

Dave: I've heard that a lot of people in the biohacking community, just people who want to take care of themselves, have had trouble with how much they overpay for life insurance, because life insurance companies haven't caught up with all the new science that changes the way different types of food and exercise and diets are viewed by the scientific community. Life insurance companies are still telling you to eat fat-free toast and crap like that. For example, if you're committed to the Bulletproof Diet, you might have an increased level of good cholesterol, called HDL, that's protective, but some life insurance companies are going to lump all cholesterol into one negative category, based on science that's actually been rejected by the American Heart Association, but the life insurance companies still do it, and that decision can increase what you pay for life insurance.

If you're listening to this podcast, you care about your health, and a company called Health IQ advocates for health-conscious lifestyles, and they think you should actually be rewarded for it. They use science and data to get you lower rates on insurance from the health companies, things for people who are health-conscious, cyclists, runners, even vegans and vegetarians, weightlifters, people on Bulletproof. In fact, research has shown that people with a high health IQ are 42 percent less likely to be obese and have a 57 percent lower risk of early death, and they get to be in the hospital less. A lot of people don't know their health IQ, and they don't know that their health IQ can save them money to life insurance, so it's worth checking out. Right now, Bulletproof Radio listeners can learn more and get a free life insurance quote by going to [HealthIQ.com/Bulletproof](https://HealthIQ.com/Bulletproof) ... that's [HealthIQ.com/Bulletproof](https://HealthIQ.com/Bulletproof) ... to learn your health IQ, and to learn more about life insurance for people who pay attention to their health.

Announcer: Bulletproof Radio, a state of high performance.

Dave: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact for the day is that penises can actually break. Now, this will be a mostly G-rated episode, and we might say that word again a few times, but only in a medical context. If that's a problem for the people listening in your car right now, well, then you'll have to listen to this later, because it's going to be an awesome episode. In fact, you should probably watch it on YouTube. You can go to [Bulletproof.com/YouTube](https://Bulletproof.com/YouTube) to get a link to the YouTube channel, because I'm recording this live in a medical ... what do they call it ... a medical theater thing. I'm actually wearing scrubs. I'm wearing my cool TrueDark glasses, and my face looks all weird because I just have all kinds of needles in it.

If you're a regular listener, you've heard me share my list of top 10 biohacks. Let's talk about number nine, fun hacks for the Bulletproof mind. It may sound weird, but hang ups are down as a great way to hack your brain. Regularly inverting trains your brain capillaries, making them stronger and more capable to bring oxygen to your brain. It's pretty straightforward. More oxygen in the brain means better performance. I get my daily stretch and my dose of oxygen with my Teeter inversion table, which is so central for optimum focus, concentration and mental energy. That full-body stretch elongates the spine and taking the pressure off the disks so they can plump back up. Less pressure

means less pain. If you have back pain, even if you've been lucky enough to avoid it so far, you really want to teeter to invert every day to keep your back and joints feeling great.

For over 35 years, Teeter has set the standard for quality inversion equipment you can trust. My friends over at Teeter have decided to show some love to Bulletproof listeners. For a limited time, you can get the Teeter inversion table with the bonus accessories and a free pair of gravity boots, so you can invert at home or take the boots with you to the gym. To get this deal, which is a savings of over 138 bucks, go to [GetTeeter.com/Bulletproof](http://GetTeeter.com/Bulletproof). You'll also get free shipping, and a 60-day money-back guarantee, and free returns, so there's absolutely no risk for to you try it out. Remember, you can only get the Teeter with bonus accessories and a free pair of gravity boots by going to [GetTeeter.com/Bulletproof](http://GetTeeter.com/Bulletproof). Check it out.

Today's guest is Dr. Amy Killen, and the other cool fact for the day is that her middle initial is B, so her name is actually Amy B. Killen, and I think she should have a career as a rapper.

Amy: My second-choice career.

Dave: Yeah. Amy is a physician who focuses on ... well, she focuses on all sorts of stem cell-related anti-aging procedures, but very specifically sexual health as well as some cosmetic stuff. In this episode today, we're going to talk about what stem cells can do to promote wood in your pencil. Is that a medical term, Amy?

Amy: That is close to being a medical term.

Dave: All right. This is for men and women, by the way. I like there are different treatments for men and women, but there's a bunch of new research about what it does for men, so we're going to talk about those because I had this done. Amy injected some stem cells into places that would make everyone male cringe, anyway, and talked about it at the Bulletproof conference last year.

Amy: Yeah, and you videotaped it, unbeknownst to me.

Dave: Yes, but not the juicy bits.

Amy: Yeah, not all of it.

Dave: Just what happened to my toes when the needle went in.

Amy: Yes.

Dave: How did you get into doing stem cells in people's nether regions?

Amy: It's kind of just ... my background's actually emergency medicine, so I did ER for a number of years, and then several years ago decided I was more interested in

prevention than in treating, you know, a band-aid approach to health care. I became interested in preventative medicine and studied that for a while, and then as I did that, I learned more about regenerative medicine, because it's having your own body being able to renew itself and treat itself, and I think that's pretty awesome. Those two go hand in hand. Prevention and regeneration, to me, are the same type of medicine.

