

# Difference Between PVD and PAD

[www.differencebetween.com](http://www.differencebetween.com)

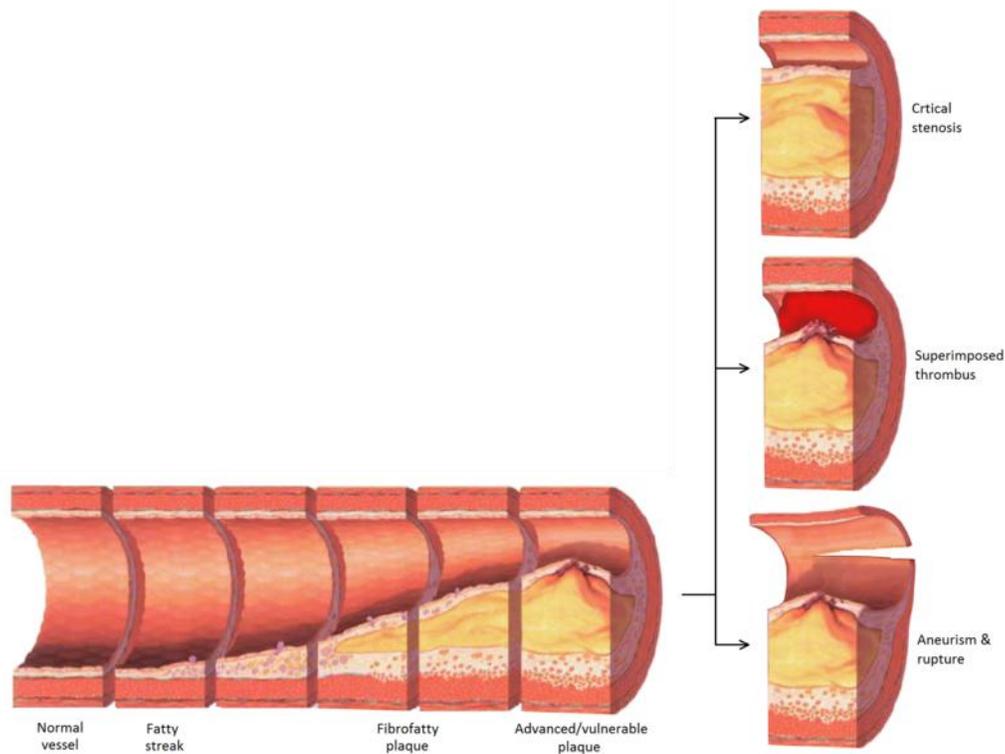
## Key Difference – PVD vs PAD

PVD (peripheral vascular disease) is a broad term that is used to describe the diseases of the blood vessels outside the brain and the heart. This mainly includes the large and small [arteries](#), [veins](#), [capillaries](#) and venules which circulate blood to and from upper and lower extremities, kidneys and intestines. PVD mainly can be of two types as; Organic PVD and Functional PVD. In organic PVD, structural damages like inflammation, tissue damage, and occlusion of vessels take place whereas, in functional PVD, there are no such structural damages of the blood vessels. PAD (peripheral arterial disease) is a type of organic PVD. In PAD, atherosclerotic plaques build up in the arterial walls, occluding the [lumen](#) of the artery and leading to changes in the normal blood flow. Thus, the key difference between PVD and PAD is that **PAD is a broad term referring to a number of related diseases whereas PAD is a subcategory of vascular diseases that fall under the major category, PVD.**

## What is PVD?

PVD or the **peripheral vascular disease** has become a common condition nowadays and can lead to the loss of limbs or even the life. Basically, PVD is caused by the reduced tissue perfusion occurring as a consequence of [atherosclerosis](#) accompanied by [thrombi or emboli](#). PVD rarely shows an acute onset but shows a chronic progression of symptoms. Usually, PVD is asymptomatic, but in conditions like acute limb [ischemia](#), immediate intervention is required to reduce mortality and morbidity.

PVD or atherosclerosis obliterans mainly occurs due to atherosclerosis. Atherosclerotic plaques, which are composed of a central necrotic core of cholesterol crystals and the superficial fibrous cap of smooth muscle cells and dense collagen may develop to completely obliterate medium and large arteries. When the blood supply to the extremities is cut off by thrombi, emboli or trauma, this results in PVD. Formation of thrombi frequently happens in the lower limbs than in the upper limbs. Factors like low cardiac output, [aneurysms](#), low blood pressure, atherosclerosis, arterial grafts, and sepsis can predispose thrombosis.



