Your Journey With Oxygen Therapy To Unlock Longevity Transcript

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Introduction to Hyperbaric Oxygen Therapy

Welcome to the Fasting and Longevity Summit. I'm your host, Dr. David Jockers. And today we're talking about how to use hyperbaric oxygen therapy to help rehab your brain and your body.

And this is some exciting research. And the guest is Dr. Amir Hadanny, and Dr. Hadanny is a senior physician, certified neurosurgeon and a hyperbaric physician and chief medical research officer at the Aviv Clinic Center.

You can find them at Aviv-clinics.com. So it's Aviv-clinics.com. For the past decade, Dr. Hadanny has worked alongside Professor Shai Efrati on novel research focused on neuro rehabilitation, neuroplasticity and physiology.

And he's published more than 25 research papers focused on the effects of hyperbaric oxygen therapy. If you know anybody that has neurodegeneration, that has has had a traumatic brain injury or anything along those lines or has trouble healing in general, this is definitely something to look into.

Aviv Clinics, aviv-clinics.com. You guys are going to learn all about the powerful healing benefits of hyperbaric oxygen therapy. So without further ado, let's go into the interview for Dr.

Hadanny. Great to connect with you here. I've been a huge fan of hyperbaric oxygen therapy, done it myself. I used to have a clinic where we did mild hyperbaric oxygen therapy and we saw really great results with people utilizing that.

And I know you've done so much research on this. And so let's start by just really a big overview of what hyperbaric oxygen therapy is for. Thanks for having me.

So what we're talking about is a medical intervention basically is speaking. We're talking about a chamber built from metal.

How Hyperbaric Therapy Works

People go inside of it close the door completely sealed, and we compress air inside and increasing the atmospheric pressure to higher than what we're living right now.

Right now, we're one atmosphere. Usually the pressures we're talking about is anywhere between 1.5 to 2 atmospheres, which is like being almost three feet under water.

That's the same pressure that we're feeling. And once you're under that pressure, we're connecting you to a mask and breathing 100% oxygen. So instead of breathing air, which is 21% oxygen, we're breathing 100% oxygen.

And that combination of pressure and oxygen or breathing oxygen under pressure is inducing significant therapy modality. Yeah, that's a great overview.

And how did you get into this? That's an awesome question. So I was doing my training as a residency, as a neurosurgeon and one of my even in PGY1 one of my biggest issues was seeing my trauma trauma patients.

The ones that we treat, we do acute surgery, saving their lives and then seeing them in follow up three months, six months, even a year or years after that event, those patients still suffer from significant disabilities, whether it's cognitive, whether it's motor emotional, and basically not go back to their day to day life.

And my mentor from Medical School Shift Radi was just receiving being in the director of hyperbaric chamber by complete chance. And I reached out, we talked about it and he said he had a couple of traumatic brain injury

patients that he saw some interesting results.

And we said, let's do a randomized controlled trial. And we did that. You know, we were both very skeptical coming from, you know, he's a nephrologist, I was neurosurgeon, both of us very skeptical.

And we designed this randomized controlled trial, you know, to prove that this is just placebo effect. And we were stunned.

Conditions Treated with Hyperbaric Oxygen

We were really, really astounded, you know, comparing the the treated group to the control group, we saw amazing both neurological effects as well as significant cognitive effects really translating to improving day to day life or what we called ABL activity of daily life, proving the quality of life of these patients, being able going back to work.

Amazing. So that got me hooked. You know, traumatic brain injury is always the biggest thing for me and why I'm doing this. Yeah, absolutely. And I think hyperbaric is most well known for its ability to improve people recovering from traumatic brain injuries, strokes, things like that.

But what what overall like what conditions can improve as a whole for utilizing hyperbaric oxygen therapy? Right. So you have let's divide them, you know, even by history.

So when you think about how hyperbaric oxygen therapy started, we talking about, first of all, diving accidents. That's how it started. People got the bends.

People still get the bends if you do some mistakes on your diving. So that's the first and foremost use for that. Then when we talk about therapy for chronic conditions, you have majorly non-healing wounds.

So people who have diabetic wounds or other issues in their periphery wounds a really inducing significant healing of those wounds. Also that one of the biggest indication is radiation injury.

