

Katie Johnson: Good morning, and welcome To Apple A Day, Lake Region Healthcare's health and wellness show, where we feature news and information you can use to live a healthier life. I'm Katie Johnson, your host. I have two guests with me today, Anna Williams, physical therapist at Lake Region Healthcare's Rehabilitation Therapies Department, and one of her patients and a high school student athlete many of our listeners will probably recognize, Joe Connelly. Thank you both for joining me today.

Anna Williams: Thanks for having us.

Joe Connelly: Thanks for having us.

Katie Johnson: There is an exciting new treatment that Joe has been kind of trialing for us, maybe one of the first patients to experience personalized blood flow restriction therapy. Anna, I'd like to start out by just sharing with our listeners a little bit about why Lake Region Healthcare decided to pursue this new type of therapy as an option for our patients and exactly what it is.

Anna Williams: We started, I think it was about last... the end of the summer last year that the orthopedic surgeons and doctors came to us. They had gone to a course and learned a little bit about this and really were pleased with the results that they were seeing in their scenario, particularly with athletes post surgical or anyone post surgical, athlete or not. So, they brought it up to us, and we had a lot of interest in it, a lot of us had heard about it as well, especially through some of the professional athletes out there are using it, or have been using it. It's kind of a new up and coming thing, like you said. We've been really, so far, pleased with the results we've seen with it.

Anna Williams: As far as what it is, it's called blood flow restriction, so we use, basically, a medical grade tourniquet that is personalized, meaning it actually starts by taking your blood pressure so that it's restricting the appropriate amount of blood flow. It starts by measuring that and then it restricts the blood flow while you perform lighter exercises that then basically act to allow the muscles to build like they would build in something more high intensity with heavier weight, so it's really kind of cool for patients who are limited in how much weight or weightbearing they can do early on.

Katie Johnson: What kind of training did you have to go through before you could start providing the service here?

Anna Williams: Yeah, we had a course come into our facility and we had 16 therapists get trained in it so it was a whole day-long course. We did a lot of the bookwork part of it, seeing the research where it's been proven, the results have been proven, and then of course a lot of hands on where we got to try it ourselves, got to see how it felt, how you felt afterwards and then be able to try it on each other too, so we learned the set up and the appropriate steps for that, so it was really good.

Katie Johnson: What kind of patients are kind of ideal patients for this or typical candidates to see success from blood flow restriction therapy?

Anna Williams: Yeah, actually in the course it was kind of overwhelming because the candidates can span all kind of different diagnoses but what we're really seeing right away are going to be injuries or surgeries to the extremities, so whether that be a shoulder, wrist, elbow, or a hip, knee, ankle. The tourniquet there is going to go on the upper arm or the upper leg and so the benefits are obviously going to be below that level because that's where the blood flow is restricted, but they have also shown with research that it can benefit some muscles above that level too, so even though it's at the hip, we've seen some benefits in the glute muscles and same thing with the arm. They've shown some benefits in the shoulder complex even up into the shoulder blade and those stabilizers.

Anna Williams: Those are typical good candidates, but we've definitely... there's more research going on even neurological diagnoses of starting to see some good research for that and basically as far as things that would maybe make you not good candidates, there's very few restrictions as far as using it or contraindications, but we would obviously screen that out with any new patient, but basically they say if you're healthy enough for surgery and healthy enough to exercise, you're generally a good candidate for it, because obviously many surgeries, they're going to use a tourniquet in surgery too.

Katie Johnson: Sure.

Anna Williams: If you're okay to do that then you're usually an okay candidate so we would just screen out anything else in particular during the initial evaluation.

Katie Johnson: Sure. So Joe, you obviously were identified as a good candidate. From what I understand, you started pre-hab actually with Lake Region Healthcare before you had ACL reconstruction surgery last summer. Tell us a little bit about how your injury happened and what your process has kind of been like through the last year of pre-hab to rehab.

