

Speaker 1: Bulletproof Radio, a state of high performance.

Dave Asprey: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is that people with diabetes are actually hacking their own devices, because a woman got kind of pissed off that the manufacturer of her continuous glucose monitor didn't have an alarm to wake her up when her blood sugar was crashing at night, so she could fix it, so she hacked it.

She actually created something called, Open APS, which is called the open artificial pancreas system project, and decided she didn't want to wait for FDA approval or a long manufacturing process. It can actually take many years to do a full medical device like that. She decided to just open source it so you can get data from your own continuous glucose monitor and put it in a little computer, like a raspberry pie, which costs about 50 bucks. It'll change commands going into your insulin pump so that you can have different insulin rates.

How cool is that? So we're actually hacking our own biology and not relying on a permission slip from some regulatory body, or even from a doctor in order to do that. This is the future of having control of your own biology, and it's particularly cool. If none of that made any sense to you because this is your first episode of Bulletproof Radio, I'm just going to break that down for you.

What's going on there is a continuous glucose monitor is a little thing that you wear for two weeks. I actually wore one. I was on Dr. Oz, actually, wearing it. I had like a bionic arm. I was wearing like a monitoring ring that monitored my health and on the same arm I had a disc about the size of a quarter, on the back of my arm. For two weeks it told me any time I wanted to know what my blood sugar was, so I could see how I was responding to meals. I've been doing stuff like that for many years.

Sticking my fingers years and years ago, the way diabetics do, not because I'm diabetic but because if you want to live a long time you want to make sure that you control your blood sugar, and one of the ways you can do that is you can have more muscle mass, or you can exercise regularly, you can eat less sugar, don't eat a lot of carbs. In fact too much protein even or too much whey protein or milk protein isolate, which is real popular in some of the low carb stuff out there actually raises your insulin, which is not what you want to do.

I just thought that it was kind of cool that someone out there directly took control of her own health and then shared it with other people, rather than waiting for someone else to do it for them so that's why that's the cool fact of the day, because it's cool.

As we get into the show, today's promo for Bulletproof Stuff, because after all, I am CEO of Bulletproof in addition to your host today, and I'm going to talk

about the stuff that works. If you haven't seen Unfair Advantage, this is a whole-body, broad-spectrum enhancer, and specifically it's a cognitive enhancer.

It works differently than most of the things on the market. If you go to Whole Foods, for instance, you can pick up 1 of 25 different things that'll raise your acetylcholine levels, and if you're at the right age, and you have the right brain that's going to work for you, but those often times can backfire with jaw tension if you get too much of those things in fact, that's a problem for me.

What this does is it goes down a level and says, look, you need to blow your energy up, so you have energy throughout the body by making the cells manufacture energy better, the way you read in Head Strong. So Unfair Advantage comes in this cool little thing, if you're watching on YouTube. By the way, [bulletproof.com/YouTube](https://bulletproof.com/YouTube) will take you right to the channel. It comes in little ampules you can keep it in your pocket. I do two of these before I work out and any time when I go on stage.

Like a little while ago I was just on Tony Robbins main stage in front of 15,000 people. I took four Unfair Advantages and four KetoPrime's, another one of our products, as well as a cup of Bulletproof coffee, and I don't think my feet ever hit the floor. I don't know. I was kind of lit up in the best possible way. It was one of the best public talks I've ever given. It was just a standing ovation, and a few people cried. Bam, you know you reached them.

So I know that I am more when I have more energy, and when your body has more energy, your brain will feel it first because you have the most energy-producing cells in the brain. When you have a dip in your energy, you're going to feel it first in your brain. You get forgetful. You get foggy. You get cravings, you get irritable. Well, check out Unfair Advantage. It tastes good. You squeeze a little thing under your tongue. It's portable, and it totally rocks my world. It's a real powerful thing. Just go to [bulletproof.com](https://bulletproof.com) and look for Unfair Advantage.

But in the meantime, I'm going to talk to a couple guys who are disrupting exercise. A lot of people are asking, "Dave, how come you're so buff?" Okay, they don't really ask that except all the girls. Okay, they don't ask that either. I'm married, come on. What they do say is though, "Dave, you put on some muscle. You're looking better now than you did a few years ago," and I'd like to say it's just from exercise, but look, all the research in Head Strong, I've had stem cells taken out of my butt and put in my face on the Facebook Live, so I've been really secret about that one.

But I do everything possible in my quest to live to 180 and one of those things is getting the best possible exercise and not spending like 16 hours a day exercising because that also is wear and tear, and I got stuff to do. I'm a dad, I'm a husband, I'm a New York Times author I'm a podcaster. Oh, and I have this little company to run that just raised like \$30 million in venture funding. I'm loaded with stuff to do, so every minute of my day counts because every minute

I waste exercising is a minute I don't get to play with my kids. I mean that very seriously.

I've got a couple of guys here who have really cracked the code on putting muscle on quickly without spending hours and hours in the gym. If you love spending hours in the gym and that's what you want to do, that's cool and there's nothing wrong with that, but for a lot of us it's like, how do we get the benefits? The guys I'm talking about here are Mark Alexander and Mike Pullano from a company called ARX, and Mark ... Hey Mark say hi, so they know your voice.

Mark Alexander: Yes. Hello Mark here.

Dave Asprey: All right. Mark is the founder of several different companies in the health field including ARX, a company called Efficient Exercise, and you've probably heard of Paleo FX, the conference. This is the man who started Paleo FX.

Mark Alexander: One of them.

Dave Asprey: One of them. That's a fair point. As the CEO of ARX, he's basically driving this idea that, what if we got the right signal into our body to cause it to adapt most rapidly? Which is totally biohacking, and he's been at ... How many Bulletproof conferences now? Three?

Mark Alexander: This will be our fourth one coming up. Yeah.

Dave Asprey: Fourth? Yeah. October 13th through 15th in 2017 is the fifth one. Expecting about 3,000 people it was 100 people four years ago, believe it or not, unbelievable. It's just because people are like, wait, I don't want to be healthy I want more. You've been with us almost since the beginning. You've also heard Mark before on an earlier Bulletproof podcast where at Paleo FX we had a demo of an older version of the ARX got a newer version here at Bulletproof Labs in my house.

ARX is a computer-driven workout technology. Instead of fighting gravity and using heavy weights and things like ropes or something, which are actually kind of cool, you can fight a computer. The change to what it does to your body is amazing. In addition to Mark here in Bulletproof Studios on Vancouver Island, we've got Mike. Mike Pullano, say, hi.

Mike Pullano: Hello everybody.

Dave Asprey: All right. Now you've got his voice. He's the product manager from ARX, so I'm going to go deep, ask some questions about why this matters, what it is. What's in it for you listening to this is you're going to learn some things about ... Even if you're not using ARX at your local gym, it may not even be available yet, you can

certainly ask for it. But you'll learn some things about exercise physiology that helps you understand how your body builds muscle.

I think that's going to be useful for everyone, because maybe you can shave a few minutes off your workout. Or maybe you don't shave a few minutes off, you just put on more muscle, or you have better bones. There's a lot to understand about the way our bodies build muscle. I think we're going to dig in to a lot of that here. All right, guys officially welcome to the show.

Mark Alexander: Hey. Thanks, Dave.

Dave Asprey: Was that like a really long-winded introduction for you?

Mark Alexander: No, it was perfect.

Mike Pullano: Did good.