Dave: It's interesting. My approach is the same way, and I'm an anti-aging guy, even though I'm not officially medical in any way, shape or form. I am wearing scrubs, so if you're watching on video, you're like, "Okay, he looks medical," but I've spent almost 20 years running an anti-aging non-profit group because I needed to regenerate myself because I weighed 300 pounds, because I was having cognitive dysfunction, arthritis and all this other old people stuff. I had it when I was young. For an ER doctor, where you're mostly like, "There's blood, there's trauma, they're dying," what caused you to shift?

Amy: I worked in the ER for 10 years, with crazy schedules and all kinds of things. After I had my kids, they were little and I was working crazy schedules and getting up at three in the morning to go to work every day, and getting three or four hours of sleep every day and drinking, literally, 50 ounces of Diet Coke every day and several Monster energy drinks to get through the day, and then I had insomnia, I couldn't sleep, so I'm popping pills for sleeping.

I remember being at one point, we used to have all these ... we had all these overdoses come into the ER, and my ER friends and I would kind of joke. We'd always asked the overdose, "Why did you take so many sleeping pills," and they would always say, "I was just trying to sleep." I would never believe them, because usually, oftentimes they were trying to hurt themselves. I remember talking to one of my friends and I said to my friend, I said, "If I get brought into the ER for an overdose, I really was just trying to sleep," but I was taking handfuls of sleeping pills.

Dave: Oh, my God.

Amy: At one point I was just like, "You know, this is not healthy, like there's got to be a better way." I started trying to figure out how to make myself healthier, and in the meantime, then eventually decided that was what I wanted to do for other people too.

Dave: All right. Have you been using your own stem cells on your face?

Amy: I have used them on my face, yes.

Dave: Because there's no possible way you worked in the ER for 10 years. You look like you're about 30, really. You really do, and I'm not saying that to just flatter you or something. People who work in ER for 10 years look old, always, because it's horrible for you. You've got bad lights, you've got [crosstalk 08:03], lots of stress.

Amy: Huge increased risk in heart disease for people who work, you know, those overnight shifts, and ER workers and things as well.

Dave: Yeah, and you're a mom. Did you look this healthy when you were ... do you have like naturally amazing genes? Did you look this healthy when you moved out of the ER?

Amy: I think I had some good genes, but I definitely don't think I was healthy when I was working. I was ... you know, you're always stressed out. Even when you're not working, you're thinking about the patients that you ... you know, "Did I do the right thing, are they still alive, are they going to come back tomorrow sicker than they are today," and then lack of sleeping. It piles on each other. You have the high cortisol all the time, you've got the insomnia and the not sleeping, and it's just a mess. Yeah, I don't think I was ... I definitely wasn't as happy, and I think I was probably less healthy in general.

Dave: Okay, so you're the picture of health now. How many years ago did you start doing stem cells? Not on yourself, I mean.

Amy: It's been like three ... it felt more like ... I've been doing platelet-rich plasma, which is the growth factor products, for about four years, and then stem cells themselves a little over two, two to three years, something like that.

Dave: Okay. Let's talk about platelet-rich plasma, because this is an anti-aging treatment but it's also a regenerative treatment, so like for injuries, athletes started doing this. What is platelet-rich plasma?

Amy: Platelet-rich plasma is basically taking your platelets from your blood ... so I would get your blood from you dry.

Dave: We did that yesterday.

Amy: Exactly, and you centrifuge it in some special kits where you can isolate the platelets, and so you get these platelets that are about seven to ten times that of whole blood, so they're really concentrated platelets. The platelets themselves have a lot of growth factors inside them, all of your platelets do, because if you think about it, platelets are ... they're for healing, right? When you cut your arm, the platelets are the first ones in, and they send growth factors out and tell everyone around them, "Hey, we've got to heal this tissue," so there's growth factors for all different things. You know, to increase blood flow, to increase nerve regeneration, to increase all different types of cells and collagen, and so they do all kind of things.

What we do is we use those growth factors that are in the platelets in different parts of the body. It's regenerative. It's been around for, you know, 30 years, but you use them for joints, certainly, which was done for a long time. I use them specifically for skin regeneration, for hair regeneration and for sexual optimization.

Dave: All right, so that's platelet-rich plasma, and what are stem cells?

Amy: Stem cells are the cells themselves. Stem cells are the cells in your body, in every organ in your body, that are capable of duplicating themselves as well as differentiating, which means they can give rise to other types of cells. You can have stem cells ... one type of

stem cell is capable maybe of giving rise to several different types of cells, which is what's interesting about stem cells. They're unique in that they are repairing your body, and so we can use them in regenerative medicine to repair different parts of the body and make it better, make it newer.

Dave: Just to be really clear too, if you're listening, we're talking about stem cells that come from your own body. We're not talking about stem cells from aborted fetal tissue, which was state of the art 30 years ago, I think.

Amy: Yes, definitely.

