Mayo Clinic Q and A - Sports Cardiology- YouTube Audio - 05 ...

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SPEAKERS

DeeDee Stiepan, Narrator, Dr. Bryan Taylor, Dr. Brian Shapiro

N **Narrator** 00:00
Coming up on Mayo Clinic Q&A,

D **Dr. Bryan Taylor** 00:02
An athlete really is anyone who is interested in regular physical activity, participation in sport at any level.

N **Narrator** 00:10
But for people with a heart condition, the thought of starting or returning to physical activity can be scary. That's where a consultation with a sports cardiologist can make a big difference. An initial exam can cover cardiology, cardiac imaging, structural heart disease and exercise physiology.

D **Dr. Bryan Taylor** 00:28
That kind of cornerstone test allows us to get a baseline idea of fitness, and also gives us a first sweep of trying to understand what any limitation might be, and then from that, we

can go ahead and actually begin to design very individualized training programs. I think that's a really key component here.

D **DeeDee Stiepan** 00:45

Welcome everyone to Mayo Clinic Q&A. I'm DeeDee Stiepan sitting in for Dr. Halena Gazelka. Sports cardiology is a specialty clinic where a team of cardiologists, exercise physiologists and other specialists evaluate and treat heart conditions with a goal of keeping athletes active in sports. With us today to discuss sports cardiology, are two Mayo Clinic experts, cardiologist Dr. Brian Shapiro, and cardiopulmonary exercise physiologist, Dr. Bryan Taylor, welcome both of you to the program. Thanks for being with us.

D **Dr. Bryan Taylor** 01:19

Thank you.

D **DeeDee Stiepan** 01:21

So, let's start with who needs sports cardiology. Is this something that's just for elite athletes? Or is this for anyone?

D **Dr. Brian Shapiro** 01:31

That's a typical, that's a terrific question. So, I can field that Bryan first, then you can chime in afterwards. But essentially, we're trying to target three different types of patients. Of course, that elite athlete whether it be professional, collegiate, or even high school, for that matter. We're able to see patients for 15-years and older, and then what we like to call the weekend warriors, so people like myself, who are middle-aged, wants to get out there, wants to start running, again, biking, doing triathlons, things of this nature, to those patients who may actually have cardiac disease, have never worked out. Doc, what should I do? One of the main questions I get in my practice, is Doc, what should I eat? And what should I do for exercise? Two fundamental questions that oftentimes we either run at a time in our clinics, or it's not something we have expertise with. And throughout those three different tiers of patients, essentially looking at those who might be healthy, or those who may have symptoms that are concerning, whether it be breathing difficulties, or arrhythmias, heart conditions, like coronary artery disease, or heart failure, things of this nature. So, we want to see both healthy, but also those who might have issues. Bryan, I might let you chime in as well. Bryan actually, is also the head of cardiac rehab, and so sees quite a few patients, who have got quite a bit of cardiac disease.

D

Dr. Bryan Taylor 03:00

Yeah, I think that was a really nice summary of the types of people that we would see through a sports cardiology program. I think perhaps the key definition here, or the key term to focus on is athletes. We tend to think of athletes as in high-level elite, professional sports people. But that's not how we're viewing it here. An athlete really is anyone who is interested in regular physical activity, participation in sport at any level, that can be from as Dr. Shapiro said, from the elite level down, but all the way to people who just want to take up recreational sports, join a local running team or triathlon team, take part in mass participation running or cycling events. So, an athlete is really anyone from the top and professional elite level sports person. And that's typically what our minds go to when we think of athlete, but in this terminology, it can be anywhere on that spectrum. And that's something to really remember. That can be anyone who just wants to take part in regular physical activity, take part in a regular sporting event, and kind of get the benefits of being regularly physically active.

D

DeeDee Stiepan 04:07

Very good. You both definitely touched on some of the reasons a person may want to have an evaluation done by a sports cardiology specialist. So, what does a sports cardiology exam involve?

