As long as there's an opt-out, you aren't forcing them to do this. Anyway, this is available. I think it's made good for you. It's probably good for the company too, but also I wanted this to be a great place for you to work.

Dave: Yeah. You get to keep the improvements in brain, no matter where you go afterwards, it's your brain and you just got to tune in. It's going to make a nice sort of people around you, but you wanted that anyway and now everything is easier and it's profoundly changed who I am. That said, I'm sure there is going to be a few people, even at Bulletproof, although we tend to hire



biohackers. A few people like, I, might to like what I might find. So then don't do it. It's totally cool, but I think I'm going to see just about everyone in a company raise their hand and say, "Of course I want to try this."

Paul: At least try it.

Dave: We'll see what happens, right?

Paul: You can always stop doing it. I remember a couple of years ago, Time Magazine asked me to write a little blurb for new year goals or something like "How do you know you are having an impact on people?" I thought, what I trying to do in my life is what I call created love for us environment. For every interaction I had a little love to the world. If I can do that, if I can approve the people's lives or anything just a little bit by some effort that I can take, then I've had a positive impact and if that spreads, hey great, if it doesn't, then I've just tried to meet someone around me nicer or happier.

Dave: That is such an elegant way of putting to. Love plus. It's actually a big thing. If you had 2 paths and one of them had more love in it or just take out, it didn't cost you any more to take that. It's the same philosophy behind biohacking. I believe when you make yourself a little bit better everyday, you are nicer to everyone around you.

Paul: Because your stress is lower. You are eternally happier. You are flourishing. Absolutely. We know that, right? Here is the last thing on oxytocin, I promise I'll take a breath. When we are under very high stress, we are in survival mode, epinephrine inhibits the release of oxytocin, so now all of a sudden, it's not me trying to me get through the next 10 minutes that can't even be nice to you. We've all been in that state and it's not pleasant. A little stress, good for oxytocin release, good for teamwork, good to bring us together. Too much stress not good. Finding that balance in our own lives is very important where we ... Sometimes we are with doubt and sometimes it's just appropriate, but I think as you get older you learn to module like that and things like meditation, final feedback, all that are great ways to learn how to modulate your own response to stress.

Stress is just a cortical fantasy anyway, right? As long as you are not being hit or stabbed or something, that's a physiologic stressor, but we think about, oh my God, can I pay the mortgage next month? That's not going to actually kill you in the next 10 minutes, I mean that's a stressor and you have to resolve that problem, but we can just learn to take a breath and then meditate or take a walk and whatever it is, we are drawn to people around me and say, "You know what honey, I'm just having a bad day." I just need to have a little extra time and care from you and I've gone through the age in my life where I don't mind asking that from my friends and family. You know what, I could use a little extra love right now. How about someone help me out.

Dave: Yeah. Being able to ask for help is not a natural male thing to do, but it's really beneficial when you learn that it's safe to do that. I never was wired to do that either. You mentioned, epinephrine, do you track the epinephrine to norepinephrine ratio in the work you do?

Paul: We have. We found that since we've now moved to sensors that heart rate and skin

conductance are actually pretty good measures. We used to go through 12 to 13, 7 gallon bio-hazard buckets of needles and tubes and blood draw material and we are probably down to maybe 4 of those 7 gallon buckets per year now, so we've really cut down by half or more the amount of blood work we do because we correlated those blood findings with these high frequency non-invasive measures. You are right, once we get down to wearable centers, our whole world is getting better.

Dave: It's such valuable work you've done Paul and for people listening Paul has been drawing huge amounts of blood and looking at chemicals and realizing, "Oh wait, there is a signal coming off the body that was always there, that's easy to get. We just didn't know this signal matched these chemicals." That is game changing for all of us because it's cheap and easy to get an electrical or even an electromagnetic signal off the body. A movement, a gate, all these things we radiate all the time. All this information that's been ignored by most of medical science except for some neurological things here and there, but when you put that together and you draw the correlations there, we shouldn't be drawing as much blood as we are. That said, I just had 20 viles drawn 2 weeks ago.

Paul: Oh no!

Dave: No, that's good. I do blood test for fun.

Paul: Okay, no sickness, this is what ...

Dave: No, this was for the human longevity inc. We did the full human genome sequencing and 3 or 4 times a year I get 19 or 20 viles drawn because I'm going to live to 180, I want to know everything I can.

Paul: There you go. You know what we might do at the conference at Pasadena is we can certainly test the sensors you have or we can actually play the video and hook some people up in real time for the census, show the data on the screen.

Dave: Yeah. Absolutely. In fact let's do it. In fact, hook me up and we'll hook up a couple of other people.

Paul: There you go. Just make sure you don't see the video. Although it's hard to actually do it. There is stuff like deep in the brain stem, so it's hard to suppress.

Dave: All right. We'll do me and we'll do a couple of victims from the audience. Yeah, we'll arrange this offline. This is going to be so fun. If you are listening to this and you are in LA or you are going to be in LA in September, you have to come to the Conference, it's going to be so amazing. [Bulletproofconference.com](http://Bulletproofconference.com). Paul, have fun. We'll figure out which day it works, but probably the opening day.

