Regenerative Medicine 2021: Applications in Skin, Hair, & Sexual Rejuvenation Transcript

(Transcripts are generated by AI and may contain errors)

Introduction and career journey

Hi, Amy. It's great to have you on the show. I'm really looking forward to picking your brain about everything that you do. But maybe to start out, you could just tell us a little bit about the journey.

I think I met you, I don't know, more than ten years ago. You were working in the emergency room, and since then, you've had quite a trajectory. Won't you just tell us a little bit about that?

Yeah. So, first of all, thank you for having me. My journey began as a, as an, er, doctor as, for about ten years, boarded in emergency medicine, worked in super busy ers and about just about ten years ago, I started becoming interested instead in and learning about kind of longevity medicine, integrative medicine and management medicine, like whatever we're calling it these days, anti-aging medicine.

And eventually, over the course of several years, ended up transitioning out of emergency medicine and, and since then have been full time doing what I'm doing.

And, and then I kind of became very interested in that field in the specific, part of it, which is the sort of skin health and sexual health and using, both integrative therapies as well as regenerative therapies like stem cell therapies to improve those two things.

So I say I'm, I'm, I'm all about skin and sex. And, and how we can use those things and we can improve them as we also work towards, you know, living a longer life.

Yeah. So that's interesting. Skin and sex. I mean, after sex, your skin should glow a little bit, so that's good. But is there some sort of, mechanistic thing or just kind of the what made you put those two together?

I mean, besides those being probably the two most important things to patients when they come to see us? Well, that's part of it. So what happened was I, you know, I opened the practice.

I was doing a lot of hormone replacement, bioidentical hormones, lifestyle, you know, things like that. Up in Oregon. And I was starting to see patients and they would come to me with, you know, whatever their main complaint was, whether it was, you know, having difficulty losing weight or lack of motivation, fatigue, depression, you know, all the things that we all kind of suffer from.

And I would start them on a program of some sort and some hormones, and then they would come back, you know, 3 or 4 months later and they're starting to feel a little bit better.

They're kind of out of that survival mode, hopefully, and starting to really, you know, enjoy a life a little bit more. And then they would often ask me at that point, okay, I'm feeling better now.

Can you help me with either my sex life or my skin, which also included hair. So skin, sex and hair. And so I got this question enough times that I started realizing that this sort of skin in sex was almost like this kind of next level of health, where once you had the foundations kind of dialed in, you were out of survival mode.

You're feeling pretty good that that people start to actually want to improve those other aspects of their life. And, and, you know, and frankly, helping people with these areas makes them very happy.

And I love having happy patients. So that's kind of how it evolved.

Why skin, sex, and longevity became the focus

So from a, from a sort of starting out in a diagnostic standpoint, what, what are the things that, you know, they connected that make your skin age and not look as good as it used to?

And then also, I think you're talking primarily about performance, but also about libido. You know, those I mean, there there are those two are linked hormonally, of course.

But then even when you fix libido, you don't always fix performance. And, you know, skin definitely helps. I mean, hormones definitely help skin in, females and males, but you take the next step beyond that for, you know, rejuvenating really, instead of sort of slowing down the aging process and maybe helping a little bit, you really about rejuvenating those tissues.

Yeah, exactly. And I think that, you know, to your point, there are so many things that are going to contribute to healthy aging in general that are going to, you know, it's going to affect your skin aging and your and your sexual ages.

So whether that's eating, you know, low kind of anti-inflammatory diet to make sure you have good cardiovascular health, which is going to be important both for glowing skin, you got to have blood flow everywhere, you know, and sexual function to making sure your hormones are dialed in.

You know, hormones like estrogen is, you know, extremely important for skin, especially as we get older for women. Obviously all the hormones are important for sex drive and for sort of sexual performance, if you will.

You know, there's so many things like that which, which we can just kind of try to, prevent any problems over time by living a healthy life and doing those things.

And then, you know, once we get to the point where we're ready to start, I, you know, adding in some therapies, there are many of the same kinds of things that actually work for skin health that also work for sexual health. So things like, again, optimizing hormones, getting them where they need to be.

And then using, you know, regenerative therapies, whether that's like stem cell therapies, exosome therapies, cellular therapies or other things like light based therapies, lasers, you know, photo by a modulation, red light therapy.

A lot of these same kinds of therapies will work for skin health, for aging skin, as well as to improve sexual health. So I've kind of put together some programs that that use all of these different modalities.

And they use them, you know, in skin for skin hair optimization and sexual health. Yeah. That's what's been, sort of interesting to me is and you have a almost like a daily basis.

And as for Alzheimer's disease, there's a multi-modality approach to it. You want to fix the base of the pyramid, which is diet, stress, etc., and then hormone optimization.

And then beyond that, you do, work with delivering sort of growth factors and anti-inflammatory factors directly to the tissues because, you know, perhaps you can get the same levels that the blood, through, through, you know, going through the bloodstream, tell me a little about that, which which, well, let's let's talk first about you've mentioned some terms, exosomes, because I don't know that we've talked about them much.

On this, show yet. Exosomes, stem cells. Tell us a little bit about the cellular and sort of partly cellular or, or products of cellular, stem cells that you use in your practice.

Yeah. So, I mean, as, you know, as, as most doctors know, the stem cells are the, you know, the cells that you have all of your body that are responsible for the upkeep of all the different organs and tissues.

So they have the ability to replicate themselves, and they have the ability to differentiate into different types of cells, whether that skin cells or bone, you know, bone cells, cartilage cells, etc..

So, as we get older, our stem cells become less functional. But we still have them. But they're not they're not sending out as many messages to other cells to, to help with this health of those cells as they did when we were younger.

So that's that's something that we're trying to kind of improve with the therapies that we do. So and when we're talking about using stem cell therapies, there's a couple of different things we can use. We can use actual stem cells.