Dave Asprey: All right. Did I miss any important points?

Mark Alexander: No.

Dave Asprey: All right you guys are both Austinites?

Mark Alexander: Yes. Yep. Well-

Mike Pullano: Born and raised in Chicago. But live in Austin now, yeah.

Dave Asprey: All right. And you're born in Austin?

Mark Alexander: I've been in Texas all my life. Been in Austin all my university and professional career yeah.

Dave Asprey: You know I grew up in New Mexico, right?

Mark Alexander: Okay.

Dave Asprey: There's a little bit of rivalry here, because you Texans come over to New Mexico and you use our ski slopes in your big cars with your big hats. What's up with that?

Mark Alexander: Well, you got to start there and then you work your way up to Colorado so yeah.

Dave Asprey: I think I'm going to tell one of my most favorite jokes here, that has nothing to do with biohacking.

Mark Alexander: Perfect.

Dave Asprey: But it's awesome, and it's only a little bit rude. All right and I apologize in advance to all the people I'm making fun of right now. There's a bar in Santa Fe, and there's a New Mexican sitting down and next to him there's a Texan, and next to him there's a Californian. The Texan says, "I'll have a shot of tequila, please!" and he says that in an even more of a Texas accent, which you don't have of course. He drinks it and he throws his glass on the floor and says, "In Texas we got so much tequila we never drink from the same glass twice." and the Californian's like, "Oh, well I'm from Silicon Valley. I'll have the merlot."

Of course, he drinks his red wine and goes, "In California we've got so much red wine. We never drink from the same glass twice." and he throws it on the floor. The New Mexican looks at them both and he finishes his beer, and he pulls out a gun, and he shoots both of them, and he says, "In New Mexico we've got so many Texans and Californians, we never drink with the same ones twice."

Mark Alexander: There you go.

Dave Asprey: Now of course, I've been in California for much of my life, too, so I'm only making fun of myself here but, hey. You didn't laugh.

Mike Pullano: I'm from Illinois. I'm not a part of this [crosstalk 00:09:41].

Dave Asprey: I don't have any good Chicago jokes. I'm afraid of Chicago jokes because they kill you if you make a joke. Okay, there. Now I got my Chicago joke in.

Mike Pullano: The percentage of lead in the air in Chicago is horrendous.

Dave Asprey: All right. Now I've soundly offended people from only four states.

Mark Alexander: Yeah, yeah. No.

Dave Asprey: Now what other states are left. Hopefully that was a great interlude and [inaudible] that improved the quality of your life, because humor changes heart rate variability, which makes you live longer yeah, yeah. That.

Mike Pullano: Let's do it. Keep the jokes coming, Dave. Keep them coming.

Dave Asprey: That's probably the only joke I've told on Bulletproof Radio, but it's one of my favorites. All right let's talk about, what the heck is ARX really? I gave it a brief intro, but why?

Mark Alexander: Yeah, well. I mean, I can give you a little bit of history and background, and Mike can definitely dive into the specifics. I grew up around exercise. I had a much more low-tech version of a barn-style gym in my backyard in the 70s and 80s, and my father's retired intern was always an exercise is medicine kind of guy. I grew up, pictures to verify, literally lifting weights in diapers. I was in there. We

just ran your son through a little bit of a workout. You can, in the right manner, lift weights very young.

Dave Asprey: You still lift weights in diapers, is what you're saying?

Mark Alexander: Sometimes I need it. Gets you already bulletproof right before the workout.

Mike Pullano: It's a little awkward in the office every once in a while, but it's not that [crosstalk].

Mark Alexander: Mark's in diapers again.

Mike Pullano: He's the CEO so he can do what he wants.

Dave Asprey: He's blushing!

Mark Alexander: Yeah. That means we're going on the right track. Blushing because of the ... Yeah, we're all feeling pretty good right now, yeah. Anyway, fast-forward a bit and I've always had kind of a historical context and, I guess, reverence, if you will. In some ways there's truly nothing new under the sun, and so I've always studied exercise history and physical culture. My faculty advisors have now started at the University of Texas in Austin, the Stark Center for Physical Culture.

Dave Asprey: Oh cool.

Mark Alexander: I think maybe you were there at the first Paleo FX when we held it there.

Dave Asprey: Yeah. I totally remember that. I love Austin. It's really hard to get to but I'm there like three or four times a year, though. Whole Foods headquarters is there, I interviewed John Mackey there. It's one of my favorite cities.

Mark Alexander: It's a great place to visit, Austin but also if you're a physical culture buff-

Dave Asprey: Stark Center is well known and so for people who don't know what Stark Center is.

Mark Alexander: Yeah Joe Weider when he was still alive, funded this again Jan and Terry have always been physical culture historians and when I was at UT their office was like a cave of a place and it had all sorts of implements and books and all sorts of neat stuff. But anyway as I was coming up thinking I knew everything as most young adults do, it gave me a good reverence for where I stood and where my ideas stood in terms of physical culture.

Again we always get asked about the barbell and is that a bad tool. No it's just ineffective and inefficient. There are inefficiencies and so that's why really the pain points if you will of where ARX came about specifically if we hone in eccentric training and eccentric portion the range of motion and so again for

your viewers that are watching they can see but I'll try to describe this a little bit better.

Take a barbell bench press, most people know what that is. As you're lowering the weight towards your chest, you're going to actually produce a lot more force maybe even two to one than what you can lift off of your chest. What we wanted to do was maximize the known benefits of eccentric training. In other words when the bar is lowering or the negative in gym terms, we wanted to be able to have a tool to maximize that.

Then what we also discovered as well if we're maximizing eccentric force we should maximize the concentric force and we should just maximize the entire stimulus.

Dave Asprey: Basically concentric is when you're pushing it away from you and then chest press.

Mark Alexander: Yes in this-

Dave Asprey: Eccentric is when basically the bar is falling towards you and you're slowly resisting?

Mark Alexander: Yeah and-

Dave Asprey: They do different things to your muscle, right?

Mark Alexander: Yeah and in the gym often times the eccentric field's kind of like rest, it's not that hard because you're so much stronger in that phase of the repetition and yeah you're absolutely right. With resistance exercise you want to make sure you get the muscle damaged to produce the micro traumas produce hypertrophy or muscle growth.

You want to also make sure that you get a bit of metabolic stress which again this has been debunked and Doug McGuff, has been an advocate for this. Our bodies can't-

Dave Asprey: Go Doug.

Mark Alexander: ... yeah can't really think in terms of aerobic, anaerobic and the systems just work as a whole they don't work in isolation. The way that we promote resistance exercise is that it should have a metabolic effect. You should be a little winded when you're done. Then you want to adapt, your systems should adapt mitochondrial function should improve. There is a lot of neat things that happen, but I guess in kind of staying with what ARX is for just a minute here, I guess Mike could kind of describe the experience a bit more and kind of where ARX is today.

Mike Pullano: Yeah so if you're talking specifically about the positive and the negative and how we're optimizing it, right so it should be stated that ARX doesn't use weights, so it's a motor driven system and a computer controlled motor driven system that will basically give you the exact amount of resistance that you're capable of and nothing more in the full range of motion.

Dave Asprey: If you were to think about this in terms of weight and it truly is in weight because weights are affected by gravity.

Mark Alexander: Right.