D

Dr. Brian Shapiro 04:19

Great question DeeDee. So essentially, the most important part of this is not just a me or a Bryan Taylor, or different components of it. It's really the team multidisciplinary approach that, you know, we take at Mayo Clinic, but this is going to be no exception. So essentially, I'll sort of walk you through the typical clinic. So, a patient would come to see myself, and I probably would also have a cardiology fellow or resident with me as well, a trainee. They would see me, get a full comprehensive evaluation. What are your goals? You know, what are the things that might be impediments? Really go through that whole gamut, determine if they're already cardiovascular symptoms that are concerning and so forth. I probably would do some bedside type of in addition to an examination, probably a bedside echocardiogram, we're going to have labs, ECG, different sort of basic testing, even performed prior to that evaluation. Then we're going to have the patient do what's called a cardiopulmonary stress test. So not just a stress test, and Bryan Taylor can speak to this better than I can, but a specific stress test tailored to that patient. So, we're going to have a gamut of different testing, whether it be treadmill, bicycle, we'll have weights, we'll have all sorts of different things, patients would be fit with a certain mask, and I'll let Dr. Taylor discuss that here in a second, where we can measure all sorts of different parameters. That test is going to be performed by an exercise physiologist, who really knows the way

that's supposed to be done, and all the intricacies of that. Then they're going to see Dr. Taylor, who's going to interpret the examination, go through all the details of the test, what sort of things they're able to accomplish, what sort of impediments there might be, and that the end of that evaluation they come back to see myself. This is all same day, by the way, same day, the same visit, see myself for a close out, and then what other additional things we might need. So, we're going to have nutrition with us. We're going to have all sorts of different specialists at our disposal. And there's actually going to be other questions that come up like Doc, what are my risks? Do I have coronary disease? Do I have some other things where we may need some additional tests like CT scans, stress, you know, different types of stress tests, echocardiograms, sort of more a gamut of different evaluations? Dr. Taylor, I think you might want to speak to the cardiopulmonary stress test and what that entails.

D Dr. Bryan Taylor 06:56

Yeah, perhaps I'm biased because I'm the exercise physiologist on the team. But I really think that cardiopulmonary stress test is the kind of cornerstone of the evaluation we will do with these patients. In effect, what we do is we stress the system, the human physiological system, to its limits. And what we're trying to do, there is really two things. One, we're trying to understand the baseline level of fitness of the overall heart and lung and musculoskeletal fitness the person or the patient has, but also as like a first sweep of where potential issues might be. Through interpreting these tests, we can understand if exercise is limited. Is it due to a heart condition or a lung condition or something else? Is it just some form of detraining. And so that kind of cornerstone test allows us to get a baseline idea of fitness, and also gives us a first sweep of trying to understand where any limitation might be. And then from that, we can go ahead and actually begin to design very individualized training programs. I think that's a really key component here. We can look at that data, and rather than just using genetic data based on things like predicted equations, or what we think a person should do, we now have real empirical data as to that person, we can design the best possible training program to get the best benefit for them while maintaining safety. The other element of the exercise testing is, as Dr. Shapiro talked about, we will have a whole range of different tests, we can do different modalities, bike, treadmill, rowing. One thing we will also do is when we work with patients, if they are developing symptoms, for example, sometimes these symptoms can develop in very specific situations that only takes place after exercising for 30 or 40 minutes at a constant intensity, or only occurs when someone does very hard exercise intermittently. And so, what we'll do is we'll work with the patient as to try and develop these kinds of unique on the spot tests to try and mimic the symptoms they are reporting so that we can better understand what the cause of the symptoms actually is. So, rather than just being stuck with one set of exercise protocols, we can actually be quite specific to the patient, adapt

what we do to them to try and replicate the symptoms they are feeling when they become limited, and see if we can identify the problem. And again, that also helps us better understand the patient and better prescribe exercise moving forward.

D DeeDee Stiepan 09:28

Yeah, sounds like these evaluations are very individualized, which is wonderful. So, why should a person see a specialist? Can any cardiologist see these patients?

