Exosomes, PRP & Stem Cells: Transforming Orthopedic Healing Transcript

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Podcast Introduction and Guest Welcome

Yeah, I think it's that same idea. You know, they're just different parts of the pathway. So, you know, the stem cells are sort of that factory. The exosomes, I'm sure you've covered, are the signals that the stem cells are sending out.

And then the PRP is sort of the recruitment call, you know, to bring more cells and more growth factors into that area. Hey there. Welcome to the Recharged Biomedical Podcast.

I'm Dr. Edward Park, and if you're curious about regenerative medicine, you've come to the right place. We're diving into the latest breakthroughs in telomeres activation, stem cell exosomes, and all the cutting edge science that's shaping the future of healing and longevity.

Let's get started. Hi, everybody. This is Dr. Ed Park, your host of the Recharged Biomedical Podcast, and today we're very lucky to be joined by Dr. Jonathan Gelber.

Hey, Jonathan. Hey, how are you? Great. So you practice in Southern California and you're an orthopedic surgeon, I presume. And do you still do hospital-based practice?

So I'm just outpatient most of the time. So I see patients in the office, we do most of our regenerative medicine procedures in the office, but I still do some surgeries for meniscus, ACL, rotator cuff.

When we can augment those with orthobiologics, I think the outcomes are better. So, you know, even in the operating room, we're still trying to do as much orthobiologic procedures as possible.

So let's talk about that. I had a patient whose dad was helped for Parkinson's with exosomes, but her ex-husband was an orthopod. They said at the conferences, they are talking about exosomes, even though it's not FDA approved or reimbursed.

Orthobiologics and Avoiding Surgery

So exosomes along with PRPs, stem cells, maybe peptides are these orthobiologics. And it's kind of a paradigm shift because as doctors we get paid to do procedures generally unless we're capitated under HMO.

So the question is, is this a conflict of interest as an orthopod to be curing people before they can go to the operating room? No, most of the time for orthopedic surgeons, most of the patients we see are not surgical and we always want to exhaust the non-operative options first.

That being said, even if we go to the operating room, as much as we could do to optimize a patient's outcome and optimize the results of the surgery, that's only going to help too.

You know, even if we end up in the operating room, using some of these adjunct treatments can actually improve the outcomes. So, you know, whatever we're doing, we're just trying to optimize our outcomes, whether avoiding surgery or if we still have to do surgery or want to get the best result possible.

Yeah, I love that. Well, you know, as people know from their experience and their loved ones, it's common to get tears, you know, like meniscal tears, for example.

We call them in the hips and the shoulders of labor, but same thing. It's hard cartilage that keeps the joint aligned. And I think what gets not emphasized so much is that when they snip off the piece of cartilage that's causing the

pain, in the long run, it can set up for more osteoarthritis, correct?

Yeah, exactly right. I mean, I have this conversation, you know, every time we're talking about a meniscus tear with somebody, you know, the meniscus and the knee helps to protect the cartilage that's at the ends of the bones.

And so there's definitely research that shows that you can get better without surgery about 70 to 80% of the time. And if you do end up having menasectomy, so that's where we shave or remove the torn part of the meniscus, those stresses in the joint increase and then yes, you are at a higher risk of knee replacement in the future.

So if we can avoid surgery, now that's better, but there are some times where we do repair the meniscus. A lot of people didn't get confused. I think they had a meniscus repair when in fact they had a shaving.

So certain hairs, depending on where they are torn, how far from the blood vessels they are, you know, can be repairable. So in that case, we are preserving the meniscus, which is great.

So whatever we can do to preserve the meniscus is important. But in those cases where we are taking some of the meniscus out. You're definitely right.

You're going to have an increase of knee replacement. And also the thing with those meniscus tears are they're degenerative. So they didn't necessarily just happen overnight.

They're usually cumulative, which means something's going on inside your joint where there is just wear and tear and inflammation.

Meniscus Tears and Joint Preservation

I think of it like an old leather. It's just going to crack. So I had a meniscal tear from doing a maniacal golf swing. And it was clicking and hurting, but that was the first thing I did eight years ago, was inject it with exosomes.