Dave Asprey: Your body senses that gravity is in the system and then it starts to hold back. But if you imagine a little robot that's constantly adding or subtracting little plates at every hundred thousandth of a second just to make sure you have exactly as much as you can lift anywhere on the curve. The earliest version this was the old 24 or I guess the old Nautilus machines. Where instead of a round thing they would have like an egg shaped thing, which was a huge innovation.

Mark Alexander: Yeah I mean Arthur Jones and Nautilus and again I'm a history buff and grew up with the Nautilus gym being an influence on my world, but yes there was an attempt to we know that resistance in theory should not be linear but a barbell at 225 is a barbell at 225. The cam was attempt was adapt that resistance curve, and it worked for one person it works for one given time but it doesn't account for fatigue, it doesn't account for individual difference [inaudible 00:16:16] things like that.

It was a move forward but honestly we haven't seen in my humble opinion here a lot of progressive thought towards resistance exercise. I think Kenneth Cooper and the aerobics craze kind of just got everyone making fancy tread mills. Hopefully we're going to shift that paradigm back here.

Dave Asprey: Did you every own like a man leotard?

Mark Alexander: No, yeah but-

Dave Asprey: Good I was hoping you were going to say no.

Mark Alexander: ... tank tops maybe.

Mike Pullano: It's hot.

Dave Asprey: There we go. There was a time in the 80s you know Jazzercise, I used to go to Jazzercise with my parents when I was 14. It was ridiculous, leg warmers the whole thing. That wasn't terribly effective but it does do something. What does it do when you do cardio like that you're jumping around?



Mark Alexander: Well unfortunately for ... I live in Austin so we see tons of runners. With efficient exercise with most runners, mostly in corrective fashion get the craft it's not working well, working better and then get them stronger so they don't get injured. I'm a little biased here but I think what it does is it unfortunately makes people overuse certain muscles and then creates imbalances and then ultimately gets them hurt and then they think well I can't exercise.

Dave Asprey: You're thinking of running but I mean I'm taking Jazzercise, because Jazzercise is the most ridiculous thing. If you guys don't know Jazzercise is, like Google something from the 80s. It's like a bunch of people with 80s hair and leotard and leg warmers and wrist warmers.

Mark Alexander: Let Michael demonstrated right now.

Dave Asprey: Yeah and they're jumping around so at least it not a repetitious like step, step like running. Even something like that though in terms of just physiologically what does cardio with mixed emotions, what's that going to do for you if you're ... Say you're doing an hour of raising your heart rate kind of stuff.

Mark Alexander: Yeah there are some cardio respiratory benefits if done properly and not hurting yourself. Let's just assume jazzercise is done in a vacuum. There could be benefits to jazzercise. I'm not here again kind of a barbell; I'm not here to completely knock out.

Dave Asprey: No I'm not asking you to, I'm just ... I'm looking ... People listening they may be doing some form of aerobic training.

Mark Alexander: Yeah well I would say move towards an interval basis. Instead of just steady state think I have to do it for an hour I've got to log this many miles, challenge yourself more in an interval fashion. Go more high intensity with rest periods. I would say that tabata is kind of the known one but any protocol similar to that I would say that most people.

Dave Asprey: Define the tabata protocol for people who.

Mark Alexander: I mean it's a rest work ratio where you're trying to exert at a high intensity level and then rest. If you're doing 15 seconds on then you would take a minute off and you know rinse and repeat.

Dave Asprey: Recover.

Mark Alexander: Yeah.

Dave Asprey: The difference there from the research that I was doing, actually this was more in the Bulletproof diet thing before Head Strong, although I recommend interval training in Head Strong specifically for mitochondria.

Mark Alexander: Yeah.

Dave Asprey: Is that ... There is something called ejection fraction in your heart, which is on one heartbeat how much blood can you move. If you teach your body to always run or to always do like high even if it's very high higher intensity but long times your heart's like oh I'll just raise my heart rate and like spit little bits of blood.

The people who are longest lived and most powerful are the ones who can go from normal heartbeat to in one pump like forcing a lot of blood through and that's actually the ability to be variable in that. You get that from lifting heavy things and you get that from sprinting and in Head Strong the new innovation there, which came from John Gray surprisingly the Mars Venus guy, who is a good friend also a very knowledgeable biology guy.

He is like look, do your spring and lay on your back just like we do in CrossFit. The lay on your back has a different effect for recovery. It's sprint and then people think you're having a heart attack in the part.

Mark Alexander: Full concrete floor, just excellent.

Dave Asprey: Yeah and here is the trick, what you can do, you do your sprint and make sure that when you're; doing sprinting when you're laying down on the ground, doing it in front of an attractive member of the opposite sex, in case they try to give you CPR.

Mark Alexander: Yes just in case.

Mike Pullano: I have been looking for a gym hack like that.

Mark Alexander: Yes.

Mike Pullano: Thank you.

Mark Alexander: Mike usually goes with a puppy but he [inaudible]

Mike Pullano: Some gyms don't allow it, so it's like this helps me across the board.

Dave Asprey: The puppy workout.

Mike Pullano: I'm good, appreciate that.

Dave Asprey: That's kind of the cardio side of things; I'm just asking that because you're expert in the field. But also now you look at the innovations that have happened there, people are learning go ahead and sprint. When it comes to something like hunting, we used to hunt with spears and you can still do that but you also could like hunt with a gun, right and it might get you more meat in less time. You could say well that's cheating, yes it's cheating it's called the efficiency.

Mark Alexander: It's an advancement.

Dave Asprey: You run another company called the Efficiency Exercise. That's what we're here to do that's what this episode is about is like how are you going to drive efficiency. The first step was we went from barbells, which still have ... There is kettlebells barbells they're good.

Mark Alexander: They're a good tool yeah.

Dave Asprey: We went from that to maybe even from barbells to kettlebells was an innovation and then we went to these machines that had a round cam so no matter where you were lifting it was always the same amount of force up and down. Then they said, "Oh let's make this egg shaped elliptical cam, which was a huge thing like changed body building.

My earliest memory of that by the way when I was a kid I was overweight and so my parents ... I played soccer for 13 years, I had a bike and I'd ride, so it was 20 miles a day, I just couldn't lose the weight, no matter what I did. I would wake up with dad at 5:00 in the morning, which biologically is kryptonite for me, I'm not ...

Mark Alexander: What would a teenager do especially like that.

Dave Asprey: My earliest memory is I'm 12 I'm going to work out with my dad, I go to work out in the morning and I completely ralph all over the floor at the workout place in Albuquerque there. It was just not the right thing for me so yeah that's my earliest workout I'm traumatized all right. Even then it was all about lift fast and then come down slow and with the elliptical cam and that was like a pretty big thing. But then of course we're trying to do reps and things like that, with the ARX machine.

Giving that instead of relying on me to know what to do and all that stuff, with the ARX instead of that elliptical cam you got a computer that will just change on a second by second basis. All of the hardware that made that happen is gone and it's moved into software, right.

Mark Alexander: Correct, so we have ... As we unearth the potential for ARX we now realize we're a technology company. We are now in the exercise world but we're a technology company. We have developed systems that will adapt to the user. It doesn't matter if you're on the machine if I'm on the machine if Mike's on the machine, the system will adapt to the user.

Similar to if you were thinking about how could I design something that actually worked effectively and efficiently, you would have the system adapt to the user not have it the other way around.