D Dr. Brian Shapiro 09:42

It's a terrific question. So no, there's a lot of great cardiologists out there. And I would say the vast majority of cardiologists can give the basics. So, you know, the American Heart Association as example puts out a fairly beautiful statement that says, you know, we need to get our patients exercising for 150 minutes a week, half that essentially should be more vigorous, they should be doing weight-based training, or flexibility type training a couple days a week. There's all these statements that I think most cardiologists know. Now, that being said, there's a lot of intricacies to exercise with regards to running, if you're not a runner, you really don't know running. And unfortunately, I have the disease. When I say that if you don't know the intricacies of running and biking and swimming, and, you know, what it takes to sort of be at that high level of, let's say, you want to be a football player, or a baseball player, or this particular athlete has an ECG abnormality or a heart murmur or something, can I play division one sports, there's all these little pieces to that. And I think Bryan hit it perfectly too. We can sort of reiterate, you know, in a general way, hey, here's what the American Heart Association says. Or, as you both said, we can individualize it to the patient. Patients are going to be walking out with an exercise prescription tailored to what they want. And then particular follow-up to make sure that things are going along the right lines. I had a professional golf player as a patient the other day. I said to him, what are your goals, and he said, I just want to maintain really decent fitness, stability and strength, so I can practice, or I can play for the next 20 years. I don't need to be one of these crazy runners or triathletes, I just need my body to hold up. And so, we tailored, actually furthermore, you know, we spoke to his trainer, you know, that works with him every day and communicate with his trainer and basically say, Hey, here's the things I think you should be doing. From my end, we talked about some dietary changes. So, I think DeeDee, I think overall, I think a lot of cardiologists do this very well. As a team approach, I think we can do this really great, and very much individualize it. And I think between a number of us, including myself, Dr. Taylor, all of our exercise physiologists involved, there's a lot of resources to know all of the different gamut of sports. And so, I hope that answered your question.

D DeeDee Stiepan 12:23

Yeah definitely. Could you just, I know that these exercise prescriptions, as you said, are very tailored, very individualized. Could you give some examples of what types of treatments or programs might be prescribed?

D Dr. Brian Shapiro 12:40

Absolutely, Dr. Taylor, do you want to start with this one?

D Dr. Bryan Taylor 12:42

Yeah. I think if I can just take a little step back quickly, sorry, and add to what Dr. Shapiro just said about the kind of the specialist interest. And maybe this leads into how we prescribe exercise. One of the other reasons for having specialists involved is that there are physiological adaptations that occur specifically in the heart, like the cardiovascular system in general, but specifically in the heart. The athlete's heart, almost kind of paradoxically, can look like the pathophysiological heart. So, a bad heart and a good heart can actually in some ways, at least on first glance look quite similar. And so, part of that evaluation is to basically help tell the difference between those two things. So, what we do not want to do, in terms of a prescription standpoint, is we don't want to prescribe exercise to someone that has inherent risk of an adverse event. But similarly, we don't want to withhold anyone from exercise when there's actually nothing pathophysiologically wrong. So, that expertise, our understanding of how the whole long-term exercise training actually adapts the cardiovascular system and adapts the heart and looking at and being able to identify the good adaptation versus bad adaptation is really critical. And that's part of the kind of the specialist provision, or the specialist service that we provide. And then that leads into the treatment part. And so, for me, my role here is exercise physiologist, we will be prescribing that exercise. A lot of that will come down to what the goals of the person actually is. If this is a maintenance program, just to hold where they are, we will look at their current routines, and possibly just try and regularize what they do. We'll try and make it a bit more prescribed, stick with what you're doing, just make it more frequent, do it more often, do it for longer, for example. But if this is someone who really wants to push fitness, wants to compete at a higher level, then we might do things like high intensity interval training, for example, where we push the limits of the cardiovascular and cardiopulmonary system to get better and bigger adaptations. And again, we can then prescribe that exercise very accurately. We can tell the patient what heart rate to try and achieve. We can tell them what speed to run, what power to cycle at \to get these better adaptations. So, depending on what the goal is, we can prescribe anything from almost like a maintenance program where the person will just exercise regularly throughout the week for a certain duration and hold a level of fitness, or we can

have them push the envelope and that's pushing harder on their aerobic exercise or running or cycling, really pushing into a higher intensity, adding on resistance training, so lifting weights effectively, to get bigger adaptations, or better adaptations and muscular strength and muscular endurance to help push performance. And so, from an exercise prescription standpoint, that's how we would look at. And Dr. Shapiro can come back in and probably speak to this better than I can, but part of the evaluation, we see something that does look pathophysiologically wrong, perhaps an irregular heartbeat. Some high blood pressure, we see that fairly frequently in older male athletes. Then perhaps there needs to be some combined drug-based therapy to control that irregular heartbeat or control that blood pressure going along side with the exercise prescriptions. Or sometimes it can be a combined treatment, too, and I think Dr. Shapiro is probably in a better place to talk about those drug-based medical treatments than I am.

