



**Transcript:**  
**Season 3, Episode 4: Healthy Bones, Can We Grow New Ones?**

Benyamin Cohen:

This is “Hadassah on Call: New Frontiers in Medicine.” I'm your host, Benyamin Cohen. In each episode of this podcast, we'll get an inside look at what goes on behind the scenes at one of Israel's premier medical centers. We'll travel to Jerusalem to meet up with the doctors and nurses at the Hadassah Medical Organization. From striving for peace through medicine to performing surgeries with robots, they're working on medical breakthroughs that are impacting people around the world. That's what Hadassah is all about: the power to heal our world together. From cornea transplants to developments in pediatric oncology, we'll learn about the latest cutting-edge research coming out of Hadassah Hospital. All that, plus the inspiring stories of patients who have recovered from near-death experiences. Our appointment starts now. This is “Hadassah On Call.”

Benyamin Cohen:

Hello everyone, and welcome to the show. Today, I am thrilled that we are joined by Dr. Amir Haze. He is the director of the foot and ankle unit at Hadassah Hospital, and he is head of orthopedic research at the hospital as well. We had a really fascinating conversation about the wide range of patients that he sees, from diabetics to people who are trying to recover from a sports injury. We talked about the groundbreaking stem cell treatments he's used, an inspiring patient he remembers, and where he sees the future of his field. That, plus everything you wanted to know about bones. So, sit back and enjoy our interview with Dr. Amir Haze.

Benyamin Cohen:

Welcome to the show.

Dr. Amir Haze:

Hi, how are you?

Benyamin Cohen:

Thank you so much for joining us. I appreciate you taking the time to chat with us on the show today. How are you?

Dr. Amir Haze:

Great, great, working a lot, but great, having fun, enjoying what I'm doing.

Benyamin Cohen:

I caught you at the end of a busy day, I'm sure. So, before we get started into your medical work, I like to ask all of our guests just a little bit about themselves, so our audience can learn more about you. Where did you grow up?

Dr. Amir Haze:

So, I grew up in Jerusalem. I was born at Hadassah.

Benyamin Cohen:

Were you really? Wow.

Dr. Amir Haze:

Yeah. I was born at Hadassah and then most of my childhood I spent in Jerusalem. And then I recruited to the army. I spent four years in the army, and immediately after the army, I started the medical studies at the Hebrew University at Hadassah.

Benyamin Cohen:

So, you're the head of the foot and ankle unit at Hadassah and also the head orthopedic research. So, can you tell us, what kind of work does all of that entail?

Dr. Amir Haze:

It's very diverse because it, currently, Hadassah has two campuses in Jerusalem, two main campuses, the big campus at Hadassah Ein Kerem and Hadassah Mount Scopus. So, at Ein Kerem, most of the patients that I treat, and my unit treats, is patients that suffer, that are suffering, from diabetic food complications, with a big department that's run by us, but it's a multidisciplinary department, the first in Israel. And now there are other departments that are coming to learn how to do it as we are doing it at Hadassah, because it involves, I think, it's the most complicated patients, almost the most complicated patients in the hospital.

Benyamin Cohen:

The diabetes patients?

Dr. Amir Haze:

Yeah, the diabetes patients who, most of them, are also kidney patients who are on dialysis. And they have heart problems. It's complicated patients. So, we are working together with the vascular team, with the endocrinologist and with the microbiologists, all together as one team, headed by us, and we're doing rounds together, and it's a really, really multidisciplinary team at Ein Kerem. That's one aspect of

our work. At Mount Scopus, we do all the elective work. We do a lot of sport injuries, ankle arthroscopies, ligament reconstruction, cartilage damage, arthritis, deformities like bunions and-

Benyamin Cohen:

Wow.

Dr. Amir Haze:

... A lot of bunions, and things like that, a lot of elective surgeries.

Benyamin Cohen:

So, let's talk about bones in general now, because you're the expert here on bones. I always heard the famous saying that if you break a bone, it grows back stronger. Is that true?

Dr. Amir Haze:

Look, bones are unique. There are two tissues in the body that can regenerate. After the injury, they can become the same as they were before. So, it's bone and liver. So, bone are not getting stronger. They're getting back to the previous situation, which doesn't happen in other tissues in the body. When you have a skin cut, you will have a scar. When you've torn a ligament, you will also have a weaker scar, but when bone breaks, it regenerates. It's quite amazing.