So we can use stem cells from the patient, for instance from their bone marrow or from their fat. In some cases. Or we can use, you know, there are products available like umbilical cord stem cells that you can purchase from companies, although that's currently an FDA no go.

And then there are other products that you can purchase like exosomes. So exosomes are kind of like the messaging arm of the stem cell. So when a stem cell communicates with other cells, one of the ways it does it is it releases these little teeny tiny bubbles, bubbles of information almost, that come out of the one cell and then they get taken in by recipient cells in the area, and that those little exosomes, have within them messenger RNA, micro RNA, proteins, you know, cytokines, things like that.

And so when those messages get taken in by the recipient cell, the cells nearby in the area, it actually those, those cells can actually be changed by the exosomes because they're receiving new messenger RNA, micro RNA.

So you're getting new blueprints essentially for protein production and things like that. So you can almost take these exosomes and turn other cells into more active versions of themselves because they're getting new messages to do so. So we use exosomes.

I use them primarily topically at this point, but again, because of the FDA. But we can apply them topically or try to microneedle them. And for scalp and skin, to increase the messaging to the cells that are already there, like the fibroblasts to increase collagen and elastin or the hair follicles to increase hair, you know, hair production.

Stem cells and exosomes explained

So all of these things, we can either use them together or kind of piecemeal to increase cellular signaling and get rejuvenation of the tissues. So, but I'm also understand that not all exosomes are like I mean, it depends on what what cell they're derived from.

Do we know, when you're giving us a particular product, what you know, which mRNAs, which micro RNA are or, you know, sort of which growth growth factors are, you know, predominantly within those exosomes, you sort of know which signal you're kind of sending to them.

And it doesn't matter. I mean, people talk about exosomes generically all the time. I mean, too many companies that offer them, I guess there's a couple of them, right.

But they're they're different. They're different products. Right? I would imagine that's. Yeah. And that's a great question. Right now what you know, the only amount of sort of differentiation we have is being able to choose where the sources so we can choose, you know, umbilical stem cell exosomes, which is the type, the type that I use because they're going to be the the youngest.

They're going to, you know, in theory, have changed the least. And their telomeres have. Yeah. Exactly. Long t telomeres able to do the most sort of messaging.

So those are the types I use primarily. But you can get exosomes from you know, bone marrow stem cells of adult or adipose stem cells of adults. And those are there are products in the market that have those as well.

There as far as what's in the actual exosomes, you know, looking at the messenger RNA, the. Yeah, I mean, it's certainly possible to look at, not for me, but for the scientists who make the exosomes to to look and see what kind of you know, messenger RNA it is.

And at some point in the hopefully near future, we'll be able to select specific, you know, types of messenger RNA, specific ones that encode for, you know, proteins are going to be better for one thing versus the other.

Right now that's not available to us yet, but I think in the next couple of years, for sure, we'll have the ability to say, hey, well, these exosome, this product is better for skin.

This one's better for hair, this one's better for joints. Just based on the proteins that are going to be encoded by the messenger RNA. And you may, may well be able to, to, to choose those.

I mean, whoever's producing them can choose to put those in there, of course, because I know there's pharma is looking at exosomes in a big way. A couple of conferences that I've gotten emails about, about all this sort of you can't call it drug development, call it some sort of exosome development, but they're they're working on that.

But at the same time, there's a parallel track going on in offices like yours where people are using exosomes, with good effect. Currently. And I wanted to, have our, you know, our listeners understand, you know, so the difference between so when you get one of those products and they give you a list, is it done?

Is our analysis done on the exosomes of what's in that product or you. Yeah, you can you can get a list. I mean, you can get a list of, the proteins that are being encoded by that, that particular, you know, type of exosome.

And, you know, right, right now the way that I'm using them, we that seems that the exosomes you know, they they get taken up by the recipient's cell.

And it matters more about what the environment is. You know, if they're in an environment of skin, then they are going to sort of boost the skin. Regeneration if their environment, if a joint, they're going to boost the joint regeneration, because they can generally do that.

But but yeah, I feel like, yeah, they're using exosomes for everything for they're looking at and for cancer therapies and delivering cancer, you know, cancer therapies directly.

There's, there's so many opportunities for that. And that's been recently, as of this last June, the FDA came in and said, you know, exosomes are a drug.

You you can't just, you know, you can't just give them, as you wish. We want to know more about how it's being done. So they're regulating exosomes like drugs now, which makes it a little bit more tricky for us, but we can still do it topically.

And for the things that I do, that's that's really powerful. Still. So the previous, I think I've actually yes, I have received systemic exosomes in the past from the doctor who was working on my shoulder as well.

Currently that has been the kibosh has been put on that, yes. I mean, if if yes, if you ask the FDA, that is not something that they are wanting to be happening.

I will say it's still happening. But it's because a lot, you know, a lot of people have been using these therapies IV for, you know, five and using them for five years and have not one time had a side effect or a problem with any patient that's received any kind of access?

Because they're not you're not going to incite an immune response from exosomes. A they're too small, and B any kind of mesenchymal stem cell doesn't actually incites an immune response in general.

And so, you know, it's you have a lot of things going for you there. But so they're very safe. And that's why I think a

lot of doctors are reluctant to give them up.

But, but we're trying to comply with what the FDA once. Yeah. It's likely that's going to be a little bit tougher to continue doing. Just while we're on the subject of systemic, I'm, I'm curious.

I mean, when you put them into a joint or when you put them into a, you know, the skin, you have the area that they're going to because you've injected in there because you're getting them systemically.

Is there a homing to tissues specifically? And how does that take place? There is absolutely. And it's it's because they have some of the same, surface receptors that that a stem cell has or a cell has.