And I don't have a very active lifestyle, so it's been fine. My 22-year-old had a similar really bad tear. He's got two injections. He's fine. But let's talk about why orthobiologics can change the math.

Unless you're 12 years or under, there's not much vasculature to heal. I had a surgeon who convinced the orthopod to sew it with whatever, proline or whatever, and it was worse after the repair because she's 50-something.

So in these cases, the exosomes help to somehow regrow cartilage. As crazy as that sounds, I guess you can stimulate primitive behavior with either the PRP, the inflammation, and then the exosomes.

You can actually regrow cartilage, right? I mean, haven't you seen that? Yeah, I mean the key with the repair also is you have to remember when we put in stitches to a meniscus or when we repair your rotator cuff and we're reattaching it to the bone, that's just temporary.

You actually have to have healing take place. So, you know, we're holding the two ends of the meniscus together with stitches. We're holding a rotator cuff tendon down to the bone with anchors.

You know, ultimately that has to heal. So that tendon has to grow into the bone. The meniscus has to solidify and that gap has to fill in. So we're just holding things in place for your body to do the rest of the work.

And that's exactly where some of those augments like exosomes and PRP can come in, is to help fill in those gaps or restore those connections with tissue, with cells.

Yeah. I mean, I think, you know, if we live to 180, we're all going to need replacement of most things and not excluding the knee. I saw a study out of Cornell that said that a third of people after knee replacement can have significant pain.

What is that attributable to? So that's attributable to the fact that not all the pain was necessarily from the bone-on-bone arthritis. So there's a lot of other structures in the knee.

There's the lining of the knee. There's the ligaments of the knee. There's nerves in the knee. So you can have a perfect knee replacement. Everything is perfectly aligned.

X-rays look good. Surgery went perfectly, and you still have pain afterwards. And that's because not all of the pain was coming from the bone-on-bone arthritis.

And that's hard to explain to some people too, especially around the hip. You know, people will see that they have a labrum tear in the hip, let's say.

But the hip is a very busy area. There's nerves coming from the back. There's nerves coming from, you know, the pelvis. So, you know, we want to, you know, point to something and say, yeah, that's where all your pain's coming from.

But, you know, that's where the exam comes in and that's where understanding the patient comes in. Because, you know, we treat patients, not MRIs and x-rays.

So it's really- Absolutely. You know, I just saw a patient the other day in Texas and she said, you know, over the decades, I was the first one to actually look at her neck.

And all the docs are reading the MRI. As soon as I hear radiating pain down the arm, we're looking at your neck. Yeah, but she was like, no one's actually looked at my neck.

They always look at the x-ray. So let's talk about, like you mentioned the hip, which is an interesting, you're right. This weekend I was treating piriformis, an IT band.

You know, we can treat hip joints with ultrasound guidance. There's sacroiliac dysfunction. There's a lot of things that present as hip pain, right? Yeah, especially the back of the hip or the buttocks area.

I mean, that's that's a black box for a lot of docs because there's just so much going on back there. And, you know, when we, when we as we get we get glute medius, I had one hamstring detachment.

I mean, there's so many things that can go wrong. Yeah. Let me ask you a question. I don't want to be hostile towards because I know you do a lot of PRP.

PRP, BMAC, and Combination Therapies

But I had one patient, we helped her with some stroke recovery, and she said, oh, Park's not coming for a while, I'll just do PRP. And she put it in her IT band, and for some reason, she was one of the few that had persistent pain.

So tell us about that PRP bargain, where you create the inflammation, but sometimes it doesn't go away. I mean, is it as predictable as using, say, stem cells or exosomes?

What are the factors that contribute to that kind of syndrome, where she had more pain after the PRP? Yeah, so we have that conversation a lot, you know, what are the benefits of stem cells versus exosomes versus PRP?

And yeah, PRP, you can have some pain afterwards and obviously we have to draw your blood. Exosomes don't have that issue. But the other thing that we really have to pay attention to when someone says that PRP didn't work for them, is, you know, what kind of PRP did you get?

