

Dave Asprey ([00:00:00](#)):

You are listening to the Human Upgrade with Dave Asprey. Today we are going to talk about men. We're going to talk about testosterone, and we're going to talk about why people get it wrong. It's a really important thing for me because when I was 26, I got my first testosterone test. I weighed as much as 300 pounds for that. I was probably about two 70 when I got that test. And the doc called, this is one of the first longevity doctors before we called it the Longevity Movement, when it was still anti-aging. He ran, actually still doing, his name was Dr. Miller, and he said, Dave, I got bad news for you. Your testosterone is lower than your mom's, because he'd actually run my mom's testosterone. I'm like, man, this is a problem. And so say I was an early adopter of low testosterone and young men.

([00:00:56](#)):

Today it seems like everyone has low testosterone men and women, and you are a top expert. In fact, guys, I haven't introduced him yet, Dr. Tracy Gapin, who's a board certified urologist and founder of the GAPIN Institute. If you're a longtime listener in September of 2022, we talked a little bit about testosterone, but we have a different angle for you this time and we're just going to go deep. So what's going on? Why is it an issue? And what can you do about testosterone? So maybe your testosterone can be higher than your mom's.

Dr. Tracy Gapin ([00:01:32](#)):

It's a little barrette.

Dave Asprey ([00:01:34](#)):

Welcome. Welcome to this show, Tracy.

Dr. Tracy Gapin ([00:01:36](#)):

Thanks so much. Glad to be with

Dave Asprey ([00:01:37](#)):

You today. There's been a renaissance in health tracking. What can people do to measure their testosterone and the associated things today that you couldn't do five years ago?

Dr. Tracy Gapin ([00:01:50](#)):

So when it comes to looking at testosterone, I think there's a lot more awareness now around how do you measure testosterone correctly? What's the right way to test for it? What are the labs that matter and what don't matter? And how do you actually interpret it? What do you do with those numbers? So first off, we want to always be looking at free testosterone. I think we talked about this a couple of years ago, how most doctors out there that'll do total testosterone and they'll rely on this ridiculous average of the population as a guide for what's considered air quote normal versus not. And we want to always be thinking about how can we be optimized and what's ideal levels for that. And so number one, free testosterone. We want typically around 20 or so graphs per milliliters. While I would aim for,

Dave Asprey ([00:02:30](#)):

Is that measure global or is that a US measure?

Dr. Tracy Gapin ([00:02:33](#)):

That's a US measure. There are different scales using M internationally, but here in the US is pico grass per milliliter. And when you look at the scale that's on the top end of that range. And the reason is just like you described for the last 20, 30 years, levels are plummeting internationally. Studies here in the us, Sweden, Finland longitudinal 20, 30 year studies all show the same thing. That levels are plummeting. We'll talk about wine a moment, I'm sure. But what that does is that artificially lowers this ridiculous reference range that you see on the right side of the lab slip. I want to be clear that that's not what's optimal ideal, where your number should be. That's simply the average of the population. And every year that reference range on that lab slip gets lower and lower. And what do you know you happen to fall within that range? I work with a lot of clients who are being told by their regular medical doctor that your levels are fine. You're normal. You don't qualify for testosterone. You don't need testosterone because you're in this ridiculous range. You got to look for free testosterone. You need to understand that the range that you're looking at is reference range, which is simply the crummy average of the population. And then you need to know what do you do to fix it?

Dave Asprey ([00:03:43](#)):

Are low testosterone men more fearful,

Dr. Tracy Gapin ([00:03:46](#)):

Low testosterone men have a lot of issues.

Dave Asprey ([00:03:49](#)):

Like what?

Dr. Tracy Gapin ([00:03:50](#)):

So men with low testosterone, they tell me they don't feel like a man. They tell me they're moody, they're cranky, they're irritable. They don't experience the same levels of joy and fulfillment in life that men with optimized testosterone levels feel they don't have drive. And we could talk about drive as it relates to sex, but also just in life, their drive to perform in the gym, their drive to succeed in their business, their drive to be a dad. And that's where we start to get near and dear to my heart, is that they lose that drive of what it really feels like to be a man. And so in that sense, they're very different people.

Dave Asprey ([00:04:26](#)):

I look at that movie, grumpy Old Men as a documentary on low testosterone. Also maybe the last presidential debate. Accurate,

Dr. Tracy Gapin ([00:04:35](#)):

Very fair. Yes.

Dave Asprey ([00:04:39](#)):

If you could get presidential candidates to have adequate testosterone, what do you think it would do to the world?

Dr. Tracy Gapin ([00:04:45](#)):

Wow. For men optimizing testosterone. I want to clarify that testosterone is one piece of this much bigger human operating system that we have. And so I want to honor all the other 50 hormones that we

pay attention to as well. But testosterone, it changes a man's entire perspective. And there's this misconception is this fear that it creates rage or aggressiveness. And that couldn't be far from the truth.

Dave Asprey ([00:05:11](#)):

I've never gotten there from it. I've gotten a little hornier, but that's not the primary reason that you use testosterone. Exactly. I have gotten pimples from using too much, but it's not going to turn you into testosterone poisoning. In fact, I think I'm made up word as far as I can tell.

Dr. Tracy Gapin ([00:05:28](#)):

Yeah. So it improves a man's quality of life, his energy, his sense of vitality, his sense for enjoying what he actually enjoys. And I think that men with low testosterone, they lose that. You can see it in their eyes. And when you correct it, you see how everything changes in their mind, in their body and in their life.

Dave Asprey ([00:05:49](#)):

I'm responsible for tens of thousands of men in their forties deciding to start testosterone therapy. And some of my functional medicine friends are back, Dave, are you sure that's what you want to do once you go on testosterone, you can't go off of it. Is that true?

Dr. Tracy Gapin ([00:06:02](#)):

I get this question all the time. I love this question. So let's take a typical situation. A guy comes in off the street, he has low energy fatigue, brain fog, cognitive decline, belly fat and low sex drive, et cetera, et cetera. And you check his levels and his free tea is 4, 5, 6. See is every day all day, men off the street have levels around four or five, six, and it should

Dave Asprey ([00:06:23](#)):

Be a 20,

Dr. Tracy Gapin ([00:06:23](#)):

Should be a 20 to show you how far off they are. Now, the lifestyle approach to this would be to focus on strength training, resistance, exercise, especially at the quads and the hamstring and the core and the back. Focus on good quality sleep, reducing stress, lowering cortisol because it crushes testosterone production, making sure you're getting the right micronutrients, making sure you're eating the right, good, healthy foods, healthy fats, getting some sunlight, especially sun out on your balls, which believe it or not, we thought I

Dave Asprey ([00:06:52](#)):

Did it this morning. It's great.

Dr. Tracy Gapin ([00:06:53](#)):

Hell yeah. So there are all these natural ways of boosting testosterone that people talk about and they're great and everyone should do that. And no one's going to be religious doing that for consistently for long periods of time. But let's, let's say a man did that consistently every day for six months

Dave Asprey ([00:07:10](#)):

And also got to go to bed at nine and he's got to eat enough saturated fat and have good quality sleep, which means no young children in the house. It's very

Dr. Tracy Gapin ([00:07:19](#)):

Difficult to do it. To do it exactly, to do it the right way. Yeah, life gets in the way. And so even if you did it perfectly that 4, 5, 6, make it up to 9, 10, 11 ish, somewhere on there, you're still only halfway there. And so when we then had that conversation about testosterone replacement therapy or TRT, the question then is how else are you going to get your levels up to where they need to be? Now we can give medications, HCG, orid to boost your own body's production, testosterone, which is another route. And especially for men out there who are still looking to preserve fertility and have children still, that's a better way to go so that you don't suppress sperm production. You don't suppress

Dave Asprey ([00:07:59](#)):

Fertility. When I went on testosterone under a doctor's care at age 26 to get my levels up to those of a healthy young man, I took Arimidex and and I had two kids very successfully, no issues at all. So it's easy enough to do that. But years later when I said I'm going to try HCG, I used it again under doctor's care for about 60 days, I started growing man boobs and a bubble butt. And I went in and the doctor said, what the hell? I've never seen this before. Your body thinks you're pregnant. Stop taking this right now. And that was a psychologically odd time. This is many years ago. But HCG doesn't always work.

Dr. Tracy Gapin ([00:08:40](#)):

So sometimes the dosing matters does Newt nuance to how you dose a CG and Clomid. And there's also nuance to the balance between testosterone and estrogen. So a lot of guys talk about estrogen's. The enemy is bad for you. You need estrogen's healthy. It is a very important part of a man's function and performance and a lot of guys with very low estrogen from blocking it from things like remidex. They have ED and low sex drive and can't burn fat, and they have the same problems that you would think of for low T. So it's the ratio of the balance that matters.

Dave Asprey ([00:09:09](#)):

So having enough estrogen, but not too much. That's

Dr. Tracy Gapin ([00:09:12](#)):

Right. And the balance with testosterone. So as testosterone gets metabolized is going to turn into estrogen. And so having a healthy increase in estrogen is okay. And a lot of guys I see with very high estrogen levels with those symptoms and that's fine. It's okay

Dave Asprey ([00:09:24](#)):

Because their T is also

Dr. Tracy Gapin ([00:09:25](#)):

High because their T is high as well. That's the ratio. But to get back to your question of if I take testosterone, does that mean I'm going to have to be on for the rest of my life? Is it going to suppress my own testosterone? And my response to that is really when your level is 4, 5, 6, or you've done the natural stuff for six months is now at nine or 10, and then I get your testosterone, your free T up to 20 where it needs to be your ideal optimal level, and you feel amazing, quality of life is awesome. Your

drive is back, you're burning fat, you're building muscle, you're having sex, you're loving life and everything. It's bit longer. Yeah, everything's the way it's supposed to be. The question actually switches to doc, you're not ever going to stop this are, you're not going to make me ever stop This, are you?

(00:10:02):

And the reality is that your body was not making enough before. And so when I give you testosterone, yes, it's going to suppress the pituitary secretion of luteal hormone, which is going to turn off your own internal production. But it wasn't enough to begin with. You had crappy production as it was. And so we're giving you the testosterone your body wasn't making but needs. And so most men, once they get to that point, they will turn that question around to say, can I take this forever now? And the answer is, well, yeah, hell, why not?

Dave Asprey (00:10:31):

One of my concerns is that when a person gets a car, it might suppress their ability to walk. Maybe we should use technology to solve problems. And testosterone bioidentical replacement is solving a problem in a way that saves you a huge amount of time. And I did, after being on this for more than 14 years, I went off testosterone for about two and a half, three years when I was developing the Bulletproof diet. And I did this to see if I could raise my testosterone naturally. And I got it up to about 700, 750 by doing everything, which is exhausting and hard to do. It takes a couple hours a day, it's probably

Dr. Tracy Gapin (00:11:11):

Free to run 10 or so,

Dave Asprey (00:11:13):

And that was not enough. So I said, screw this noise, I'm going back on it. And I've been really public about this and I feel best. And I don't memorize my free tea as much as I just look at total because I've always done that since my twenties. But I feel best around a thousand, maybe 1100. And I dunno what that translates to in the average person in terms of free testosterone, but that's probably around 20, right? It

Dr. Tracy Gapin (00:11:38):

Depends. It depends on SHBG levels. But

Dave Asprey (00:11:41):

Something that also happens is SHBG is sex hormone binding globulin. And what that means is this is a thing that floats around in your body and it sticks to your testosterone, so you can't use it. So it doesn't matter if it's there, if it's bound up, it's sort of like you have a car, but it's locked, so you can't drive it because you don't have the keys. And what I've noticed is that when people go on a carnivore diet or they go on a very low carb diet, Atkins, keto, whatever you want to call it, even if you're on the bulletproof diet and you're not cycling the way I tell you to cycle with your carbs, you see SHBG go up and up. So your testosterone went up, but you couldn't use it. And this is why you say free testosterone is really only measuring the matters.