There's actually some interesting studies. There's a mouse study that I like to talk about that has they took these little mice and they, they, you know, put incisions on the backs of the mice.

So they have these little wounds and on the mice on the backs. And then they had a control group. They didn't do anything besides put in saline. And then they had an IV exosome group where they, they tagged the exosomes with, with like a fluoroscopy, you know, dye kind of tag.

And they put the exosomes in the IV of the mouse's tail. And then they had a third group where they injected the exosomes directly into the wounds on the back.

And then they follow these mice out for a month. And what they found was that within seven days, and all the groups that got exosomes, the exosomes were found in, in the wounds themselves.

So they all kind of went to the wounds within seven days, and they stayed there up to 21 days. So that's interesting. So they they're they you know, they can home just like stem cells can home.

They can home to areas of infection or inflammation or injury. And then the other thing that was interesting about that study is the group that got the IV exosomes actually had better wound healing than the group that got the injections directly into the wound.

I can see if they're getting there. They're probably getting there in more nicely distributed pattern because they're using, you know, the highway system of of the capital getting there rather than just a needle injection.

And they probably didn't lose as many to the injection as well. I figured that was part of it. But yeah. So if so, we can use them. I've just like you could with some cells.

They definitely can home. And because they're so small, they do pass the blood brain barrier and they don't get trapped in the lungs the same way that stem cells do.

When you give stem cells in and IV, you know, 80% of them go to the lungs and just hang out there. And you can still get benefits from that because they're still messaging and doing, you know, their stem cell things, but they're not getting quite as widely distributed.

But exosomes actually can pretty much go everywhere. So which is unique to them. Sounds like though they're they're going to places where there's damage or where there's inflammation or something.

Because of the receptors they have on their surface. So, I didn't know that about them. And I'm good because I'm glad I got them. Yeah, yeah. So, so speaking of stem cells, I mean, I've heard that stem cells don't.

And you're you're. That's why I'm speaking to you. The correct me if I'm wrong, but I've heard that they used to think that the stem cells go to the tissue that you're looking at.

Even if you inject it into that tissue and then start to multiply and replace that tissue. But now they think that that's less, less likely what's happening and more that they're just delivering paraffin factors to the tissue.

Is that your understanding at this point? Yeah, that's exactly right. So you know, in in culture studies, when they use petri dishes, they you know, obviously stem cells are capable of replication and differentiation so that you can turn those stem cells into actual different types of tissue.

But what's been found in, in the human body is when we move stem cells from one place to the other, they don't tend to in graft, so they don't tend to become, you know, if I take some cells from your bone marrow and put it in your skin, the cells don't tend to become skin cells or give rise to skin cells.

They stick around for, you know, days to weeks depending on kind of where you're putting them. But they're sending out these all these, these signals, including exosomes, to the cells around them, which is called the Peregrine effect, as you just rightly said.

And that's what's doing, you know, all the good stuff. And so they're, they're, they're also sending out signals to the immune system. There's immune modulation happening.

So you have the immune system kind of ramping up or down depending on what's needed. You have anti inflammation. You have antioxidant effects. You have anti ptosis anti fibrosis like you have angiogenesis.

You have all these things kind of happening locally in that area as well as systemically as well. But it is, it is all seem to be about the signaling.

In fact they, they there's been of the idea that they should change the name from mesenchymal stem cell to, mesenchymal signaling cell, because they're really all about signaling.

And that's it's like a, it's like nature's, sort of, you know, medicine box that you're just moving from one place to the other. And the benefit of using a mesenchymal stem cell over just the exosomes is that is there a wider variety of exosomes that the mesenchymal stem stem cell releases?

Yeah, there's a wider there's a wide variety. And you know, we don't know for sure. There's a lot of debate still going on, but they're by their actual stem cells, you know, are better or just things like exosomes.

There's a lot of benefits to exosomes because again, they're small. You can get them off. You know, you can get a kind of from a lab. You can freeze them versus having to have them like hyper frozen, like stem cells.

There's good viability. They're not going to they're not going to generally die in their, in their vials. So you have the ability to give them to more people.

And but they're also pretty new on the scene. Like we haven't had enough time to do a lot of studies to see, you know, if you compare using mesenchymal stem cells versus exosomes for X, y, and Z, you know which one works better in the few studies that I've seen, like, for instance, in sexual health, there was a rat study where they did this and they did they did that.

They did mesenchymal stem cells, from fat, I think. And then they did exosomes, from those same stem cells. And they did them, in a, in a study that looked at that erectile dysfunction model and they found that the X, they both performed well.

But actually in that case the exosomes did a little bit better. And so, you know, I think there's still debate out there about what the best way to do it is.

Full-body stem cell makeover and clinical results

What is the model of a rat erectile dysfunction. They actually have they have a few different models. It's a great I love that question. They will do like little, they'll cut the cavernous, nerve to the rats and they'll do like a post prostatectomy model or they'll, they'll use drugs like streptomycin, streptomycin.

And then it'll be like a post like diabetic, model. So they have, like, these different, like, post, you know, hypertensive model, diabetic model, prostatectomy model depending on what we're looking for.

You just wiping out the the rats erectile function okay. Very sad, very sad. So, yeah. So I guess that's a relatively good segue into your whole body stem cell makeover.

That, that you that you do to tell us a little bit how you got into that. And I'm really curious to hear about what kinds of results and whether I'm going to hop on a plane and head out to, Park City.

Yeah. So, so doctor Harry Adelson, who is my partner, it's his practice up in Park City where we do this procedure, and we've been working together for about 77 years.

He's a, he only does musculoskeletal pain, so he does, you know, spine. He's a big spine guy. Spine, full spine joints, musculoskeletal pain like that.