Dave: Yeah. That's not how stem cells are done today as far as I understand it, right?

Amy: There's still research being done on all different other types of stem cells, and growing organs and all things like that, but what I'm talking about is stem cells that you get from your own body, mostly from fat.

Dave: Okay. What about like sheep stem cells and umbilical stem cells and placental stem cells and things like that?

Amy: There certainly is research with human umbilical and human placental stem cells. There's some promising results. I wouldn't use animal-derived stem cells at this point, but there are some interesting studies looking at umbilical cells in humans and using them in different humans.

Dave: Okay. Let's get down to ... there's so many fun things I could say there. Get down to business? No. Get down to brass tacks? I have no idea what to say. Let's talk penis.

Amy: Yes.

Dave: You focus specifically ... did I make you blush?

Amy: A little bit. I think I did, yeah.

Dave: Awesome. That's hard to do, all right. One of the things that you're focusing on a lot here is erectile dysfunction. What is the role of stem cells or platelet-rich plasma with erections?

Amy: Erections, they're very complex, but what's interesting to me about them ...

Dave: I'm sorry. They're very complex, so they don't seem that hard, but I can't say that.

Amy: You did. You did say that.

Dave: All right.

Amy: They are complex, but like anything in your body, the cells that allow you to have erections, the smooth muscle cells and the cells that line the blood vessels, they age. In some cases you get [inaudible 13:03] and you get apoptosis of the smooth muscle cells. That's one of the things that causes erectile dysfunction, so if you can do something ... or some things, maybe multiple things, which is what I like to do ... to try to keep those cells alive longer or to induce new cells coming in, new stem cells that can increase blood flow and increase nerve response, then you have the ability potentially to improve symptoms of erectile dysfunction.

Dave: All right, so what would you do with stem cells in a penis, then?

Amy: You would inject them into the penis. There have been a number of animal studies, over a dozen, and now we actually have at least four human studies that have used stem cells, different types of stem cells ... they've used fat, they've used bone marrow, they've used umbilical cells, they've used placental cells, so there's all different types being used ... but taking the stem cells and injecting it into the corpus cavernosum, which is the little tubes in the sides of the penis that allow the blood to flow in, and that's where you get the height of the erections. You inject it into those areas.

Dave: When I was here a year ago, you injected me. Now, I'm a human guinea pig, so I didn't have issues with erectile dysfunction, but I'm like ... I believe I came in and I said, "Where in the human body can you put these stem cells," and I just said, "I'll have one of those." You and Harry had me strapped down like Wolverine.

Amy: It was exactly like that, yeah.

Dave: Everywhere I've ever been injured ... there must have been like hundreds of injections. I don't know, I passed out.

Amy: Three times.

Dave: Three times. I set a record for passing out, because I turned down the nitrous oxide, but I did capture it on video. The blanket is tastefully covering the site of the injection, but you had this ginormous needle that was like 18 inches long.

Amy: It wasn't that big.

Dave: It looked that big.

Amy: It is a 27-gauge needle, which is very thin.

Dave: It's very thin? Okay.

Amy: It's very thin, and you know, we don't go in very far, about this far. You know, it hurts a little bit, but for most men it's not that painful. It's the idea of what is going to happen in somewhere very sensitive that people don't like.

Dave: The injections you did in my face yesterday ... I had my stem cells injected into my face and hair, because I don't want to go bald like all the guys in my family. I'm 44, I still have my hair, so I'm feeling pretty good about it, but I'm like, "I'll do preventative maintenance," because it's easier to prevent than it is to reverse. It actually wasn't that painful, but the thought was like, "Oh."

Amy: Yeah. We do numb beforehand, by the way, with some numbing cream.

Dave: That was also not that pleasant. You're like, "There's nothing down there."

Amy: I didn't say that.

Dave: No, but like you can't feel anything. It's gone away, with that much lidocaine in it.

Amy: That's funny.

Dave: I mean, once again.

Amy: You did, yeah.

Dave: This is awesome. I don't know how you keep from blushing, if you tried. All right, so we did the injection, and people say, "Well, what's the difference?" I'm like, "Things are more youthful," because I didn't have erectile dysfunction. I'm hoping that I never get it, but there's been times when my testosterone was really low, where I didn't have erectile dysfunction but I just had less desire. I don't know that I noticed a difference in desire, because I think that my hormones are healthy right now, at least that's what the numbers say. Things seem pretty normal.

You can certainly modify desire if you take too much [inaudible 16:43] inhibitors and things like that, and occasionally I've taken things that stopped my testosterone from going to estrogen, because apparently every pathway in the body that can go to estrogen does, just by default. It's like all the guys in my company have man boobs, like it's a genetic thing. I've experienced that, but overall I haven't seen ... like, "Oh, I can't get it up" hasn't been in my vocabulary. What do you find if you do this on younger people? Is it just a preventative thing, or is it just because I'm a human guinea pig, I'm like, "I'll try that"?

Amy: Most of the patients that I do it on do have some degree of erectile dysfunction.

