

Mayo Clinic Q & A - Dr. Elijah Behr - Heart arrhythmia

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SPEAKERS

Dr. Halena Gazelka, Dr. Elijah Behr, Narrator



00:00

Coming up on Mayo Clinic Q&A,

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Dr. Elijah Behr 00:03

And your heart muscle is like other muscles that gets activated electrically. And that electrical impulse starts off at the top of the heart and finishes off at the bottom of the heart and allows the heart to activate a pump in a sequential way from top to bottom, in a coordinated way, giving you your pulse and the normal blood pressure.

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Narrator 00:24

But if the electrical impulses that coordinate your heartbeats are irregular, you can have a condition called heart arrhythmia. Your heart can beat too fast, too slow, or out of rhythm. Today on Mayo Clinic Q&A, we'll explore the causes and the treatments of this common heart issue.

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Dr. Elijah Behr 00:40

It's very straightforward to investigate. It's very straightforward to reassure when things are benign and readily treatable. We have treatments that can prevent risk, prolong life, and can maintain quality of life for people.

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Dr. Halena Gazelka 00:53

Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. We've all experienced a heart rate increase when we exercise or sometimes if we feel nervous or excited. But what if your heart rhythm changes and you aren't expecting it? That condition is called a heart arrhythmia. Heart arrhythmias occur when the electrical impulses that

coordinate your heartbeat don't work properly. This causes your heart to beat too fast, too slow, or irregularly. So, what causes heart rhythm problems, and what can be done to treat them? Well, we have an expert joining us to discuss this today, Dr. Elijah Behr is a consultant cardiologist at Mayo Clinic Healthcare in London. Welcome, Elijah.

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Dr. Elijah Behr 01:38

Thanks for having me Halena.

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Dr. Halena Gazelka 01:39

Well, thank you for being here to discuss this topic with us today. I am sure this is something that all of our listeners can relate to, in one way or another, maybe even after drinking too much caffeine.

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Dr. Elijah Behr 01:53

Or alcohol for that matter.

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Dr. Halena Gazelka 01:55

Oh, interesting. Yes. So, Elijah please start by telling our listeners what is a normal heartbeat?

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Dr. Elijah Behr 02:02

So, the normal heartbeat is what you feel is a pulse in your wrist, or in your neck, or sometimes when you're lying on your side in bed. It's the pumping of the blood around the body by your heart muscle. And your heart muscle is like other muscles that gets activated electrically. And that electrical impulse starts off at the top of the heart and finishes off at the bottom of the heart and allows the heart to activate and pump in a sequential way from top to bottom in a coordinated way, giving you your pulse and a normal blood pressure. And the heartbeat can just vary according to what your body needs. So, if you're asleep or resting, then your heart rate will be slow, and your pulse will be slow, and the heartbeat therefore is slower, a reflection that heart rate. Otherwise, if you're excited, or anxious as you said, or wanting to do sport, then your heart rate will increase, the heartbeat increases, and that all reflects what your body needs and what your brain wants it to do.

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Dr. Halena Gazelka 03:04

So, tell us what is the difference between the normal heart rate and an arrhythmia, and what are the types of arrhythmias?

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Dr. Elijah Behr 03:11

So, there's a normal heart rate range that basically corresponds to, as I said, what your body needs. In general, if you have an excessively slow heart rate, that can cause symptoms, or sometimes be a sign of danger. That's called bradycardia. Now, if you have an excessively fast heart rate that's called tachycardia. And it really depends on the

circumstances because sometimes a normal heart rhythm can be very chaotic or tachycardic and be appropriate. But, in other settings, it can represent disease, and even be a life threat for people.

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Dr. Halena Gazelka 03:48

Interesting. What causes arrhythmias?

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Dr. Elijah Behr 03:52

So, in terms of the causes, they are quite varied, but they are quite some simple mechanisms in the end. If the heartbeat is going too slow, that's because the electrical impulses are either failing to be generated in the heart, or it's conducting very slowly in the heart, or blocking in its conduction. And that's what causes bradycardia, and there are types of bradycardia including heart block which can be very dangerous for people and require treatments, which we'll discuss later. In the fast heart rates, that may be caused by electrical short circuits in the heart, or by areas of damage to the heart that make the heart just suddenly beat out of control. And those are the different causes of tachycardia.