So we're talking about people who were received regular therapy for different cancers, can have skin issues or gastrointestinal urological issues, even cognitive issues because of radiotherapy.

So hyperbaric oxygen therapy is actually the only therapy for Redding to grow this sort of radiation injury. And then we have the whole neurological indication.

So and that's kind of what our group has led over the past two decades in research. Like I said, people can have a severe traumatic brain injury leading to injuries that require surgery.

But also people can suffer from mild traumatic brain injury and then develop post-concussion syndrome, which is emotional symptoms, cognitive symptoms, headaches, and a lot of different symptoms that bother people.

So we know that post-concussion syndrome can significantly benefit from hyperbaric oxygen therapy. So that's TBI wise. And then the second neurological indication I would like to mention is stroke.

People suffer from different types of strokes, whether it's hemorrhagic stroke or ischemia strokes. So people get the acute intervention in the hospital leading to significant improvement, leading to rehabilitation.

But still, people remain very, very disabled now on different spectrum of injuries. And again, we've led significant research showing that we can improve both neurological symptoms, such as motor improvements, as well as cognitive improvements.

What people a lot of times forget that more than 50% of stroke survivors suffer from cognitive issues, whether it's memory, attention, processing speed for more than 50% of them suffer from that.

And we know we are able to improve that. And again, can bring them back to work and improve quality of life. So those two main indications again of broken TBI next to LED research in different pain syndromes.

So central pain syndromes when our brain causes us to think that we have different pain or causes us to process, touch and feeling, and they're painful.

One of the classic indications is that fibromyalgia, again, people that feel pain along with sleep issues, emotional symptoms. Again, due to a neurological issue.

The problem there is in the brain, we already know that. So again, we led a lot of research in fibromyalgia and saw that this can be significantly improved.

That led us to a whole branch of trauma induced brain injury or what we can call PTSD, eventually post traumatic stress disorder. We're now leading the second randomized clinical trial, which the results will soon be published.

But again, we're talking about brain injury that results from a traumatic event and it doesn't have to be military related. We all know, unfortunately, can be a motor vehicle accident, but it can also be, you know, emotional assault or sexual abuse that unfortunately are so common and caused people to suffer from significant injury and stress for the rest of their lives.

So, again, the right patient that we are able to help with, we do assessments for. And if we are able to help again, PTSD is significantly can be significantly improved with age puberty.

The next indication I would mention is what we're doing with aging. Okay. So the 2015 study we led on healthy aging or normal aging. We took patients over the age of 64, which didn't have a significant, you know, event.

They did not have TBI, Irish stroke or a significant cancer or cardiac issue. They were just people over the age of 64 pretty healthy. And we wanted to see what we were able to produce or induce with hyperbaric oxygen therapy, a specific novel regime protocol.

And we found we are able to improve the aging process where able to improve cognitive function as well as physical function along with actual aging biomarkers.

So we're actually changing the way we age with hyperbaric oxygen therapy. So I think those are the main indication. We cover diving through wounds, radiation necrosis and the new field that we had for the past couple of decades for neurological indications.

But what's unifying everything here, what we're talking about is injuries that are related to hypoxia or low level of oxygen, different organs that suffer from lack of blood and lack of oxygen that causes a wound.

And this is what we do with hyperbaric oxygen therapy. We heal wounds that do not have enough oxygen from blood. It happens with the trauma, whether it's traumatic or stress related.

It happens with stroke. But it also happens, like I said, aging while we age different vessels in our brain, in our kidneys. It's our heart are being occluded and we have tiny wounds in all of our organs.

So, again, the goal of hyperbaric oxygen therapy is to heal wounds, whether they're into your brain or in your heart. Yeah, yeah. Really exciting stuff.

And at the cellular level, we know that oxygen is helping improve mitochondrial energy production, which allows the cell to function better and then also helps the cell to detox more effectively as well and just handle overall oxidative stress that it may be encountering.

And that's, you know, a big part of the mechanism. Now, a lot of people are confused on the difference between and the importance of the pressure.

Pressure, Chambers, and Safety

So they think, well, if I just have an oxygen tank and I'm breathing in the oxygen, then aren't I getting oxygen? Why do I need to be in the actual pressurized chamber weight?