Dave: Right, so average age where people start doing it?

Amy: Well, the numbers show that 40 percent of men in their 40s have some degree of ED.

Dave: Wow.

Amy: What's interesting about that is, you know, it's a progressive disease, which means that there were problems with the cells ... endothelial cells, the smooth muscle cells ... years

before that, maybe even decades before. It's kind of like heart disease. It takes a long time to have symptoms, but you're doing damage for many, many years. In fact, the same things that cause heart problems and heart disease problems, cardiovascular disease, are the same things that are also going to cause, most commonly, erectile dysfunction. It's a progressive thing, but by the mid 40s, 40 percent of people have dysfunction.

To answer your question, most people I'm treating do have some form of dysfunction, and the studies that have been done in both animals and humans are on people who have dysfunction. What's interesting with these studies, they caught some ... in rats, for instance. They don't do this in humans, but in rats, they caused serious cavernosal nerve ... they crush the nerve that supplies the penis in these poor little rats. They crush the nerve and then they do these injections of stem cells, and then they eventually sacrifice the rats and look at them. In the rats that got the stem cells, they actually see regeneration of the nerves and regeneration of all the signaling, that the blood flow is there, so even like pretty major injuries and problems.

Dave: For most guys it's not ...

Amy: It's not that bad.

Dave: It's not a nerve problem, right? It's a blood flow problem.

Amy: Yeah, it's usually a blood flow problem. In the males, the human studies have been done on men who of had prostate surgeries and had ED from that, as well as diabetic men, and with diabetes it's going to be usually a blood flow problem. In the four studies that have been done, four or five, they'll all shown some benefits. At least half or more of the men have had a return of function, at least some function, which is pretty good if you don't have any function to begin with.

Stem cells, I think, can be very effective. I don't think it's the kind of thing where you just do one thing and you're done. I think I want to do sort of the a multifaceted approach to ED, and stem cells I think is a great one thing to do, but you should also do some of the other things that are out there.

Dave: Like what?

Amy: Like there are some really cool new therapies with pressure wave therapy or shockwave therapy.

Dave: That doesn't sound pleasant.

Amy: I know. "Shockwave" is not the best name. Let's call it pressure wave. There are over 40 studies in Europe and Asia essentially using acoustic waves to, for lack of a better word, zap the penis, and what they see with this is that you get big increases in nitric oxide production.



Dave: I'm trying to think of what song you play for this. It's got to be clean. "We Are the Champions of the World"? That would be the most stimulating song.

Amy: These don't hurt, contrary to what it sounds like. It's not like electrotherapy or something. It's just a small little dot.

Dave: Is it like the old sound kind of stuff?

Amy: It's sound waves that are being delivered, and they cause microtrauma, and then you get up-regulation of some of the enzymes that increase your nitric oxide production, which is great for any part of your body. Nitric oxide, if you don't know, is a vasodilator, so it opens up your blood vessels so you get better blood flow in, and it also opens up the ... it also improves the health of these smooth muscle cells that are important to be able to keep your erections. It could help you get erections and it could help you keep erections, so we want nitric oxide really everywhere. It's good for blood pressure, it's good for all kinds of things, but in the penis these pressure wave treatments can increase that.

It also can increase some growth factors like vascular endothelial growth factor, which actually improves, increases blood flow, not just increases it now but actually it forms new blood vessels going into the penis. You've got better blood flow, you've got more of this nitric oxide, more ability to get erections and keep erections. These treatments, you do a series of six to twelve treatments over the course of a couple of months, and people are having lasting improvements, out to a year or more not needing their Viagra or Cialis sometimes. It's an actually regenerative treatment.

Dave: Do you have that here?

Amy: Yes. I just got it.

Dave: I want to try it. When you're done, can I try it?

Amy: Well, I have it in my car, but you can at some point. It's really cool, and so ... and you can also take men ... in the studies that they've done, you can take men who didn't respond to Viagra or Cialis or those kind of things, like they've stopped responding to those things now and they just don't work for them, and you can do these treatments with them. In the studies, about 70 to 75 percent of the men were turned into responders.

Dave: Wow. That's huge.

Amy: Maybe it doesn't cure them, but it gets them to the point where now they're able to have intercourse and to have a normal sex life, and that's pretty huge.

Dave: Now, how much does a machine like that cost?

Amy: The machine itself? It's an "in a doctor's office" machine.

Dave: Sure. That doesn't mean I couldn't buy one on eBay.

Amy: Yeah, you could. I think that they're about \$30,000.

Dave: Yikes. Okay, maybe I couldn't buy one on eBay. All right.

Amy: The treatments can be a couple of thousand dollars for all six of them usually, and if you think about it, Cialis and Viagra are \$15, \$20 a pill, ish.

Dave: You spend \$2,000 and you get the permanent ability to just ...