Benyamin Cohen:

Are there different bones where you can recover easier from, like if I broke a finger versus if I broke an ankle?

Dr. Amir Haze:

Yes, there are many things that affect the bone healing. Also the location. If you break a weight bearing bone, it's harder to move, and the recovery period is harder, but there are bones that have less blood flow like the tibia. The distal tibia, it has less blood flow and then it heals much more slowly than the other bones in the body. When you have a lot of blood flow like in the shoulder, in the humerus, then it heals much quicker and it will heal. So, if you want, I can tell you a bit of story about distal tibias..

Benyamin Cohen:

No, I was going to ask you. Where is that?

Dr. Amir Haze:

The distal tibia is just above the ankle.

Benyamin Cohen:

Just above the ankle.

Dr. Amir Haze:

That's a very vulnerable area. So, and people are suffering from what we call "non-union." The functions do not unite. Also, young patients, you can't walk. So, my colleagues did clinical research. They aspirated

stem cells from humans, inject into the distal tibia, and they showed that it really unites faster, and they had more union rate than without the stem cells.

Benyamin Cohen:

Using human stem cells?

Dr. Amir Haze:

Using human, and what we call autologous stem cells, stem cells from yourself.

Benyamin Cohen:

Wow. When we return, Dr. Haze tells us about the worst bone break he's ever seen.

Dr. Amir Haze:

I'll tell you. Don't have a motorcycle. They are the worst.

Benyamin Cohen:

All that, and much more after a quick break.

Benyamin Cohen:

If you're anything like me, you have trouble going to sleep at night. I've tried almost everything -- from sleep aids, to sleep therapy. And if you don't sleep well, it could lead to all sorts of health issues. So you can imagine how excited I was when I got a chance to talk with Dr. Joel Reiter on a recent episode of the "Hadassah On Call" podcast. We talked about his latest research, plus the various aspects of our lives that contribute to poor sleep, like living through the stress of a pandemic.

Dr. Joel Reiter:

Because you take something like insecurity. Insecurity about your workplace, about your parents, about your health, and add to that, the quarantines, staying at home for entire days and nights, and not getting out of bed, and you get an increase in sleep problems.

Benyamin Cohen:

You can listen to that episode right now at [hadassah.org/cantsleep](https://hadassah.org/cantsleep). That's [hadassah.org/cantsleep](https://hadassah.org/cantsleep). And now back to our conversation with Dr. Amir Haze.

Benyamin Cohen

I was reading about some research you did... Maybe this is similar... Helping regenerate injured tissues and injured bones, and you were... I think I read... That you were doing the research on the knees of rats. Is that true?

Dr. Amir Haze:

Yes.

Benyamin Cohen:

Wow. Can you tell us?

Dr. Amir Haze:

Well, it started in rat knees.

Benyamin Cohen:

I didn't know rats had knees. Wow. Can you tell us about that?

Dr. Amir Haze:

Yeah. It's fascinating, I think. To heal bones, it's quite easy. The body knows how to do it by itself, but to heal cartilage, or to regenerate cartilage or tendons and ligaments, no one knows how to do it. The body doesn't do it by itself. It scars. And there is an epidemic, or endemic, of cartilage damages and also arthritis. We have all the departments in Mount Scopus. The ward there is a manufacturer of joint replacements, because we replace joints of people that suffer from cartilage damage. What we try to do is to regenerate cartilage. So, I'm working on a protein, a unique protein that we isolate from the human body. So, we reproduce a specific protein that we found that can regenerate cartilage and ligaments, and we did it, though we can't do it in humans from the start.

Dr. Amir Haze:

So, we started in rat knees, and we did a hole in the rat knee. We drilled the hole, big hole in the rat knee.

Benyamin Cohen:

Wow.

Dr. Amir Haze:

We applied the protein and we show a complete regeneration, and we couldn't believe it. And then we investigate how did it happen, and we found that it recruits stem cells, that the protein itself, you don't need to isolate stem cells and you don't need to do a few surgeries and to go to the lab to isolate the stem cells and grow it and then do another surgery to inject it back to the patient. You can just apply this protein that you have in the body, and we created it in the lab, the protein. We inject the protein and then the stem cells come and regenerate the cartilage.

Benyamin Cohen:

Wow.

Dr. Amir Haze:

It's a bit more complicated than this, but that's what we saw in rats. Now we did it in goats.

