

# Mayo Clinic Q&A - Dr. Pollak - PAD - Transcribe

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## SUMMARY KEYWORDS

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## SPEAKERS

Dr. Amy Pollak, Narrator, Jason Howland

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### Dr. Amy Pollak 00:00

Coming up on Mayo Clinic Q&A, PAD stands for peripheral artery disease. What PAD is really talking about is in the arteries down to our legs, having those arteries impacted by cholesterol buildup that leads to narrowing that can be mild, or it can really be severe and can be associated with this what we consider a leg attack where you have this sudden clot that forms in the setting of that cholesterol buildup, which is really a life and limb threatening emergency.

### Narrator 00:34

PAD can occur from several factors including a family history of heart disease, high blood pressure, high cholesterol, or diabetes. Lifestyle changes can help improve symptoms, especially early during peripheral artery disease.


### Dr. Amy Pollak 00:49


There are several parts to treating PAD: Controlling blood pressure, finding those pathways that are going to help them, stop smoking, what we eat matters, Mediterranean diets, all those good omega three fatty acids that matters, supervised exercise therapy, or SET, really as a first line treatment, oftentimes, even before considering revascularization because it's so successful.


### Jason Howland 01:14


Welcome, everyone to Mayo Clinic Q&A. I'm Jason Howland sitting in for Dr. Halena Gazelka. Peripheral artery disease, or PAD, affects almost 10 million people in the U.S. PAD usually involves the lower limbs and leg pain caused by reduced blood flow due to the narrowing of the arteries. Unfortunately, peripheral artery disease has not traditionally been diagnosed early enough that patients are often not treated with the most aggressive therapies. But a new PAD


action plan spearheaded by the American Heart Association is hoping to change that. Joining us today to discuss is Mayo Clinic cardiologist Dr. Amy Pollak. Welcome to the program, Dr. Pollack.

 Dr. Amy Pollak 01:56  
Oh, thank you for having me.

 Jason Howland 01:58  
Well, let's start out with the basics. What is PAD, and what does it lead to?

 Dr. Amy Pollak 02:03  
Oh, absolutely. A great initial question. So, PAD, as you mentioned, it stands for peripheral artery disease. And that's kind of a mouthful in terms of what we're used to thinking about things like heart attack, and heart function, and stroke. And those are much more tangible and easy to digest. But what PAD is really talking about is in the arteries down to our legs, having those arteries impacted by cholesterol buildup that leads to narrowing that can be mild, or it can really be severe, and can be associated with this kind of what we consider a leg attack, where you have this sudden clot that forms in the setting of that cholesterol buildup, which is really a life and limb threatening emergency. And so, PAD can run that spectrum of, you know, asymptomatic cholesterol buildup in the arteries to the legs and feet, to cholesterol buildup that's impacting blood flow that patients feel with some variety of symptoms that we'll talk about, to really this kind of acute change where it's really threatening to the integrity of their limb.

 Jason Howland 03:19  
You mentioned the term leg attack. So, is it similar to a heart attack? Is that why it's called that, or is it completely different?

 Dr. Amy Pollak 03:27  
So, it's similar in the sense that for many heart attacks, that underlying pathophysiology is cholesterol and plaque, atherosclerotic plaque, mediated and that you tend to have a clot form in the setting of that underlying atherosclerosis. So, that same pathophysiology can occur in the blood vessels to the legs. And if you have that sudden occlusion of one of the arteries to the legs, you're understandably not going to get blood flow distally and all of that muscle and tissue in the foot and leg is going to be impacted and at risk. And so, that in kind of medical words would be an acute leg ischemia, or acute limb ischemia, ALI, but I think leg attack is really that phrase that seems to understandably resonate with most people.

 Jason Howland 04:10

**J** Jason Howland 04:19

So, essentially the limbs, the legs, are not getting enough blood flow?

**D** Dr. Amy Pollak 04:25

You're exactly right. And that can happen suddenly that acute limb ischemia or acute limb event, and it can also happen more chronically, and that's where you start to see sores that aren't healing on someone's foot. There is a high crossover where patients have diabetes and, you know, diabetic foot ulcers or that change in sensation and neuropathy associated with the feet in individuals that have diabetes. And about half of all diabetic foot ulcers or wounds, that patient also has underlying PAD, and they may not know about it. And that has really dramatic implications for wound healing and how likely somebody is to potentially need to have an amputation. So, it's critical to be able to identify patients who are going to be at that greatest risk of PAD and its' complications.