Dr. Tracy Gapin (00:12:23):

That's right. Yeah. So remarkably, around 98 to 99% of your total testosterone is actually bound to proteins in the blood and completely unavailable. And typically it's SHBG that is bound to, and when it's bound to SHBG, it's now this big fluffy molecule floating around the bloodstream. It can't get through the cell membrane of a muscle cell, of a brain cell or wherever it's going specifically because it's this big fluffy molecule now. And so it's unavailable. And so the only testosterone that actually has any effect is that free molecule that's not bound to protein. That's why we care about the free data.

Dave Asprey ([00:12:54](#)):

What does testosterone do specifically inside the brain?

Dr. Tracy Gapin ([00:12:58](#)):

Testosterone, once it goes through the cell membrane, it binds to an androgen receptor and then it goes to the nucleus of the cell, and then that's where it affects DNA transcription. So it's actually affecting the genes that are being transcribed. Basically, genes get your code for protein formation, and so it's affecting neurotransmitter production, it's affecting energy systems, it's affecting a lot of different factors all within the nucleus of each cell.

Dave Asprey ([00:13:25](#)):

How does that feel?

Dr. Tracy Gapin ([00:13:26](#)):

How does it

Dave Asprey ([00:13:26](#)):

Feel? Yeah. When you get testosterone in your brain,

Dr. Tracy Gapin ([00:13:30](#)):

You have a change in your clarity. You have a change in your focus and your mental acuity and your concentration and your drive, your confidence, your mood, your sense of being a man, it all changes.

Dave Asprey ([00:13:44](#)):

It sounds almost too good to be true, but it's not. And literally the first time I used testosterone cream and I used injections today, but this was years ago, and I'm like, wow, I felt a shift in my career and my focus. It's not like I didn't already, when I did this, I had already made \$6 million. I was about to lose it, but I was doing okay, but my level of focus just went through the roof. And I've seen multiple studies now. Testosterone increases dopamine and dopamine is what lets you experience joy and motivation. So that mountain that looks insurmountable, you get enough testosterone in a system and then all of a sudden it actually wasn't that big of a mountain. I've got this. And not only that, you've got this, but it feels happy to work on that challenge instead of it feels exhausting to work on it.

([00:14:35](#)):

It was such a shift in perspective on the world, and that's why I've been such a big fan of this saying, why would you choose to slog through each day and kind of choose suffering? You could also choose a vegan diet. You could choose chronic cardio exercise. You could just choose to punch yourself in the face a few times every morning. There's lots of ways to choose suffering, but this is one where looking at what it does to lower your risk of all kinds of disease, just taking testosterone has a high return on investment

financially over time because you're less likely to have all sorts of other diseases. What diseases will be lowered? When I have adequate testosterone?

Dr. Tracy Gapin ([00:15:18](#)):

I love this direction because we understand that we're this complex organism, and when we look at testosterone levels, it doesn't live in this bubble. It affects everything. And so there are studies that show that this is pretty powerful studies that show that testosterone levels are directly tied to cardiovascular health. And so studies over a dozen studies have shown that men with low testosterone have a massively increased risk of major adverse cardiac event, cardiovascular disease, and actually cardiovascular mortality as well as all cause mortality

Dave Asprey ([00:15:52](#)):

And Alzheimer's too, right?

Dr. Tracy Gapin ([00:15:53](#)):

And we know that it's directly tied to inflammation. It's directly tied to insulin resistance, oxidative stress, everything is connected together. And so when we think of testosterone, we know that it's associated with changes in cortisol. We know that it's associated with nutrition and your gut health. We know it's associated with all the other hormones that we deal with and how sleep and stress come into play there and everything's connected. And so we can't look at testosterone alone as I'm just going to fix it, whether it's through natural or TRT approach. And that's the only answer. There's a lot more.

Dave Asprey ([00:16:27](#)):

There's a lot more. It is like what's the recipe for the perfect pizza? Well, it takes a lot of ingredients, but without cheese. That's right. You have a bit of a problem on your pizza.

Dr. Tracy Gapin ([00:16:36](#)):

One of the things that I think is important to point out here is with the natural approaches people talk about with sleep and stress and nutrition and fitness, all these approaches that you can boost your testosterone level guys, well, why won't that correct it? And so I think it's important just to touch on the biggest factor that's causing low testosterone is not your crummy diet. It's not your shitty sleep. It's not stress, it's not your poor fitness. It's not your low micronutrient level if, although those can all contribute to it, is actually toxins in your environment and is toxins that your father was exposed to and your grandfather was exposed to. And there are transgenerational effects that have already happened that you cannot change. And so this is the scary part of it, and this is why I talk about how in my TED talk, how in 20 years from now we're all going to be infertile and impotent. Oh my God. Because it's getting worse and worse. And we're seeing microplastics in testicular tissue and study coming out in August shows that you're going to see microplastics in semen samples, and we're seeing BPA in whales in the Arctic Circle, and we're seeing synthetic estrogen from women's birth control in our drinking water. It's everywhere and it's happening for generations and it's getting worse and worse. And that's really the underlying problem that we have here. When it relates to testosterone,

Dave Asprey ([00:17:48](#)):

You're touching on two topics really near and dear to me. My very first book was on fertility. It's called the Better Baby Book, and there's thousands of babies as a result of this book. And after writing that, it was so I could have my own kids because the mother of my kids was infertile when I started doing the

research for this. Wow. Epigenetics, multi-generational things. So if you can fix the dad's health three to six months before pregnancy and you can fix the mom's health and get the toxins out and don't get pregnant right away, get 'em out, and then get the system running, you have kids that pass on healthier genes for multiple generations. That's right. You also have kids that are much less likely to have brain stuff going on like a DHD or Asperger's, which I was lucky enough to have and things like that. So this is a part of it. So that's one thing. The idea that we're all getting less fertile. And I stopped worrying about the population problem about which is 18 years ago when I first started research on that book, because fertility is dropping and the replacement rate is already, we're underneath the replacement rate in most of the developed world.

Dr. Tracy Gapin ([00:18:56](#)):

We're under 50% fertility grace study of Israel. So we're under 50% fertility right now. It's getting worse.

Dave Asprey ([00:19:02](#)):

I have so many friends in their thirties and they're saying, I hope I can get pregnant. And when I was 30, it was, I hope we don't get pregnant when we don't want to. And so something really dramatic has happened in a very short period of time. And to your point, it's pollution. So number one, you're hitting on fertility Number two, though, a lot of people listen to the show because I wrote a major book on longevity called Superhuman, and they're following me for how am I going to live to at least 180 like you are Dave, and I'm age against 73% the rate of normal. There's four killers I read about in the book, and the first step is don't die. And so don't get taken out by the obvious ones. It's diabetes, it's cancer, it's number one risk, cardiovascular disease, which testosterone lowers your risk of dramatically. And the other one is Alzheimer's. And we didn't talk about this, but do people with adequate testosterone have a higher or lower chance of getting type two diabetes?

Dr. Tracy Gapin ([00:19:56](#)):

So men with optimize higher testosterone levels, they have better insulin sensitivity, they have better ability to regulate blood sugar, and so by definition, they're going to have less visceral fat and they're going to have less risk of diabetes. And all the chronic diseases directly tie in some way, either directly or indirectly to low testosterone.

Dave Asprey ([00:20:14](#)):

And so does cancer too, right? Because people's adequate testosterone have a lower cancer risk. So if you wanted to not die, at least not die as often from all four of the big killers that I've taught you about, testosterone would be right up the with mitochondrial function. Oh wait, testosterone helps mitochondrial function, doesn't it? What do you

Dr. Tracy Gapin ([00:20:30](#)):

Know? Amazing.

Dave Asprey ([00:20:32](#)):

Talk to me about testosterone and mitochondria. What do we know?

Dr. Tracy Gapin ([00:20:35](#)):



Yeah, so the mitochondria, as you talk about all the time, it's the powerhouse of the cell. It's where a TP is produced. You have the electron transport chain before that you have the kreb cycle. Let's going back to medical school stuff here, but testosterone is intricately important for every part of that process. And we know that energy production, oxidative stress is affected dramatically with low testosterone.

Dave Asprey ([00:20:57](#)):

And low mitochondrial function means low testosterone because testosterone is made in mitochondria, right?

Dr. Tracy Gapin ([00:21:03](#)):

That's right.

Dave Asprey ([00:21:04](#)):

That's right. So we ended up with this thing saying, well wait, foundational things, what could I do? You could look at something like Minerals 1 0 1, or you could look at Danger coffee that has the trace minerals in it because you need minerals for mitochondrial function and for testosterone production. That's going to help you foundation across everything you do. So is having adequate testosterone. It's going to make all of your efforts, whether it's meditation, career, love, life, relationships, personal development, all of them feel easier and better, and you experience more joy. And also when you're up in the middle of the night and you have a 2-year-old screaming or whatever, it doesn't make you suffer as much when you have enough testosterone because there's this deep feeling of I've got this. And that's why this is such an important interview because you're teaching this. I have a question for you. Is it true the getting a vasectomy will lower your testosterone?

Dr. Tracy Gapin ([00:21:57](#)):

Not at all.

Dave Asprey ([00:21:58](#)):

What if you give it to yourself?

Dr. Tracy Gapin ([00:22:00](#)):

Not at

Dave Asprey ([00:22:00](#)):

All. I didn't mean testosterone. You actually gave yourself a vasectomy, didn't you?

Dr. Tracy Gapin ([00:22:03](#)):

I did my own vasectomy. I did, yeah. Do

Dave Asprey ([00:22:06](#)):

You recommend this for

Dr. Tracy Gapin ([00:22:07](#)):

People? I would not recommend that. Could I do it myself? Yeah. I would not recommend that I would use a butter knife. I would not do it at home. Do not try this at home kids. But yeah, back in my, I spent 23 years in traditionally healthcare urology before I saw the light and stepped away to Launch Gap Institute. While I was there, we had two kids and I knew it was time, and that was my superpower. It took me maybe eight minutes to do a vasectomy and easy peasy, no big deal. And my partners were taking like an hour. I don't know what they're doing in there, but I'm sure as hell not going to go there to get my vasectomy if I could just do it

Dave Asprey ([00:22:39](#)):

Myself. So you're like a wham bam. Thank you, man.

Dr. Tracy Gapin ([00:22:41](#)):

I did it myself, and it was actually pretty easy. Yeah. Wow. Believe it or not.

Dave Asprey ([00:22:47](#)):

Now there's two ways of getting a vasectomy. There's the cut and tie thing, and then there's a super glue method where you just inject some super glue in there.

Dr. Tracy Gapin ([00:22:54](#)):

No. So I do the nose scalpel technique, which means there's no actual cutting. So what do you do? But I make a little tiny puncture about maybe centimeter or so in the middle. And then you use a little ring clamp, you capture the vase, which is the tube that the sperm travels through. You isolate it, isolate the pipe, you clamp clamp, cut, cut, tie, tie, and that's it.

Dave Asprey ([00:23:13](#)):

Is it reversible?

Dr. Tracy Gapin ([00:23:14](#)):

It is reversible. Some people use clips. I don't like putting foreign bodies. I like clips. I never recommend clips. I never use clips in my career, but it is reversible. The longer you go between the vasectomy and the reversal, the less likely it is to be reversed, but it can be reversed. But back to your question, in no way affects hormone production, which is also in the testicle by different cells, but it's not affected by tying off the va. So

Dave Asprey ([00:23:39](#)):

The testes aren't going to just say, oh, I can't get in. I'm pregnant. I give up on life. Definitely

Dr. Tracy Gapin ([00:23:42](#)):

Not. Definitely not. Now, some guys do get atrophy of the testes when they're on testosterone. So a shrinkage. Yeah, shrinkage. And you could overcome that with HCG if it matters to you. Most guys are not going to be in a scrotum beauty contest. So I don't think most guys are worried about that. Did you hear? You never know. Did you

Dave Asprey ([00:23:58](#)):

Hear about the Scrotum beauty contest?

Dr. Tracy Gapin ([00:24:01](#)):

I did not.