He's been doing that for a number of years, and then I'm, you know, I'm sort of skin and sex, so that's, skin, hair, sexual stuff. And a few years ago, we.

About four years ago, at this point, we had a lot of patients coming in saying, hey, you know, my shoulder hurts, my knee hurts, my hip hurts, my ankle hurts.

And also I want, you know, skin rejuvenation and hair restoration essentially can you do all of these things at one time? Because we were already going in and at the time we were doing bone marrow aspiration on the patient, we were doing fat aspiration to use their cells.

We were also adding in exosomes. And so, you know, we're sedating the patients so that they're not awake and uncomfortable. And so what we realized is we could actually do it at one time if we took enough volume from all the different sites, if we added enough other things, to make it a good, effective procedure, we can sedate the patient.

And in three hours we could inject every single joint in their body, all the major joints at least, including every major joint in the back. We could, including epidurals, transfer, Aminul, epidurals, as well as for sets and all those things.

And I could do all of my cosmetic injections, microneedling, hair injections, sexual injections, etc. and we could do all of that in about a three hour period of time.

And so we've been doing that now for 3 or 4 years. We've done over 200 patients. And we call it the full body stem cell makeover. And it is it's it's pretty spectacular.

It's it's pretty big. But a lot of people really like it. So what what kinds of things do you see afterwards? I mean, we'll start with the joints. And a lot of these people from where I stand are not necessarily suffering from major like pre surgical types of problems, but they have aches and pains of their limited.

Maybe they're athletes and you know they want to keep functioning. It's almost not quite prophylactic but really to try to sort of change the crankshaft in your car after, you know, 50,000 miles kind of thing.

And, and so they listen to some of the testimonials about, they get quite a bit of beneficial effect from it. Yeah. I mean, it depends on what they're coming in for, obviously.

But know we have people who, you know, some people have pretty severe pain and, and problems and then some people don't really have a lot a lot of pain.

They're just sort of these, longevity seeker kind of biohacker people who are just trying to do everything that they can to stay on top of it. And so we have, you know, everyone from 35 year olds to 75 year olds, who are doing these procedures.

And, you know, I think it depends on with what they come in with. Obviously, if they have no problems coming in, which some don't have a lot of problems, then they don't tend to have, you know, afterwards they just they feel really good.

A lot of them just feel like they kind of had like a full body massage that just kind of stays with them. A lot of people report a lot better sleep and just kind of general movement.

Of course with my stuff that, you know, you're just looking for improvements in skin health. You're looking for improvements in skin texture, tone, color, fine lines, over the course of the first few months.

And that continues out for at least a good year, that you keep getting more and more and more improvements. With hair, we're trying to, you know, improve hair, counts and as well as thickness of the hair follicles.

And then with sexual function, I have a lot of patients who don't really have you know, again, don't have a lot of problems, but what they find is that even if you're, you know, if you're 45, 50 years old, even if you don't have a lot of problems, things have changed.

In terms of blood flow, in terms of the cellular health and if they're yeah, for sure, the tissues. And so, you know, if we can kind of, turn back the clock even just a little bit, things feel different and people are always very grateful that, you know, a lot of times they're, they're surprised, like, oh, I didn't even know that I had, you know, any aging problems going on.

But it turns out that things are actually a lot better than they than they previously were. So, you know, the idea being at least for that, you're increasing blood flow.

You're, you're trying to increase the health of the cells in the tissues and actually just kind of create, you know, more youthful tissues. Be really interesting to see, a few because like, people are doing things like this, like a pre and post MRI of, of the spine or of, you know, like people do a whole body MRI, but I mean, specifically to the joints, if there's anything going on there that would be kind of I mean, are you looking to publish any of this stuff?

You got 200, 200? No, I know we should. We haven't. You know, the the problem with MRI is, are that you don't. A lot of the things that we're doing are happening on the, you know, micro cellular level.

It's happening in the in the micro cellular circulation. And, you know, on the nerve level, so you may, may not see structural changes, you know, you may not see certainly the bones probably won't change.

You may or may not see cartilage change. Yeah. You certainly could do things with skin. If you had a good camera, you could do this before and after skin, and you could certainly do Doppler things for it for the penis.

So the short answer is we haven't done all that research. We always we certainly keep track of our patients and we follow up with them, you know, every three months out through at least the first year or two, and, and surveys and all of that.

But it's, you know, a lot of it's just about funding and, and that's why, of course, you know, I'm just thinking how be it would be kind of cool to see.

Yeah. So there's the new kid on the block that we had talked about a little bit, you and I in the past, I guess over Instagram, is the B-cells and the.

Tell us about the V cells and how they may be sort of, the right thing between the IPS and the, and the embryonic stem cells, that sort of gets rid of the two and undesirable, effects that, that those can have.

And why they're probably not going to be used. Yeah. These cells were, were discovered in about 2008. And what that stands for, very small embryonic like stem cell.

So that's what the V cell stands for. And they, they've been, you know, looked at for a number of years and kind of found in everything from bone marrow to even just peripheral blood.

And basically they're these little, very primordial cells that are that are in between an embryonic stem cell and like a mesenchymal stem cell or, you know, or a, hematopoietic stem cell.

They're they're not they're not differentiated yet. And they can actually become both, immature, sorry, hematopoietic stem cells or mesenchymal stem cells or some of the other types of some cells.

But they're not as, not as primordial as an embryonic stem cell. So they don't see problems with, like, you know, tumor formation to, you know, the teratoma and things with these cells.

And they also have they also have preserved, telomerase activity, which I know that is interesting to you. So, yeah, you said telomere, you said earlier.

But but but what happens is these these cells are they're they're hanging out. We have them our entire lives, but they live in this quiescent state. So they're really turned off and they're not, they're not subjected to aging like other cells.