Because not all PRP is the same. You know, a lot of docs are not drawing enough blood, for example. They might draw like 30 cc's of blood, whereas we're drawing 120 cc's.

So we're getting four times the platelets in one injection. Most of the research now is actually looking at total number of platelets and even some of the other cells like lymphocytes and monocytes.

But initially it was just like, how many PRP injections do you need to get better? And we weren't quantifying what's actually in the PRP. Whereas now we're actually looking at how many platelets are we delivering?

Because it's like any other medication. If you're undernosing, you're not going to get the intended effect. But also the older you are, the less potent presumably that the platelets and their own exosomes are, right?

There's some thought about that but there's also some research that shows that patients who've had bone marrow especially to their joints because there's a lot of alternatives to knee replacement where we can actually take bone marrow from your iliac crest and inject that into the bones, not even the cartilage joint but the bones and those patients are all over 65 because they're being compared to knee replacements.

So you're getting good results in people even over 65 because that's who's getting knee replacements. So when we do the studies to compare them, they're all in their 60s and 70s.

Alright, so let's break it down a little bit for the audience. So PRP that you draw blood, you're setting up to 120 and then you spin it and the platelet-rich plasma is in the middle and then you isolate that, give it back somehow, right?

Yeah, so we do a one spin or a two spin. So when we do the first spin, yeah, you're right. You separate out the plasma on top and the red blood cells on the bottom.

And then the middle layer, that floating layer is the PRP. But then we can do another spin, a second spin to get rid of a lot of the inflammatory cells, a lot of the neutrophils.

So when we do that, the platelets actually stick to the bottom. So we just take the plasma and that platelet layer, we spin it again. And now all the platelets stick to the bottom.

So we've gotten rid of the red blood cells and we've gotten rid of a lot of the inflammatory cells. Okay. All right. So you do a two-spin. Is that, yeah, okay.

They have kits for that or is that just a sucker? Yeah, exactly. Yeah. So that's why we use for arthritis. Now we've heard of other terms like PRFM, platelet-rich vibin matrix, and you also can add BMAC.

Tell us the pros and cons of those two modalities. Yeah, the fibrin matrix just simply makes it stickier. So you can keep it in place potentially. So if you are treating like a distinct tear or a gap, you know, it's going to stay there more easily.

It's like a snotty mucus. Is that somehow made by you during the process? You can change the properties of PRP by heating it or cooling it. depending on what you want to do.

So you can make it more or less viscous by heating it or cooling it. So if you want to be around nerves, for example, you don't want it to be as viscous.

You don't want to put as much pressure. So you want the opposite effect. So you can actually alter those mechanics by simply heating it or cooling it.

And then the BMAC that you mentioned, the bone marrow aspiration and concentration. So that's similar to PRP, but instead of drawing blood, we're drawing your bone marrow.

And then the same thing, we can spin it and concentrate it and inject that into joints or even directly into the bones themselves. So there's actually some good research looking at 15-year outcomes of patients who had knee replacements in one knee, and the other knee still had bone-on-bone arthritis, but they got the BMAC injected into their bones.

And after 15 years, there's about 85% satisfaction with those knees that did not get a knee replacement simply by putting the bone marrow inside the bones.

So now all this is autologous and it falls kind of outside the purview of the FDA. As long as you don't clonally expand stem cells, you're okay. So a lot of people do like this bone marrow aspirate and they'll concentrate the stem cells into a pellet and give back autologous stem cells, right?

Do you do that in your practice? Yeah, so that's that bone marrow aspirate concentration that we were talking about into the bones. Anything where you can combine treatments is also effective.

So the PRP plus the BMAC. I trained at Cleveland Clinic and they were doing a lot of stem cells plus PRP back then. It was amniotic stem cells then. And the thought was the stem cells are sort of the factories and the PRP is the signal.

So combining the two of them are synergistic and you get a more expanded effect by combining the two of them.

Exosomes and Regenerative Pathway Synergy

You know, it's interesting. I went to a stem cell conference this summer and there are only about 5% of posters that even mention exosomes, even though they all know that exosomes are a primary way that stem cells work.