**J** Jason Howland 05:19

What are some of those risk factors?

**D** Dr. Amy Pollak 05:22

So, you know, we talked about how PAD is oftentimes just cholesterol buildup in the blood vessels, the arteries of the legs, so similar risk factors to what we think of for heart and stroke health. And so, I think there's been a shift in the vascular community to have all of us as clinicians think about our cardiovascular health as really being kind of three legs of this common stool. So, you have your heart health, your cerebral vascular health, which is putting you at risk for stroke, and then that peripheral artery disease or lower extremity vascular health, because they're all interrelated and those similar risk factors. So, what are they? For PAD in particular, diabetes is a major risk factor. This has been known for many years, and then tobacco use, and those are by far and away the two strongest risk factors associated with developing PAD. But certainly, things like high cholesterol, high blood pressure, just age, as we all age that risk goes up, and then other issues that can affect somebody's development of calcified atherosclerotic plaque as well, but diabetes and tobacco use, age, high cholesterol, and high blood pressure.

**J** Jason Howland 06:42

What are some of the symptoms of PAD? You know that someone may not be aware that they have it. So, what are some of the symptoms, most common?

**D** Dr. Amy Pollak 06:53

Absolutely. So, it's interesting with PAD, we talked about this, the spectrum. So, you have these kind of stable leg symptoms where somebody's impacted with how far they can walk or the level of activity they can do. And traditionally, that's been called intermittent claudication. And

that claudication refers traditionally to this cramping discomfort in one of the muscles in the leg that occurs when you're walking, and then resolves when you are resting. The challenge is, even for that kind of stable symptom, so they're happening with exertion, that only happens about 10% of the time, when individuals have clear, significant, you know, flow limiting stenosis, or cholesterol buildup in the arteries to their legs. So, although that's a symptom we need to ask about that won't capture the vast majority of patients who have symptomatic PAD. So, what are some of the other symptoms? Well, oftentimes, patients have some sort of other leg discomfort, whether or not it's a heaviness or a fatigue, sometimes it can be discomfort that they have, in their mind decided this is arthritis, or it's neuropathy, or its aging. And so, it can be more of a vague discomfort in the leg. And it can extend anywhere really, from, you know, almost your groin area all the way down to your foot. And so, many times patients will cut back on their activities so that they're not having this leg fatigue, or thigh discomfort, or back discomfort. And when they're asked about symptoms and their routine medical appointments, they'll say I don't have any symptoms. But it's important to push that conversation a little further to really understand how active is somebody now and what could they do six months ago or a year ago. So, we need to ask more broadly about limitations to walking with somebody to really interested in what their functional status is and asking about any symptoms that could be related to the legs. So, that's the kind of stable exertional leg symptoms. Then we talked about this kind of sudden leg attack, or the acute limb ischemia, and that is dramatic. Somebody has profound, you know, discomfort in their leg. The foot can turn white, or purple, because they're not getting good blood flow down, the toes will be impacted. And that is generally speaking not subtle. Oftentimes, patients aren't aware that this could be what's going on, you know, they may be thinking is this a blood clot in my vein but may not be aware that time is of the essence if you have lost blood flow in the artery to your leg or to your foot. And then that third group is that chronic critical limb ischemia, where you have just this tight, tight cluster, a build-up and narrowing in one of the arteries to the legs, where you are day in and day out impacted by not getting good blood flow to that tissue in the foot or leg, and you're starting to see these kind of purplish black, gangrenous toes, sores that aren't healing well. So, PAD really runs that spectrum of having either asymptomatic disease or they aren't aware of any symptoms, but it cuts back their activity, or in that same vein, not having enough of a narrowing that it's impacted their blood flow, but fundamentally having cholesterol buildup in our arteries. It's that window into our cardiovascular health, that three legs of that stool. And so, if somebody has underlying PAD, that's telling us that they're at a higher risk for heart attack or stroke, even if they're asymptomatic. So, kind of the take home point is, you can be totally asymptomatic, having underlying atherosclerosis, you can have symptoms related to changes in your exertional or walking ability, you can have that acute limb ischemic event, that leg attack, and you can have that chronic critical limb ischemia, poorly healing wounds, or those kinds of gangrenous toes.

**J** Jason Howland 11:09

Is that most common just in one leg? Or will it occur in both legs most of the time?