So they don't actually aren't influenced by IGF one or insulin or any of the things that can cause other cells to age faster, which is very interesting.

They're like, like cocooned off, and they can be turned on or activated by like, pretty severe trauma. So if you are in a, you know, car wreck or stroke or things like that, there's there's some at least supposition that the supposition that they can be, turned on by extremes of heat and cold and such as, well, but for the most part, they're just in your body kind of hiding out, and they're just there as, like a reserve.

And it was it was hard for a number of years to figure out, well, how can we activate these cells? There was a number of protocols out there over the years that have come out that have shown, well, if you heat them for this long and cooled them for this long and talked to them in this way, like, you know, for many days, then you can activate them.

But it was never something that was that was, approachable enough for us as doctors to be able to actually do those things. But there's now a, a laser.

There's a doctor kind of physicist, out of Texas. Doctor. Todd over Kiedis, who has come out with a, special photoacoustic laser that he designed that basically within three minutes, you can activate PRP and you can increase the vessel proliferation and activity in that PRP just with this laser.

So we're starting to use, this laser on our PRP and trying to activate the V cells. And we just have been using them about two months now, but we're doing so we are doing some testing on that, looking at, you know, at least epigenetic testing before and after.

And, and we'll eventually try to add in some other testing like we've great to do a telomere testing before and, you know, before and maybe six months or a year after, to see if we're going to see any improvement.

And in that and then of course, we're keeping track of our, our, how we're using them, we're using them with our joint injections and skin injections and things like that.

But very new, very, very, untested and and new, but pretty exciting stuff. So you treat them after you've taken the, the, platelet rich plasma. Ouch. And you give it a little bit of a buzz.

There's. Is that considered treatment, or is that because I know when you're sort of manipulating something afterwards, the FDA gets unhappy about that sort of thing.

They've not spoken to that. Yeah. They're not spoken about B cells. But really we're it's just a light, you know, that people have been using different types of, of light, red light, red light and other kind of photo bio modulation.

That's through Sahlins and for, yeah, for a long time. And to me that's still minimal, very minimal manipulation. But, you know, there's so new that the FDA, as far as I know, hasn't spoken about them yet.

Have you seen anything clinically?

V cells and new regenerative technologies

That's, in the responses you've seen. We just started using that. The main thing we're seeing is that when we started using the V cells during our full body stem cell procedures, the patients were waking up in almost no pain.

Like, it just seemed like, yeah, we do. We're doing hundreds of injections and you're doing, you know, bone marrow aspirations and all these things. And so they're they're not, you know, they wake up generally in some discomfort.

But in the last month or so, we've been noticing that the patients are just waking up extremely comfortable, which is really interesting. And we've we've never had them.

They're always in such, you know, the pain is always fairly low when they go home. And they, we never use opiates or things like that when they go home.

But the bed, this is really helped a lot. So we're, we're hoping that, you know, it takes usually 2 or 3 months to start seeing benefits from any stem cell therapy.

So we're hoping that we're really going to start seeing some benefits. But we don't know. We'll see. Yeah, that's really nice. You said that the telomerase activity it's not like an embryonic stem cell.

It's somewhat preserved. But or is it at a full level I don't know exactly the level. I just know that it's it's it's preserved at least much more than any other cells in the body.

So it's you're not getting that the decrease in activity like other it which makes sense if these cells are not you know, they're not dividing and they're not like, they're just or maybe they're I don't know how they work because I haven't, they're so new, but they're just like, you know, kind of hanging out.

They're not subjected to all the the stresses in the body otherwise. So I don't know. But yeah, one wonders evolutionary evolutionarily why why they're there.

Right. You know, if they get activated with extreme trauma and things like that, that makes sense. But still, more and more, definitely more research to be done on those.

I'm also very curious about, your techniques that you always do all these great, Instagram videos that show, you know, sort of very generously showing techniques to everybody about how to apply therapies to the skin and to the scalp.

There was a guy in France many, many years ago that used to do microneedle link with vitamin C and other things like that, but it was sort of like a much cruder way of doing it.

You're delivering these various therapies with these microneedling, and you get how far deep do you get? And, I would imagine it's a lot more effective than topical.

Yeah, absolutely. Look at what, you know, many of these things, like stem cells don't go through the skin. Exosomes actually will go through the intact skin, but it takes about 18 hours.

So it's a wash your face. Yeah. You just sit there with them on your face. So long mask is a very long mask

creating, some micro trauma. A it's going to allow entry into the skin.

And B, you're also that you're, you're going to have this sort of homing, you know, mechanism from a, just from the trauma itself. That kind of helps to keep them there.

So I'll do a few things I will inject directly. And I don't do deep injections usually, although I can, but I'll inject just, you know, intradermal injections which are going to go, you know, four millimeters or less, usually into the skin.

Or just subdermal. And then I'll do the microneedling, which is going to usually go about 1 to 2mm deep. And that's just a little device that has the needles that just go up and down really fast.

And you can do, you can treat the entire face, neck, you know, déclassé back to the hands like you can treat literally anywhere on the body. It just creates a little redness.

And then you have these little micro channels that are open for about 30 minutes and so whatever you apply topically then gets pulled, you know, all the way down into the, the deep dermis of the skin.

So I yeah, I love microneedling. That's fantastic. And then I'll also sometimes use other things like like a laser, like a non ablative fractional laser or even like a CO2 laser.

Those are other things. You know, the thermal damage is going to increase during elastin production on its own. And then you've also created this homing mechanism so that when you apply the stem cells they're going to stay there or the exosomes they'll stay in place.

And we know from multiple studies now that if you use these kinds of cellular therapies after, after laser treatment, that you'll have much faster time to healing, much less pain, redness, swelling, and then overall a better esthetic response.