Dave Asprey: One of the big things, this is going to sound ridiculous but how much time do you spend at the gym, taking plates off of bars and putting them back on? That is time you don't get back. When on your death bed like maybe 180 or so maybe even way past that, you're like men when I look back at my life, I'm really happy for all the time I spent taking things, like no. This is wasted effort, right and maybe bring a couple of buddies with you and make them do it.

But same thing you have to do it for them, like you don't win, no one wins on that. Now we've got a computer that just does it and we just Allan my well he turns eight in a couple of days. We just had him down there; he's an amazingly ripped kid.

Mark Alexander: Focused, and yes.

Dave Asprey: He just likes to exercise just the kind of like, oh I'll climb a rope I'll climb a tree, I don't have a regiment at all. But he was doing a chest press and his peak was 203 pounds, and my wife was 217 by the way, I think she was holding back. But anyway I mean I was blown away because you would never put a 200 pound bar on a kid it would kill them like literally, it could and it would cause damage. It wasn't that he lifted that much it was that at one point in the curve he was able to exert that much.

Mark Alexander: Yes for micro seconds that there was a peak there, yeah.

Dave Asprey: Right and so it's very different, there is no way to get that kind of exercise with gravity that I'm aware of.

Mark Alexander: Within our [crosstalk] system.

Dave Asprey: Okay and that's what I want listeners to understand here.

Mark Alexander: Yeah.

Dave Asprey: Now walk me through Mike like okay a person sits down on the machine, how does this work? How does the algorithm work? Okay so I'm sitting there I want to do a chest press and there is a bunch of exercises, leg presses and things like that you can do. Okay you sit down how does the machine know what to do?

Mike Pullano: Yeah so it is again it's the way we always describe it is in a weight world it's you versus the weight, right? If you lift 100 pounds you need to lower 100 pounds because it wants to go the center of the earth whether or not your shoulder feels capable of holding it above your head or not. With ARX it's not a weight, so it's you versus this motor driven system so in the omni it's a couple of handles that are in front of you doing a chest press, they're moving back at a constant rate of speed.

You're trying to get in way of it, right? Slow the motor down or slow the machine from doing what it wants to do, you're always going to lose. But the actual motor the system doesn't do anything to you like a weight would. If you let go the number goes to zero on the screen, the handles may keep moving but nothing happens to you, right?

You're fighting this motor driven system creating your own resistance against it and with that comes a lot of inherent safety because now you can't go above what you're capable of, right? There is no external force acting on you, so as you fatigue it just keeps matching you, one for one.

This why we always say linebacker or grandmas right can use ARX, same machine one after the other because it's whatever that person that linebacker is capable of the machine can adapt and match him and whatever that grandma is capable of the machine can adapt and match them, so it's fairly safer.

Dave Asprey: My grandma is actually is a linebacker so it can work for her.

Mike Pullano: Then she's a two for one.

Dave Asprey: She's actually an-

Mark Alexander: She's an outlier.

Mike Pullano: She's an outlier.

Dave Asprey: She's actually a nuclear engineer and that's true, she's not a linebacker never was. That's the opposite of what she would be.

Mike Pullano: It matches you with whatever you have the capability of rep 1 to rep 20 it doesn't matter.

Dave Asprey: She's 96, I mean can I really put a 96 year old on the ARX like is it going to benefit them.

Mark Alexander: Absolutely, yeah absolutely. I mean the program and protocol would look a little bit different and of course the system will adapt to her-

Dave Asprey: A little bit less weight.

Mark Alexander: Yeah.

Mike Pullano: Her numbers will be lower than the linebacker would be.

Mark Alexander: Yeah.

Dave Asprey: Okay.

Mark Alexander: But there are I mean yeah there are ... I do like people to know doesn't matter what age you're you can start. If you haven't ... That holds true for resistance exercise if done properly across the board.

Dave Asprey: All right so let's talk about the benefits of resistance exercise at different ages I guess after that. You could turn this on with ARX and it's got a good safety profile. I'd feel better putting my grandmother on ARX.

Mark Alexander: Then putting a bar on her back or something.

Dave Asprey: Yeah like you would never do that because well A she just wouldn't do it because she's like I don't like exercise.

Mark Alexander: Yeah.

Dave Asprey: Okay let's start, actually start in reverse age. You're 80 plus what is resistance exercise going to do for you?

Mark Alexander: Well and just a quick step back, what I've observed with working with people for almost 20 years through Efficient Exercise and I haven't worked with clients recently because of ARX but there is a generational difference in terms of how they view exercise. If we're starting with the silent generation and earlier, sorry I can't remember what the earlier generation is called but-

Dave Asprey: Old?

Mark Alexander: Yeah old, very old by now.

Dave Asprey: Nothing bad about being old, I'm planning to be old myself.

Mark Alexander: But and [inaudible] got to hang out with him at Paleo FX and I mean he's 80 and think he's middle age and that's great I mean because he eccentric training and exercise in particular but he utilizes resistance training all the time. Anyway I think that first off just getting over the fact that I see them they think well I've done my hard work therefore I don't need to exercise, it's not entirely true. If you want to continue to live get off the couch and be mobile, you should exercise.

I would say that resistance exercise is probably where everyone should start, again I'm bias here. But I think it should be the foundation for everyone.

Dave Asprey: As a former long distance cyclist who was fat the whole time, I have to agree with you.

Mark Alexander: Okay well good.

Dave Asprey: Lifting everything is those kind of matters.

Mark Alexander: I know but and again just trying to, if we're talking about the older generation let's call it 70 and plus, bone mineral density is important. A fall will contribute to mortality and death and it's sad because that can be prevented. You just want to move better and if you ever fall you don't want to get hurt. Those are a couple simple things.

Dave Asprey: If you're over 80s now is it public how many ARXs are out there?

Mark Alexander: Mike would have a better.

Dave Asprey: Are you willing to talk about that?

Mark Alexander: I mean we're in the hundreds of units out there, so thousands and tens of thousands potentially people using it now.

Dave Asprey: At this point is someone is like I want to try this new tag you're going to find a higher end trainer who has in their facility that for the most part?

Mark Alexander: Yeah.

Dave Asprey: I want to make sure that-

Mark Alexander: We talk about the facility types here in a minute but yeah.

Dave Asprey: Okay, I want to make sure that everyone listening just understands like resistance training however you get it is going to really beneficial and this is a faster and better way having I mean I've-

Mark Alexander: Yeah safer more effective more efficient, yeah.

Dave Asprey: I have dusty kettlebells downstairs, because I also have an ARX on site. This is designed for primarily people to use in a facility. This isn't a home device unless you're in a particular wealthy home gym category.

Mark Alexander: Yeah I was going to say I mean there are definitely people that have them in their homes with our latest software upgrades our automatic, which is a self-driving feature for ARX. It's perfect for the home; I've been blessed to have one in my home for many years. Just like you I'm husband, I'm a dad I mean these things first, oh and then I'm entrepreneur and I run a company. To me that has been a lifesaver. If anyone is incredibly busy yes you can ARX in your home, but it comes at a cost but you absolutely could.

Dave Asprey: For people listening going all right I'm interested, you got to find somebody that has one nearby or you can go to the gym and you can do a machine you can do this with barbells, kettlebells, bodyweight, whatever but the whole point is resistance exercise is important and there is various levels of efficiency that you can drive out of this.

All right we were talking about older and putting an older person on there, 80 plus. All right so now you're at the 60 to 80 time zone. You're still relatively [inaudible 00:31:40] but you're probably seeing this, what is resistance exercise, ARX or not, like what's that going to do for you?