Joe Connelly: My injury started when I was playing summer soccer this last summer. I was running with the ball and I had all my weight on one leg and I got barely bumped into and my knee decided to go inward. There was a loud pop and I was down. Then after finding out that I did tear my ACL, I was prescribed to have pre-hab and that was to get the broken parts dislodged that were in my knee so I could have full mobility and then basically pre-hab was just for mobility, not really strength wise because I'd lose my strength after the surgery anyways.

Joe Connelly: Then after the surgery, the first two months were again getting my mobility back and then from that point on it was getting my strength back up to what my other leg could be and then with the introduction of the BFR that's when I could definitely notice a difference with the strength coming back and bulking up.

Katie Johnson: So how did you decide to try BFR? How did they make it aware to you and was there some kind of maybe motivating factor that you were really trying to get strengthened for that made you want to try this new therapy?

Joe Connelly: When I got checked up for my return back to sports, Aaron Lindstrom suggested that I should do that. I was cleared to play sports before but he was just saying that this would be a beneficial thing to get the strength that I need back so I don't risk tearing it again while playing tennis.

Katie Johnson: Sure. How would you compare your blood flow restriction therapy to the other kind of general physical therapy that you did?

Joe Connelly: It was definitely more challenging and I liked it because towards the end if I wanted to just strengthen my surgery leg to get a good workout where it was feeling sore, you'd have to do a lot, but with the blood restriction therapy, you can have a full hour and a half intense workout in 35 minutes pretty much.

Katie Johnson: Great.

Joe Connelly: You could definitely know that you've been working your muscles.

Katie Johnson: You can feel it. So what have been the results? I know you were working hard to get on the tennis court for the spring season. How are you feeling that it's holding up and how has it performed for you?

Joe Connelly: It definitely feels most of the time like I haven't even had surgery. Just a few times I will remember it, but otherwise with my sports brace, I feel very comfortable out on the courts.

Katie Johnson: Anna, you mentioned professional athletes have been using this type of therapy for quite a while and I've heard that sometimes people try to maybe mimic that or do it on their own. Is that safe? Can it get the same results? Is it something that can be a do it yourself kind of thing?

Anna Williams: Absolutely not. That is actually a big topic we did in our training because they said that people are literally using rubber band to tourniquet their arm or their leg to get bigger muscles, because it is effective, but when it's done right.

Anna Williams: Our system, being that it's called personalized blood flow restriction, is because like I said, it sets the blood flow restriction at the appropriate percentage, so for a lower extremity leg you need it to be set at 80%, for an upper extremity, or an arm, it's 60% so we find... or the research shows if it's less than the effective amount you actually aren't going to get the benefits you want, and of course if it's restricting more than that not only soft tissue injuries, but nerve injuries is a big thing that they are at risk for, especially in the upper arm because it's a little more superficial there so we would definitely not recommend that. Actually, like I said, that's where our system is really helpful because we don't have to worry

about checking it as we go, it continuously is modifying to adjust the pressure so it maintains the appropriate amount for the most benefit, but also keeping the other tissue safe as you do it.

Katie Johnson: How about from your perspective with Joe's progress? How would you describe it from a clinical perspective?

Anna Williams: Yeah, that's the awesome thing with this treatment so far is that is one thing they know across the board with injuries like ACL injuries, meniscus injuries, anything where you have to restrict weightbearing and where the quad muscle doesn't tend to want to fire at its full capacity for sometimes even months after surgery just because of everything that's happened, that is the biggest thing we see is atrophy in the quad muscle and the calf muscle often, and then just the weakness that goes along with it. So usually there's an amount of strength we want back before someone's going to return to sport for that to happen safely.