**Figure 01: Complications of Atherosclerosis**

Sudden occlusion of arteries can also happen because of emboli. Case fatality due to emboli is high because limbs do not have enough time to develop collaterals in order to compensate the compromised blood supply. Emboli mainly lodge at the places of arterial bifurcation and in arteries with a narrow lumen. The commonest site of bifurcation blocked by the emboli is the femoral artery bifurcation. Co-existence of PVD with coronary artery disease indicates increased the risk of atheroma.

The main risk factors for PVD are [hyperlipidemia](#), smoking, [diabetes mellitus](#) and hyperviscosity. Other causes can be vascular inflammation, autoimmune conditions of the vascular system, coagulopathies and surgeries.

## History

The main clinical manifestation of PVD is intermittent claudication. The site of pain correlates with the location of the occluded artery. For example, the aortoiliac disease causes a pain in the thigh and buttocks. You can get a clue about PVD by patients' medications. PVD patients are specifically prescribed with pentoxifyllin. Aspirin is commonly used for CAD, which gives an indication of PVD.

## Symptoms

Classic signs of PVD include 5 P's: pulselessness, paralysis, paresthesia, pain, and pallor.

Skin changes like alopecia, chronic pigmentation changes, brittle nails and dry, reddish, scaly skin can be seen.

Long lasting PVD may give rise to numbness, paralysis, and cyanosis of the extremities. Limbs may become cold, and gangrene may develop. PVD should be suspected if the patient has a long lasting non-healing ulcer.

## Diagnosis

Baseline blood tests such as Full Blood Count, Blood urea nitrogen, [Creatinine](#), and electrolyte studies can be done. D-dimer and C-reactive proteins can be checked for signs of inflammation. The standard test to check for intraluminal obstruction is the arteriography, but it is risky and unavailable in an emergency. Flow through a vessel can be determined by Doppler ultrasonography. [CT and MRI](#) can also be done to assess PVD. Ankle brachial plexus index is a routinely used test which compares the lower limb pressure with the upper limb pressure.

## Management

Antiplatelet drugs and statins can be taken. In an emergency, [heparin](#) can be given intravenously. Intra-arterial thrombolytics can be administered in the absence of internal bleeding.

Surgical intervention is another option in treating PVD. The Fogarty catheter can be used to withdraw emboli. Percutaneous transluminal coronary angioplasty can be used to revascularise stenosed arteries.

## What is PAD?

In PAD, the development of atherosclerotic plaques occurs in the walls of arteries mainly in limbs, intestines, and kidneys. This results in reduced tissue perfusion. If not treated at the correct time, it is possible to have superimposed [anaerobic bacterial](#) infections, and this condition can ultimately lead to the formation of [gangrene](#). The gangrenous tissues are black, brown or dark blue and turn in to

withered hard mass with time. The pain gradually subsides with the ischemic death of nociceptors and nerve fibers in the affected region. Amputation is usually carried out if the situation has worsened to this level.