Dave Asprey ([00:24:01](#)):

Okay. This is an actual study. It just made me completely laugh. They took pictures of a thousand scrotums and showed these to a reasonable size sample of women and said, rate them on a scale of one being horribly ugly and 10 being attractive. No scrotums scored above five. So in other words, there is no such thing as a beautiful scrotum according to women.

Dr. Tracy Gapin ([00:24:26](#)):

No, I could understand that out. It makes sense.

Dave Asprey ([00:24:30](#)):

I got distracted by the humor in all of this. Another one of my friends in longevity circles, we've talked about the testicular shrinkage that can but doesn't have to happen. And some of the other things we've talked about, like CH Clomid can help with that as well, or Arimidex or some of the herbal blockers like CEN and all of those have a bit of a downside, including a cognitive downside. And blocking all or aromatase systemically probably isn't good for you.

Dr. Tracy Gapin ([00:24:56](#)):

I've seen that a lot with men who take CH clomid. Going back to the whole estrogen thing, how estrogen is not the enemy and we need good healthy levels of estrogen. And because it actually feeds back on the brain, and when you're blocking that estrogen receptor at the brain level, which is what clid does, you're losing some of that effect. And so sometimes guys on C clid can get issues with mood and depression, cranky anxiety, that kind of stuff.

Dave Asprey ([00:25:19](#)):

That's not something that you want. My doctor friend, who I'm thinking of here said that the only patients who care about testicular size was gay men. He said they'll notice a one millimeter change. He said, the rest of patients don't care. And I truly don't care about the size of my balls. I care about the size of my free testosterone. There you go. And that's the only thing that matters. You talked about testosterone transforming into estrogen, but something else testosterone turns into in men is dihydro testosterone or DHT. And we're all afraid of that because, oh, no hair loss. Yeah. But doesn't DHT have some benefits? Yeah,

Dr. Tracy Gapin ([00:25:57](#)):

So DHT is a much stronger hormone androgen than testosterone itself, and it does give some benefits. When you look at the anabolic effects of testosterone, men who are using topical testosterone therapy tend to get more conversion of testosterone to DHT than men who do injections or other methods, but rarely does it ever really cause a problem. And so I don't typically measure DHT levels unless there's a specific reason to, because that issue is very rare, rare when it comes to hair loss. I'd say less than 1% of men on testosterone therapy have problems with hair loss.

Dave Asprey ([00:26:35](#)):

I'm concerned that when people take pharmaceuticals to block DHT, that they're actually blocking testosterone's beneficial effects on the body. Oh

Dr. Tracy Gapin ([00:26:44](#)):

Yeah. So there are studies that have looked at this that looked at for prostate, finasteride and avodar, these are drugs that block DHT, because DHT is such a strong androgen that it does stimulate prostate growth. And so the thought was, well, what if we blocked DHT? Would there be benefits? Would it reduce the risk of prostate cancer? They looked at, and the answer was unequivocally no. It does not decrease the risk of prostate cancer and that it does have slight effect on prostate growth over time. But the biggest downside to these is the fact that it can cause irreversible sexual dysfunction.

Dave Asprey ([00:27:23](#)):

Irreversible. So finasteride can cause irreversible declines in sexual function. Correct? That's right. So now I have another story for you from the corners of the biohacking world. A while ago, I had 10,000 individual hairs moved from the sides to the front because I started using a pellet, a testosterone pellet, and I did get hair loss within two months after doing that. And so for my biology, the pellet wasn't the right thing. It actually worked really well for some people, but I thought, this isn't cool. So I went down to Florida and I got the procedure done with Dr. Allen Bauman, who's one of the best in the country, if not the best, and had fantastic results. But afterwards, I used a Finasteride derivative topically a Russian one that's supposed to be stronger. I used it for a month, and I'm like, where is my erection? I was like, holy crap.

([00:28:19](#)):

And I stopped it right away, and it took about a year and a half for things to come back after 30 days of that. Fortunately, it did come back, but I would just say, guys, if you're listening to this, using Finasteride is not worth the risk of maybe irreversible, but certainly very difficult to reverse loss of sexual functions like even ven neutered, right? So you could use minoxidil if you want to, and there's all sorts of natural compounds. Alan Bauman has all kinds different things. If you are going to use Finasteride, putting it on topically would be better, but I would reserve that for after you've already tried the other stuff. If it doesn't work, if you're really desperate for your hair, just remember you might have good hair and attract the ladies, but you're not going to be able to do anything afterwards for some percent of the people. Okay, thanks for that warning for people. Yeah. The

Dr. Tracy Gapin ([00:29:10](#)):

Other part I want to go back on briefly is the DHT and testosterone and prostate cancer connection. I think it's worth bringing this up around DHT, the study that looked at Finasteride as it related to prostate cancer. We actually have learned that men with low testosterone have an increased risk of prostate cancer. Repeat that because that's very counterintuitive. And when I was back in my urology days, this was inconceivable. But the fact is that men with lower testosterone actually have an increased risk, not a decreased risk of prostate cancer.

Dave Asprey ([00:29:47](#)):

Did you guys hear that? You believe right now that if you take testosterone, it'll increase your risk of prostate cancer? The truth based on current real science is that having adequate free testosterone levels protects you from prostate cancer. We had it wrong, just like we used to think that eating cholesterol mattered. Even the American Heart Association says, oh, we are wrong. Eating cholesterol is a nutrient of non-con concern. So if that's the reason that you're thinking, oh, I don't want to do

testosterone, well, it's not a valid reason. And it's fine if you choose to do it or not do it. What I want you to know is that in the world, there are estrogenic compounds that compete with testosterone. Some of them are 10,000 times stronger than human estrogen. And one of the reasons I was obese, there were multiple ones, is that not only was my testosterone low, I was being exposed to a mold toxin called xone, which is 10,000 times more estrogenic than human estrogen.

[\(00:30:46\)](#):

So my ratios of testosterone, well, the testosterone's low and the estrogen activity in my body was off the charts thus, and boobs, flabby skin, all that kind of stuff. So getting out of the mold is important, but then you have all these synthetic fragrances, which I don't use. And honestly, if you're listening to the show and you still have some kind of commercial fragrance, or maybe you're one of the many teens who listen to the show and you're practicing smell maxing, which is a new trend of using expensive endocrine disrupting perfume. So not only can you not have testosterone, but everyone who breathes the air around you can't have it either. You should stop that, it's

Dr. Tracy Gapin [\(00:31:23\)](#):

A problem. And these compounds, you bring up a great point. They're very estrogenic. And then the question is, well, how does that make sense? If estrogen is not the enemy, estrogen is good for you. The answer is that these estrogenic compounds like you described, they stick like glue to the androgen receptor. They don't let go. And it's like a light switch that can't ever turn off now, whereas normal human biologic estradiol, it binds, releases, binds, releases constantly like a normal hormone should, but these estrogenic compounds, they stick like glue. The light switch never turns off. And now that overstimulation is what cause all the problems and so massive issue that's affecting normal testosterone function.

Dave Asprey [\(00:32:02\)](#):

Well, it could feel overwhelming. So I want to make this really simple for guys who are listening or maybe for women who are listening for the guys in their life, measure your free testosterone. If it's slow, do whatever it takes to get it up. And that may mean detoxing your environment. Stop wearing nylon underwear. Stop using synthetic fragrances. Clean up your environment. Don't use plastic dishes. Don't eat junk food. All the things like that, that's probably not going to get your numbers up. So if the numbers are low, you might consider a therapeutic intervention with testosterone because you'll do better at everything you want to do in life. And it's that straightforward. You don't have to do everything right here for me and for so many people I've worked with, getting your levels up via the primary ways of delivering testosterone is well, it's the answer. Now I want to go through a list of ways that I know of to get testosterone into the body, and I want you to rank these and tell me the pros and cons. Okay? Make sure. Here's the master list of testosterone delivery mechanisms for us. We have NASL spray, which I'm about to try.

Dr. Tracy Gapin [\(00:33:10\)](#):

Don't ever prescribe that. Have not tried that myself.

Dave Asprey [\(00:33:14\)](#):

I'm excited. It's in the mail. I'll

Dr. Tracy Gapin [\(00:33:16\)](#):

Have to hear about that.

Dave Asprey ([00:33:17](#)):

We have testosterone pills now, testosterone EC oh eight is what it's called. We have testosterone creams, we have injectable testosterone of different forms. We'll get into that. And then we have testosterone pellets. That's a long list. How the heck do I know what to do?

Dr. Tracy Gapin ([00:33:35](#)):

Yeah, so every man is different. Personalized. Have a conversation with your doctor. All that aside, in general, injections are what I would recommend as the best way to go for most men. And the reason why I like injections, I do it myself personally as well, is that you can maintain consistent levels without having to deal with the hassle of daily treatment. And so we can do injections twice a week, three times a week, ideally it'd be every day, but that's a little intrusive. And as the compliance is going to go down, so typically twice a week, three times a week is a great interval. And with that, you can get to a nice steady state where your levels are exactly where you want to be so that you can test your level anytime during that cycle. And you know that you're at a steady state to have the same level.

([00:34:15](#)):

And so I love injections. It is easy. You can do either subcutaneous injection in the belly, you could do intramuscular injection either in the thigh or the buttock or have someone do it in the arm. Most men prefer subcutaneous injection is painless. You can't even feel it. You're using like a 27 28 gauge insulin needle that you can't even feel. And so I love subcutaneous injection as the primary best option to start. Testosterone intramuscular is great as well. Some men we're talking two 3% in men with subq injections. They won't get their levels up to where you need them. Again, that's very rare, two to 3%. Otherwise you can switch to intramuscular as the next option. Topical is a great choice as well. And when we do topical, we don't use the prescription pharmaceutical gels, which can never get your levels up to where you need to be.

Dave Asprey ([00:35:07](#)):

Jaws don't

Dr. Tracy Gapin ([00:35:08](#)):

Work. No, typically use like a versa based compound of cream, put 'em on the scrotum every morning. And why the scrotum, the absorption on the scrotum is infinitely better than anywhere else in the body. It also

Dave Asprey ([00:35:18](#)):

Makes more DHT on the scrotum versus it

Dr. Tracy Gapin ([00:35:19](#)):

Does make more dt unfortunately, which it can rarely be an

Dave Asprey ([00:35:22](#)):

Issue. Well, it might be good for you.

Dr. Tracy Gapin ([00:35:23](#)):

It might be good.

Dave Asprey ([00:35:24](#)):

So for the creams, it's scrotum, then perineum, then armpits would be the most absorbable areas,

Dr. Tracy Gapin ([00:35:30](#)):

Right? Anywhere in those spots would be great. Most guys doing the scrotum. The whole issue with touching your partner, testosterone is actually great for women as I know you've talked about before as well. So it's really more concern with children. You want to be sure that once you apply it, wash your hands, especially before you touch the kids.

Dave Asprey ([00:35:45](#)):

I actually think if you have young kids, especially, you shouldn't use testosterone cream even if it's on your sheets and they touch it, they don't need very much in order to really have strong effects. I went off cream when I started having children in the house and switched to injections to protect the kids. Also, I never loved having kind of oily balls. What do you do about that?

Dr. Tracy Gapin ([00:36:06](#)):

You just wait for it to dry. But it is for some guys a nuisance and you have to do every morning. So the half-life is so short with topical that if you put it on this morning by tomorrow, it's gone. And so you have to do it every day. And for some guys, the compliance factor is what prohibits that. So I put that lower than injections in terms of what I would recommend. Pellets go below that. And the reason why I don't recommend pellets is the same experience that you described where levels can be all over the place. And for years back in my urology days, I would put in 15 pellets in a guy and his levels would go, his total would go from 300 to 800 this time or 300 to 1600 next time with no clear reason why the levels varied so much. And absorption and metabolism varied so much with pellets that I kind of veered away from them. For some men who are maybe traveling overseas or who don't want to carry them with them, the injectable, maybe there's a reason for pellets. But in general, injections are easy and quick and painless and much better option than pellets. Okay,

Dave Asprey ([00:37:09](#)):

I've done subcutaneous and it looks like you can actually use a little bit less subcutaneously because of the way it absorbs. I've also been trained from a long time ago, intramuscular is best. So I've been doing, IM shots basically on the buttocks every other side once, twice a week. And when I did my last pre Novo scan, because that's a whole body, MRI, you should listen to that episode, I think it's prevo.com, use code Dave or something. But the episode with them saved 25 people's lives because they had aneurysms about to blow and things like that. It was a really meaningful thing. But when they look at those tissues, you can see the disruption from continuous intramuscular injection, which I don't think is a good thing, but subcutaneous doesn't do any damage. So I've switched to all subcutaneous for when I'm injecting.