**D** Dr. Amy Pollak 11:15

So, that's a great question. It just for some patients, it's more unilateral and occurring in one leg, and for many people it's more of a systemic process. And so, you'll have cholesterol buildup in more than one, you know, territory, one blood vessel territory in the leg and

involving both legs.

**J** Jason Howland 11:33

So, how do you go about as a cardiologist, how do you diagnose PAD?

**D** Dr. Amy Pollak 11:36

So, there are several steps to diagnosing PAD, I think the first one is having that conversation with the patient, taking the time to understand how active they are, and if they are having a limitation, and how far they can walk. Because then your antennas are up that this may be somebody who could potentially have PAD. Second step is on that physical exam, and, you know, it's having worked in Minnesota and in Florida, it's easier to oftentimes have patients not be wearing socks in Florida, as compared to winter boots in Minnesota, but you need to check the pulses in the feet. So, taking the socks off, taking the shoes off, and checking the pulses in the feet, because those are an important window that we can feel on physical exam to what's going on with that whole arterial tree that's going from our heart to the aorta and down to the arteries in our legs. So, you need to do a good pulse exam. And you can check the pulses in the in the foot, behind the knee, listen for bruits, and in the iliac vessels really doing a good vascular physical exam. And then the third part is starting to get that diagnostic testing in. And the most common initial test that is done is something that's called an ABI, or an ankle brachial index. And what that is, is it's using ultrasound and blood pressure cuffs to really non-invasively look at blood flow in the leg compared to that in the arm. And so, you're checking that blood pressure in your arm and comparing it to a series of blood pressures taken in the legs using blood pressure cuffs as well as ultrasound. And that's a very straightforward, you know, not expensive test to determine if somebody has evidence of PAD. There's certainly some limitations to doing the ABI testing. But that is absolutely a very helpful first test to do. And then when you're diagnosing PAD, and you're having to make some of those decisions about are we going to use medications, and exercise, diet and lifestyle to treat PAD? Or do we need to focus more on a revascularization? That's where things like a CT scan or an MRI, where you're using dye to get these non-invasive angiography images to get a roadmap of the vessels, and to potentially plan for intervention. And then certainly you doing invasive angiograms sometimes needs to happen if you need to get a more complete picture of the arterial tree and you can't do it non-invasively. Or if you're aiming to do, you know, a balloon or a stent, you get that diagnostic information as well as being able to do the procedure at the same time.

**J** Jason Howland 11:38

So, how do you treat the PAD?

**D** Dr. Amy Pollak 14:41

Well, there's several parts to treating PAD, you know, the, we need to think about the risk factor modification. So, traditionally, patients with PAD have not been put on really life-saving medications the same way we have treated patients or learned to treat patients who have coronary artery disease, or a history of cerebrovascular disease. So, unless there's a