Dr. Amir Haze:

Yeah, we had at Hadassah 12 goats and a deer at Hadassah, and sometimes people were going on the elevator would see the goats. We were able to show it also in goats now. It's not published yet, but you are the first one to hear it.

Benyamin Cohen:

That's amazing.

Dr. Amir Haze:

So, we managed to show it in a goat, and nowadays, in the Helsinki Committee at Hadassah is working with us on planning the human experiments, the clinical experiments that should start in the next few months, I think, in two months, something like that.

Benyamin Cohen:

Do you think, with all this medical research that you're doing at Hadassah, that one day you'd be able to prevent... We talked earlier about people with patients with diet diabetes, and sometimes patients like that have to have amputations or something... Do you think you'd be able to, with this research, maybe perhaps prevent something like that?

Dr. Amir Haze:

That is one of our goals. We're really, really, that's a major concern of mine, because I'm treating these patients and we are really working towards this goal, but it's complicated, because these patients, it's not what I described now is it's one injury, injury to the cartilage, because you had an injury. This is the young people who had an injury to the cartilage. When you're talking about the diabetic patients, it's a patient that had a disease before. He has the symptoms for 20 years. A lot of tissues in the bodies and organs are already damaged. So, it's not just one injury, and it's a cascade of things that should have started much earlier. So, it's much more complicated, but we'll start with the small things, and hopefully...

Benyamin Cohen:

I'm curious. You've seen probably so many patients. I'm curious. What's the worst bone break that you've ever seen?

Dr. Amir Haze:

I saw so many bad bone breaks. I'll tell you. Don't have a motorcycle.

Benyamin Cohen:

"Don't have a motorcycle."

Dr. Amir Haze:

They are the worst, horrible open fractures of the femur, of the ankle. So, they are the worst, but open fractures with bones that were left on the road, or military injuries that we, unfortunately, we see quite a lot of at Hadassah. These are the worst cases.

Benyamin Cohen:

My dad recently had some operation, and is it true that people who are older, they have a harder time recovering from broken bones, or it takes them longer to recover from broken bones?

Dr. Amir Haze:

It's not completely true. It's harder for older people to recover because they're a bit weaker and they have other diseases, but bone itself heals at the same time, but the recovery period is more difficult.

Benyamin Cohen:

I mean, it's more serious, right? If an older person falls and breaks a bone, is it more serious than if a younger person falls and breaks his bone.

Dr. Amir Haze:

They break the bone much easier than a younger patient. To break a young patient bone, you need a lot of energy, more difficult to heal and more difficult to function with the break. If you break the small finger, it's not a big issue, but if you break your hip or your back or your vertebrae in the back, that's difficult to manage with and then we need to operate on it. And that's why older people have more problems, but the rate recovery of the bone will be the same.

Benyamin Cohen:

When we return, Dr. Haze gives advice on how we can all strengthen our bones. Plus, he tells the story of a seven-hour surgery he did to reconstruct the foot of an injured athlete.

Dr. Amir Haze:

And we said, "Let's give him a chance. He's young and it might survive, and I believe that he will go back to playing soccer."

Benyamin Cohen:

All that and much more after a quick break.

As one of our podcast listeners, you've been hearing all about how Hadassah is here, healing the world. Every day, innovations from Hadassah's hospitals save lives in Israel, the US, and around the world. Being a member of Hadassah means you're a part of it, and that's something to be proud of. Hadassah is here for you, here for each other, and here for the world. Learn more about the many advantages of membership at [hadassah.org/hadassahishere](http://hadassah.org/hadassahishere). Membership starts as low as \$36 a year. If you're already a member, think about making someone you love a part of our healing work. Membership makes a beautiful gift. That's [hadassah.org/hadassahishere](http://hadassah.org/hadassahishere).

And now back to our conversation with Dr. Amir Haze.

Benyamin Cohen:

We've talked a lot about breaking of the bones. I'm wondering if you could talk a little bit about what are some things that everybody could do to help strengthen their bones, exercises or-

Dr. Amir Haze:

Yeah. Exercises and activating your bone, the muscles around the bones, is very important, very, very important. And to eat properly and to have normal levels, or good levels, of vitamin D and calcium in the blood. In the Western population, most of the time, we are around a closed room-

Benyamin Cohen:

Indoors.

Dr. Amir Haze:

... Indoors. Yeah. So, all of us are lacking vitamin D. Most of us are lacking vitamin D without knowing it. That's very important. And also physical activity.