Dr. Tracy Gapin ([00:37:55](#)):

Yeah, a couple thoughts. There are, absorption is definitely different with subq. Some men will get variable absorption with subq versus I am. It's funny, back in the day, we always thought it had to be I am. That was the only route. And about 10 years ago, some study came out that the levels are for most men relatively the same. So we all switched to now subq is a way to go in terms of doing in the buttock. I

will caution men against doing self-injection in the buttock because I found a lot of times you're missing the muscle completely.

Dave Asprey ([00:38:25](#)):

Oh yeah. Well, doesn't it just become subq or

Dr. Tracy Gapin ([00:38:27](#)):

Well, then you end up putting it sometimes in that deep fascial space where it may not be the findings you saw on the pvo and the MRI. It may be actually reaction from testosterone going somewhere else and creating this inflammatory scar, if you will, whatever, because it's not getting into the bloodstream or getting absorbed. I don't know. But I've had a lot of guys who were doing I am and their levels were terrible and I switched it had their wife do it, taught the wife how to do it properly and levels were magically okay. So I think sometimes there's a technique issue when it comes to self-injection in the butt.

Dave Asprey ([00:38:57](#)):

I could see that I was doing the upper outer butt muscle. I forget the name

Dr. Tracy Gapin ([00:39:00](#)):

Of that. Yeah, you can also do it in the thigh here. I have a lot of guys got a palm or so above the knee, straight into the thigh is a great into the quad there as well.

Dave Asprey ([00:39:08](#)):

If you're luc going, I can't imagine self-injecting. The first time myself injected was vitamin B12, and this was, geez, 15 years ago or something. And I filled that syringe up. This is also intermuscular. And I sat for an hour holding this thing over my leg and there was no YouTube videos about to do this. I read a manual and I'm like, okay, when I do it, and it was walking over Kohl's for Tony Robbins or putting butter in your blender for the first time and like, all right, I'm going to do this. I'm going to do this. And finally, and it did it and it didn't even hurt. But this internal resistance. So if you're kind of squeaked at this idea of injecting yourself, the muscles are harder, but it's totally doable and it doesn't hurt the way you think it will. And taking a pinch of fat and doing it is like nothing. It doesn't, you

Dr. Tracy Gapin ([00:39:55](#)):

Don't even feel

Dave Asprey ([00:39:55](#)):

It. Yeah, it doesn't hurt. All right, so now we've covered pellets, right? There might be a use case, but there's problems with them also. They can migrate. I had one of my pellets migrate, which means they start, the body starts pushing it out. You have to have a couple stitches. I remember one time I was at, I think it was a summit event, some kind of a marketing event. And I'm sharing a room with a guy, I don't know. I'm like, Hey man, I got a stitch. I need remove from my butt. Yeah, can I just bend over the counter here? Will you just yank that stitch out? And it's like, all right, I got it. Whole thing. Yeah, that's what you're doing when you just meet someone. Sure. So I am not a fan of pellets, but get one if that's what fits your lifestyle and it works. So pellets, injections, what about the new oral form of testosterone?



Dr. Tracy Gapin ([00:40:39](#)):

Yeah, I don't use it and I don't use it because if you look at the studies, you can't get levels high enough. And we always avoided oral throughout my career because of concern about the liver. They've now overcome that. So it doesn't seem to be hepatotoxic now with the current way they formulated. But my biggest issue with the oral is I just can't get the levels where I need to be. And again, if you're at 4, 5, 6 and you need to get to 20, that oral typically will get you 10, 12, 14. That's just not high enough for my

Dave Asprey ([00:41:09](#)):

Guys. I've heard this from multiple longevity doctors I work with who are saying it's a great idea. The other thing is it's four large pills a day. And I've tried it for a couple months and I don't think it worked as well. I didn't actually test my levels. I probably should have. But

Dr. Tracy Gapin ([00:41:24](#)):

I see it somewhat of a marketing gimmick that maybe if you take six of these pills, you can get your levels where they need to be. What we do with injections with the guys, with, it's just not a problem.

Dave Asprey ([00:41:35](#)):

You stack it with something like en clomophine and get some results.

Dr. Tracy Gapin ([00:41:38](#)):

So you could, I will use en clomophine over cloma typically because you don't tend to get the cognitive effects and the mood issues that you can get with Clomid. But I don't typically use en clomophine with testosterone. I'll typically do either or. So if I have a 30-year-old guy who still wants to preserve fertility, then I will use en clomophine with HCG and that I can get level sky high with that approach. Now if I were to give that guy testosterone, would he still be able to preserve for fertility? It's like I have heard many situations where fertility is still preserved, but you want to do what you can to avoid affecting it is already low as it is right now.

Dave Asprey ([00:42:18](#)):

That's a very fair point. Unless you don't care about fertility, there's a lot of guys,

Dr. Tracy Gapin ([00:42:21](#)):

If you don't care, I'll,

Dave Asprey ([00:42:23](#)):

If you already had your kids and you're just not worried about it anymore, then great. Or maybe you just don't want kids. But I'll just caution you, if you're 30 and you're saying, I never want kids, you might change your mind because mother Nature has a way of doing that to us, man, it can happen. So I see a lot of people in their twenties or thirties, oh, I got a vasectomy. And then they're in five years later going, well, she hadn't have done that. Give some help. And it's, it's more work to reverse it. So be careful if you're going to do that. Alright, and we haven't talked about nasal spray, but we haven't used that yet.

Dr. Tracy Gapin ([00:42:51](#)):

Yeah, I've never used it. Never prescribed it. I've heard about it. I haven't seen data to support that yet. Well, I'll check out. Yeah, tell you your anecdotal experiences with it.

Dave Asprey ([00:43:00](#)):

Yeah, A couple of doctors I've spoken with in advanced longevity fields are saying we're seeing interesting results and I'm one to be a Guinea pig. I think we covered all of these including where to put the cream, but we haven't talked about the type of testosterone to inject. Yeah,

Dr. Tracy Gapin ([00:43:15](#)):

So I typically use Cate, and it doesn't necessarily matter which one you use as long as you're aware of the half-life. So to, for the listener, there's testosterone cate, there's propionate, there's an anate. And the difference between them is basically the half-life, how long it takes your body to metabolize these testosterone. And so understanding that the testosterone cate is more of a little shorter rapping, a shorter half-life as opposed to propionate. You just take that into account when you're doing the dosing. So because I'm so comfortable using Cate used in my whole career, I know exactly what the half-life is going to be in terms of the dosing that I typically use Cate. But there's nothing wrong with using the others as long as you're just understanding the nuance and testing levels. One of the things I always talk about, I'm sure we'll talk about all the other testing we do, is test, fix, repeat, test, fix, repeat. And wherever you think you may be, test and see if that's where you really are. Sometimes you get into this false sense of complacency that you're where you're supposed to be and you're not.

Dave Asprey ([00:44:14](#)):

Now guys, one of the problems that I've run into is it's a pain in the ass to get a test, like you have to go to the doctor and all these sort of things. So upgrade labs at one of my companies has a new app called upgrade health, upgrade health.com, and you can actually have someone come to your and draw blood and it's very reasonable price because we sort of cut the doctor out for you just to get your levels. If you want a prescription, you still talk to your doctor, but you walk in with a lab test that was just convenient. So now I can get my levels tested much more frequently. I think it's 80 bucks steps, someone come to the house versus drive to a lab. I can choose either one, and that's upgrade health.com. And there's a bunch of other online sites where you can now get testosterone testing. And do you have one as well that does that

Dr. Tracy Gapin ([00:45:00](#)):

Well? So when we work with clients around the country, we actually will send a mobile phlebotomist to their home to test as well.

Dave Asprey ([00:45:07](#)):

So when people come to the Gap Performance Institute, and you typically target CEOs who come in for a comprehensive assessment that includes testosterone, all the other peptides and all this stuff that they would need. So it is a high-end offering and you've got people flying into Florida to spend time with you. Yeah,

Dr. Tracy Gapin ([00:45:21](#)):

We work with founders of entrepreneurs, executive CEOs, athletes. We have NFL players, we have retired MLB players, you name it. It's these high performing guys. And they'll come in for our one day launch day where we'll put 'em through all the tests than you can imagine. So all the blood testing over

a hundred markers. We do a genetics panel which does not have four M-T-H-F-R genes. It actually has about 700,000 genes that we look at. Might be a little more valuable.

Dave Asprey ([00:45:47](#)):

We look no shade,

Dr. Tracy Gapin ([00:45:48](#)):

All the functional tests you can imagine. So looking at the microbiome, looking at cortisol, looking at heavy metals, organic acids, looking at food sensitivities, all these tests that actually help us take a much deeper dive. We do all the imaging you can imagine. So full body MRI and a calcium score and a carotid intimal thickness scan, medical exam, and putting it all together. Because what I have found is the most valuable commodity we have, guys like you, guys like me guys, the guys that we work with, is time. How can you compress all the testing that you need and save them time? That's what it's all about.

Dave Asprey ([00:46:21](#)):

See, very few people understand this, and this has been a primary motivator for me 11, 12 years ago. I started 40 years as Zen. Like how can I do decades of meditation in five days and upgrade labs? How can I get people in and get them the results they want for stress recovery or for exercise or for longevity in the minimum possible time? And we just had our best grand opening ever in Oakville up by Toronto, and we've got 28 locations of the franchise opening it's own and upgrade labs.com and people come in and it's just about saving time. In fact, you can save about 95% of time on cardio and get the same results just with one of our pieces of AI tech. So this idea your time is most important. I kind of believe it, but I actually don't now that I said all that, I believe that energy is more important than time because if you're low energy and you have lots of time, you're just going to take a nap. You're unmotivated and that's why get your testosterone up so your energy goes up and then time becomes most

Dr. Tracy Gapin ([00:47:22](#)):

Effecti. Yeah, I mean you got to optimize the human system. You have to be sure your gut is intact, you have to be sure all your 50 plus hormones, sure, your blood sugar regulation, cardiovascular health and toxins and all these factors that we look at so that your body is optimized so that you can actually enjoy that time and enjoy that quality of life. For sure.

Dave Asprey ([00:47:39](#)):

We talked about forms of injectable testosterone. I realized I have some more questions for you there. Sure. So about four or five years ago, I'm living up in Canada where it's a pain in the ass to get any health stuff including testosterone in North America, particularly in the US recipient eight is the primary form of injected testosterone and most of the rest of the world is intonate. And I went down to Mexico and you get testosterone there just at a pharmacy. I'm like, thank God I don't have to fill a prescription for six months and deal with all the rigamarole. So I bought a bunch of this stuff and said, I'll try this. And I noticed it worked much better for me than Cate. Cate was actually causing water retention and a little bit of puffiness and enate, just I could feel the difference. Interesting. And it may be that there's some genetic difference that we don't know about, but if people don't get results from one, maybe they can try another one and it works better.

Dr. Tracy Gapin ([00:48:35](#)):

So it is just the ether, the way that it gets slowly released in time in your body. And some men, there are genetics around this absolutely that affect how your body metabolize and processes testosterone and converse into estrogen. And I have a lot of men who will have issues with swelling, water retention, especially in their legs at fairly low levels of testosterone. So you have to be very delicate in the dosing of those guys for that reason.