So I guess everyone's in their own silos. But I get this question a lot because I pretty much only do exosomes. And people ask me, well, I see people combining them with stem cells, usually off the shelf or PRP.

Do you have any thoughts on combination protocols? Yeah, I think it's that same idea. You know, they're just different parts of the pathway. So, you know, the stem cells are sort of that factory.

The exosomes, I'm sure you've covered, are the signals that the stem cells are sending out. And then the PRP is sort of the recruitment call, you know, to bring more cells and more growth factors into that area.

So I think they all work. They're just working in different ways. And if you can combine them, you know, it's the same idea with pain management. If you're doing multimodal pain management, you can treat the sight of pain, you can treat the nerves which are sending the signals of pain, or you can treat the brain where the pain signals are going to.

So I think it's just hitting all different areas of that same process. Yeah, very well stated. And how do you feel about products that are allogeneic or other people's stem cells?

Or for example, Wharton's jelly. Do you feel that those are immunogenic or contraindicated? No, I think just with all those, you just have to be careful what you're getting.

You want to make sure that they're pure, the sources are good, and especially with stem cells, that they're alive. Some of these newer laws, like in Florida, will hopefully allow us to make sure that what people are getting is what's advertised and that those stem cells are actually alive.

But yeah, I think if you can make sure you have the right checks and balances in place, I mean, that can definitely be better. And there's really good research coming out for allogeneic MSCs in orthopedics.

Really good research coming out with that from Bahamas, from Dubai, from Japan. So there's really good evidence for allergen in these. No, it definitely is.

A lot of it's in animals, but some also in humans. But I think it's also an intellectual property issue, isn't it? That people don't know who owns these things, so no one's pouring money into trials.

Let's pivot a little bit to your practice. You also have modalities of hyperbaric, infrared, peptides. Tell us about

those. What are the indications or use cases?

Yeah, so everything we're doing at some point or another is helping reduce inflammation and reduce pain, so each of those can help with that. The hyperbaric we use for generalized wellness, but you can also use that prior to regenerative medicine procedures because one or two sessions of hyperbaric oxygen can actually increase the stem cells.

So you're increasing your stem cell load. The infrared laser is really interesting. That's been shown to increase growth factor release of PRP by 10 to 20%. But even on its own, the infrared laser can help people who have pain.

So if they're looking to avoid injections, the infrared laser is great. You know, it helps to activate mitochondria, and mitochondria are the source of a lot of disease as well, but they also have been shown to increase the activity of stem cells.

If some people, I haven't done this yet, but are looking at laser's IV to increase the platelet activation and the stem cell activation prior to blood draws, So there's actually a whole world that's looking at lasers in different applications, but right now we use it a lot for neck pain and back pain to avoid injections into those sensitive areas.

So laser is good for that, but also for pre and post PRP. We use it for two or three sessions before PRP or exosomes just to kind of optimize the joint, the environment that we want to put the medicine into.

Allogeneic Stem Cells and Safety

Then the day of the procedure, we do it to activate the mitochondria in the cells. And then two sessions or three sessions afterwards, just amplifying that effect.

So you have a unit in your clinic. What do you think about these handheld consumer? infrared. Yeah, I think, yeah, and there's a lot of also misunderstanding between red light therapy and infrared.

You know, a lot of these like LEDs, you know, the wavelengths really matter. So the one that I have is a patented like 808 and 905 nanometer. So the wavelengths are super important.

Power is important too. And depth of penetration is important. So, you know, I think for superficial stuff, especially aesthetics, you know, I think the home stuff is fine.

You know, obviously the laser is going to be more focused, more powerful and penetrate deeper. But to get something in between sessions, you know, there are some decent devices out there that you can use in between sessions of a laser as well.

So I think there's definitely a benefit. It's just not going to be as powerful as a, as a class four laser. Right. Correct. So, and in terms of peptides, you have some of the greatest hits BPC 157, TB 500, maybe Ipamorlin.

What are the uses of these for people? So most people come asking me about BPC 157 and maybe TB 500. So these are good for injury recovery. So someone sprained an ankle and maybe want to get back a little bit sooner.