Mark Alexander: Yeah in so kind of let's call it the baby boomers. These are people that I see they still know exercise is good and they've probably been a little tarnished similar to the generation X of the aerobic bias in exercise. I think the first lot is exercise equals I'm going to go running. Break that we're still talking about resistance exercise. I always say anyone over 50 especially females, Caucasian females over 50 should really be concerned about bone mineral density especially smaller frame.

Again the bone mineral density is still there, and the let's keep up with your grand kids, your grand kids are bundles of energy and in order to keep up with them you need to mobile you need to be strong and your body has to be able to adapt to getting to low places and getting back to high places and things like that.

Dave Asprey: Resistance exercise is going to drive your bone density more than cardio?

Mark Alexander: Absolutely it's really ... I mean you have to load the skeletal muscle system in order to get the bone mineral density and you should it in a way that's safe and calculated quantified.

Dave Asprey: If you're a baby boomer like my parents and you're thinking I don't really like exercise here is the deal, it probably does suck to go lift weights every day. You may just really get into it there are people who do that. In fact, you might need to recover though occasionally if you're lifting weight every day. I found even when I was young when I was fat, I was doing 45 minutes of cardio, 45 minutes of weight 6 days a week and I did that for 18 months and I still weighed 300 pounds.

I could max out all the machines and I was still fat and it wasn't cool. A lot times in that age range at least my parents it's like I don't really like exercise. But we're talking with an ARX kind of set up 15 minutes once a week.

Mark Alexander: Yeah.

Dave Asprey: Okay and if you were maybe twice a week if you really want to, but in that age range once is that enough per week?

Mark Alexander: Yeah I mean for what's called the majority of the health benefits and fighting against the bio markers of aging you really can with 15 to 20 minutes a week get the fruit of that labor if you will.



Dave Asprey: I think Doug McGuff who's a physician who's been on Bulletproof radio and was at the first Paleo FX and has spoken at the Bulletproof conference as well I think he was one of the first physicians to really drive this notion into the public that says brief amounts of resistance exercise. All of sudden it goes from it's a big chore to once a week do it.

I'll just tell you get a trainer, you don't have to this yourself and that's also a baby boomer thing. I'm going to do it all myself, come on, like you got to hire somebody to cut your hair, hire somebody to help you pick up everything so you don't hurt yourself.

Mark Alexander: Yeah it's all worth the investment.

Dave Asprey: Then all the motivation that you're going to have to self-source, you have someone there motivating you for you, so it's just less cognitive and mental energy.

Mark Alexander: Well and studies have also shown even if you did know everything, which no one does, just me standing over your shoulder you'll have about a 5 to 10% improvement just because I'm standing there. I can say nothing but having someone in charge if you will and programming and helping you prescribe is key.

Dave Asprey: It's helpful and so that would just be advice. If they're going for the ultimate there I would say ARX is pretty darn incredible, then the next level down would be to work with the trainer either with machines or with free weights so that's a good recommendation.

Mark Alexander: Yeah make sure you're moving well you're not injured and the trainer knows how to work around your imbalances we all have them. But yeah progressive, program in other words you're probably going to lift a little bit more weight as you go progressive overload is a big principal there. You want to do it more times than not slowly and controlled. Similar to kind of how Doug prescribes it so.

Dave Asprey: Okay and then lest see I guess the final way, you can still do it at home, or you could even do pushups right?

Mark Alexander: Yeah instead of just trying to pound them out, maybe take your time on the way down and then within reason get back up and even if you can't do a push up take your time on the way down do the eccentric phase or just the lowering phase and do that over and over. You can do that with pull ups if you can, do a pull up. Climb to the top and lower yourself very slowly, it's hugely beneficial for gaining strength.

Dave Asprey: It is actually ridiculous the difference between doing 20 pushups and doing 5 pushups that take 30 second each.

Mark Alexander: Yes.

Dave Asprey: You will throw muscle on, it's completely crazy, but is that-

Mark Alexander: That's true. Like I said even though you're not using a tool you're maximizing our body's response to eccentric overload so yeah.

Dave Asprey: All right now we go back in time a little bit. You're in that 40 to 60, right?

Mark Alexander: Right.

Dave Asprey: You still want to look good.

Mark Alexander: Well we're in that stage of we're producers for our family, probably the highest income earning potential phase for your life and you're busy. You don't have time for exercise but you do have some extra money so throw it at a trainer, throw it at a gym membership that you have access to high quality trainers hopefully or just equipment. Studies have shown that you need to be near it, so it's either at your home or it's out you know somewhere that's very close to where you live or work.

Dave Asprey: There's different physiological benefits though in that age range, like what are you going to see differently from 40 to 60 years.

Mark Alexander: Yeah the hormonal response just like you know how you eat affects your hormones and again we don't have to go down that rabbit trail but most of your listeners probably recognize that, resistance exercise has a tremendous hormonal response.

Dave Asprey: Yeah.

Mark Alexander: Whether your male or female, muscle tissue is metabolic currency and you should have it if you don't you're not going to be as healthy of a human.

Dave Asprey: You raise your testosterone; normalize your estrogen levels for men and women things like that.

Mark Alexander: Yeah.

Dave Asprey: Okay and then for people who are under 40 right, let's say 20 to 40 because different things happen to teenagers. What's the deal there?

Mark Alexander: Well instead of income potential you're probably at your health potential if you will. You're after 20 or 25 you're kind of in a state of health decline unless you do something about it. There is so much potential from pubescent on to let's call it 30, 35 to where your body will respond and you should take advantage of that. I wish I was there sometimes still. Although look at you, I mean it still

respond it doesn't I mean your biological age doesn't really matter at some point, I guess that point should be made too.

Dave Asprey: It's a fair point there are stages of normal hormonal and growth and decline mitochondria become less efficient overtime. But yeah one of the reasons I started Bulletproof, I'm like if somebody had just told me any of this when I was 16 or 20.

Mark Alexander: Yeah I know.

Dave Asprey: The damage I did and also just the wasted energy and time and struggling with being tired. I did lift weights but I did way too often and probably entirely wrong. I didn't recover and ate the wrong crap and all that stuff. The idea here is if you're listening and I'll just tell you this look I'm 44, I turn 45 this year, I have more energy now than I did when I was 25 because I was doing it wrong.

If you're in that age range and you want to live to 180 like I'm going to, or maybe if even want to beat me, which hey let's race I'm good with that, I'm going to die trying, you know what I'm saying.

Mark Alexander: That's real.

Dave Asprey: Totally, but what you can do is you can stack the deck; you've got to do this when you're young. You can stack the deck. You're like oh I'm 60 and I'm completely kicking ass compared to everyone else around me because they wasted it all early. This isn't really about prevention you get more energy right now and all this and we're not talking going to gym every day although you can if you want to do that.

Mark Alexander: Yeah if that's your thing.

Dave Asprey: Yeah we're talking about what probably in that age range, couple of times a week is usually normal?

Mark Alexander: Yeah usually it's just fitted in your schedule, Monday and Thursday whatever works because usually our calendar drives our lives whether we want it or not. All the same for sorry we're down the younger generation, I'd say calendar still probably drives their lives too.

Dave Asprey: Yeah that and social media.

Mark Alexander: Well and you can compete and put it up there yeah and show your ARX results.

Dave Asprey: Yeah all right and then there are some specific things if you're under say under 19 or something under 20, what's different about weight training at that age?