Question So we have a simple answer to that. That is physics. So there is a physical law called Henry's Law that says that you are able to dissolve more gas molecules in a liquid under pressure.

And the best way to understand this law is a Coca Cola can. Again, I'm not a Coca Cola advocate here, but think about that. So you have a lot of CO2 gas dissolved in the can.

The moment you open the can you hear that? Because now the pressure is released and all the molecule starts to run away. If you leave that Coca-Cola open for a couple of hours, you'll have a flat Coca Cola.

And this is exactly what we do with a hyperbaric chamber we're taking you and making cocaine. What we're dissolving is oxygen in the liquid of the blood or the plasma.

We're dissolving more and more molecules. The only way you're able to dissolve more molecules of oxygen is with pressure. So you have to have pressure.

You know, if you just breathe breathing oxygen without pressure, you're not really dissolving significantly more oxygen. So you're not getting to that therapeutic effect.

You're in the lower, lower end of dissolving that and it's just not effective. Yeah, yeah. It's a good explanation there. Now there is a spotter are hyperbaric oxygen, hard chambers and then there's also soft chambers, otherwise called mild hyperbaric oxygen therapy.

And from from my awareness, you can really only access the heart chambers. Typically, the average person only has access in various specialty clinics and hospitals.

Right? And then there's a little bit more, you know, somebody can actually purchase and have at their house a mild hyperbaric oxygen chamber. What is the difference in the dosage and the effectiveness of these two?

Okay. So that's a it's a big talk here. So the soft shell usually do not pressurize more than 1.2, maybe 1.3 atmospheres, but also a lot of them do not provide 100% oxygen.

Some do 94, 95, some do regular air and then or 30% oxygen. So we're talking about different protocols. But I think, you know, we talk we call it mild hyperbaric oxygen therapy, but we're talking about low dose, a very, very low dose of therapy that has never been proven.

Basically, we do not have any clinical study that has been run with that protocol. And to see what it does, we have a couple of physiological studies that show that it's much milder, much lower efficacy on different biomarkers such as stents.

Those it does have some efficacy but very, very, very mild. And for the clinical effect, we simply don't know it can it heal wounds can heal the brain can help with traumatic brain injury.

We just don't know cause nobody has done a randomized controlled trial looking at the efficacy on the physiological level and thinking, can it actually do what we do with high pressure, 100% oxygen?

Probably not. We're talking about a very low a low dose and probably not an effective one.

Access, Treatment Protocols, and Clinic Use

But I also want to talk about so that's on the efficacy level, but I also want to talk about the safety level. You you

know, we're talking about devices.

Those are supposed to be medical devices. Most soft shells are not regulated. And we're talking about pressure and oxygen. And unfortunately, those things can explode.

So exactly like you said, we do it in clinics and in hospitals because we have technicians and we have people that were trained to run those safely. And if you don't do that safely, you can end up with a significant injury or in most cases actually actual death, because when this explodes in that person there, you know, it's not going to end well for anyone.

And those are the devices that explode and cause issues. So on the safety level, I really do not recommend anyone putting it in their homes like you wouldn't put an MRI machine in your home garage because these things are dangerous and can harm you.

It's not, you know, there are different companies that sell them and tell you everything's going to be fine, but it's like selling you an MRI and telling you everything's going to be fine.

It's safety and efficacy. People should not use those devices. Oh, interesting. And so how do people access the heart chambers? Are they do they have to have a specific diagnosis?

What if they're looking to do it for the aging benefits like you were talking about? What is the accessibility at this point? Good question. So there are a lot of different clinics and hospitals running them.

Most of them do not do neurological indications, unfortunately, something that we are trying to change. Now, I will say that it's not for everyone. I think and I think the biggest issue we have with hyperbaric oxygen therapy, that people think that it can cure everything.

No, definitely not. We need to have a very specific patient selection mechanism and this is what we do here in a vive. I'm the chief medical officer of a Vive.

And our process starts with assessments. We run the patients for three or four days cognitive assessments, physical assessment, and most importantly, brain imaging.

We do MRI imaging, we do SPECT imaging, and we see what's going on in the brain and can we help it if it's not something that we can predict any benefit, we shouldn't treat it if the symptoms or the signs are not correlating with what we see in the brain with those non-healing wound sorry non-healing wounds of the brain.