Dave Asprey ([00:48:59](#)):

I think if you switch 'em to intonate, you might see a difference. I certainly did. Absolutely. In fact, now that you mentioned that I did one time, God, what is going on with water in the legs? It was after a long flight, which is part of it, but I think it might've been the form of testosterone I was on. So there's all these nuances, but basically we're going deep with you. You go to a doctor, you get a prescription, you're inject it twice a week and life gets better and then you test again a little while later. It's a great

Dr. Tracy Gapin ([00:49:26](#)):

Start. It's a great start. It's pretty

Dave Asprey ([00:49:27](#)):

Straightforward and there's a lot more to do. But I like low hanging fruit and for me it's testosterone and thyroid. And if most people, especially over 40, but a lot of people down in their twenties, even if your energy is low and your exercise doesn't work and you're feeling unmotivated, well look at those two labs and that's in the upgrade health panels. When you get those, okay, we'll tell you then if it's a problem. But if you were just to close your eyes and guess, I always guess those too, because you're going to hit it 80% of the time.

Dr. Tracy Gapin ([00:49:56](#)):

And there's a lot of criticism, which I think is unfair around giving testosterone that no, if you just do the natural approaches, you'll get the levels where you need to be patient, blah, blah, blah. But it's a catch 22 where you think of this executive, this busy entrepreneur, this founder, this athlete who again, the most valuable commodity is time and need results now. And to tell them to be religious with the lifestyle changes you're talking about for six months before you might see any changes. It's not realistic, it's not fair. Whereas when you can quickly, like you said, low hanging fruit, fixed testosterone, what that does is it now changes the word use drive, which I love. It changes their drive, it changes their ability to now focus on the other issues they need to address. Now you can get 'em to start sleep focusing on how can I improve my sleep?

([00:50:41](#)):

How can I have better work life balance and regulate cortisol and stress? How can I start really paying attention to nutrition and start planning meals better and clean up my gut and focus on a fitness routine that I can squeeze into my busy day? All those things every guy knows, guys know this stuff. They're not dumb, they just don't do it. Why? Because they lose drive, they lose motivation. Life gets in the way. They're busy, they're tired, and day after day goes by. And so I love starting with hormones. And when I talk about my approach, I always start with hormones because that's going to, like you said, biggest thing for your buck, low hanging fruit, get them going. Now let's address nutrition, gut health. Now let's address sleep. Now some of these guys feel awake and alive. Let's go. Let's hit the gym. And they're motivated, they're driven to do it the right way.

Dave Asprey ([00:51:27](#)):

I just love that because if your energy is back, then you have the energy to take care of yourself, to evolve yourself and do the personal development work and who needs it more than CEOs and leaders because you are the guy or woman. If you're in a leadership role and you lose your shit because your hormones are off, then it affects all of your employees and their livelihood and all of your customers. So your job is to be the one with the most energy and the most peace, even if things aren't the way you wanted them to be. That's a really high bar. It's as high as like when Nick Foles was on the show, the Super Bowl MVP, he's saying, I have millions of people looking at me and my whole job is to be present. That's hard. So doing that with low testosterone is an issue, but you look at some other favorite things. You write about these in your book and just things like this. I know you look at free testosterone, I know you look at free T three. What are the other most important labs?

Dr. Tracy Gapin ([00:52:24](#)):

Yeah, so you mentioned earlier that cardiovascular health, how important it's is the number one cause of death still in men, men and women. And there is this lackadaisical approach in our medical community to check L-D-L-H-D-L, total cholesterol, any triglycerides, and based on that, if that looks good, you're fine. If that looks bad, you need a statin and that's it. And I like to look at stories like Bob Harper and I talk about Bob Harper a lot. He doesn't know this, I bet if he'd be proud of me for telling this story, but so Bob Harper is the lead fitness trainer on the TV show, the Biggest Loser. And you remember this story several years ago, age 51, Bob Harper, best shape of his life. He's the epitome of good health teaching us how to get in shape. And he has a heart attack, almost killed it.

([00:53:10](#)):

And he survived fortunately. And he went through testing and found that his LP little, a lipoprotein little A, which is a subtype of LDL, was massively elevated. It's a blood test, a simple blood test you can get done that you should get done, everyone should get done that he never had done before that that is a massive red flag for cardiovascular risk. And so when you screen for cardiovascular disease, you need to be checking LP little A specifically to look at that, you need to be looking A OB. So A OB or A O lipoprotein B is a marker on it looks like a filament. If you looked at the molecule, it's a marker on every atherogenic particle. So every non HDL particle has exactly one and only one a OB particle. And so A OB is important to measure it better than LDL because we know that it directly correlates with cardiovascular risk.

([00:54:02](#)):

And I like to think of it as these lipoproteins are like submarines floating around your bloodstream and cholesterol is inside the submarines. When you measure LDL HDL 12 cholesterol, it's just measuring the concentration of the lipids of the cholesterol within these lipoproteins. But actually what's more important are the number of lipoproteins. And that's why LDL particle number particle count, which looks like LDL dash P on your lab sub, not LDL dash C, you want L DL dash P and A OB. That's actually measuring the number of submarines in your bloodstream, which correlates directly linearly with cardiovascular risk. And most doctors don't check A OB. They don't check LDL particle count, and they certainly don't check LP Little A.

Dave Asprey ([00:54:45](#)):

One of the lab tests I've been recommending for actually since the very first blog posts back when it was called the Bulletproof Executive before it became the dave aspir.com, where it is now, it's a two and that's an enzyme that's released when anything damages the aligning of the artery. That's right, because all these people are, I'm worried about my cholesterol. Well then wouldn't there be a sign of damage to your arteries if your cholesterol is doing it or if it's a POB or if it's any of the things, even the LDL particle

count if they're causing a problem, you'll see L PPL A two go up. So that's the marker that something's off.

Dr. Tracy Gapin ([00:55:21](#)):

So the next level below those, you have LDL hdl, total cholesterol, everyone does, they're relatively worthless. I'll put my neck out there, straight up worthless A-O-B-L-D-L particle number and count and LP LA are incredibly helpful. And then the next level is going to be LP PA two, which is a marker of vascular inflammation. So we talk about systemic inflammation. Vascular inflammation is basically a warning flag that you're about to have major vascular damage, which is going to lead to the long progressive pathway toward developing plaque. And the other one is myelo prase as well. So an Ip P LA two myelo peroxidase are great markers. And you can look at homocysteine, which is another marker. That's another

Dave Asprey ([00:55:58](#)):

My big list,

Dr. Tracy Gapin ([00:55:59](#)):

Absolutely, yes, related to methylation, but it's directly tied to cardiovascular risk as well. And so homocysteine is important as well. These all paint the picture of vascular health, of your lipid metabolism. You can look at CRP Crac protein as the marker of overall systemic inflammation as well. Most of those labs that we just talked about, traditional healthcare system, never ever,

Dave Asprey ([00:56:23](#)):

It's that problem. So many followers over the last decade have gone into their doctor and their doctor says, I don't know what that lab is. Or you don't need that lab. And it is wrong for a doctor to say, I am going to use my power in order to block you from having information about your health. And I just think this is unethical and actually I think it's evil. And on top of that, you have these insurance companies and everyone knows they're evil. So if you go to your doctor and you battle to get basic good cardiac risk markers instead of the bullshit ones they're giving you and you actually succeed, then you get to spend six hours on the phone with your insurance company arguing over whether they're going to pay for it and they won't. And they just suck six hours of your life away.

([00:57:12](#)):

And then you get to pay the insurance company rate for the test, which is screw the roof. So that's why I started upgrade health because now you just go online and say, oh, I'm interested in these. And you get direct to consumer pricing with discounts. It suddenly becomes painless. There's no permission slip, there's no insurance company, and you get the data yourself and you can take it to your doctor and you can just do research online. You can decide what lifestyle things are going to change, and we'll even make some recommendations, the ones that we know work like here's how to fix your sleep and things like that. So once you have this set of information, you're going to say, all right, is this something where this is a Home Depot DIY approach because I can't afford a longevity doctor? And there's a whole bunch of people listening to the show who are going, okay, maybe I could do that.

([00:57:59](#)):

If my levels are really off, then I'm going to go to the doctor and I have an absolute reason to say, Hey, doc, this lab says I'm really at high risk. I need your help. And now your insurance company is going to pay because you were armed with the data. When you walk in the door, you may also go, I got my data.

I'm going to go work with an executive program and I'm going to spend substantially more and I'm going to do all the deep labs and all the imaging and all that. And that's where the gap in institute comes in. What do you do? Let's say an executive signs up for the program and it's more than \$10,000. They're going to come in, they're going to spend a full day. And then what happens? What happens during the day and what happens afterwards?

Dr. Tracy Gapin ([00:58:38](#)):

So that day I think of what I want, and for me, my family is my why. My kids are my why and time is more valuable than money to me. And so I want to compress everything into one day. And so what we do that one day, a launch day is we do all the testing you can imagine, all the blood testing, all the gut testing like we talked about, food sensitivities, cortisol, you name it. The imaging. We do a lot of coaching as well. A lot of guys need basic guys on what the hell do I eat? How goes just what do I eat? And the answer is complex, but we can give you at least some fundamental basic framework that you can start with. How do I incorporate fitness into my daily life when I'm so freaking busy, I have no time? Well, we can give you some basic framework coaching.

([00:59:18](#)):

So we put all that together into one day. We do a full medical exam, all the imaging you can imagine as well. And then a couple weeks later when we get all the test results back, we then get on a Zoom call, go through it all together, having a really nice deliverable where they can get all the results. And then we talk about how the heck do we fix that? And so this is where every guy's different. And I like to, I've coined the phrase, one size fails all and what's right for one guy is wrong for the next. And so based on that testing, you're going to know what are your issues. My brother-in-law, John, he was this big larger than life dude. He was like a bodybuilder kind of guy and everyone loved him. And one day at the age of 49, he dropped dead, getting ready for work in the morning in his closet, and he dropped dead.

([01:00:00](#)):

And he wasn't as lucky as Bob Harper. And so I think of him and how impactful it would've been for him to have known what are his blind spots, what are those issues that are lurking under the surface waiting to cause a problem that one day? And so I position everything we do to be proactive, to be preventive, to identify based on your physiology, what's working, how can we get your mind and body to function at the highest level? And then we spend the next year fixing it and correcting all those issues that we found and work with guys depending on exactly what their issues are. And everyone's different. So they need different stuff.

Dave Asprey ([01:00:33](#)):

It's funny, the kind of people who are attracted to entrepreneurship or even big business hedge fund managers, people like that, they're oftentimes the kind of people who are saying, well, I'm just going to also run a marathon. I'm also going to go to the gym for an hour a day because they're highly motivated and they have a belief that if they just exercise enough, it's going to protect them. And I remember one of my friends, Chris Hip, way back in Silicon Valley, he invented a fundamental technology for data centers and was a semipro cyclist. And this guy had more energy and anyone I ever met, he would wake up and ride 30 to 50 miles with semipro cyclists, then eat some granola for breakfast and then go to work all day at his startup. And he dropped dead of a heart attack in his mid forties on Sandhill Road, even though he was the most fit guy of anyone I knew. Because fitness doesn't protect you from cardiac risk. It's not how it works. But his story was, well, I exercise so I can have pizza and beer and it doesn't matter. I mean, look at me. But how you look doesn't tell you your cardiac risk.

Dr. Tracy Gapin ([01:01:37](#)):

Absolutely. The other issue that I think is so common in a lot of guys like you just described, is over training. Oh god. And more is not necessarily better. And one of the big things we love to focus on in our programs is wearable technology. You can track this and we will see men who overtrain, and you can directly measure that with heart variability. So there are tools that you can use to actually see it and see how you're affecting your gains. The guys will say, I can't burn that belly fat. I can't build muscle. Nothing's working. Well, some guys, they're actually over training and we can actually test that and measure that with wearable tech.