Mark Alexander: You know the amount of load and consistent loading should be monitored and kind of what movements are done. I think there is a tendency for especially with being a teenage boy at one point in time, over emphasizing certain muscle groups like chest if you're going to do bench press all day and pushups to finish off and that's your workout.

What that does overtime is just be cautious because it will create imbalances. We should probably in general I think do more posterior work or more pulling or more things for the back of our body than our front of our body. But we see the front in the mirror so that's kind of what we focus on.

Dave Asprey: One of things to just know as a guy if you have like a nice back you're not going to see the women looking at it but they're going to look at it more because you're not going to make eye contact when they're doing it. But if you ask a woman who's being honest they kind of appreciate a good back as much as they do a good chest.

Mark Alexander: Yeah.

Dave Asprey: They ogle as much as they want and it's like you're providing a public service with your lats.

Mark Alexander: Well and we were talking about this actually yes, public service with your lats.

Dave Asprey: Not that I ever found ... I was fat back then.

Mark Alexander: We were talking about social media I mean even my kids I have two teenage kids and the text neck and the bend over I mean they need to rowing, they need to be doing these exercises that help with the postural support. If anything just get them rowing and doing some pull ups or chin ups or pull down something so that they're negating that I mean and we fight it because we're on computers. But I've seen some poor posture in young kids.

Dave Asprey: If you look at that whole essentially lifespan that we've just gone through there you have the potential with ARX to just solve some global health issues.

Mark Alexander: Yeah.

Dave Asprey: Like if people were to do this on a weekly basis what are the types of issues that you think we could address?

Mark Alexander: I think that's a great question. I think there is a twofold answer here. First off we're on a mission to democratize exercise. We want to make sure it's accessible to everyone and specifically resistance exercise. Those benefits are immense but we have to do our fair share of making sure resistance exercise is accessible to the masses, that a little difficult. But again that's kind of thinking

big that's a big issue we want to help solve. I think the global health issues take diabetes, you know how many, I feel like you-

Dave Asprey: I think it's a-

Mark Alexander: You got some research here.

Mike Pullano: Since 2012 1 in 10 in the united states and that's just people with diabetes not people who are approaching diabetic levels. That number's higher in terms of people who are in danger.

Dave Asprey: If you have diabetes you should follow the America Heart Association Diet, which is lots of sugar, lots of carbs only bad fats and lots of cardio, right?

Mark Alexander: Yeah straight to your grave.

Dave Asprey: No coconut oil for sure.

Mike Pullano: We're in a great place now because of those recommendations. By the numbers I can say that.

Mark Alexander: Clearly they can see that it's going.

Mike Pullano: We're in the right track.

Dave Asprey: You guys clearly saw their like failed media campaign about coconut oil. I've never seen any backlash bigger than the one, it's like guys you stepped on that, like come on.

Mark Alexander: Yeah that was asking for it.

Dave Asprey: Social media for the win.

Mark Alexander: But no I mean so what does resistance exercise do to glucose levels? Well you can get rid of excess sugar when done properly and kind of flush the system if you will so it's a metabolic restart if you will. We've seen the numbers of people doing ARX specifically but also just resistance exercise of glucose levels being under control. Even diabetics that are insulin dependent can minimize the amount of insulin that they're using.

Dave Asprey: That's pretty incredible stuff. I definitely noticed when I have my continuous glucose monitor on, things I talked about at the beginning after workout you see your blood sugar drop because what's going on there and this is like straight out of Head Strong the book.

Well let's see your body is like, I think I need some energy, so it's going to call on energy stores, mitochondria open up and they start creating the electric energy

from food that's required to sustain that effort. Instead of I'm just going to do like 40 reps with my two pounds you know my two pounds.

Mark Alexander: Pink dumbbell [crosstalk 00:44:34]

Dave Asprey: Yeah my pink dumbbell. I was like, I lifted weights so I didn't want to get bulky, it doesn't work like that. By telling them you know what if you can't handle it die. That's actually what this kind of exercise says to the mitochondria. When die ... These are tiny ancient bacteria inside the body, all right good you want to kill the weak ones because if you don't kill them they turn into cancer, like it's kind of important.

Mark Alexander: Yeah super important.

Dave Asprey: All right this kind of stuff can shift it from we should all go, I'll go lift weights to maybe it take less time and you get more benefit in the amount of time, which has a meaningful impact on-

Mark Alexander: Yeah with time being one of the major deterrents for consistent exercise. We solved the time thing, so we've got that one solved.

Dave Asprey: There is something else that's driven a lot of my career and it's called big data. A lot of people don't know this I was an angel investor, one of the very first ones in the first big data company. They were called Ademark and they're ... I have this problem I typically I'm like 5 to 10 years ahead of my time I'm like damn it, this is a while back. This was a company that was doing semi structured data analysis in a way that is very common now, but it was the first one and they ended up becoming a security company and getting acquired someone or another.

Mark Alexander: Usually happens.

Dave Asprey: It was a small acquisition it was a successful investment because it was too early. But the tech just had me blown away. I spoke even at the first big data conference way back in the day about health information of big data. You're in an interesting position because ARX devices are at personal trainers and exercise facilities around. If they're not at yours you can probably talk with your exercise people and just be like I think it would be really cool to have one of these. I would pay more-

Mark Alexander: Yeah in five minutes they're convinced yeah they realize what the benefits are.

Dave Asprey: Yeah I would pay more time to work out ... I would pay more dollars to work out less. Like I'll buy my time back.

Mark Alexander: We're saving you.

Dave Asprey: Yeah.

Mark Alexander: We're saving you that.

Dave Asprey: As a trainer you're like, wait I could get more clients per hour, hold on. This might work for both of us, right. That's the big thing but the background on this is the big data play. Now you're in a position to get the workout information and not just like how many reps at what weight, which is like okay that's trivial.

It's like for a man or a woman of this height and this BMI of this age at this time of day doing this kind of exercise; this is exactly how much power they could generate. You don't know what they drank the night before; you don't know the other health data.

Mark Alexander: There is other variables just like there would always be in any research.

Dave Asprey: I mean you could probably like I said you could figure out people are stronger at 10:00 am than 2:00 pm let's say I have no idea if that's true or not, I would guess it's probably true for most people. But you'll actually see trends that are invisible. I mean fully invisible.

Mark Alexander: More specifically with resistance exercise we're in a position now to be a big data source if you will for resistance exercise, which everyone has jumped on the biometric data train on the endurance side of things, which I don't know how many steps really means in the whole grand scheme of things, just not [inaudible]

Dave Asprey: I can tell you, I don't know if you remember this I was CTO of one of the wrist band companies. The first one they got heart rate from the wrist it was called Basis and Intel bought them for \$100 million. I was not there for a huge amount of time because I was like heart rate variability and they're like no we need steps, like steps are masturbation I'm sorry. The number of steps you take in a day isn't very important. The number of calories per day.

Mark Alexander: They're moving on to-

Dave Asprey: Hold on do you guys hear that the screeching?

Mark Alexander: Yes.

Dave Asprey: That's an eagle.

Mark Alexander: I was going to say that's a predator bird. I recognize the-

Dave Asprey: It's a bald eagle interrupting our podcast; all right that's why I live on Vancouver Island.

Mark Alexander: Yeah that's great.

Dave Asprey: I think the mic has actually picked that up, I hope it did. That's cool.

Mark Alexander: That was very cool yeah.