contraindication, patients who have PAD have obviously this known vascular disease now, and we need to reduce their risk of heart attack, stroke, and acute limb ischemic events, or leg attack. So, using an anti-platelet, something like aspirin. The second part of that risk factor modification would be aggressive lipid lowering. So, if that involves a statin, or if their cholesterol is not getting to goal on statin, adding additional cholesterol medication, and we now have good data about the role of some of the injectable cholesterol medications, the PCSK9 inhibitors, the monoclonal antibodies, have been well studied at this. So, we talked about aspirin lowering cholesterol, really making sure that that diabetes is well controlled. And if it's something that we need to adjust their medications or insulin to be more aggressive, or just really amplifying what's being done from a diet and exercise, weight loss perspective, diabetes control is critical. Controlling blood pressure, and then really counseling and finding those pathways that are going to help them stop smoking, if they still are using any nicotine products. So, that's going to be that kind of the cornerstone of the medical management of those cardiovascular risk factors. The other parts which are, not to be forgotten, are the importance of diet and exercise. So, there was a Spanish study, the PREDIMED study, that came out almost 10 years ago now, that looked at Mediterranean diet, and that it can actually reduce your risk of developing symptomatic events with PAD. So, what we eat matters. Mediterranean diets, all those good omega three fatty acids, that matters. The other part is the exercise. So, this can be hard for patients to really wrap their head around if part of how they got to this diagnosis of PAD was because they were having a hard time exerting themselves or walking because of symptoms, but supervised exercise therapy, or a SET, that's been approved and covered by Medicare for patients who have symptomatic lower extremity, PAD, really as a first line treatment, oftentimes, even before considering revascularization, because it's so successful. And what this involves, you can think about it, almost like cardiac rehab, but leg artery focused, and the exercises are somewhat similar. But if you're having discomfort in your legs or inability to walk, because of this PAD, then what the set teaches you to do is that you essentially walk or there's even data about doing arm ergometers, if you have any amputation or can't walk, but you're doing some exercise, and you do it until you have to stop because of symptoms or fatigue, you reach this ischemic threshold, then you rest. There's a protocol for this, that's nicely laid out by many colleagues, but Diane Treat-Jacobson has been a senior author in this field for years. So, there are guidelines for how to do SET for hospital programs and rehab programs. But fundamentally, this idea is that you're exercising until you need to rest, then you stop, rest, let the discomfort die down, and then get going again and keep doing it. And you work up to being able to do this for, you know, about 45 minutes at a time. And what is amazing to me as a cardiologist is that your body can actually develop new blood vessels, you know, new collateral vessels, new pathways around it, and it changes your body's production of these critical factors like nitric oxide that can help cause this vasodilatation in your smooth muscles, and that line their arteries as well as impacting that endothelial health. So, exercise has been well shown, particularly in this very pivotal study, called the CLIEVER trial, that looked at randomizing patients who had real PAD symptomatic, abnormal ABI, and were randomized to just getting medical therapy, essentially the risk factor modification medications we talked about, supervised exercise, or having a stent put in their aorto-iliac lesion. And data was published at six months and then again at 18 months, and ultimately, someone's ability to walk on the treadmill, it didn't really matter if you had the supervised exercise program, or if you had the stents put in. Which is a surprise. So, not that there's never a role for stents, there absolutely are roles for stents, or lower extremity bypass surgical procedures. But I think studies like the CLEVER trial really underscore the importance of the exercise program, in particular, of the supervised exercise program. So, it took a lot of work from many, many stakeholders over the course of years to get to lobby for having this be covered. But it was covered, I believe, starting in 2017.

**J** Jason Howland 20:27

That's fascinating stuff. What information do you think is particularly important for patients that they should share with their medical team or their clinician?

**D** Dr. Amy Pollak 20:39

I would say that if, you know, for patients, if you have risk factors for lower extremity PAD, you know, diabetes, tobacco use, high cholesterol, high blood pressure, and then just as we all age, it's really important to have those conversations about your ability to exercise or walk. And if you are having any limitation to talk about that with your providers. The other part that I think is really critical, is that we understand as healthcare providers as well as patients, is that there are very important health disparities that have a dramatic impact on patients with PAD that we need to continue to talk about to raise awareness and then to change. So, there is an amputation epidemic, and I don't use that word epidemic lightly in today's climate. I use it intentionally because depending upon where you live in our country, you may be at a higher risk of having an amputation for lower extremity PAD, and not always being offered a revascularization procedure. Because PAD, maybe the providers weren't looking for it before an amputation was recommended. We know that black Americans are disproportionately affected by PAD compared to white Americans or Hispanic Americans. Hispanic Americans tend to present with more advanced PAD than white Americans. It's also important to raise awareness about PAD for individuals who are Native American or Asian American. So, there is a lot of work that needs to be done with awareness of PAD and these critical health disparities. PAD is really set to triple in the United States in the coming years. And so, we have an important opportunity to not only prevent that from happening, but to prevent heart attacks and strokes to help people live longer lives with a greater degree of functional ability by diagnosing and treating PAD. So, I think when it comes to the health disparities, we need to be doing even more outreach to populations that have been historically not focused on with that important information about what PAD is, how it can present, and what treatment options there are.

**J** Jason Howland 23:23

Why do you think PAD isn't as well known and diagnosed later compared to, you know, some of the other cardiovascular conditions?

**D** Dr. Amy Pollak 23:34

You know, I think PAD traditionally, I think, traditionally for PAD, you know, I was in medical school about 20 years ago, and at that time kind of the prevailing thought was that PAD was, generally speaking, a much more stable process. And I don't think we knew as much about that dramatic risk that PAD has in terms of somebody's future risk of cardiovascular events. You know, there's about a 20% risk of having a heart attack when you are diagnosed with PAD. Again, because of the underlying tie in with that systemic atherosclerosis for so many patients. And I think that PAD is, frankly, it's just hard to say. It's hard to wrap your head around it. I mean, it's even the phrase itself peripheral. I mean, it sounds like it's something that's not that important. It's not a central artery disease, it's a peripheral artery. So, I think, was one of my