Dave Asprey ([01:02:13](#)):

I've heard people call over training the Peter Atia effect because of his book where he's talking about the only thing you can do to live well, you're still going to die at your normal age, but at least you'll live better is just overtrain. I don't think an hour or two a day of training is necessary or beneficial for the vast majority of executives because we have enough other stress. You want minimum effective dose training so that you have muscle strength, you have muscle size, and you have VO two max, but that doesn't take more exercise. It takes the right exercise and more importantly, the right recovery. And if there's any population on earth who has a hard time with recovery, it's executives, right? Why do executives suck at recovering enough to put on muscle after exercise?

Dr. Tracy Gapin ([01:02:57](#)):

I think a lot of guys are confused on fitness and exercise and they think more is better. And I want to clarify something that lifting weights does not build muscle, right? Lifting weights, doing interval training, doing sprints, doing cardio, doing any of that stuff doesn't build muscle. You actually build muscle when you recover, when you're resting, while you're sleeping is when you actually, you're tearing down muscle when you're lifting weights and when you recover is when you actually build. And when you gain strength and you gain hypertrophy, you build muscle and that's what's going to help you burn fat. If you never allow that to happen, by hitting those same muscles and training again the very next day, you'll lose those gains. And a lot of guys, what that's doing is it's driving cortisol up. Now what you're doing with that elevated cortisol is you're destroying your gut wall. So you're creating leaky gut issues with food sensitivities and then massive systemic inflammation that cortisol is also feeding back on the brain now, turning off testosterone, turning off thyroid, turning off growth hormone. It's this entire system that's now affected by simply over-training.

Dave Asprey ([01:04:03](#)):

I once believed that training was going to make me lose weight and fix things. I was desperate because I'd had two knee surgeries and I was 297. So I went to the gym 90 minutes a day, six days a week for 18 months straight. Didn't matter if I slept two hours, I went to the gym talking about willpower. At the end of this, I weighed myself and I still weighed 300 pounds and I still had a 46 inch waist. Was I stronger? I could max out all but two of the machines. It didn't make me lose any weight. And what was I doing? I was over training and utter recovering. If I'd have just lifted two days a week and gotten a little bit more sleep, I probably would've seen results that I didn't see. Maybe I should have eaten some more protein. I was also doing the semi vegetarian low fat thing.

([01:04:51](#)):

That's what everyone says works. So I want you to know if you're listening to this, if something is good, it doesn't mean more is better. And this goes for testosterone too. If your levels are at 2000, you're probably not going to have good effects. And if something is bad, it doesn't mean you want none of it. If



your cortisol is low, or even if your insulin is low, low insulin too low is four times more likely to kill you than high insulin. So you have to have the right levels. And how are you going to know any of these levels if you don't test them? Right?

Dr. Tracy Gapin ([01:05:26](#)):

That's where it comes back to the testing. And again, test, fix, repeat. You're going to find what those issues are. And most of the high performing men I work with, their cortisol levels are through the roof, and that has a lot of downstream effects.

Dave Asprey ([01:05:40](#)):

What do you do about high cortisol?

Dr. Tracy Gapin ([01:05:41](#)):

A lot. So there are some supplement stuff that we can talk about, but it first starts with creating balance. And you were talking about that a moment ago. You touched on this balanced issue where men are so driven, it's either all or none. Like you go in the gym six days a week, there needs to be balance in your life. And I quit asking years ago, I was asking guys, how is stress affecting you? How is stress do you have? They're all going to lie. Now that stress doesn't affect me, so I don't ask that anymore. It's not really stress, even though it comes down to stress. It's creating work life balance. It's creating balance in your life so that when do you turn off that race car? So it's not always running in the red? And how do you do that? So it's the stuff that you do outside here and the sauna or the hot, the heat, and then going to cold.

([01:06:28](#)):

It is meditation, it's mindfulness practices, it's breathing exercises, it is journaling. It is having sex. It is scheduling time for the things you actually enjoy. I went through years when I was first building my business gap institute and I realized I came, I woke up one day, I'm like, shit, I love to play tennis. I hadn't touched a tennis racket in years because I'm so focused on building this business, and I was in some way being hypocritical and I wasn't really living, practicing what I preached. And so I pivoted and I create time for what I love to do because that's what's going to lower cortisol better than almost any drug, is to do what you love to do and create that balance.

Dave Asprey ([01:07:12](#)):

Experiencing joy is really valuable for that. When I started Bulletproof, I was working full-time as a vice president at a publicly traded computer security company. And so I would just do my day job and then I'd have dinner with the kids, and then as soon as they went to bed, I'd go out into the little cabin and I would work until two to four in the morning. And that's how I launched the company. And I did that until I could replace my corporate salary with my entrepreneurship, and I deliberately restricted my sleep to five hours or less per night. This is not good for you. Now, I actually lost weight while I was doing that because I was also stress testing the Bulletproof diet. And my goal there was I'm going to just do this for a month. I'm going to stop exercising, I'm going to eat 4,500 calories a day and I'm going to restrict my sleep.

([01:08:09](#)):

And the calories were the Bulletproof Diet. Wow. So this was zero carbs, so to speak of with an occasional carb re repeat. And the reason I did this is I was looking to prove, well, I'm going to gain three pounds in one month. I stacked the deck against me, but I lost fat and gained muscle while I was doing

this, which is crazy. And it's because you can do so much with food. And this did let me start a company that hit \$140 million a year in revenue when I was running it before they fired me. And by the way, guys, did I mention Danger Coffee is really good. Who knows what you might do? Anyhow, what happened then wasn't good for me. I got amazing business results, but I cut everything that was good and recuperative, and that's burning the candle at both ends and in the middle.

[\(01:09:02\)](#):

So if I could go back in time when I do that, probably because, well, I guess I just like what I do, but if I could have done it with a little bit more balance, I would have, I would've made some changes. Specifically, I was spending 400 hours a year in airports. I lived on an island, which was probably a bad idea. I should have just been like, I'm out because 25% of a work year is just spent waiting at borders. It just didn't make sense. So anyway, we can all go back in time, but I want to tell you, you can do this. It's just a really bad idea. What do I do now that's different. I schedule time for biohacking on my calendar because I wake up and I do what my calendar says, and I have an assistant who helps me schedule my time effectively and efficiently.

[\(01:09:48\)](#):

So I just go through the day. I don't have to do a bunch of scheduling work that would take up two hours a day just to make my schedule at least. And then during that time, I just don't take calls. And if she wants to schedule something that's urgent, she has to call me and I have to agree to give up that time and figure out where to replace it. And then I have a stop time for my day where I'm not going to take meetings after that. Now, does that mean I don't call someone that I want to talk to? No, I still might do that, but that means I have time for dinner and afterwards, yes, I'll schedule day nights. And that's really important because if you don't have intimacy in your life, talk about effects on testosterone. What happens if you never have sex? What happens to your testosterone levels? Yeah,

Dr. Tracy Gapin [\(01:10:26\)](#):

It can definitely affect it. Yeah,

Dave Asprey [\(01:10:29\)](#):

They'll drop, right? Yeah. Okay. And what happens if you instead of going on date night, have a porn experience?

Dr. Tracy Gapin [\(01:10:37\)](#):

We talked about this on stage two years ago. Yeah, so there's definitely a negative effect there. I think the point that you're making that I love, that I align with you completely is living with intention and that you are being very intentional with every minute of your day. You have a plan in place, you're proactively scheduling what's important. And I think that sleep is the big non-negotiable block that everything else has to work around. And so we know how incredibly important sleep is when it comes to regulating cortisol, improving hormones, helping with recovery, building muscle burning, fat, autophagy, everything that we can think of. You have to prioritize that, and it's tough to do when you're a busy entrepreneur building a business, but you got to make that your top priority. You

Dave Asprey [\(01:11:24\)](#):

Do what type of exercise reduces testosterone the most

Dr. Tracy Gapin [\(01:11:29\)](#):

Long distance, cardio, endurance, running, jogging? Yeah, you don't want to do that. And as men age, you want to have more resistance training and less cardio in general. You still need to maintain VO two max is definitely tied to longevity without questions. So you don't want to give up cardiovascular health and cardiovascular stamina, but we know that muscle and Gabby Lyon shout out to her. She talks about how muscle is the organ longevity. When you build muscle, you live longer. It's that simple. When you build muscle, you burn fat. When you build muscle, you have higher testosterone levels of your hormones. It's critically important to build muscle as you age, especially over the age of 50. And you only get that from proper nutrition, sleep, and resistance training.

Dave Asprey ([01:12:17](#)):

Now, there's two variables to muscle that matter. One of them is muscle strength and the other one is muscle size, and they appear to be about the same in importance.

Dr. Tracy Gapin ([01:12:28](#)):

I would argue no. And I think that might be a trick question, but strength is going to be definitely much more important over the long term that we're not, you

Dave Asprey ([01:12:35](#)):

Say strength is more important over the long term or size,

Dr. Tracy Gapin ([01:12:38](#)):

Strength is more important than how you look. So what I'm getting at here is when we're talking about building muscle, we're not doing it for bodybuilding purposes, we're not competing. We're doing it so that we can maintain functional ability and status and be able to keep doing the things we love and play with our kids and get on the ground and play sports activities and have sex and perform in every area of our life. And you get that from strength. So size is more for aesthetics, how you look, strength is what's actually a carrier for the long term,

Dave Asprey ([01:13:05](#)):

And the vast majority of how you look is actually lowering body fat, which is also a testosterone effect and for longevity. So you can have less muscle mass and be leaner and look better than someone who has big muscles and a big belly. And so the bowling ball shoulder look, which is attractive for some people, it isn't necessarily a marker of longevity, depending if it's coming from over training or not. I am a little concerned when I see people who are lifting five days a week. They don't recover, but I always see around 50 to 60, I got to get new knees, I got to get new hips, I got to get new shoulders because you just beat them to hell in a gym versus using what's most effective. And then on the cardio front, you come to upgrade labs in 15 minutes a week. You can get a 12% improvement in BO two max, but you do an hour of cardio a day and you'll get a 2% improvement. So VO two max isn't that hard to hack. And there's some people out there. In fact, I wrote about this in my last book too. You can do zone two cardio if you want to spend three hours a week not with your children, or you can do the very specific AI driven things that cause the O2 max to go up because it actually focuses on recovery more than stimulation.

Dr. Tracy Gapin ([01:14:20](#)):

It comes down again, time is our most valuable commodity. How can you compress whatever you need to accomplish? How can you be more productive and more efficient with your time, whether it's resistance training or anything else in your life?

Dave Asprey ([01:14:32](#)):

Now, we're getting up on the end of the show, but something that you talk about a lot is microplastics and we talked about that earlier, finding it in semen and building up in different parts of the body. What do you do? You're at the airport. You want to be hydrated on an airplane and you don't want birth control pills in your water, which is what happens if you do that fake filtered water at the airport. You don't want microplastics and estrogens if you get the bottled water. And most airports don't have glass bottles. That's right. What do you do?

Dr. Tracy Gapin ([01:14:59](#)):

Yeah, so that's the time to fast

Dave Asprey ([01:15:01](#)):

And not drink water too on air

Dr. Tracy Gapin ([01:15:03](#)):

Place. So knowing that you cannot get your water bottle through security, you can't get your stainless, and I am known to carry on my stainless water bottle with filtered water everywhere I go. You can't get it through security. And the only options you have there are those plastic water bottles. So I would rather go those two hours and not drink water for two hours. I'm okay. I'll be okay till I get where I'm going on a

Dave Asprey ([01:15:24](#)):

Two hour flight on four or entrance. You got to

Dr. Tracy Gapin ([01:15:28](#)):

Drink at some point. You're going to have to make that tough decision when you're on a New York to LA kind of flight. But the key is I like to talk about these micro decisions you have every single day. Everything you do is a micro decision. What you eat, how you move, how you breathe, even the water you're drinking, and as much as you can do to lower your toxic load, the better. And so are you going to die from drinking from a plaster oil? You're not. But you want to do everything you can to minimize that and lower your exposure as much as possible. When you're in this situation, you don't have a choice.