If they do not correlate, we do not treat. We shouldn't offer it. Yeah, what the heck? Do it. It doesn't do any harm. No, it's a medical intervention and we should treat it as that.

And we should treat patients that have specific indications and can benefit from that. Like you wouldn't go for any surgery if you're not indicated for that, that's exactly how you should deal with it.

So you should go to a clinic that does assessments that include brain imaging and make sure that you would benefit from that. If if you don't do that process, don't do it.

Yeah. So Aviv Clinics that we're running is what we're doing right now here in in central Florida. We do the assessments and then we decide which type of treatment, which protocol you're going to get that we have shown in the randomized controlled trial based on your brain imaging that we should benefit from.

Very interesting. And how many of clinics do you guys have at this point? So right now we have three clinics. We have the Central Florida one, the Asia one in Dubai, in the United Emirates and in Israel.

Okay, excellent. So you guys can look up. It's just Aviv Clinics and and check out the assessment and what are the treatment protocols look like? Like how often is somebody using it?

What is the time length typically where that they're in the chamber with question. So definitely it depends on which indication we're talking about. We didn't have time to talk about.

Sometimes there are acute indications such as carbon monoxide or compromised flap that people can suffer from the can plastic surgeries. So it really depends.

But if we're talking about the neurological implications, such as a stroke or TBI, a pain syndrome or or an aging process, we usually talk about three months of therapy, 12 weeks on each week.

We're talking about daily sessions. So five sessions a week and each time each day we're talking about 2 hours in the chamber. We use multiples.

Future Research and Emerging Applications

We do not use a hardshell chamber, like you mentioned, which is a model place that only for one person we talk about a very big chamber looks like an airplane.

From the inside, we talk about 14 people sitting together at once, up to 14. So obviously each person has their own chair, their own tablet, and they sit there and time.

So usually 60 sessions for 12 weeks, five days a week, 2 hours, and a specific protocol that we do here. Well, that's really interesting. So you got 14 people in there.

They're just kind of sitting there on their tablets so they don't have to kind of lie, you know? And, you know, they can sleep if they want, but they're able to obviously do their kind of daily activities or just they have Internet access, things like that.

So yeah, really. Right. Yeah. But I also also want to mention one of the key things that we do here with Aviv, we also combine for specific patients cognitive training so patients can actually do different exercise, cognitive exercise while they're in the chamber.

And the reason for that is synergistic effect. We know cognitive training has some benefit from it. We know our hyperbaric protocol has a benefit. So we combine the two for specific patients and we give specific exercises or specific indication.

Of course, specific cognitive domain personalized to that patient to do while he's in the chamber. He doesn't do it for the entire time of the 2 hours.

But for this specific amount of time, we want him to do every day or every other day. I love that you're stacking those those different therapies and going to obviously get better benefits that way.

So really, really great stuff, Amir And people can reach out to Aviv Clinics to learn more about this. And where do you see hyperbaric medicine? Obviously, you're on the forefront of this, seeing patients and also doing research.

Where do you see this going in the future? Are there any other, you know, promising conditions that that that hyperbaric oxygen will be approved for that you foresee in the future?

Yeah, so definitely that's our that's our goal. That's our life goal. First of all, I want to have bold indication that we've discussed FDA approved. Yeah.

So we are working on significant trials to get them approved and to be much more available everywhere for survivors of those conditions. But also, we are also working on cognitive decline due to other pathologies.

And obviously the biggest one is Alzheimer's. We have a couple of Alzheimer's disease studies running currently. We don't know the results yet, but that's definitely the direction we're talking about.

We are exploring different indications. We haven't even talked about LED performance, but we are also utilizing oxygen and to improve physical performance of athletes.

So definitely I think in this decade we'll see hyperbaric oxygen therapy being more and more utilized for different indications, much more available. And again, if used smartly and correctly on the right, people, this will be a significant portion of a lot of people.

Wonderful. Well, thanks so much for your time and the great research and work that you're doing. Amir, really, really exciting to hear about the results that you guys are getting and how people are utilizing this sort of therapy.

And again, thanks so much for your time and your great work and guys will see you on a future interview. Be blessed everybody.