Anna Williams: Like Joe mentioned, there is always a risk for re-tear and that risk is much higher if someone goes back to sport with having maybe 70% of the strength of their strong leg. There's just always the chance of a reinjury so this BFR, I mean the research supports it and we're seeing the results too is that it allows us to build the bulk up which actually is correlating too with functional strength so it's not just getting the look that the muscle is returning but it's also functional strength which we tested with Joe by doing a single leg jump test for distance and I don't remember the exact numbers now, but a significant improvement as far as percentage on his surgical leg compared to his nonsurgical leg within just three weeks. It actually makes differences quite quickly too. That's huge.

Katie Johnson: And nice that you can have such a precise measurement, a way to measure that progress.

Anna Williams: Exactly. Absolutely.

Katie Johnson: So Joe, what would you tell other people, whether athletes or anyone with an injury that might benefit from it? Any advice or encouragement from your perspective having gone through the blood flow restriction therapy?

Joe Connelly: I definitely thought that my bulk in my leg was definitely noticeable and just with, like what Anna was saying, in three weeks I got my bulk up on my lower quad to close to what my surgery leg was and it was like 2 cm smaller and I got that up within that time. Otherwise, it's definitely an interesting feeling and like in working out before my injury and stuff, feeling that fatigue so it's definitely an interesting way to achieve that through the BFR.

Katie Johnson: I'm guessing you have to be willing to work at it and work through that intensity.

Joe Connelly: Yes, because the system of how you do the workout, you do the exercise until you fatigue and that is definitely a challenging thing to do for [inaudible] a lot of

times I remember cramping out and not being able to finish, but that's just what you want to see.

Katie Johnson: Sure, absolutely. So Anna, listeners who might be interested in learning more or thinking they or their kids or someone they know might be a candidate, what's your advice to them for next steps?

Anna Williams: Yeah. Definitely if there's something going on that you're feeling would be a benefit, you want to talk with potentially your doctor first to see if that would be a good step to come to therapy and then when you do come to therapy, we'll do our normal evaluation to see what's going on and then we will definitely talk about the steps to go forward with that treatment and being able to make sure of course that it's appropriate, but like I said the contraindications are quite small compared to many treatments, so we would be able to start that usually within the first couple visits if that's deemed to be appropriate for them. Like I said, the results can happen quite quickly and then it's always going to be of course combined with some typical exercise or therapy things as well and then a home program too.

Katie Johnson: Sure, sure. Anything else either of you want to share with our listeners about your experience with blood flow restriction therapy?

Anna Williams: Yeah, I was just thinking back when Joe was describing his experience with the therapy, the one thing I have noticed with some of my patients right away is they have to be okay with the discomfort of feeling the blood flow restriction because it is like getting basically like when you get your blood pressure taken, you are going to feel that, so some people right away do get some discomfort with that and so just knowing that we obviously are trying to keep it at a certain amount of pressure but we can always work through that too.

Anna Williams: Then what I also really remembered Joe saying the first few visits we did was that it was the first time he felt like he could really isolate the surgical leg and the muscles that we were particularly working on, which for him it was the quadriceps and the lower leg muscles and so that was huge to me, because we work and work and work to do single leg exercise to isolate, but it can be hard when that muscle is weaker because your body is naturally going to want to compensate, so being able to find something where we can isolate the particular muscles we want to be able to build back up has been really great with this.

Katie Johnson: Great. Personalized blood flow restriction therapy, a new therapy service being offered by Lake Region Healthcare. Sixteen physical therapists trained and ready to help with personalized blood flow restriction therapy here at Lake Region Healthcare's rehabilitation therapies. Joe Connelly, thanks for sharing your personal story of how it's worked for you. Congratulations on being back out on the tennis court, being ready to graduate and hopefully heading off into your college career with a really strong knee. We really appreciate you sharing your

story with us. And Anna Williams, physical therapist, thanks for all of your information and for helping to lead the charge with getting the word out about this new service at Lake Region Healthcare as well.

Anna Williams: Thanks again for having us.

Joe Connelly: Yes.

Katie Johnson: Joe Connelly, Anna Williams, and Katie Johnson on Apple A Day this morning, reminding you there is so much to do here, stay healthy for it. Have a great day.