But a lot of people also are coming in with arthritis and more chronic injuries. So one of the benefits of BPC is it upregulates your growth hormone receptors.

And we're trying to activate growth hormone with activities, with laser, with PRP.

Hyperbaric Oxygen, Infrared, and Peptides

So actually, hopefully it's augmenting or making those more effective. And then the other ones that we like to use are the growth hormone releasing agents like CJC and epimerelin.

We're going to recreate the growth hormone spikes that you have when you wake up, when you go to sleep. Because as we get older, we're still making growth hormone.

We're just not releasing it as much. And so these peptides are helping us to release the growth hormone, which also promotes repair and longevity. So a lot of this also goes back to this mitochondrial optimization, which I think is going to be important for longevity.

Because a lot of disease is just potentially chronic inflammation and mitochondrial dysfunction. Great point. So your practice also does some hair restoration.

What's the primary modality PRP? Yeah. So, yeah, we use PRP to help, you know, activate the follicles cells. So, you know, we use the same kits that we use for the rest of the, the body parts, you know, Q injection or do microneedle?

A grid pattern. Yeah. Use lidocaine cream to numb the scalp. And then we can put it in a grid pattern similar, you know, to, you know, hair transplant, I guess.

But in this case, we're just, you know, activating it with PRP. Sure. So you're over in Toluca Lake and you practice somewhat in a hospital too if you need to, but you're really expanding the non-operative choices and modalities.

Yeah, exactly. I want to bring people in also sooner than when they get hurt. So I'd like to start the relationship earlier with some of these longevity or aesthetic options that we have or the hyperbaric so that we can start optimizing people.

And then if they do get hurt, of course, they'll know where to go. But we'd like to start that relationship earlier. Yeah, I mean, let's talk about two of the common standard of care things.

One is hyaluronic acid injections and the other is steroids. And I think for the latter, people don't realize that steroids, you know, most of the arthritis of the knee is not arthritis per se, like gout or pseudo-gout or gonorrhea.

It's non-inflammatory, exudate. Even if you have an effusion, it could be arthrosis. So I don't think people really understand that steroids are good for inflammation, but a lot of what we have in the tendons, ligaments, and joints is just osis, like arthrosis ligamentosus.

And indeed, when I was taking my training, they said, well, if you do a steroid injection of tennis elbow or lateral epicondylitis, you could actually get a rupture of the tendon, right?

So this is something that they don't really tell you about in a fine print when you do steroids all over the body. What are your thoughts about hyaluronic acid steroids?

Yeah, I agree. I mean, cortisone, you know, even one injection of cortisone may actually increase your risk of arthritis in the knees. So, if we can avoid cortisone, I mean, it's always better.

It's, you know, hard to convince some people though, because they're in pain and, you know, an insurance covers a cortisone. Yeah, and it's not possible to do something, right?

And maybe they're not believers in orthobiologics. Yeah, I know. Yeah, my alternative in that case, though, is often toradol. So there's some good research looking at shoulders, hips, and knees using Intraartigulone.

For a joint? Wow. Yeah, and that's been shown to be as anti-inflammatory as cortisone, but without the potential side effects. You know, I used to use hyaluronic acid.

Do you still use that? I do, especially if insurance covers it, you know, and people aren't able to afford the PRP, then certainly it lasts a bit. In my experience, it gets better for maybe six weeks or two months, but it doesn't last, does it?

Is it meant to last? Yeah, I mean, the insurance will cover it every six months. So ideally we get six months out of each injection. That's not always the case, but you know, I've seen people come in once or twice a year for their hyaluronic acid injections and you can combine that with orthobiologics too.

You know, so from PRP, you know, we'll see results a year to 18 months. And in between those, you can do your gel injections if they're covered. Absolutely.

Now, what if somebody just wants to do the bare minimum in terms of nutrition, diet, lifestyle? How can they have less inflammatory diets? And what supplements might be greatest hits for slowing arthritis?