So they're great in combination with any kind of, other facial procedures. I don't do plastic surgery, but a lot of plastic surgeons I know will also use them, you know, with their plastic surgeries.

So they're pretty great. Yeah. So, the only specific devices that you I mean, it's like a roller for the microneedling or. How does that work? It's a there's a couple.

There's a bunch of different micro pins out there, like literally pens. I use one by, I just blanked in the name of the company, but I tell you, if I remember it, there's one by skin pen.

There's there's a couple different ones out there that that doctors can buy. You can you can buy cheap ones, you know, on the internet, which I wouldn't recommend just for random people to do.

But the other thing you can do, which I send patients home with, is I also like derma rollers, which are they're going to be just like little manual, like almost like little rolling devices that you can roll over your skin and yeah, they're needles, but they don't go very deep.

So I have my patients go home with a derma roller that has needles that are about 0.25 to 0.5 millimeters. So not not no, no bleeding at home. No, not to cause any of that, but enough to cause a little bit of damage so you can still get products and things on to the top part of the skin.

So I have my patients go home with derma rollers and have them do that once or twice a week after my procedure, so that I'm continuing to kind of, again keep the stem cells and the cells, homed in on the skin that I just treated.

And in hopes that they can get better results long term. So with your treatments being at whatever, as deep as four millimeters, you can obviously make the skin look better.

And so the fine wrinkles and that sort of stuff. But things like folds or things that fillers treat can years because if

you are you making fillers obsolete with your therapy or is that something that you know, did you see that?

They're not you know, these therapies right now are not as good as, as like a hyaluronic acid filler, like a juvederm a wrestle and for, for actually filling.

So we can see some improvements in skin volume. And there's been some studies with looking at nasal labial folds and, and using like even just with PRP.

We know that that can help a little bit, but it's not as good as filler. I think that there's coming there's a there's some placental matrix products coming that are made from placentas that are essentially kind of ground up, and they get the cells out and just keep the, the matrix part, the extracellular matrix.

There are some products that have already come out actually, and there's some more that will come out that I think if we were to pair some of those, matrix procedure a little thicker with something like exosomes or even PRP, then we would probably see more of a filling result.

But right now I still use fillers. Also, I use them for filling. I still use Botox for, you know, stopping muscles from moving. And then I use the regenerative procedures for really the skin itself and improving the the glow and the texture, the tone and such of the skin and for hair, it's pretty much the same therapy.

Just, just scalp. Right. So or is there some something different about it? And yeah, we can you know, scalp actually seems to really benefit from the, the at the cellular matrix products like the placental matrix or extracellular matrix products, because it's kind of like a scaffolding that you can inject into the scalp and then injecting like exosomes or PRP on top of that, is the growth factor part of it.

So you kind of get the one two punch. So those two seem to work really well together. But yeah, we can use stem cells. We can use exosomes. PRP has been well-studied for hair and it can be effective, although you have to do multiple treatments with PRP and scalp injections, or they can be painful.

If they're not done either. Oh, I've had them. Yeah. They're not, they're not fun. They're right. Yeah. Yeah. They're they're not good. But do you do the sort of a microneedling as well for the scalp?

That, you know, over as well, I usually will inject and then, and then microneedle if I can get to that part of the scalp, if someone's, you know, with women, for instance, but they have a decent amount of hair that it's kind of hard to microneedle sometimes, but for men, we'll microneedle over on top as well.

Have you ever thought about that? Because I know there's a literature on it. Actually gave a lecture. Maybe 6 or 7 years ago about, the effect of, shortened telomeres in the skin and telomerase activation potentially turning on fiberglass and, decreasing production of the metallic metallic protein, ACS and those sorts of things.

And, science is has a topical product.

Microneedling, lasers, and skin and hair treatments

Be curious because, you know, the lights went off and you said you do the microneedling first and then you put the cream on top. And so it might be able to get that.

Could you, does it have to be a serum or would a cream get in as well a cream being in it as well? It has. It depends on how thick it is. But yeah we will use creams as well.

Like if it's a pretty thin eye cream or serum. But yeah, I mean anything that's trying to, you know, the cream gets through the skin eventually, right.

Like it it has to work, but probably not as much as if you put holes in it. But yeah, I think, you know, we know that, like, with hair, for instance, we know that if you, if you do like microneedling or derma rolling at home and then you

apply your minoxidil, for instance, on top of it, then you're going to have, better results than if you just apply your little topically.

And so when we can do this, we can do the microneedling and derma rolling with, you know, everything from vitamin C serums or creams to, just regular skincare creams, as long as they're pretty thin, they'll still kind of go in those little channels, at least to some degree.

But yeah, I like your idea. We'll use some, to sciences topical and some microneedling. And that's going to. That sounds great. Yeah. I mean, I'm, I'm that's why I think I might get a better if I don't get out there to see you and try to myself because I think, there is a really pretty good molecular pathways worked out for why that might be beneficial.

So I'm going to avoid using any puns. And, so let's talk about erectile dysfunction at this point I have a propensity towards that. So you have a multi-modality approach there as well.

With both, you know, the injectables. And then you have, the, shockwave therapy, etc.. I'd love to hear about, you know, sort of what kind of results you get and what I know that a lot of your patients are healthier and biohacker types.

I have patients like that in majority because, you know, I saw patients post prostatectomy that or radiation therapy that, you know, are unfortunately not, having much in the way of erections or using trim X or something like that, just about the range of your, success with the kinds of approaches that you take.

Yeah. So again, like injections, like you said, I'll use injections like some cells, PRP, exosomes. I'm also a big fan of making sure the patient has, some kind of nitric oxide booster on, on board, like a, you know, on the A40 or some other kind of nitric oxide product.

So that's obviously super important for erectile function. Testosterone obviously very important as well. So I kind of make sure that they have their, their foundations in place.