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Dr. Halena Gazelka 04:38

We talked about the fact that the heart rate can vary. So, how would an individual know if they were experiencing an arrhythmia? What would the signs and symptoms of that be?

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Dr. Elijah Behr 04:48

Well, some people can get disturbances in their heart rhythm that they're just not aware of and will only be picked up just by their Apple Watch for example. Now, other people will feel symptoms, and that may feel a bit like dizziness or maybe passing out even. So, it can be quite dramatic in the symptom if it's an extreme sudden slowing or extreme very rapid heart rhythm. Alternatively, they may just feel the heart going more rapidly than they will expect, maybe a bit of dizziness with that, sometimes a bit of breathlessness or even chest pain with it. But palpitation is the way we term that, the perception of the heart rhythm being abnormal in some way. And that may even just be a small flutter, an extra beat, a little bit of irregularity that they personally feel in their chest or in their neck.

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Dr. Halena Gazelka 05:41

I think it is fascinating the variety and symptoms that can be experienced. I had Graves' disease about 10 years ago, and I remember being very tachycardic, particularly if I would try to work out, but I had a great deal of anxiety associated with it, and I wasn't sure if I was having an issue with my mental health or if I was having a cardiac issue.

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Dr. Elijah Behr 06:02

Well, certainly stress, anxiety, the levels of adrenaline in the system will increase the heart rate, and then make you feel potentially that there are palpitations going on. And that's an important symptom of anxiety. But sometimes people are experiencing true palpitations, and they worry about them, and subsequently the anxiety makes it worse. And often doctors struggle to tell the difference unless they actually do tests.

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Dr. Halena Gazelka 06:30

What are those tests?

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Dr. Elijah Behr 06:32

Well, the tests can range from electrical recordings of the heart, just a 10 second snapshot, so that's an ECG, electrocardiogram, or EKG, as it's called in the States. Or it could be just continuous monitoring, the simplest of these could 24-hour tapes to Holter monitors, where you get hooked up with a little box that you go home with, and it records your heart rhythm from a few electrodes, little sticky labels that get put onto you, connected to the box. Or you may get more sophisticated monitoring systems that can even have little implants under the skin that can monitor you for years. So, it's quite a range of ways of recording symptoms.

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Dr. Halena Gazelka 07:14

I can imagine there's also a range of how you might treat arrhythmias depending on what they are and what they're caused by?

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Dr. Elijah Behr 07:23

Yes, and as you said very much do very much relates to the cause, the underlying heart disease if any, and the symptoms that they are causing. So, for some people, if they're unaware of them, or they're not inconvenienced by them, then you could just leave them alone and not treat them. Medications can sometimes be useful to suppress them. And if people don't like medications, or the medications aren't suitable, particularly if they have other health problems, then you can consider other treatments such as ablation therapy, which is a type of keyhole surgery that's done through the veins of the arteries in the body, to get into the heart, and to destroy the little area of heart damage or short circuit that I mentioned to you before that can be the problem. Alternatively, you can sometimes use electronic devices that can be implanted under the skin and connected to the heart. So, for example, pacemakers are a critical part of the treatment for slow heart rhythms and can prevent people from blacking out and can save lives very easily when they're suffering from heart block. Alternatively, for very rapid heart rhythm problems, ventricular tachycardia and ventricular fibrillation, these are potentially life-threatening rhythm problems, where a shock to the heart may be necessary, then an implantable defibrillator may be the right treatment for the patient. So, there is a range of therapy already available, and hopefully it'll be better therapies as I get older in this field.

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Dr. Halena Gazelka 08:57

Elijah, there's been a lot of interest about COVID and how it could affect the heart. Is there an association between viruses like COVID and heart rhythms?