Yeah, again, reducing inflammation so that cells don't age and wear down as fast. So, a big believer in the Mediterranean diet. For inflammation, that's been shown to be one of the best for reducing inflammatory related complications.

I'm also a big believer of turmeric, so I try to recommend turmeric supplements. I like SPMs, which come from fish oil. They're the active ingredient of fish oil and omega fatty acids, so you can take just the SPMs and they're more concentrated.

Hair Restoration and Preventive Care

Collagen has been shown to be somewhat useful in reducing flare ups. Yeah. So it's not necessarily building the car. A lot of people go to Costco, they'll get a big jar of collagen.

Is that really working? Yeah. I mean, I don't think it can hurt. You know, I think the collagen, there is some thought that it may reduce the flare ups because you're sort of desensitizing your system to the collagen.

But yeah, I don't think it's building back the cartilage cells. You know, another important component is vitamin D optimization. Because a lot of the pain is coming from the underlying bone stress.

So making sure that you have adequate vitamin D. And also vitamin D is related to inflammation as well. So those are my big ones. And then I also try to point people towards gut health via fermented foods.

So, kimchi, sauerkraut, kefir, yogurt are introducing lactobacillus, which help to fight inflammation. And then once you introduce that, you have to feed those bacteria.

So, you want to make sure you're adequate in fiber. You can take inulin or psyllium husk or eat like asparagus and Brussels sprouts or bananas when they're greener.

So, that's another way of reducing inflammation through the microbiome. Yeah, very important. Good. Good biome. D is important, but D also sometimes needs K2 with it.

Yeah, usually D3 plus K2. That's stuff you can do at Costco. So, you know, that's good. But in general, I mean, I think people have the wrong frame. They think of osteoarthritis as disease.

You know, all these things, they're just accumulated wear and tear, right? It's stem cell lack of replenishment in the joints and everything. Yeah, I agree.

I mean, it's a spectrum, you know, and I think the earlier we can intervene, the better.

Steroids, Hyaluronic Acid, and Pain Management

You know, just like diabetes, you know, sure there's a cutoff that says, you know, at this point you have diabetes because your blood sugar is, you know, above a certain number, but that was progressing over time.

You know, the same thing with arthritis, you know, someone ends up a knee replacement because they have bone-

on-bone arthritis, but we could potentially intervene sooner with PRP, with exosomes, with stem cells to delay or prevent that progression.

And then you don't bend. I mean, we'll have people come in and one knee is bone on bone arthritis and the other is not. And it's the one that doesn't have the bone on bone knee arthritis that hurts.

Pain is interesting. As I do more practice, I realized that pain is not always what people think it is. And to be, you know, my age 58 and be pain free just because of zapping whack-a-mole every spot that hurts, I think you can't take it for granted that you're going to be in your fifties and sixties and be pain free.

Cause you know, correct me if I'm wrong, but when they do MRIs of people in their seventies, a lot of people like their rotators are not even attached anymore.

And that pain would have gone away because it stopped trying to heal. Right. Yeah, we see findings on MRIs all the time that aren't necessarily pain generators.

And even actually, if you look at athletes, like there's studies on baseball players, professional baseball players, and at least 60%, if not more, are going to have abnormal shoulders.

They're going to have labrum tears, superior labrum tears, partial rotator cuff tears from their adaptations as an athlete. So, you know, normal MRIs aren't, you know, necessarily, you know, the default for somebody.

I mean, there can be things that we see on x-ray and MRI that aren't causing your pain and just trying to hit everything, you know, just because you see it on an MRI doesn't mean we're treating the pain generator.

Well, one thing I found really interesting in my aftercare, I had to change the instructions and bold it because a couple of people, if you take away the natural pain signal from the partial injury, They think they're fine and they start doing their personal best bench pressing or pull ups and they injure something else.

So a lot of times the pain is a warning. It's not as the Marine Corps says weakness leaving the body. It's a warning that you're partially injured. And if somehow the exosomes accelerate the healing.

then the pain goes away. They're very prone, I tell them, during those first couple of months that the collagen is not of the fully mature, organized type.