And then I also like to use, like a shockwave therapy like wave or other, some kind of other low intensity shockwave therapy, which is going to require, you know, multiple treatments.

But that can be really effective, especially when you add it to some of the injections. And then the other thing that I've recently discovered and become excited about is, using bio electricity for Ed.

I'm working with a company now, actually, that has a device it's not painful that you essentially can wear for like 30 minutes twice a week. And it's it's essentially how they discover the electrical signals that specifically activate certain proteins.

And so they can essentially create, you know, different signal, maps where they're, you know, they're first they're increasing stem cell homing, then they're increasing angiogenesis, then they're increasing, you know, muscle regeneration, then like essentially kind of marching through all the things you would need to actually repair a penis.

And you're getting all those signals kind of in order. Noninvasively non painfully. And they've been having, you know, the early studies or about 90% of patients are having improvements with, with just, you know, a series of maybe eight of those treatments. Is this available or is it you're still working with them on it is it is the technologies available.

They're they're not out to consumers yet, but they're working on getting a consumer device. I'm working with them and doing some clinical studies, some further clinical studies, on that, on that, that technology.

But they're using it the same kind technology for skin rejuvenation, for hair restoration. Because really, once you know the signals that you need to create the proteins, it's just a matter of putting them in the right order, you know, and the right delivery device.

Right. Maybe I'll actually use it for muscle building, too, I imagine. Oh, yeah. They have applications for muscle building for, increasing Clotho, which is the longevity hormone.

What protein that they're talking a lot about. That would be fascinating. Clotho. The powerful, longevity. Exactly. What's the name of the company? So it's part of a business accelerator program through, Leonard, Lionheart Ventures, and, I, I just became an advisor for them.

So just full disclosure, but, I'm pretty excited about some of the things that they're doing. And so I'm going to be adding that those kind of things and the therapies that I'm doing to, but to answer your question, you know, when we use a combination approach, obviously going to have better results with Ed than if we're just using one thing at a time.

The post prostatectomy patients are some of the hardest to treat. But, you know, we've seen studies with, for instance, with, stem cells in combination with shockwave therapy and they're seeing, you know, 65 to 75% of, of, patients with post prostatectomy Ed are having some improvements, at least.

And, we've seen the same kind of numbers coming out of the early by electricity trials, 65 to 70% of even, you know, prostatectomy, patients having improvement.

So I don't think that that's a lost cause. But there is a harder one to treat than just, you know, just ed from aging or from diabetes or high blood pressure or things like that.

So you don't yet see like guys that are not able to have penetrative sex, having penetrative sex after a prostatectomy, I do, yeah. In fact, one of my favorite stories was, a patient that I treated about five years ago now, post prostatectomy for years, no rectal function, you know, nothing to Pde5.

I didn't work that tri mix didn't work like nothing really worked. His doctor had his urologist had told him that he needed to get an implant if he was going to have any return to function.

And, but otherwise healthy guy like it was, you know, doing all the right things. And so he came to see me and just kind of as a last ditch effort, we did I did some cell and exosome injections.

We did shockwave therapy. I think we did 12 sessions over the course of a couple of months. Got his testosterone even better and put him on some nitric oxide.

And within four months, he and his wife had been able to have sex for the first time in four years. Wow. And he said it wasn't perfect. He was like, you don't think we think we can still work on some things?

Like there's still some things to work on. But, but if it was able to happen and, and that was, you know, a pretty big victory for both of us. Yeah, absolutely.

So I'm going to just turn to a little bit of a theoretical question because I it's something I think about, in terms of so you're taking these stem cells, you're out of the bone marrow, out of fat, probably out of the fat, not as much of an issue, but just curious about how the bone marrow, I mean, we have a set number of stem cells in the bone marrow.

Telomerase is activated to a certain extent, but not that much.

Erectile dysfunction therapies and outcomes

Do you ever worry about reducing the, the, you know, the level of stem cell reserve that you have by, you know, what is it a paying Peter Paul kind of thing?

Or I mean, obviously potentially with to 65 or some other, telomerase activity, you could do that, to, you know, turn on telomerase to get them going.

And is there any talk about that in the literature or anything like that? You know, I haven't seen a lot of talk about, although I do, you know, when you and I saw each other last time in Las Vegas, I know that we talked about this a little bit.

And we are we are careful not to go into the bone marrow very often. So that's one thing, is just making sure that that, you know, we'll go in there, we'll get what we need, but not, you know, not keep going back to that.

Well, because I think that's a good point. And nobody wants to to deplete any of any cellular supplies. It's making it's, it's become a little harder because the FDA doesn't like us to go to fat anymore.

They don't. They're, you know, they're only comfortable with bone marrow. And so even though fat is so accessible and nobody wants it, and it's, you know, anyone who has it is like, get rid of it, please.

It's teeming with cells, way more stem cells and fat and bone marrow. The FDA has said that that's somehow a drug, but the cells from your bone marrow are not, you know, accessible drug as opposed to the bone, bone marrow and easily accessible drug that no one is.

Yeah, that we're not even using it. It's just sitting there. But they, Yeah. So they recently have said that we can't, we can't use the stem cells from fat.

So it's become a little bit of a problem. So I think, you know what? We're we're going and I think where the field is probably going to go eventually is using occasional bone marrow, especially with musculoskeletal pain, that those cells seem to be really good at a healing musculoskeletal pain.

That's what, the, the guys that's, you know, all the regenerative guys here. So I'm like, because I got joints that need to be injected, obviously. Like, can we use fat or, like, just doesn't work as well.

Quite as well as bone marrow, although, you know, but we found what Harry, my partner found is that bone marrow works consistently for, for most people for healing musculoskeletal.

Like not everyone, but most people have some results. Fat. When he was using them, he was getting better results. But not for not quite as many people.