colleagues and one of our co-chairs for the National PAD action plan, Dr. Aruna Pradhan, from Brigham and Women's Hospital, as she coined the phrase, PAD has a PR problem. And she's right, 1,000% right. And that's really what so many of us are continuing to work on to try to address is that PR problem, and it may very well be that as we continue on this path, what is now called PAD may need a catchier name to really have the weight and the importance with these conversations with patients and providers amongst community members, because PAD is a deadly disease. It is deadlier than many cancers that we are familiar with. And it's not to say one disease entity is more important or less important than others. But I think, particularly in today's day and age where there's so much information about our health that we can have on our apps and patient portals, understanding that PAD exists, how it may be important to a given person in terms of their risk factors and symptoms, that's something that we have to move the needle on. And we need to do better at getting that word out to patients at the greatest risk. You know, so individuals in different regions of our country, particularly the southeast, folks who are at the highest risk of amputation, in particular black Americans, we need to end this amputation epidemic.

J

Jason Howland 26:14

PAD needs a rebrand is what you're saying?

D

Dr. Amy Pollak 26:17

It does. PAD needs a rebrand, and I'm really thankful to be able to volunteer with the American Heart Association and to have been able to work as a co-chair for the development of the National PAD Action Plan, as I mentioned with my cochairs, Dr. Aruna Pradhan, and then Dr. Naomi Hamburg, and AHA, the American Heart Association, has been the convener of this work. But what is so exciting to me and the group of us working on this is that it's a multi stakeholder initiative. It's not just one organization or even one specialty. We have had committed volunteers from 25 organizations that have been working on this since, really actively since about 2018. And that's on the heels of decades of work that have gone before that for many of our colleagues. So, there are a lot of stakeholders involved from vascular surgery, interventional cardiology, interventional radiology, from wound care, from cardiac rehab, from so many nursing and advanced practice provider organizations, patient advocacy groups like Vascular Cures and WomenHeart. And then, importantly, governmental organizations like the NHLBI and CDC, as well as our fellow cardiology organizations, American College of Cardiology, and Society of Vascular Medicine, Vascular Nursing, and so many others not to leave anyone out. But I think that gives you a flavor for just the breadth of individuals that are coming together. And we want to really galvanize this passion for vascular health awareness, and to have that tie in with the tremendous work that our colleagues in internal medicine, primary care, and family practice are doing. And that's a gap that we still need to bridge because PAD, many times patients aren't getting to a specialist. So, we need to really increase that awareness and make it easier to detect PAD in patients who are at the greatest risk, and who may have undiagnosed PAD. One of my colleagues at the American Heart Association, Dr. Beckmann, who's the head of vascular medicine at Vanderbilt, he loves to do the battle cry of take off the socks. And that is such good advice, you know, taking off the socks, checking pulses. If somebody has exertional leg symptoms, an abnormal pulse exam, or poorly healing wounds on their foot, doing an ABI test, and this is really critical. Doing an ABI test and that scenario, it's a diagnostic test that's absolutely appropriate and is not controversial in terms of



the U.S. Preventive Task Force recommendations, where I think some of this diagnosis of PAD has gotten muddled, is the USPTF gives screening, broad populations of individuals for PAD without any associated symptoms or abnormal pulse exam. They give that an indeterminate rating. I think that's a whole other conversation about hopefully being able to show evidence that screening for PAD in high-risk patients who are asymptomatic can help improve outcomes. But that's a different discussion. And so, for the purposes of our talk today, if somebody has exertional leg symptoms, if they have decreased pulses on their feet, if you're worried about critical limb ischemia with poorly healing source, a diabetic patient who has diabetic foot ulcer, that's something where PAD is a diagnostic test, not a screening test. And we need to do that to be able to identify patients who would be at risk for limb loss and amputation. Or who just by diagnosing PAD, you can help them prevent heart attack and stroke and improve their quality of life where they can live longer, stay in work longer, have those memories with their family and be able to provide for their families without having PAD go undiagnosed, and then take that away.

**J** Jason Howland 30:40

Well, unfortunately, we're all out of time. But hopefully today's podcast will help us raise more awareness to PAD for folks around the country to raise even more awareness about this issue. We want to thank our guest today, Mayo Clinic cardiologist, Dr. Amy Pollak. Thank you so much for joining us today. It was a pleasure.

**D** Dr. Amy Pollak 31:02

Thank you for having me.

**J** Jason Howland 31:04

Raising awareness about peripheral artery disease. Thank you so much, and thanks everyone for listening and watching. See you at the next episode.

**N** Narrator 31:12

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