published in Reader's Digest,
10 November 2022

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What is peripheral arterial disease and how is it treated? Health expert Helen Cowan runs through the A-Z basics of this disease.

In “window shopper’s disease”, people pause to look in shop windows, prompted by leg pain (which is relieved by rest) rather than the products on display.

More properly known as peripheral arterial (or vascular) disease, PAD affects about one in five people over the age of 60 in the UK.

When your arteries make your legs ache in this way, it’s possible that there are also problems with arteries elsewhere in the body—so PAD can be an early warning sign for heart attack [6], stroke [7] and dementia [8].

Arteries

Running through the thigh, the femoral artery is the major artery supplying blood to the legs.

Used to feel pulses or gain blood for sampling during an emergency such as cardiac arrest, doctors also use this artery to access the heart for surgery [9].

Blockages

In PAD, a build-up of fatty deposits inside an artery, such as the femoral, blocks the flow of blood. Arteries in the head, arms, kidney [10] and stomach can be affected—but legs are the most likely location.

Cholesterol and clots

Made up of cholesterol [11], the fatty deposits can damage arteries, causing clots [12] to form and worsening the blockage. It's wise to watch your cholesterol levels to reduce the risk of PAD.

Diabetes

High blood sugar levels [13] can speed up the formation of fatty deposits in the arteries. Diabetes can more than double your risk of developing PAD.

External signs

The skin on your legs may be shiny, smooth and hairless, and toenails thickened, in PAD. Skin colour can vary from deep pink to dusky red/purple, becoming pale when you elevate your legs, further reducing blood supply.

For men, PAD can cause poor blood flow to the penis and erection problems [14].

Future risk

PAD is an indicator of diffuse arterial disease elsewhere in the body. People who have PAD are three times more likely to suffer a heart attack, and have a two to three times greater chance of developing a stroke [15] than people without PAD.

Gangrene

If blood flow is severely reduced in the leg, the foot—being furthest from the heart—is starved of oxygen and nutrients and may develop gangrene, requiring emergency treatment.

In the UK, around 10,000 people per year experience this complication.

High blood pressure

High blood pressure can increase the risk of PAD by two and a half times in men and four times in women. Healthy lifestyle changes that lower blood pressure are good for your legs and for your heart.

Intermittent claudication

Coming from the Latin word claudicare, meaning to limp, this term describes the leg pain that may present after walking a certain distance with PAD.

Angina presents as pain in the chest when your heart muscle is deprived of oxygen; in PAD, it's your legs lacking the blood—and they can cramp in similar style.

Joined-up working

It's likely that your legs are not alone in suffering from arterial damage. People with PAD might need to see doctors specialising in circulatory problems of the kidneys, gut, head or heart if the damage is very diffuse.

Kidney disease

A diagnosis of chronic kidney disease [16] (when your kidneys don't work as well as they should) increases the risk of PAD.

Limb loss

If left untreated, peripheral artery disease can lead to amputation [17], albeit rarely. Within five years from diagnosis, the risk of amputation is between one and three per cent.

Mental health

Living with pain and limited mobility can lead to loneliness [18] and depression [19]. Support groups and online communities can help people to receive and share support and advice.

No symptoms

Most people with PAD have no symptoms, perhaps because they don't walk far enough or fast enough to trigger leg pain. Arteries may already be affected, just not announcing it.

Obesity

Increases the risk of PAD—but exercising to lose weight [20] can be difficult when your legs are painful.

Six P's

If your leg suddenly shows signs of pain, paleness, pulselessness, pins and needles, paralysis [21], or is perishingly cold, it's a medical emergency. Your leg might have lost its blood supply.

Quantifying the blockage

Blood pressure is compared at the arm and the ankle. In severe PAD, the reading is significantly reduced at the ankle.

Rest pain

Whilst walking is the most common cause of pain in PAD, pain can present even at rest, waking you at night, as the disease develops further. This is a serious symptom and you should seek medical advice.

Smoking

Smokers are six times more likely to develop PAD.

"Smoking cessation [22] is the cornerstone for managing patients with PAD. It could halt the disease progression and improve and reverse some of these risks," says Dr Krishna Patel.

Treatments

Eating well and exercising to control cholesterol, diabetes and blood pressure are recommended. Medication may also be needed and, in serious cases, blockages can be bypassed and occlusions opened through surgery.

Ulcers

When wounds on your legs or feet are not healing, it could be a sign of PAD.

Variety of tests

Doctors will look at the colour of your legs, listen to the pulses and blood flow, measure the pressure, test the temperature and scan your arteries in 3D to pinpoint any blockages present.

Wrong diagnosis

Many other conditions mimic PAD, making it difficult to diagnose. Leg pain can also be caused by nerve problems, joint problems [23], muscle injury or blood clots.

eXercise

Can cause pain in PAD—but is actually prescribed as a treatment for the condition. The National Institute for Health and Care Excellence [24] recommend a supervised programme involving two hours of exercise a week for three months, encouraging people to exercise to the point of maximal pain.

Young people

Whilst most common after the age of 50, PAD can present in younger people and can be quite aggressive, affecting arteries around the heart at an earlier stage of the disease.

Zeroing in on a cure

Researchers at University College London [25] are investigating whether blood supply can be restored to the legs in PAD by stimulating the growth of new blood vessels, using stem cells taken from a patient's own fat.

Read more: An A to Z of epilepsy **[26]**

Read more: The A-Z of obesity **[27]**

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