Dave Asprey: All right keep going.

Mark Alexander: Yeah we have this unearthed potential if you will to start recognizing trends in resistance exercise. We don't know what we don't know. But not only for the performance side of things but for the prescription side of things so what is ideal? We don't know but we can start to see those trends and start to see, yeah.

Dave Asprey: It may change my age it may change my gender. I mean there is a whole mapping of resistance exercise especially for women for phases of the moon and monthly cycles. There probably is for men too. We all know a full moon affects people and if you're out there going full moon doesn't affect me, it's like ask any cop any emergency room doctor, any firemen whether the full moon matters?

Mark Alexander: Yeah phasic training should be part of our programming but we don't always recognize it.

Dave Asprey: I'm really excited to see what happens when you have a data base of millions of workouts because we can run that through machine learning algorithms and we'll know things about exercises that have never been discoverable before. That's meaningful.

Mark Alexander: Then there is artificial intelligence to do the programming on the actual device itself and yeah we're not there yet but we're aiming there, or directionally trying to go that way.

Dave Asprey: I think that's one of the biggest things and this is why I moved out you know data centers and computer security into how do you get monitoring data off the human body because I got tired of monitoring servers and correlating information from a million servers. It's like what if you correlate information from a million people. It's actually way more interesting.

What else is ... What's next with ARX, I mean we just talked about the big data play is there any other cool secret stuff you going to have like a-

Mark Alexander: Yeah you can talk about a little bit of that Mike.

Mike Pullano: Just the biggest thing lately has been taking the trainer who used to have to push buttons and control this motorized machine back and forth out of



equation and just making it a self-driving automatic system that you can just use this system by yourself.

Most importantly along that big data play is it makes every workout exactly the way you want it. We are just showing you that not only can you control how many reps it does you can control the speed at which it moves on the positive. Let's say you want it to go five seconds on the positive or you want to over accentuate the negative you can make it go 10 seconds on the negative.

Then repeat that time in and time again at the exact ranges of motion every time designed for you saved in the software. That means your workouts are so much more precise than they've ever been and that the data is more valuable than it's ever been. Because we can really see granular improvements over time and so whatever generation as you guys were talking about is trying to train you can say well how does this type of protocol affect grandma but how does this protocol also affect a 22 year old football player.

Dave Asprey: Okay.

Mike Pullano: Right so we can look at that and actually repeat it over time. Really get the data play and the actual hardware to communicate that's been the largest advancement for us and it opens up a ton of doors.

Dave Asprey: Awesome, I'm not sure what else we can chat about here is anything else about or is there some exercise we didn't cover, because I know we ... Like I look at demographics and I know who's listening right now and we have about an even number of men and women listening to the show. We have a lot of physician's, trainers, and particularly like in Wall Street in L.A. and Silicon Valley and things like that.

Then just tons of people who just well they're exercising, well they're doing dishes well they're at work or driving a lot just all across the country, but it's cool because it's not just a bunch of bros and it's not only yoga mums, but it's been pretty democratizing where it's like look controlling your own biology is really important.

I think resistance training has consistently been just under represented in the conscious. It's like we're on this low fat kick and so low fat, but what about the role of fat and we're on this aerobics kick. Where it's like I'm a good person, I go for a run every day.

Well whether you go for a run or whether you lift it has nothing to do with whether you're a person or not first of all like remove that and second of all in terms of bang for the buck, if someone has an hour a week to exercise, if they use it on weights versus cardio.

Mark Alexander: Yeah you're going to more bang for your buck. If we told you there is a magic pill well we kind of have it and I don't know why more people aren't recognizing it. Part of it another kind of submission if you will of ours but objective of ours is to change the accessibility to what that venue of health looks like.

Your labs concept in Santa Monica is a prime example of that. We want more of those type of facilities. We want where hopefully they're run by intelligent, well-meaning people that are trying to advance human kind advance health and do it in a way that ... Yeah it's not broscience as you were saying.

We're having to shift the paradigm a little bit here in terms of who is operating and owning these facilities but what we're starting to see and Mike has seen more of them hands on than I have when we're doing installations, I mean talk about some of the other aligning technologies and programs they're doing.

Mike Pullano: Sure I think with this new model that people are building, they're taking a lot of the guess work of just making yourself a better human. Particularly with ARX I think you said you didn't know why resistance training hasn't ... It's such a great thing we know there is so much to be gained from it but yet so many people don't do it. Well there is a lot of guess work involved there is a lot of competing information that you get from Muscle & Fitness magazine and some latest blogger guy that shows up who's got a six pack and he's telling you what to do now.

Mark Alexander: He must be right.

Dave Asprey: Sure he's [inaudible]

Dave Asprey: The six pack comes from your plate. I mean the plate that goes in your barbell.

Mark Alexander: Yes exactly.

Mike Pullano: It just becomes this chasing your tail game that everyone plays and eventually you're just tired and you say you know what, I'm tired of guessing wrong in the gym it's not working for me, similar to how you were doing with training and doing aerobics training.

At some point in time you just give up and that's kind of where the state of the industry is, is this constant roller coaster of people getting excited about something, realizing that it ultimately isn't the thing that they want or they're not actually doing it the way they're supposed to be doing it. They're guessing wrong all the time, and then they fade away, right and so you lose motivation in it.

Creating a new facility that uses technology to solve a lot of those problems for us so that we can go in and be focused about with a good intention to benefit

ourselves whether that be with exercise, whether that be with flow tanks or infrared sauna or vibration therapy, NeurOptimal brain training.

What we're seeing now is that ARX affiliates people who are taking part with our company are also looking to add on other tools and tech to make that. Exercise is what you come for, because everyone agrees that you need to do it, great you just made that easy for me, what else can you make easy for me? I'm like well why don't you go stand on that vibration therapy for a little while at that point over there.

Dave Asprey: I guess you were saying like most of your customers have a Bulletproof Vibe, which I didn't even know till this morning.

Mike Pullano: Yeah.

Mark Alexander: It fits well within [inaudible]

Dave Asprey: Yeah Bulletproof Vibe if you haven't seen it, it's on the Bulletproof website. It's a really high quality vibration plate that uses the frequency identified by NASA to make astronauts recover. You stand on this, it's also written about in Head Strong. You stand on it for even 10 minutes and it vibrates you 30 times a second, wakes up your mitochondria, it's like going for a brisk walk for a long time and you can literally do it to loosen up get the muscle ready before or to recover after using ARX. I thought that was cool.

Mike Pullano: People are coming and they want to use the latest and greatest but they also want to leave feeling like they got good value for their time. Those two work really well together because it's a very, just a parent effect it has. After that we get into some of the more deeper bio hacks if you will and talk about light and all those kind of things.

That's the new model is and we see this with a lot of people at the Bulletproof conference that whole convention center is just filled with amazing technology and some people are like well ARX is great for this, but have you thought about combining it with Kaatsu or with New Fit Electrical Simulation and starting to make the connections so that we could be a better overall person and do it in less time. That's really where we're at.

Mark Alexander: Some of the origination and historical context of early 19th century or 20 century stuff was exercise was for health. I think unfortunately especially with resistance exercise we've gotten away from that exercise equals body building resistance exercise equals body building.

Now a lifestyle body builder might have good biomarkers of health not the [inaudible 00:57:39] out huge guys but let's extract the health benefits again and focus on that versus just how jacked can I get or how big can I get or ...