Amy: At least for a year or two. That's kind of what we see in studies, is about a year or two, and you can do it as a preventative. You know, every person, every guy, as they get older, you're starting to have some death of these smooth muscle cells. You can help it by being healthy, like you are, by doing your antioxidants and your good living and your good diet and all that, but those cells do die eventually. If you can do things that help to stimulate and keep them alive, then that's helpful. The nitric oxide that you're boosting is actually a mitochondrial booster in those cells in the penis as well. It's helping to prevent that cell death or apoptosis, which is cool.

Dave: Okay. Now, when you injected my ... I was going to call it my little guy, but that's just not okay. Sorry. See, now I just ... I have no shame.

Amy: You haven't had shame in a long time.

Dave: When you injected my, you know ... see, now I could be all graphic. I'm just not going to. When you injected my penis, I was ... you also gave me some interesting things to take home. A pump?

Amy: Yes.

Dave: What's the deal with the pump?

Amy: The pump, it's the same kind of idea. You're trying to ... it increases blood flow and induces microinjuries, microtears. By pairing the pump with something like PRP or the stem cell procedures, the idea is that you're combining two different modalities that can help with the regeneration in there, so that's what the idea is.

Dave: The pump, you're going, "What the heck is a pump?" It's like a big tube that you put around the thing, and then you squeeze a little bulb and it like creates a vacuum. Things get really swollen and big, and it comes with a little cheesy-looking little snapped leather strap to keep the blood in there longer. I was like, "Seriously? This is so adult bookstore-looking."

Amy: It is.

Dave: This was medical grade and all. You had mentioned that if I followed the program ... which I didn't, because it seemed like a lot of work.

Amy: It is a little bit ... it's a lot of work.

Dave: It was like for 30 days you had to pump, and you have to get it hard and then put this thing on it and just pump it until it's, like, big, really big, bigly, and then that creates microtears inside the corpus cavernosum, and since there's stem cells present, they'll heal those, and it'll be like thicker and bigger. On the other hand, I'm not really that worried about that, and I'm married, and things are already pretty good.

Amy: It takes a lot of work. I get it.

Dave: Yeah. I did it twice, and I'm like, "You know what, I'd rather go do cryotherapy," sorry.

Amy: The pumping has its own utility. People use pumps, and there is evidence to support that pumping by itself can be helpful for erection quality, for size.

Dave: Just to get the blood flowing?

Amy: Flowing, and again, the little microtears. You're going to heal that on your own, even if you haven't had stem cell or PRP procedures, but they are not easy. I'm kind of going away from doing the pumping quite as much and trying to focus more on maybe doing the pressure wave therapy, where I can do six treatments and you're done for a year. The treatments take 10 minutes and they're not painful, and it's super-easy.

Dave: That's one of the variables in biohacking that oftentimes gets ignored, is that it's return on time spent. I could spend 12 hours a day hacking myself and I'd probably look really amazing and get younger, but I wouldn't run Bulletproof. It's like all I do is I have like a little hamster wheel of biohacking and I just run on that. The idea is what gives me the most return, and you're just saying, "Look, six treatments with pressure wave is probably more return than regularly pumping," which I felt was just not worth the trouble.

Amy: I agree what that. I think that's probably true.

Dave: Okay. All right, so let's switch gears, and let's talk about one of my favorite topics, women.

Amy: Yes.

Dave: I happen to be married to one, as you know. There are also stem cell procedures that you can do on women, and I would say I saw some pretty shocking results from that. My wife, Lana ... if you're listening to this in the car or whatever, you can go to the Bulletproof ... I think it's Bulletproof conference.com. We have the talk you gave, the talk Dr. Harry Adelson gave about stem cells, and Lana's talk ... my wife, Dr. Lana ... about the same sort of stuff. We're pretty open about, "Yeah, we had some stem cells

put in," and all the juicy bits. I don't want to say anything that she hasn't said onstage, so I'll do my best. Anyway, you injected both of us, and what's your experience on injecting stem cells in women? Where do you inject them and what does it do?

Amy: There are two injections in women. You numb them up first, but you can do a clitoral injection, and then you do the anterior upper vaginal wall, just a couple of centimeters in.

Dave: Right by the G-spot?

Amy: Kind of by the G-spot. You don't have to find the actual spot, but you're injecting into the space that's above the G-spot. The area up there is also the area around the urethra, so you kind of bathe that whole area. Things that we see, certainly improving the vaginal tissue, making it more healthy, making it more youthful, perhaps tightening it, maybe having better lubrication. In some women also there are certainly things like improved orgasm strengths and abilities.

Dave: All of those happened, I'll just say.

Amy: Then some women have noticed symptoms of improvement of stress urinary incontinence, people who can't jump on trampolines or go for a run without kind of peeing a little bit. Because you're injecting the space around the urethra, some of those stem cells and PRP are getting into that area that is responsible for keeping that sphincter tight. Some people have reported improvements in incontinence as well.

Dave: Okay, that's pretty cool. I forgot to ask. How much does it cost for a guy to get stem cells?

Amy: The stem cells or the PRP?

Dave: Well, let's do both. How much for each one?

Amy: Well, to get the stem cells is about \$3,500.

Dave: To take them out of your body?

Amy: To get them out of your fat and process them. Then the injections themselves, I think it's about \$1,500 for the injections for men and about the same for women.