Dave Asprey ([01:16:04](#)):

Is there a filter that takes out microplastics?

Dr. Tracy Gapin ([01:16:09](#)):

I always recommend a carbon block filter and reverse osmosis, and that's what we have at home. We use, I have no financial affiliation to kinetico, but we have a system put in our tire house is filtered, and so it gets rid of all the chemicals, it gets rid of all the toxins. And so I'm not worried about endocrine disruption chemicals, but does it clear plastics? I honestly don't know. I honestly don't know the answer to that

Dave Asprey ([01:16:32](#)):

One. I don't think there's enough research. I'm

Dr. Tracy Gapin ([01:16:33](#)):

Concern about that. Yeah. Yeah. I think the jury is still out there.

Dave Asprey ([01:16:36](#)):

Do you have whole house reverse osmosis?

Dr. Tracy Gapin ([01:16:38](#)):

No.

Dave Asprey ([01:16:39](#)):

That would be

Dr. Tracy Gapin ([01:16:40](#)):

A little bit crazy. No, no, no. So we have, our house was set up so that the water spout at our sink and our ice maker has that filter. Good.

Dave Asprey ([01:16:49](#)):

Yeah. What I recommend everyone, whether you're on a well or not, is at a minimum where the water comes into the house, you'd have a carbon block filter, which is going to block most of the chlorine compounds and a lot of other toxins and a lot of the estrogens and things like that. And you're going to have to change it every three to six months. You should follow that with a ceramic filter, which is going to block a lot of viruses and probably stops many of the microplastics depending on their size. It'll even block viral size particles. So I don't know if nanoplastics are smaller than viruses, I kind of doubt it. And then after that, you should have either ozone or ultra by the light. And if you do that, all the water in your house is safe for showering and things like that and breathing that steamy water vapor of tap water is not a good idea.

([01:17:36](#)):

And then at my sink, reverse osmosis. And then after that, I actually charge the water with an alma wand or various other technologies that do something tangible to the water. So that's a lot. But here's the deal. You're going to spend about a grand on getting those three stage water filters. And if you're on a budget, skip the ozone or skip the uv because those are the most expensive parts. And you can do this yourself. You can buy this stuff on Amazon if you want to support a global company that puts small businesses out of business, or it can order directly from some manufacturer of kinetico, maybe. Yeah, you

Dr. Tracy Gapin ([01:18:10](#)):

Could put one under your sink. They're easy on the counter was he put under your san, it could be an easy, inexpensive hack that can make a big difference.

Dave Asprey ([01:18:19](#)):

As far as I know, reverse osmosis does remove microplastics, but if anyone out there, if you have some information about that, send it to me because I'd like to do that. I also want something that removes it on the road. There are ceramic straws. I would carry a little backpack or pump thing if I knew it removed microplastics because I really don't want to drink those. What I also wonder is we know that boiling water with microplastics in it, the microplastics will stick to each other and form larger particles that either settle at the bottom or you can filter out, but I dunno how to boil water on an airplane. Does that mean that maybe you should go to the Starbucks at the airport and here's why? Not for the coffee,

Dr. Tracy Gapin ([01:19:01](#)):

But definitely not for the coffee.

Dave Asprey ([01:19:02](#)):

No. Starbucks to their credit, has a strict policy about water filtration for their coffee and they use good quality filters. I dunno what all they use, but they're the best in the industry for a chain. So you can go there and do what I do, if they will do it, say, could you fill my metal water bottle with hot water? And then you pay 'em like it was a cup of coffee, just leave a tip. They love that. Then you have water that's been boiled and water that was filtered. That's your best bet if you do what I do, I also bring a vial of pre-ground, very fine ground danger coffee. I just dump that in there, shake it around. Four minutes later it settles to the bottom and I decant the hot water. Some places won't fill your flask anymore, so you get it in the plastic cup, which introduces microplastics, but they fill it one time. You pour it into your thing, you're still less exposed. And that's my best guess as to what works. I also don't have evidence other than mechanistic, but if you were to say, I don't know, brew coffee or tea without the little plastic bag that the tea comes in, you got to ditch that. But there's a good chance those microplastics will be attracted to the organics and stick to the organics. So that's probably filtering it, but we don't know for sure.

Dr. Tracy Gapin ([01:20:13](#)):

Yeah. Another hidden source that I don't think a lot of people recognize is K-cups. So when you're brewing coffee and using those plastic K-cups, you're putting a hot boiling water into this little plastic small space and all the chemicals, the BPA and the plastics are coming out of that K-cup into your coffee.

Dave Asprey ([01:20:32](#)):

I'm torn about K-cups. I don't like 'em as a coffee guy. I don't think they make great coffee and the environmental costs. We've made enough K-cups to go around the world right now.

Dr. Tracy Gapin ([01:20:43](#)):

There are compostable ones that are a lot better. Then you got to look at the quality of the coffee.

Dave Asprey ([01:20:47](#)):

And you also get microplastics in those too, right?

Dr. Tracy Gapin ([01:20:49](#)):

Well, if they're paper cardboard, you should not. Now what's your water supply source that you're using as another question? What's the quality of the coffee? Is there mold in the coffee? Is it all, why

Dave Asprey ([01:21:00](#)):

Does the paper stand up to water? Because it's coated either in endocrine disrupting chemicals, probably

Dr. Tracy Gapin ([01:21:05](#)):

Some chemicals in there. You're

Dave Asprey ([01:21:06](#)):

Absolutely right. In fact, there's a study showing that when you use compostable containers, they have high levels. I think it's per chlorate, but I don't remember what the chemical is high enough levels that it makes toxic soil. So the fact that it will break down in soil doesn't mean that it makes good soil. So I would say your best bet if you really have to use a K-cup machine is you can get a refillable metal K-cup thing and you put coffee in that, and then it's just as messy as a normal coffee maker. So here's the hack for coffee. You get the cleanest boiled water you can get. And if you have no equipment, that's okay. Take a relatively big coffee cup, put some coffee in there, about 20 grams for, call it 12 ounces. It could be plus or minus depending on the strength of coffee.

([01:21:50](#)):

Pour the water over the coffee and stir it up a little bit and then shake it around a little bit and just let it sit for about four minutes, maybe stir it once or twice the coffee. If it's finally ground, we'll just drop to the bottom and they call it cowboy coffee. And then you just pour it into another mug. It's not even like a French press where you have to clean the plunger. It just does that. And you leave an inch in the bottom of murky water. When you do that, it's cheaper, way cheaper than the kops. So you buy a \$20 water kettle bonus points. If it's metal and not plastic, that would be a good idea or glass. And then you need to be able to get a coffee grinder. The cheap ones are \$12 and the expensive ones are \$29 and they're worth it.

([01:22:32](#)):

They make finer coffee. And then even if you're at your office, you grind the coffee, you grind it all ahead of time at the store in their grinder to be ultra fun and then you're good to go. It doesn't take all this equipment. You don't need a K-cup machine. You don't need anything but hot water and two glasses to make a good cup of coffee. And so we could just get rid of K-cups. It'll help the environment, but more importantly, you testosterone levels. And those of your descendants will thank you for learning how to make a cup of coffee with hot water and ground coffee. It's not that hard to do. And bonus points if you want to use danger coffee because it has those trace minerals that help buy into toxins and things in it. There you go. That's the masterclass. Nice plug.

Dr. Tracy Gapin ([01:23:08](#)):

I love it.

Dave Asprey ([01:23:08](#)):

Yeah, and also just we're going deep on this, but microplastics matter. So would I go to the airport, get the Starbucks hot water? Yes. Would I put it in my metal flask? Yes. If I'm not going to have coffee at the time, would I add electrolytes to it? Yeah. And would I drink that as warm water on the airplane? Totally. And that's going to be my safest choice.

Dr. Tracy Gapin ([01:23:28](#)):

And are you going to drink from that plastic water bottle?

Dave Asprey ([01:23:30](#)):

I don't even own plastic water bottles.

Dr. Tracy Gapin ([01:23:32](#)):

No, no. You're on a transcontinental flight.

Dave Asprey ([01:23:35](#)):

Absolutely. I'm not going to worry about it because we take our hits all the time. Right now we're sitting here, the carpet underneath your feet. What do you think it's made out of

Dr. Tracy Gapin ([01:23:46](#)):

All kinds of chemicals.

Dave Asprey ([01:23:48](#)):

This is this one. It's a hundred percent wool carpet. And I did that on purpose because polypropylene carpets and nylon carpets are releasing microplastics in your house if that's what you have. So I went to Amazon and found a hundred percent percent wool rug. And that's what we're on. All the rugs in my house except for one that came with a house are that because I don't want those particles in the house and I don't wear fleece at least not very often, and I don't wash fleece because that's a major source of microplastics. When you dry it, you're going to breathe all that fleece. So these are things that you don't know about. You don't have to be perfect. Just do some of this stuff, have some ear filters already, and then make sure your testosterone levels are high enough and now you're balancing. So it's that you could be afraid where you go down the rabbit hole or you could just say, I was going to make coffee, make it better.

Dr. Tracy Gapin ([01:24:32](#)):

And I think it's worth pointing out here that especially the men I work with, it's easy to get overwhelmed and you hear all this stuff, you don't even know where to start. And it's just so much. And what I like to do is start simple. Start with one thing, change one thing today. And I typically start around sleep and start focusing on nutrition as come the big rocks start. Just do one thing and then slowly each week adds something else, and then it's a lot easier. But if you try to incorporate everything we're talking about here, it can be overwhelming. And so you have to just find balance. Go slow, but do something.

Dave Asprey ([01:25:08](#)):

Yeah, it just makes heavy better choices. That's right. Here's a question for you. Tell me all the ways that a plant-based protein like soy increases testosterone.

Dr. Tracy Gapin ([01:25:19](#)):

So I talk about this a lot actually. How, and Jay Anthony or Anthony J is estrogen generation book is a must read for sure. The damage that soy, if you go to the far east and you get true, authentic real soy, that's one thing, but that's not what you get here in the US anywhere. It's adulterated, it's non fermented soy, and it is an estrogenic compound until proven otherwise, in my opinion. And that's what the studies



show. And so it's going to act like that glue to the light switch that we talked about, and it's going to crush testosterone production and function.

Dave Asprey ([01:25:52](#)):

Okay, now we all know that real men just take a shot of whiskey and alcohol increases testosterone, right?

Dr. Tracy Gapin ([01:26:01](#)):

No, we know that alcohol, I love the way you ask questions. So alcohol, it raises cortisol, it crushes your sleep, it destroys hormone production in general. And what's interesting is when we work with clients, we will use data. We'll use, when you tell someone something, it's not nearly as powerful as when you show them the data. So when I work with guys, we use continuous glucose monitor, CGM, blood sugar tracking. We use sleep monitors. We use HRV trackers. And when you use all these tools, you see how that alcohol affects your body real time. Like your HRV plummets overnight, your deep sleep scores plummet overnight. Your blood sugar numbers go through the roof overnight. And so you see how alcohol affects you and it makes you just think twice about, do I really need that alcohol, do really want that alcohol? Or what can I do instead? So a lot of guys, I'll start with how much do you drink? Oh, not much. No, no. Well, I like just two or three drinks a night.

([01:27:06](#)):

What? That's not a lot to them. And so that's the kind of guy where I like to say start small and try to reduce it to, can you drink two days a week instead of seven and start with just having one drink and stop there. And so what I'll recommend as a simple hack that guys can do, let's say Titos of soda, if I'm going to drink, it'd be Titos of soda and lime. And I'll say, I have one Titos of soda and lime. And then from there on just have soda and lime are still holding the glass, you're still drinking something. It tastes almost identical. You can't tell. And you quickly realize the number one, the physiologic effect that is having on your body when you're drinking alcohol and you're realizing that it's really a social crutch that you're using to feel like you're part of the community that you're in. Whereas if you have that second drink and third and seventh and 10th drink of club soda instead of alcohol, you're still engaged, but you realize you don't even need it. And so it's those baby steps to help guys make that transition away. But back to the question you asked, alcohol crushes testosterone.