D Dr. Brian Shapiro 16:14

You look at the numbers of people doing triathlons and running and they're skyrocketing. And so, we're seeing that in our 40s, 50s, 60s, even 70-year-olds, who have got other comorbidities. And so, managing those comorbidities, I'll give an example. I've got a patient who's 72 now, and he's got a very diseased heart. His ejection fraction, or how strong sis heart is, is about 20%, meaning that it's about a third of what it should be. He's dealing with significant cardiomyopathy, but he loves to exercise, loves to be fit. And I've got him on a number of medications, things like beta blockers and ACE inhibitors, special medicines to see if we can shrink up the heart muscle and make it stronger. And so, that particular patient wants to do triathlons. And so, we basically target exactly what he can do for those particular races. And one time, he said, you know, I'm feeling so good, let me take it a little harder, and he actually had a bad race, where things when things went awry. And I said, listen, you know, we need to really stick with these parameters, and so forth. And as Dr. Taylor mentioned, we've got patients with cardiomyopathy, things with abnormal heart muscle, where we want them to be in good shape, we want them to be physically active, we want those brain chemicals, that are doing what they're supposed to be doing. But with certain limits, you know, with certain ways we treat it. And so, I've had a lot of patients with a lot of success. And I know that, you know, if you take a runner, runners love heart rates, it's all about heart rates you know. And if you try affecting that heart rate with certain medications, things are going to go awry, or what a lot of doctors say when they see an athlete who wants to run and constantly has injuries, and this, that and the others will say, well just stop running. I don't know if anybody's told a runner to stop running before, but that runner is never going to come back and see you because, again, it's a disease that we all have. But you know, you have to be able to communicate and meet the patient where they're at. And so, there is not one size fits all here. This is going to be essentially a very tailored approach with a very special team of people like Dr.

Taylor, his team of exercise physiologists, our nutritionist specialized in sports, a sports cardiologist, and then a number of additional teammates that have specific expertise in this area.

D DeeDee Stiepan 18:51

So, if there's someone out there listening to this, and this sounds like something they're very interested in, how can someone go about finding a sports cardiology center or a physician? Can either of you tell us about what Mayo Clinic has to offer?

D Dr. Bryan Taylor 19:03

I think in terms of finding a program it is just going to be your general web-based search. You know, the key words that someone would search for in terms of exercise prescription or sports cardiology or sports medicine would likely lead you to several, several places that would be viable options for you. But I agree wholeheartedly with what Dr. Shapiro said, I think that the real beauty of the real strong sports cardiology groups are those that are multidisciplinary, those that can actually rely upon expertise from multiple different sources. And I'm not sure many centers do that better than Mayo Clinic across the board. You know, we work in teams, there's always open lines of communication, and I can speak to that directly. My immediate background before coming here was in academia, working in universities, and as a very silo-like environment at universities. You are in your lab. on your own and trying to go out and get expert help on any that maybe you're not quite so familiar is really quite challenging. But that's not the case here at Mayo Clinic. That is not true at Mayo Clinic. So, if we were to evaluate a patient, and we think that their heart and their lungs are in great shape, but they have a neurological or musculoskeletal disorder, Dr. Shapiro and I know exactly the people to go to, and we know they'll be willing to help. Same with nutrition. Same with the psychology of exercise. Dr. Peters talked on this a few times in terms of the disease. I think that's also, I don't know if it's a self-selection, or a calling, but you tend to find most people, cardiologists, exercise physiologists involved in sports cardiology, have at one time or another, been a failed athlete, right, we've all tried and we've not made it. And that's why we're in the jobs that we're in right now. So, I don't know if that's a kind of self-selection type deal, but we're familiar with the psychology, the goals, the drive of someone wanting to take part in regular sports, and competition is very different to your average patient. And so again, having those expert psychologists on hand to help us work with athletes, especially those who are trying to push on to a higher level, or even those who are at a high level and our suffered suffering performance deficit, they've come to us to try and understand if that's a body thing, when actually it might be more of a mind thing. And again, that multidisciplinary approach, so if someone's searching for a sports cardiology group, I would advise that they look for one that offers a

real multidisciplinary approach. And that's certainly something that we can do here at Mayo Clinic, not just on the individual sites, but in between the other sites around the country.

D DeeDee Stiepan 21:38

Wonderful. Lots of great information. Thank you both for being with us today. Our thanks to Mayo Clinic experts, Dr. Brian Shapiro and Dr. Bryan Taylor, for joining us today on Q&A to discuss sports cardiology.

N Narrator 21:51

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