Dave: Okay, so you're looking at really about \$500?

Amy: Right. The PRP is less expensive. You can just do PRP.

Dave: How much is PRP?

Amy: PRP is just blood, so that's just ... all you're paying for is the injections. I think it's about \$1,500.

Dave: Okay, so that's a good way to start. I've had PRP. Dr. Robin Venson did PRP, like in my knee, and I felt some improvements from that, but it wasn't as strong as I got from stem cell. I don't think ... I might have had PRP in the penis ones as well, after you did your thing. I think it was this person in Florida at U.S. Stem Cell.

Amy: Yeah, it's great. It's kind of like a stem cell fertilizer. It's certainly appropriate. If you have improvement, maybe a partial improvement in something with stem cells, then you can boost it with PRP. You get the same growth factors, the same signaling to the stem cells, without having to actually put in more cells.

Dave: Okay, and also, it's a little bit painful to have stem cells taken out. If you have them ... and this is a very gray area right now ... but there are some places where you can get them cultured and stored and banked, and then there are other places where every time you have to do liposuction, and that hurt. Frankly, where the needle went in didn't hurt that much for me, but when you go to get the fat out of the tissues above the kidneys, that hurt more than any of the injection sites, especially like the penis wasn't sort of ... like a day later it was completely fine.

Amy: Yeah. You can get some bruising and some soreness for a few days in the liposuction. It's a mini liposuction, so you're not taking out huge quantities of fat, but even so, you have to get in there with a cannula and get the fat, and you know, it's hurts. You're sore for a few days.

Dave: If you really want to know what that looks like, I Facebook Lived my liposuction once, so if you go through my Facebook feed, you'll find me answering questions while there's a big thing going in here. It was pretty funny. All right, so for women and for men, it's going to be about five grand with stem cells, \$1,500 with PRP. Is there a certain age where you recommend that people just go straight to stem cells, or is it like PRP seems more accessible?

Amy: I don't think it's really been proven yet. There have been studies done. Most of the studies are in men, honestly, and I think that's not shocking. People tend to study male sexual dysfunction a lot more than female sexual dysfunction. In men, there have been studies that have shown benefit of stem cells for [crosstalk 32:07] function, and there have been studies that have shown benefit of PRP, but there haven't been head-to-head comparisons or which is better. Am I blushing again?

Dave: Yes. This is the best interview ever.

Amy: Yeah, there's a lot to be worked out, to figure out how much better are stem cells. All those kind of questions, I think we're still going to learn more all the time.

Dave: All right. Now, have you tried the shockwave therapy on women?

Amy: That is something that I'm going to be investigating. That is actually on my list the next few months to start investigating, because it's a little bit ... you know, women are a little

bit more complicated than men as far as sexual function and dysfunction. You know, it's not just about blood flow for women, which is kind of what it's about for men.

Dave: Uh-huh, but blood flow is pretty helpful to women.

Amy: Yeah. You have to have blood flow, but there are a lot of other things. You know, the mood and social factors.

Dave: Did you bring her flowers?

Amy: Yeah, exactly. Did you help with breakfast dishes and all of that. That all plays into it for women. They're a little more complicated, but I do think that it's certainly possible that this same technology would work for women. This technology, by the way, it's primarily used for joints and for musculoskeletal pain. There's a great regenerative treatment for those things. There are studies even using it for cardiac patients, who have cardiac dysfunction where it's not pumping well. They'll do a series of these treatments, and all of a sudden their heart's pumping better. It's useful for all different things. It's like stem cells, which is why I like it. It's regenerative for different things in your body.

Dave: What about red and infrared LED lights or lasers on men and women's sex organs?

Amy: I have not done any. I don't know much about it. I know that there's some value in light in regenerative properties for skin, and certainly do advocate for some of the skin rejuvenation and hair as well using light, but I haven't learned much or read much about it for sexual stuff.

Dave: It stimulates nitric oxide as well and adds mitochondrial energy. I can tell you that the medical laser I have, whether it's applied to men or women, has pretty profound effects on both function and sensation.

Amy: Okay.

Dave: It even works on nipples. I mean, like it enhances sensation pretty dramatically.

Amy: That's interesting.

Dave: Probably blood flow too.

Amy: Yeah.

Dave: I would be surprised if it didn't, just knowing the mechanism. The infrared light changes the viscosity of water and the mitochondria work better. If the mitochondria works better, pretty much everything works better.

Amy: The cells are better, yeah. You get the APT and function and stuff. Yeah, I think it's worth investigating, and I think adding all of these different things together is a great way to help patients to not requiring medications and the side effects of those medications.

Dave: That's one of the things that I just discovered through my own path, is that we have this Western bias. We always find the one thing that works. The thing is, if you have two thumbtacks in your hand and you only take one of them out, you'll never find the one thing that works. You have to take them both out.

Amy: Right.