Is that correct? Yeah. I mean, I think anytime we're turning back to activities, especially as a sports doctor, you know, we have return of play protocols and they're always stabilized.

You know, especially if, you know, you're at an ECL surgery and it's three months and you feel like, oh, I feel really good. I should do some running and jumping and cutting and pivoting, but that ligament isn't fully healed into the bone.

So yeah, you may not be feeling that, you know, issue, but you're doing too much too fast. You could re-injure yourself. And even the type of cartilage is kind of like wet disorganized spaghetti.

It takes a while to replace it. Okay, this is very fascinating. So your practice has really morphed into aesthetics, prevention, adjuncts, as well as surgery.

So you can give the patients, you know, lifelong support, knees especially, but do you also do hips and shoulders? Yeah, lots of shoulders, rotator cuffs, labrums, elbows, tennis and golfer elbow, some carpal tunnels, knees, hips, labrums, abductors, foot and ankle, pretty much everything.

And if someone did need surgery, most of the time I could do it if it wasn't a replacement. I don't do replacements, but I do arthroscopic surgery. And if I can't do surgery, the laser is always a good option too.

So we can pretty much see anything. And our goal is to make surgery last resort if possible. Let me get your weigh in on this final thing. People have foot surgery, maybe some pins or plates are taken out.

Notoriously, orthopods wear these spaces because the joints are prone to infection and they're not well vascularized to fight infection.

Lifestyle, Supplements, and Arthritis Prevention

I always tell people, if you're going to take exosomes to speed up healing, wait 10 days. Because, you know, if there are some bacteria, that initial inflammation is very bactericidal.

Because I know that the exosomes can depress antibody production, right? So I don't give it if people have a cold or flu. Do you think that makes some biological sense to wait after the skin is broken and the risk of infection is there?

Or would you give exosomes right away during surgery? That's interesting. I haven't thought about that. I mean, there is acute inflammation, which is helpful, which is healing.

We don't want to turn that off. Obviously, chronic inflammation is no longer healing and no longer helpful. Generally, I would say even the first 72 hours is probably peak inflammation after surgery.

And then after that, so we start to see less inflammation and less pain. So I would say even after 72 hours, if you're going with that thought process, but certainly waiting, the body's not done healing in 10 days.

So there's probably no harm in waiting if you want to be concerned. I just, you know, I always was impressed when we did the rotations that the orthopods, especially when they're doing the hips, they got four hour hip surgery, they wear those space suits, those bunny suits, right?

So they must be really scared of infection. Oh yeah, that's a big deal. If you got an infected joint, you know, sometimes the whole thing has to come out.

You have to have the infection clear and then you have to redo the surgery with a bigger implant, which is, you know, speaking of cortisone, like we were before, you know, there's research now that a cortisone injection within three months of surgery increases your risk of infection.

So, you know, we used to inject joints. If that didn't work, then go do a knee replacement or even a knee scope. But now if you've had cortisone, we got to wait because of that increased risk of infection.

That's a great point. All right. Well, Dr. Gelbert, any last thoughts you want to share with the audience? Nope. I'm just, you know, happy to see anybody.

Recovery Timing, Infection Risk, and Closing Remarks

I'm on the west side of, I'm sorry, the east side of LA. Nika Lake near Burbank and Studio City in North Hollywood. So, you know, happy to meet you. LAorthowellness.com.

All one word, correct? Correct. LAorthowellness. All right, great. And do you have practice partners as well or? Nope. Right now it's just me and my two MAs.

I love it. Okay. Keep it going. Alright, Doc. Hey, thanks for all the interesting, useful help and advice. I just think the audience benefited. Appreciate it.

Thanks for tuning in to the Recharge Biomedical Podcast. If today's episode got you thinking, you'll love my book, Exosomes, Songs, and Healing. It's packed with cool analogies, full color illustrations, and all the science you'll need to understand how exosomes are changing the game in aging and regenerative medicine.

You can grab it in paperback, ebook, or audiobook, whatever works for you. Now head over to www.rechargebiomechanical.com to check it out. And don't forget to like and subscribe so you never miss another episode.

See you next time.