Benyamin Cohen:

And any particular exercises?

Dr. Amir Haze:

Yeah. Weight-bearing exercises, but mainly, activating your skeleton. When you activate the skeleton, bone becomes stronger. When you put the pressure on the bone, they are becoming stronger. When you are sitting all day, then your bones will become weaker and you will have more tendency to break it.

Benyamin Cohen:

So, you've seen a lot of patients over the course of your career. I'm wondering if you could share with us one or two inspiring or memorable patients that you've had, a story.

Dr. Amir Haze:

I had a lot of inspiring patients. One of them, we operated two days ago. He was a soldier and also a soccer player that was injured severely in his foot. This was a crushed foot. It was open fracture, what we call "the gloving," that all of the soft tissues are folded like you take off a glove. And he had devastating fractures of the foot. And he says, "I want to go back to walking. I want to go back to playing soccer." So, he has a long way, but he had many plastic surgeries with free flaps performed with Dr. Eliashoov, and we reconstructed his foot completely. And the last surgery, it was a seven hour surgery last Monday, and I believe that he will go back that, that he will manage to go back to playing soccer.

Benyamin Cohen:

Really?

Dr. Amir Haze:

... To playing football. Yeah.

Benyamin Cohen:

That saying a lot, because that's not just running. That's actually using your foot to play the game.

Dr. Amir Haze:

Now his foot is looking like a foot, and I think it will function, and it will function and with his motivations, and he's willing. It was all – we were standing in the emergency room when he arrived, and half of the doctors said, "Look, we need to amputate his foot, amputate his leg beyond just below the knee. And we said, "Let's give him a chance. He's young, and it might survive," and I believe that he will go back to playing soccer.

Benyamin Cohen:

That's amazing. Wow. What makes working at Hadassah unique for you?



Dr. Amir Haze:

It's almost my home. I was born in the Hadassah. My father learned at Hadassah and worked at Hadassah, and now and I learned there and work there for so many years. So, Hadassah is like my second home. But, what makes Hadassah unique? Look, it's a very big hospital with a lot of doctors. I think we know everybody knows each other, and you can consult everybody. And furthermore, the interesting thing at Hadassah that it combines the research. There is Hadassah and the Hebrew University that are combined together. If you have an idea, you can go to the lab and test it, and if a researcher has an idea, he can come to me and say, "Look, what do you think about it?" And I think it's great. It's great, and a lot of good things are growing from the combination from basic research and the clinics, which you don't have in other hospitals, usually.

Benyamin Cohen:

Right, because it's both. It's treating patients on one hand, and it's also doing research on the other hand.

Dr. Amir Haze:

And teaching students that are asking questions and raising new ideas. So, all of this, I think, makes us, makes me better than I would have been in another place.

Benyamin Cohen:

Speaking of research, where do you see the field, your field, going in the next five or 10 years? Where do you think it's going to be headed?

Dr. Amir Haze:

Now, if you think about orthopedics, you always think about carpenters. We are breaking and sewing bones, and put it together with screws and plates. So, I think that, I hope, that in the near future, we will still be carpenters, because that's what we like to do, but we'll combine a lot of biology, and in it, a lot of factors will regenerate in the cartilage and ligaments and will make faster the bone recovery, and I hope that will be the future on one hand. And on the other hand, which is already in here, in a lot of aspects, is the minimal invasive surgery and the computer-assisted surgery that we are very involved in at Hadassah. That you plan the surgery on the computer and then the computer helps you to be much more accurate.

Dr. Amir Haze:

And I think the imagination is the limit in this area, but part of the disease, I think that if it's a good biological solution, we will not have to operate. Maybe in the future.

Benyamin Cohen:

What do you mean?

Dr. Amir Haze:

If you can inject some kind of a protein or material or cells to an injury and cause it to regenerate without the need to open it and to stitch it or connect it with screws, then the patient will be much happier and his recovery will be much better. So, I hope that's what will be the future of of orthopedics.

Benyamin Cohen:

That's amazing. That would be cool. Well, doctor, thank you so much for taking time out of your busy day.

Dr. Amir Haze:

Thank you. Thank you.

Benyamin Cohen:

This has been a real pleasure for me. I've learned a lot, and I know our listeners have learned a lot as well, so I really appreciate you taking the time to talk with us.

Dr. Amir Haze:

Thank you. Thank you for your time.

Benyamin Cohen:

Thank you.

Benyamin Cohen:

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