So it was, you know, a more robust result. But not everyone responded to it, which is why he eventually went to doing both. So he was getting, you know, great results and almost, you know, almost everyone, or at least most people.

But I think the what we'll start to see is many more of these allogeneic therapies coming in that we don't have to use the patient's own cells as much, in the coming years, where we can use, you know, off the shelf, you know, whether it's a biblical cord, stem cells or whether it's the exosome products or you know, other things like that, that will become more and more personalized and specific for what we're trying to treat and, and also require fewer and fewer procedures on the patient, because I think that, you know, the less we can that we have to do to get to, you know, to make you better.

The less pain it's causing you, the more likely people people are able to do it, and the more accessible it is to more people. The cost comes down because in but you don't have to do anesthesia.

I mean, some people don't do it for just taking bone marrow, but it's the kinder, gentler way to do it. Yeah. And you're doing it also for the injections that you're doing.

Right. Do you have any idea? I mean, I guess I don't know the answer to this. At this, I'm going to ask you, do you any idea, like, what percentage of the bone marrow you're taking out when you're aspirating, doing a single bone marrow aspiration?

I don't know the percentage. I mean, I when, Harry does the big, big cases, he's getting about 100 cc's of bone

marrow. So it's a it's a fair amount. Like the patient's definitely anemic for 24 hours.

But for for smaller procedures, it's not nearly as much I don't know overall percentage what that is. It's a good question. He would know. I just don't know. So I don't do that part of it.

Yeah. Just curious about that. Because, you know, that they're starting now to look at in sort of people with, you know, path of pulmonary fibrosis. Some of these people are stratifying the way in which they're going to treat them based on their telomere length, because if they give them too much, ablative therapy, then they, you know, they can have a problem because they don't have the reserve.

You know, if somebody has really short telomeres, that would be something to think about, potentially. Do you do anything in, since, you know, it sounds like you're adding growth factors, but part of the process, the other problem in, in, you know, these tissues that are aging is senescent cells.

And is there a role for removing senescent cells to do anything with synthetic therapies to, to sort of make it more, more, more room for, for, for the, for healthy tissues?

Yeah. I mean, I'm very interested in and that's an like therapies. And I've experimented on myself a little bit for sure. But actually taking quercetin for, I've taken some things myself, but, but yeah, but yeah, I haven't done a whole lot with patients, you know, aside from having them.

Do you know, like some of the supplements that are a little gentler? That that might be helpful for that? But but yeah, I think it's a good point. I think that it's something that it's it's so intriguing.

And yet, you know, I also don't want to kill off too many senescent cells and, you know, and there's a kind of a balance in it. But yeah, I think that that's where that's one of the next things I'd like to get into is being able to, to give those kind of therapies.

Yeah. They're interesting. The interesting study is going on it. You know, there's some caveats. Again, my friend and colleague, Michael Fossil, who's done a lot of work in telomere biology, is probably one of the smartest people in human biology around this.

Talked about synthetic therapies being of concern, because if you're going to take out a cell, it needs to be replaced. And so you're going to then mobilize other Stem cells to replace it and thereby shortening the stem cell pool.

And that and then ending up being perhaps worse off. And maybe the better idea is rather than having synthetic therapies, is to have therapies that can reset cells back from a senescence to, to and none of them, as far as I know, do that just yet, which is, why not a little concerned about using when people talk, you know, there are some doctors that are doing that, a fair amount of it.

There's still a license light. And so then there's the SAS active and, you know, rapamycin, which is which is not. But I think they're they're kind of all tied together in some way.

So that's a really, I mean, fascinating work that you do. Out there and, and, is there anything else you'd like to tell our listeners about? You know, what's coming down the pike? Wait, what's what's next for Amy? Feeling?

Hahahahahahaha. You know, I, I have trouble keeping track of you guys. It is. I've had some great opportunities to work with some really, you know, interesting people.

And, my, my main I think I love the most is learning about, you know, new things that are going on in, in the field, whether it's stem cells or in this sort of sex and skin field, and then and trying to figure out how to bring those to patients in a safe way.

So I do love, like traveling and going to conferences and meeting, you know, people like yourself and having hard

questions and all that. So I'm going to hopefully do more of that and keep traveling.

And then I have, you know, some stuff going on with our clinics and just kind of expanding and building more clinical space and such. So, so, you know, I'll be around, you'll still see me on Instagram.

Oh, yes. Yeah. I mean, you should tell people what your Instagram, what they call it, handle or whatever.

Future directions, research, and contact info

Because you have such great information of that, you post a lot, but it's all, you know, unlike a lot of people, it's, you know, almost always very interesting information.

Occasionally it's Amy doing crazy things. Okay. There's a lot of me. Yeah, a lot of me hiking or like, me and my dog or, you know, you put a lot of a lot of thought, a lot of time.

And I have time for that. So you must have a nice team or you just. Oh, it's all me, I need it. I should have a team. Because one of the things I post, I'm like, I don't know why I did that.

You're being too modest and it's really great information up there. So just tell us. Tell us what it is. It's doctor Amy B Killen okay. All right. So and any other addresses or information about your, your, your clinic out there because this is not me.

This is just for information for people to to learn about where they can go places and send their patients. Yeah. So the stem cell clinic that where we do the full body is at dose series clinics.com which is doctor e clinics.com.

That's sort of the main one people people travel and for I have I have several other websites and things but but I'm most active on Instagram and then I also have some YouTube videos with Amy Kaelin, M. D., I think as well.

Well, great as always. It's always fun to have conversations with you. And I'm sure our, listeners, as I have learned a whole bunch of new stuff and, look forward to seeing you at the next conference or soon or maybe out at your clinic.

That's, good seeing you as well. All right. Thank you.