Paul: Excellent.

Dave: Wow! All right. I have one more question for you before we come to the end of the interview. If



someone came to you today and said, "Paul, I want to kick more ass at everything I do in life." Given everything you've learned in your life, what are the 3 most important things I need to do? Or things I need to do or things I need to know in order to achieve that goal. I'm going to be better at everything, what matters the most?

Paul: What a great question! You couldn't have prepped me for this?

Dave: I don't know if you listened to any of the past episodes, you would have known it was coming.

Paul: Never want it to be caffeine, of course, we know that.

Dave: Best answer ever in ...

Paul: Maybe Bulletproof Coffee, I'm just saying. I think the first thing is take smart risk for sure. The second is ask for help, all the time. Don't believe your own BS. Really ask for help and the second is believe in yourself. I think you and I are both, we are doing things we never should have been doing. We are trained to do and part of that was just being a stubborn, like you know what, actually I'm guess I'll play this thing out, it will be stupid, but just let it play out and just see if you could accumulate evidence that this might not be crazy. if I knew now, whatever I didn't know back then, I would never have done it. It was way too hard, it was way too risky, but I had this intuition and I just accumulated evidence little by little by little. I asked for so many people's help. I just said, "I don't know anything. You work with rats." In fact, I was so lazy Dave, I said, "Hey, you are a rat oxytocin guy."

I'll design the experiment for humans. I figured out a great particle, I think it will work, why don't you guys do it, you are the experts. Literally, a couple of people said to me like Paul, they don't have fur, they don't have tails, I don't want to get involved in that kind of issues. Finally, an expression like, "Okay, if this is a good idea, I'm going to figure out how to do it." I've got to learn how to draw blood, I got a full ebodomy license, I hired MDs, I did all the things I had to do to make this legit and anyway.

Dave: Wow! I'm impressed and I haven't talked about the simple rated before, but we just ... We are opening the first Bulletproof, like human hacking lab in Santa Monica and it's got a lot of stuff that it creates interventions for increasing mitochondrial functions and things like that. Part of it is a partnership with a lab that has a full ebodimist, IV, therapies and all that. The goal there is to be able to offer any blood test you want. There is a whole firewall around getting blood tests and I feel like it's a fundamental human right to know anything about your body that can be known. We are enabling that and I hope to beat your record of 7 buckets of bio-hazard material.

Paul: When is the lab open in Santa Monica?

Dave: As soon as we get our building permit stuff in order. It will be within the next month or 2 if it's a good guess.

Paul: I'll be there for the grand opening,



Dave: You are on the list.

Paul: That sounds great. This has been so much fun, I can't tell you.

Dave: It's been great fun. Now, where can people find out more about your work doctor love?

Paul: Pauljzak.com.

Dave: Zak.

Paul: Zak. Olfactor.com, organizational trust and optimizing team work and our work on really the biohacking itself is at zestlabs.com, zestlabs.com. Like all of us we are doing a zillion things at once. By the way we take tax money from the next tax payers of US. We love to help people come visit our lab. People can find me online. Shoot me an email if you are in the LA area and you have to see what we do. Everyone is welcome.

Dave: Beautiful. That's a huge offer. I suspect you'll get some people taking you up on that. There is an amazing community of people listening to Bulletproof Radio. The kind of people who come to the conference and come to the coffee shop in Santa Monica and just hang out and actually another one downtown we just opened our second one in the arts district and people who really well because they are deeply curious about this stuff. I suspect you'll have a couple of cool lunches as a result of that offer so people take Paul up on this. Paul, thanks for being on Bulletproof Radio, I'm so excited to be hacking people using your tech at the conference, it's been a great fun. Have an awesome time and I'll see you in another month or so at the conference, September 23rd to 23rd.

Paul: Thanks for having me on. I look forward to many conversations with you in the future.

Dave: Likewise. I forgot the final thing. Your new book, that's coming out. I said it's name earlier, it's going to be called, what's it called?

Paul: Trust Factor.

Dave: Trust factor. Where can people find out more about that? Is there a way to pre-order it yet or not yet?

Paul: Its on amazon. Trust Factor on amazon.

Dave: Go to amazon and do trust factor. If you enjoyed this interview as much as I did, this is one of those really fun ones where you learn a lot of stuff and you talk to a world expert in something. Go out there and pick out a copy or pre-order a copy of Paul's book. Go to amazon right now and just search for trust factors for the science of creating high performance companies who's name is Paul Zak, ZAK. Order that and I can tell you I'll be reading an early copy of that before you get yours because Paul's probably going to send me the PDF right after this call. I'll be rolling this stuff out of Bulletproof before you even get the book, but when you get the book, you'll be out of the curve.



Paul: Thanks for the plug. I appreciate it.

Dave: Thanks Paul. Thanks for watching. Get tons more original info to make it easier to kick more asset life when you sign up with a free newsletter at [Bulletproofexec.com](http://Bulletproofexec.com). Thanks for watching and stay Bulletproof.