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Dr. Elijah Behr 09:09

It has been hard to necessarily tease out whether there is a direct effect of COVID on the risk for rhythm problems in the heart. There probably is a small affect from that point of view, but I think much of it is related to whether COVID is directly effecting the heart state by inflaming the heart causing myocarditis, which is a risk that's recognized, but is

still quite rare, or whether there's direct damage to the heart as a consequence of some of the damage to the small blood vessels that supply the heart, which is a consequence of some of the COVID infection. And so, really it's a consequence of the effects COVID has on the heart muscle that may then stimulate rhythm problems, either at the time of a COVID infection, or if there's been significant damage to the heart muscle because of a severe COVID infection, then maybe residual is a risk for that person as they recover from COVID and be part of the long COVID complex. But most of the serious effects of rhythm problems are in the people who are seriously ill in hospital or an intensive care and part of their general illness, and thankfully resolve once the illness is treated.

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Dr. Halena Gazelka 10:28

Elijah, it sounds so is that there's a great deal of disparity between whether a heart rhythm is innocent or not significant, and whether it might be emergent. How would an individual know that they should be seen immediately for a cardiac arrhythmia?

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Dr. Elijah Behr 10:47

I think there are some red flags really. And the red flags are based on symptoms, or maybe on the background for that person. So, if a symptom is serious, so a sudden collapse or loss of consciousness, I mean, that's immediate attendance to an emergency department. Likewise, if one's having palpitations, so the heart racing away unexpectedly, and associated dizziness, lightheadedness, another reason to go to the emergency department straightaway, and calling an ambulance as required. Things that may be a little bit more amenable to being assessed as an outpatient, are comings and goings of palpitations that aren't making somebody feel unwell particularly, they could then be assessed outside of the hospital in a diagnostic clinic, for example. The other things that may worry somebody is if they get chest pain with their palpitations as well. Because that may also be a sign of associated risk. And certainly, if chest pain is ongoing, then they should go again as an emergency to the to the emergency department. The other thing that's a red flag, in particular in young patients, is if there's a family history of concern. So, accepting that that person may not have any history of heart problems themselves already, if they know that there is a family history of somebody at a young age having had a premature or sudden death, or if there's a family history of inherited heart problems, then that may flag up that there is a potential risk if somebody is having symptoms, or may actually just needs screening from the point of view of preventing risk before they develop symptoms.

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Dr. Halena Gazelka 12:31

It's certainly not something to ignore if it's an ongoing issue it sounds like.

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Dr. Elijah Behr 12:35

Of course. And it's very straightforward to investigate. And it's very straightforward to reassure when things are benign and readily treatable. And obviously, as I said, we have treatments that can prevent risk, prolong life, and can maintain quality of life for people.

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Dr. Halena Gazelka 12:52

Elijah, any last words of wisdom that you'd like to share with our listeners today?

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Dr. Elijah Behr 12:58

That's a good question. Wisdom, indeed. Well, I think the important thing is not to leave things out attended to. Don't worry about them if you can get them reassured, if you can get them attended to and looked after. And that, you know, cardiologists are well prepared to look into that.

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Dr. Halena Gazelka 13:20

And I guess when I think about visits to physicians that I have had, often, they listen to your heart and lungs. So, I would imagine that as in ongoing regular care having your heart examined as well is important. And so, a good call for us to receive our regular general care as well.

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Dr. Elijah Behr 13:43

Yeah, you know, we've been trained as doctors and cardiologists to do all these classical things for our patients. But we also have technology at hand that's readily available and getting increasingly cheap to deliver that actually renders a lot of what we, a lot of those clinical skills that we spend so long attaining a little bit redundant. But my ears are not as good as as the cardiac ultrasound and echocardiogram, and that's pretty straightforward and reassures everybody once we get back a good result.

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Dr. Halena Gazelka 14:18

Well, thank you for being here for this conversation today, Elijah.

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Dr. Elijah Behr 14:22

My pleasure. Nice to talk to you, Halena.

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Dr. Halena Gazelka 14:25

Our thanks to Mayo Clinic consultant cardiologist at Mayo Clinic Healthcare in London, Dr. Elijah Behr. I hope that you learn something today. I know that I did. We wish each of you a wonderful day.

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Narrator 14:38

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