Dave Asprey ([01:28:11](#)):

There you go. I've been coaching people to switch to Tru Kava because kava gives you the GABA relaxation of alcohol without the downside and doesn't want to make you get in a fight if you're an angry drunk. So that's another way you can do it. But regardless, telling yourself it raises testosterone when it's dropping, it isn't a very good strategy here. Now we're coming up on the end of the show, but there's one more thing I got to ask about. I really don't know what you're going to say on this semen retention. What do you know about it? What does it do for testosterone?

Dr. Tracy Gapin ([01:28:43](#)):

I've heard you talk about this. I'm only to stay, I really want to see the literature that shows that it actually helps testosterone.

Dave Asprey ([01:28:50](#)):

I've got actually a good post on this with some of the

Dr. Tracy Gapin ([01:28:52](#)):

Literature. Yeah, I've seen your content. It's interesting, it's compelling, it makes you think, but I just haven't seen any published studies. And

Dave Asprey ([01:28:58](#)):

There are definitely published studies showing that after you have a 24 to 48 hour decline in testosterone production and an increase in prolactin. Short term, right? Short term. So that's why will you respect me in the morning? Well, actually no, because my prolactin's high in my testosterone is low, so I'm kind of an asshole. What happens with low testosterone guys? So that's why that comment is out there, that belief, right? And people call it post nut clarity. So there's definitely some kind of a thing happening in there.

Dr. Tracy Gapin ([01:29:26](#)):

I see it. I talk about when I try to help men come up with sleep hygiene, I'm going to come back to the point here. I promise sleep hygiene techniques. And it's all about lowering cortisol, lowering stress to help get them into the frame of mind to sleep. And this goes back to the question of how do we deal with high cortisol? It's reading, it's meditating, it is journaling, it is sauna and it is sex.

Dave Asprey ([01:29:53](#)):

I'm not saying you don't have sex, I'm just saying don't ejaculate.

Dr. Tracy Gapin ([01:29:55](#)):

But I think a big part of a cortisol release doesn't come from the sex, it comes from the completion. It comes from the orgasm and the precipitous drop you have in cortisol after completion. And so I would love to see data on that. And I know that briefly after ejaculation, you have a brief drop in test that's

Dave Asprey ([01:30:14](#)):

About for 24 to four eight

Dr. Tracy Gapin ([01:30:15](#)):

Hours. But I think that the benefit of lowering cortisol to me outweighs that short, brief, short decline in testosterone. So I'd love to see the data on that. Okay.

Dave Asprey ([01:30:24](#)):

The question there too is around oxytocin and when you get the physical contact and all that. So you're going to get a cortisol drop and a rise in oxytocin from the cuddling, but I don't know about ejaculation and a drop in cortisol. Is there data on that one? I dunno.

Dr. Tracy Gapin ([01:30:41](#)):

I am sure there is. I haven't actually seen that. You make me want to go find that research. I'm going to share it with you.

Dave Asprey ([01:30:47](#)):

Okay. And that would be really, it'd

Dr. Tracy Gapin ([01:30:48](#)):

Be good to see.

Dave Asprey ([01:30:49](#)):

Yeah, I'd be really clear. Most people hear me say, don't have sex. I'm like, no, if you don't ejaculate, you'll have a lot more sex because you're always ready to go. And so I've looked at this and one of the guys who really influenced me was John Gray, who is just a preeminent, he's the Mars of Venus guy. He's a friend. He's been on the show many times, been on my stage, and he was a monk for nine years and totally celibate. And he talks about how horrible that experience was. But now he's in his seventies and his testosterone levels, I don't know, is free tea, but they're 1100. And he says, I don't ejaculates, but I have sex every day. I'm like, wow. And he's doing this without testosterone replacement. So there's something going on there. But he also meditates and he's done all sorts of personal work. There's so many variables. But I've worked with enough guys who swear off porn and then say, I'm just going to go for 30 days where I'm still going to have sex. I'm just not going to ejaculate. And they're like, my life just changed. Maybe there's testosterone spikes, maybe something else is going on. But yeah, there's something there. And I don't know what all it is.

Dr. Tracy Gapin ([01:31:56](#)):

Well, we know without question, the dramatic harm that porn does. So just by getting off the porn, we talk about ejaculation from masturbation with porn versus with a partner in actual intercourse. There's a massive difference physiologically with that and psychologically of course, as well. And so for those situations, I think that that's partly convoluted because they've stopped the porn, which is going to have some benefit as well.

Dave Asprey ([01:32:21](#)):

Fair point. I will definitely say more research is needed. And strangely, there aren't a lot of guys who are ready to sign up for that kind of research. But I do have thousands of followers who've tried this and gone, oh my God, my performance went through the roof. And there's a lot of fighters and people like that. So all the reasons. Is it testosterone? Is it oxytocin is of corsol? I'm totally happy to say we don't really know. But again, try it. And if it works for you, then something good's going on and we'll get to the bottom of it or not. But do one

Dr. Tracy Gapin ([01:32:53](#)):

Size fail all.

Dave Asprey ([01:32:54](#)):

Exactly. Your institute is the gap in Institute at Gap in G-A-P-I-N institute.com. That's right. And I have a final question for you. Longevity is it's always been at the very core of biohacking. I learned biohacking for people in their seventies and eighties doing longevity. When I was in my twenties, the elders handed this knowledge off to me and I do my best to share it. And I'm on record to say I'm going to live to at least 180. But here's my question for you. Let's assume you're going to be as healthy or healthier as you are right now. How long would you want to live?

Dr. Tracy Gapin ([01:33:29](#)):

1 20, 1 40?

Dave Asprey ([01:33:30](#)):

And you'd want to just be like, I'm done. Even though you

Dr. Tracy Gapin ([01:33:32](#)):

Can no longer assuming I'm living as healthy as I am, as I'm now or better. Yeah. I think that we're at a tipping, but we're not there yet with True Life Extension. We're super close. And I think the next couple of years, five, 10 years, we're going to see some major advances. It's going to be incremental growth. It isn't in the science of longevity. But ask me that question. 10 years from now, I think the actual will probably be very different.

Dave Asprey ([01:33:56](#)):

Well, let's assume that I'm just going to wave a wand there. Now you can die at whatever point you choose. Then how long do you want

Dr. Tracy Gapin ([01:34:01](#)):

To live? Yeah. Well, you think of the movie The Green Mile, and there's a lot of ethical questions that come into that, or I can't even answer that yet at this point. I think that it's all about extending. Everyone knows health span versus lifespan. It's all about extending that health span, the quality of life. But at some point that's going to drop off unless things dramatically change. There's going to be a point whether it goes from right now it's about 85 to nine five a 110, 120, at some point, there's going to be an age where it's still going to drop off.

Dave Asprey ([01:34:36](#)):

And this is based on historical data.

Dr. Tracy Gapin ([01:34:37](#)):

It's based on my personal pure opinion. No factors substantiate. Got it. Based on the fact that as of now, there's a lot of exciting advances coming along, but you look at the studies and nothing's been truly proven yet to really move the needle dramatically. I think waste with things like rapamycin, but

Dave Asprey ([01:34:54](#)):

There's that gene therapy

Dr. Tracy Gapin ([01:34:55](#)):

Remains to be seen.

Dave Asprey ([01:34:56](#)):

You get a nine reduction in your epigenetic age from a single injection.

Dr. Tracy Gapin ([01:35:00](#)):

It does not correlate to actual extension of health span lifespan long term yet. That's where the studies are still.

Dave Asprey ([01:35:05](#)):

Yeah. You're saying that epigenetic aging doesn't correlate with lifespan, like hundreds

Dr. Tracy Gapin ([01:35:10](#)):

Of This is fun. This is fun. And I love True Age. Use it all the time. Glycan age is great. We look at all these markers of how do you measure biologic age? And we can correlate those with epigenic clocks and we can look at methylation patterns. No question. It's amazing size around that. We still have to wait it out to prove that actually correlates with actual life lifespan, extends, which we're just not there yet.

Dave Asprey ([01:35:34](#)):

It certainly works in other mammals. We'll

Dr. Tracy Gapin ([01:35:36](#)):

Put it that. So it should work in us, but it has not yet been proven.

Dave Asprey ([01:35:41](#)):

So if we set aside all of the, is it possible things? This is more of an ethical philosophical question, so let's assume it's possible. And you get to pick different people have a surprisingly different answers for this. So let's say we've solved all of these problems and you can do it. How long would

Dr. Tracy Gapin ([01:35:57](#)):

You want that? And you could just live forever. And this goes to some spiritual stuff now, which is what's after this life. And I believe that there's something else, and this is a personal thing of mine, where at some point, and I guess we find out on the other side what's there, but I think there's something else. So do you want to be in this world and this body forever? I don't know. I feel like there's probably something else.

Dave Asprey ([01:36:22](#)):

I am a hundred percent with you on that. My goal is I want to feel amazing and I want to live as long as I want, and I want to die at a time and buy a method of my choice. I like that. Then. Alright, when I'm done, I'm ready. When you're done, it's okay. Part of this too, we talked earlier about populations are shrinking because we don't have young people because we distort our environment because our fertility is dropping. So one option is to empty out our cities the way it's happening in Japan and Italy and places like that where there's just no young people. And the other one is we make our older people young again. And that is how we preserve civilization. It's that big of a thing. If you've put on your 20, 30, 40 year hat, and many people listening to this are going to be around 40 years from now, well encourage our young people to have kids, but you might want to become a young person because we're going to need you.

Dr. Tracy Gapin ([01:37:15](#)):

Yeah. And I think this goes back to what we've talked about over the last 90, 99 minutes or so now about how can you be proactive in preventative and making those micro decisions, doing the testing, finding your blind spots, fixing all those things, starting at a very young age because you're talking about your whole life. And we could look up the Bob Harper example or my brother-in-law example, how these are all preventable things. If you could just identify them early enough and make those changes so that you can say ahead of the game.

Dave Asprey ([01:37:44](#)):

I agree with you, Dr. Tracy Cappen, thanks for being on the Human Upgrade. Absolutely. I appreciate you for

Dr. Tracy Gapin ([01:37:50](#)):

Sure.

Dave Asprey ([01:37:51](#)):

If you'd like today's episode, make sure you click subscribe or follow or whatever else you do. And even better, I'd appreciate it if you left a review or sent this episode to a man in your life or maybe a woman in your life with a man who needs to know about testosterone. There's so much knowledge if you listen to this, you'll know everything you need to know about getting your testosterone levels where they need to be. And if you want to measure where they are, go to upgrade health.com and we'll send someone to your house, get you your labs, and you can know, are you at 20, are you close enough or are you far away? And then you can do whatever you want to do or follow some of the advice that you get from the app or from your doctor or from anyone else and see what works.

([01:38:36](#)):

Biohacking is not about believing something, it's about trying something that might work. Testing whether it works, and then doing something else if you don't get the results. And if you do get the results, you keep doing it as long as it works because it may stop. And when you take that approach, you can have this kind of transformation. Yeah, I lost a hundred pounds. My extrinsic age is 19 and a half years younger than my chronological age. I've never had a better brain. I've never had a better body. I've never had more joy in my life. And it's because I tested what worked. I could still be going to the gym six days a week, being fat and being in pain all the time and being tired and cranky. I just had to get my data. I had to do what worked. So your prescription from this episode is measure and do what works, and I don't care what it's, go vegan if it's going to work for you, it won't by the way, but you can do anything.

([01:39:34](#)):

But don't just sit there and think that it's inevitable. It's not. And if you don't like where you're in life, maybe it's not a moral failing. Maybe it's not that you aren't trying hard enough. Maybe it's that you have a hardware problem and it's one we can fix. Tracy knows how to fix it. There are tens of thousands of functional medicine professionals listening to this show who know how to fix it, and there's enough information online that you can probably fix it yourself. So take up that challenge because when you get 10% more energy, it'll go back into paying dividends as you do more and more personal improvement. So thanks for your time and attention. I'll see you soon.