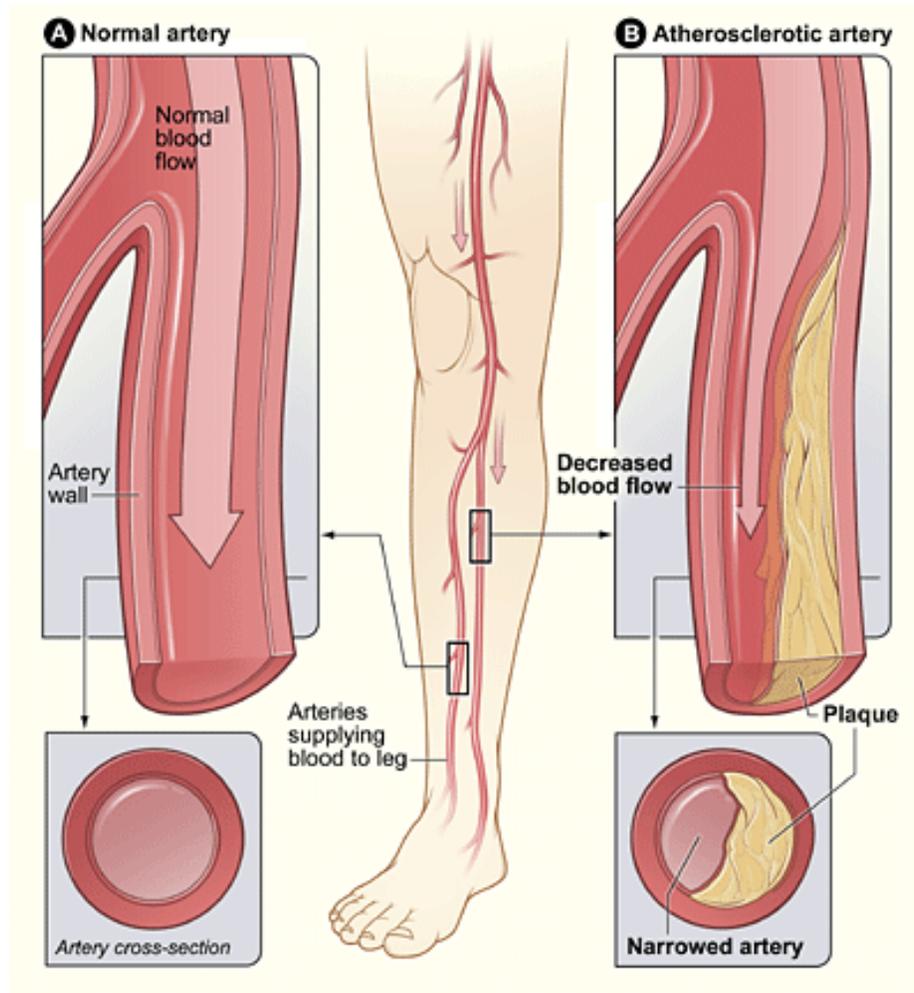


Figure 02: PAD

## Symptoms

Symptoms of poor perfusion in extremities may include heaviness, intermittent claudication, cramping, and fatigue. Symptoms of reduced perfusion to kidneys include increased blood pressure, and severely reduced perfusion can cause renal failure.

## Diagnosis

Similar to PVD, PAD also can be diagnosed with the simple test, ABI (Ankle brachial index). Other useful investigations include

- Doppler ultrasonography
- Magnetic resonance angiography (MRA)
- CT angiography
- catheter based angiography Management:

## Management

Life style modifications listed below play a major role in the management of PAD.

- Cessation of smoking
- Proper diabetes control
- Eating a balanced diet with low saturated fat and trans fat
- Proper control of blood pressure
- Engaging in regular exercises

Medications used in treating PAD include antiplatelet drugs, statins, and antihypertensive drugs. Surgical interventions such as angioplasty and bypass surgery are required for the patients, who are not relieved by lifestyle modifications and medications.

## What are the similarities between PVD and PAD?

- Both occur due to the pathological changes of the vascular wall.
- Pulselessness, paralysis, paresthesia, pain, and pallor can be seen in both conditions.
- Can be diagnosed with ABI.
- Can be treated with statins, antiplatelet drugs, and antihypertensives.
- Lifestyle modifications can prevent the progression of both diseases.

## What is the difference between PVD and PAD?

### PVD vs PAD

PVD (peripheral vascular disease) is a broad term that is used to describe the diseases of the blood vessels outside the brain and the

PAD is a subcategory of PVD where atherosclerotic plaques build up in the arterial walls, occluding the lumen of the artery and leading to changes in the normal blood flow.

heart.	
Location	
PVD occurs in both arteries and veins.	PAD occurs only in arteries.

### Reference:

1. Kumar, Vinay, Abul K. Abbas, Jon C. Aster, and James A. Perkins. Robbins basic pathology. 9th ed. Philadelphia, PA: Elsevier, 2012. Print.
2. Burnand, Kevin G., John Black, Steve Corbett, W. E. G. Thomas, and Norman L. Browse. Browsers introduction to the symptoms & signs of surgical disease. 5th ed. Boca Raton, FL: CRC Press, 2014. Print.

### Image Courtesy:

1. "Late complications of atherosclerosis" By Npatchett – Own work ([CC BY-SA 4.0](#)) via [Commons Wikimedia](#)
2. "Peripheral Arterial Disease" By [National Heart Lung and Blood Institute](#) – (Public Domain) via [Commons Wikimedia](#)

### How to Cite this Article?

**APA:** Difference Between PVD and PAD. (2017, July 19). Retrieved (date), from <http://www.differencebetween.com/difference-between-pvd-and-vs-pad>

**MLA:** "Difference Between PVD and PAD" *Difference Between.Com*. 19 July 2017. Web.

**Chicago:** "Difference Between PVD and PAD." *Difference Between.Com*. <http://www.differencebetween.com/difference-between-pvd-and-vs-pad> (accessed [date]).



Copyright © 2010-2017 Difference Between. All rights reserved.