These things that really have no health commitment probably health detriments actually.

Dave Asprey: Well one of the reasons that I wrote the definition for biohacking I didn't trademark the word when I was coming up with this is I wanted there to be a name where like, okay I'm a body builder I don't do anything else, I'm into anti-aging so I only eat like twigs you know the I'm going to starve myself for [crosstalk]. There is no overlap when you're like this is what I do.

But what we're all really working on is that how do you have control over your own biology. Your goals maybe very different like you may have like me, one of my goals is every day when I'm done with work and today I'm doing three podcasts, I'm recording what's actually some really cool people later today. But cognitively I mean, the [crosstalk].

Mike Pullano: We're only half cool we're not really, slightly cool.

Dave Asprey: They are not here though. I mean I just I have a pretty high bar to get on Bulletproof Radio anyway. Sometimes you're like wow I never would have in a thousand years thought I would talk to in this case it's Chef Gordon.

Mark Alexander: I've seen that document.

Dave Asprey: It's documented, this guy is Alice Cooper agent but five years ago you would have said Dave someday you're going to interview or even meet Chef Gordon, I'd be like what? I couldn't see me interviewing you five years ago, I'm like actually I did meet you five years ago.

Mike Pullano: Well I mean [crosstalk] we're even at your conference so that was like a highlight of mine anyway that's something else.

Dave Asprey: Anyway I'm just blown away by that stuff. But it's cognitively demanding to be present for something like that. I've got phone calls and meetings like all the rest of the day. One of my goals as a biohacker is all right, on top of that as soon as I'm done I'm going to go play with my kids and not be tired and not need, have to unwind. Then I want to help make dinner or be with Lana and then it's well I still have some stuff I want to do, so she's going to go bed, I want to have enough energy to work on my next book and to probably dig out from under all the emails because I have been gone for 10 days.

All that stuff, my goal is energy and that's very different from the body builder and I think there is more people going for that goal, right? Especially if you're working and then commuting and then you have two young kids and you got to clean the house and just deal with all the stuff of life, that's actually the number reason that biohacking matters. Then you've got the live forever, be ripped, be lean, or there is all sorts of other fingers, I want to hold my breath longer than

anyone else. All those are united by the site of having control versus that one goal.

Mark Alexander: Yes take control of your health it's there for you to own and yeah there is nothing holding you back but yourself really and I applaud your efforts with what you're doing.

Dave Asprey: Well likewise guys I'm grateful that you've helped me take some shortcuts here to keep my muscle mass so what the New York Times called almost muscular, I was like.

Mark Alexander: [Inaudible]

Dave Asprey: I think they did I'm like [crosstalk] I'm like thanks guys. As an aging profession I take that as a compliment. Because if you're too muscular you got the IGF-1 issues you're going to have some aging issues.

Mark Alexander: Again it's the health right, I mean it's all to me the foundation is health and so.

Dave Asprey: Yeah all right onto the final question for Bulletproof Radio. You guys prepared have you been studying?

Mark Alexander: I don't know.

Mike Pullano: I don't know depends on the question.

Dave Asprey: I'm going to ask you two just separately just so we can get this, just want to get two answers each just so the show doesn't go too long. All right if someone came to you tomorrow and said, I want to be better at everything I do just as a human being, what are the two most important pieces of advice do you have for me, what would you offer. Let's start with you Mark and then we'll go to Mike.

Mark Alexander: Yeah implement proper resistance exercise. Of course ARX is a great tool to do that but even if you don't have access I would suggest.

Dave Asprey: You're going to plug ARX.

Mark Alexander: Sorry no.

Dave Asprey: I'm just giving you a hard time.

Mark Alexander: I know.

Dave Asprey: No but you're saying resistance training.

Mark Alexander: Yeah.

Dave Asprey: It wouldn't be alone.

Mark Alexander: Implement proper resistance exercise we talked about generational advantages and benefits so whether you have to hire a trainer or whatever just get that as party of your life and your routine, wow! The other thing I would say would just be to and I don't want to go deep on a diet rabbit hole but you had said in effect abs are made in the kitchen not in the gym and we know that.

But I would just say to implement a diet, the Bulletproof Diet something along the lines where you're going to maximize your hormone and you're also going to most likely mitigate the insulin peaks and valleys. I think that those two things there is a lot that you could do but resistance exercise and kind of keep your hormonal and insulin response from your diet in check.

Dave Asprey: Awesome so basically exercise and food.

Mark Alexander: Yeah.

Dave Asprey: You would not be alone in saying those, it's surprising.

Mark Alexander: That's not unique or anything.

Dave Asprey: It doesn't have to be unique but it's important, I want everyone who hears this to just be like wait, like the people who are disrupting businesses who are doing great and amazing things across the whole variety of life, what do they think about. It's amazing the commonality there.

Mark Alexander: I'll break the rule because I always do, but I mean I always think in threes, it's influences spiritual health as well. Do things are going to make sure that cognitively you're functioning well and whatever your belief system is or whatever that you're meditating, you're praying whatever you get your mind and spirit right for the day.

Dave Asprey: All right, so you did your three all right. Mike you got three for us or are they the same?

Mike Pullano: I'm just going to take two. Along those lines I think just more globally the way I think and a lot of people on our team and a lot of the people who are into ARX think is you got to check the boxes of what it means to be a human and by the that the fundamentals are the fundamentals for a reason. You have to drink water, you have to sleep. You can't hack all of those at some point you need to get resistance training. You need to bend bones so yet you have bone [inaudible].

These are human things that you can't not have. You got to check the box it's kind of a thing that I have when I'm stressed out I'm on the road, I'm noticing some kind of issue that I'm dealing with. Am I checking the boxes right, I didn't

sleep more than six hours for four days in a row and I'm stressed out of my mind.

I'm not checking the box so that's kind of a, I guess a person slogan that I have. I think Head Strong does a great job of explaining what those fundamentals are and then how to really focus on them and resistance training and mind health and all of those things are checking the box.

In the process of doing that and reminding yourself of that the second thing is to pay attention. Just pay attention to some of the things that happening in your environment that are happening to you on a daily basis, that are happening in your relationships around you. They all play a role in allowing you or not allowing you to check your box of what it is to be a human.

Those two things together on repeat forever until you don't exist on this world is the way that I think about things and you're always changing. What you know today or what you are today might not be what it is in a month or a year if you decide to start a company and you got to keep paying attention and you got to keep checking the boxes so check the boxes and pay attention.

Dave Asprey: Love it all right guys thanks for being on Bulletproof Radio.

Mark Alexander: It was awesome, thank you.

Mike Pullano: It was great to be here.

Dave Asprey: If you liked today's episode there is a couple of things you could do, one of them is go to iTunes and give us a five star rating that really helps other people find the show, and we've got more than a thousand and I'm incredibly grateful for that. There something else you can do if Bulletproof Diet or Head Strong or just all this knowledge more than 450 episodes over the last few years have been helpful for you would you go to Amazon go the Head Strong book and leave a review.

It will literally take you maybe 20, 30 seconds, leave a little five star review if you think the book's earned that. Tell people what's good about it, that helps other people discover the book and I read all those reviews. If you really want to just personally say thanks you might get a chance to meet me person and say thanks or say hi and I'm always happy to hear that. But I don't get to meet that many people because I'm just one person.

But if you go to Amazon it spreads the love in a really helpful and amazing way. I really appreciate it if you just leave a quick review, have an awesome day.