Dave: I finally was just like, "You know what, I don't actually care what works. I'll just do everything that works, all at once, and if I get great results, maybe I'll stop doing the things that are hardest or most expensive," right, "and eventually I'll arrive at, okay, this combination of five things works." That seems so much more effective, and sometimes you get effects that you just would never get from testing just one thing.

Amy: Yeah, I agree.

Dave: In fact, I can say I did use the red and infrared light to speed healing after ... I do it after any kind of procedure. When I get home tomorrow, I'll be putting red in front of my face, right?

Amy: Yeah, and I do that to myself as well. I love the red and infrared lights for the face, and of course there's also the study for hair regeneration using the low-level light therapy. There are a number of companies that make the laser caps and caplets, and the caps with the lights in them, because of the same thing. You're helping with that regeneration of ATP in cells. They're healthier.

Dave: There's you a new product. It's a pump with red infrared lights in it.

Amy: I love it. I know. Nobody steal that.

Dave: Somebody steal it. I'll try it. Send me one, yeah? With women, the women I talk to, including Lana, who have had ... they call it the O Shot, and for guys they call it the P Shot ... and they've ... I mean, they have profound differences, differences certainly that I noticed, but it's like going from 45 to 25 again. I didn't necessarily notice that huge of a difference on myself, but I don't know that I had early-onset erectile dysfunction or something going on. Still, it was, you know, nicer. It was a small upgrade. I think you're saying that there aren't as many studies on that?

Amy: There aren't as many. There is one small study with PRP only in women that showed that about 85 percent of women had improvement, but it was a small number of women. There are some studies using stem cells and looking at urinary incontinence improvements in women, and injecting them right around the urethra, that have shown significant improvements in incontinence, but I haven't seen much else yet. I know people are working on it, and there's a lot of people interested in the field, but I think it's taking a little bit more time to get those studies done.

Dave: Okay. What else should people know about, if they're looking at dealing with erectile dysfunction, or we'll just say female ... there's so many different things that go wrong with women down there, so one of the many problems that you can have?

Amy: I mean, certainly lifestyle is a huge one for everything, obviously. Like I said before, keeping your blood vessels healthy in your heart is important. The same blood vessels ... different blood vessels but the same type of blood vessels ... are also in your penis and your clitoris and all the areas, so you want to keep all of that healthy. Making sure you get your nitric oxide enough, all the things that boost nitric oxide, your foods like your beets and the things like that.

There are some good supplements that have been shown in studies to actually do a good job boosting nitric oxide, certainly other therapies as well. All of those things are good, and then keeping your antioxidants up and eating well and being healthy in general. Anything that keeps your body healthy is going to keep your organs, your female and male organs, healthy. You should continue to do those things, and then we'll keep looking for other therapies that we can add to the regimen as well.

Dave: Okay. Be more specific. That was such a doctor answer. Give me three things I can do.

Amy: I like ... there's a supplement called Neo40 that I love.

Dave: Okay. That's a beet root supplement, okay.

Amy: It's a beet root supplement, but he actually ... there's actually at least nine good papers published on it. It's mostly for hypertension and other things, but I think that that's a great supplement and I recommend that to all my male patients especially, that have ED problems.

Dave: I'm going to add something to that. If you're using mouthwash that's antibacterial, it will affect your nitric oxide production.

Amy: Absolutely, and acid blockers like PPIs, like omeprazole and things like that, Prilosec, affect that as well because of the decreased acidity in your stomach, and you can't make the nitric oxide as well. Yeah, there are a lot of things like that, that kind of go along with the nitric oxide and being able to make it.

Dave: Even the Neo40, it's a chewable supplement because you have to have it in your mouth, not just in your gut. People eat it and then they use their Scope mouthwash, and it's like, "No wonder there's no wood in your pencil."

Amy: Yeah. You want to let it dissolve in your mouth and it gets in your salivary glands, and that's where the first step of the nitrate reduction is happening. Yeah, so I like that supplement.

Dave: That was one.



Amy: Other ones, but that's the one that I've seen a lot of research on. I like, for cardiovascular health in general, some of the good antioxidants, things like CoQ10, resveratrol, Vitamin C, sort of just basic-level things.

Dave: Okay. That stuff's all in "Head Strong," my new book.

Amy: Yeah, and we know that they're going to do good.

Dave: I just thought that title could have a whole different meaning. It's your brain, guys, your brain.

Amy: It could be other things too. That's two, and anything healthy that you're doing. If you're exercising, and your diet is huge. Not eating sugar and things like that is really important, you know, for all different cells in your body. It's kind of vague, but those are ... the things I tell patients that's right now part of my kit of what we can do is we can do the PRP, we can do stem cells, which I think is great, we can do the pressure wave therapy which I'm just now adding, but I'm really excited about it. The nitric oxide boosters, and then ...

Dave: Just L-arginine, the amino acids and other nitric oxide boosters?

Amy: Yeah. The only problem with that in some people is you can't actually ... if they have endothelial dysfunction that's too severe, they can't make nitric oxide from the L-arginine. They don't have the pathways intact. Not everyone, and certainly it can be helpful in some people, but some people don't have that, so you've got to get right to the source and give the actual nitric oxide or the foods that have it.

Dave: Okay. What about topical testosterone for women?

Amy: Yeah, it can be helpful. I mean, there are ...

Dave: I mean vaginal topical. Have you ever prescribed that? Is that a part of the universe?

Amy: Yeah. For women, I do ... I use hormone replacement as well, and I use testosterone in general in women frequently, and specifically vaginal testosterone or DAGA, which is another hormone that's great vaginally, and estrogens of course you would want to do vaginally for vaginal health in a lot of women, so those are all great. You can also ... there's other kinds of compounded formulations that are vasodilators that you can use for women that are ... they call them "scream creams."

Dave: It's a pretty apt name, again. It's unimaginable for women or men, if you've never experimented with putting a little testosterone on the woman. I mean a tiny bit, not enough to grow a goatee.

Amy: Yeah, very, very low concentration.

Dave: It's not possible for that much blood to go there that fast, except it is.

Amy: Yeah. Yeah, you can make formulations with several other things, with L-arginine, with different vasodilators, as well as some of them even have like Cialis or [crosstalk 42:48] or testosterone. I mean, these are all compounded things. Mostly I stick with just the bioidentical hormones for women, but there are a lot of options out there.

Dave: Does that work on guys? I've never tried rubbing testosterone cream into ...

Amy: I don't know. I haven't ...

Dave: Yeah, I don't think it would.

Amy: I have male patients put testosterone on their scrotum.

Dave: That's just for absorption.

Amy: That's for absorption, but I don't know what it would do, if anything, for the penis itself.

Dave: Yeah. I don't think it does anything.

Amy: I'm sure somebody has tried it.

Dave: I'm sure. I used a testosterone cream for years, starting when I was about 25, 26. I had almost no testosterone in my body so I went on bioidentical replacement, which really helps in all sorts of ways. Not just sexual, but it was just like, "Wow, my brain works." The problem is, if you rub it in your armpits where it works pretty well, then it gets all greasy, so that's gross. Then you're like, "I guess I'll shave my armpits," which is just a pain, right? Now you still have this in this, but then if you touch kids or your wife, you get testosterone on them. Then the only place is you put it on the scrotum, and then you walk around all day with greasy balls, and that is also equally unpleasant. I'm a fan of like injectable because it's just less messy.

Amy: Yeah, or pellets. Pellets are another option for men that are great.

Dave: Oh, wow. I haven't tried pellets. That would be cool.

Amy: They last four to five months, and you just put them in once.

Dave: Oh, wow. I need some pellets.

Amy: Pellets work well. Obviously working on lifestyle is a great way to boost testosterone, but not everyone can get as high up as they want. There's people who have chronic diseases like diabetes or heart disease and things like that, that are going to reduce their testosterone levels. Having them brought up with hormones can be effective and helpful.

Dave: I went off of testosterone for a few years when I was doing all the Bulletproof Diet research, and I found that if I was really careful and didn't travel too much and was

focused on sleep, I could keep my levels around 700. It was a lot of work, and frankly sometimes I don't do all those things, so I found that taking a small amount of testosterone makes everything work better.

Amy: Yeah. It's a great drug for the right people, for sure.

Dave: Awesome. All right, anything else that you would offer for men or women looking to upgrade their sexual function?

Amy: I think we've covered most of the things that I'm offering right now.

Dave: Five years from now, what's going to happen?

Amy: I love the idea ... I'm ready to explore anything that we know works for other things. You know, the light therapy, maybe that's something, and I would love to explore that. Things that we know them to not be dangerous, that we know can stimulate ATP production or nitric oxide production or different things like that, I think let's do all of it. Let's figure out some things, so that we don't have 40 percent of 40-year-olds having erectile dysfunction.

Dave: All right. Well, Dr. Amy B. Killen ... still the coolest name I've ever heard ... you practice at Docere Clinic in Park City, and what is it, Docere.com?

Amy: The address?

Dave: Yeah, like how do people find it?

Amy: DocereClinics.com.

Dave: Oh, D-o-c-e-r-e?

Amy: Or Docere Medical. I kind of have my own. I have my own separate website that has the sexual optimization and other stuff on it.

Dave: What's that URL?

Amy: That's DocereMedical.com.

Dave: Okay. Now, when the mad rush of women looking to come in and have 25-year-old vaginas ... I'm not kidding, this is what happened ... or guys looking to ... it's like, "Oh, wait, I can be freed of these little pills or whatever," that's where you should go for this?

Amy: Yes.

Dave: All right. Well, thank you for being a guest on Bulletproof Radio.

Amy: Thank you so much for having me.

Dave:

If you enjoyed today's show, one of the things you could do to say thanks is you can leave a five-star rating on iTunes. That is incredibly valuable, but what I'm going to ask you to do today is even more valuable. Go to Amazon. Go to "Head Strong," my brand-new book. That hit "The New York Times." I'm a two-time "New York Times" bestselling author, and I'm really stoked about that. If you leave reviews on Amazon for that book, it really helps people understand how impactful it is.

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