

Peripheral Arterial Disease Rehabilitation

Common Terms and Abbreviations

Vascular Disease Definitions:

- **PAD:** “Peripheral arterial disease” is defined as any illness that causes blockages in the arteries beyond the heart, inclusive of the aorta, its first order branches, and the arteries of the upper and lower extremities. In common use, “PAD” usually refers to the atherosclerotic diseases that blocks blood flow to the legs (PAD of the arms is rare) In this contxt “PAD” is analogous to “CAD” and can be useful in reminding patients that this is the same illness that blocks arteries to the heart and the brain. In clinical practice, many clinicians still call this ”PVD” or peripheral vascular disease.
- **PAOD:** “Peripheral arterial occlusive disease”, a term that is synonymous for PAD and is used in many European publications.
- **PVD:** “Peripheral vascular disease”, a term that is less precise than PAD and includes unrelated diseases of the veins and lymphatic vessels. Patients often do not understand that PAD is distinct from varicose veins and venous diseases.
- **Claudication** or Intermittent Claudication (IC): This term describes the fatigue, discomfort, cramping sensation, or frank pain that is felt in the buttock, thigh or calf muscles in a subset of patients with PAD, due to the supply-demand mismatch of blood supply that is inadequate to the metabolic demands of the working muscle- due to the blocked arteries that supply the legs.
- **Critical Limb Ischemia (CLI):** This term describes the most severe manifestation of PAD, usually defined by ischemic foot pain at rest, a non-healing wound or gangrene. Without prompt treatment, amputation is likely within 6 months. The presence of CLI is one of the contraindications to PAD exercise rehabilitation. Patients with CLI should be immediately referred to their primary care physician and a vascular specialist.

Treadmill-Derived Measures of Functional Status:

- **ICD:** Initial Claudication Distance, or the treadmill distance at which claudication begins. Synonyms include pain-free walking distance (PFWD) or claudication onset time (COT)
- **ACD:** Absolute Claudication Distance, or the treadmill distance at which exercise must be terminated in a patient whose functional status is limited by claudication. Synonyms include maximal walking distance (MWD) or peak claudication time (PCT). If a patient with PAD and claudication terminates exercise due to dyspnea or any non-PAD limitation, then the maximal distance walked is not true ACD. Conversely, if maximal exercise is limited by claudication, then the ACD is synonymous with the peak functional capacity.

The two palpable ankle pulses:

- ❑ **Posterior Tibial (PT):** Palpated at the top of the foot just distal to the ankle.
- ❑ **Dorsalis Pedis (DP):** Palpated at the medial malleolus, at the inside and back of the ankle.

Diagnostic Vascular Tests for PAD

- ❑ **ABI:** Ankle-brachial systolic pressure index: This is the most accurate diagnostic test for PAD, and an abnormal ABI serves as the primary definition of the PAD diagnosis. The ABI is calculated by dividing the highest ankle blood pressure by the highest arm (brachial) systolic blood pressure. Most healthy individuals have an ABI > 1.1. The variability of the ABI between observers and between testings days is approximately 0.10-0.15. Thus, an abnormal ABI is defined by values less than 0.90.

>1.30	Nondiagnostic test
0.90-1.30	Normal
0.71-0.90	Mild Obstruction
0.41-0.70	Moderate Obstruction
0.00-0.40	Severe Obstruction

The relationship of the ABI value to leg symptoms is known to be poor. Patients with PAD may have severe claudication and a near-normal ABI. Conversely, patients with a low ABI may have no symptoms. However, the ABI value predicts the limb prognosis and risk of cardiovascular ischemic events and death. The lower the ABI, the greater the risk to life (ischemic events) and limb (development of CLI and or/amputation).

- ❑ **Segmental Pressures:** The measurement of systolic blood pressures at both arms, and compared to the systolic pressures measured at the high thigh, low thigh, upper calf, and PT and DP sites. This is similar to the ABI, but more precisely defines the location of the arterial blockage.
- ❑ **Arterial Duplex Ultrasound:** The measurement of arterial blood flow by measurement of systolic velocity profiles determined at specific anatomic sites via use of an imaging ultrasound probe. The “dual” use of imaging (to localize the arterial segment) and blood velocity measurement at a specific segment defines the “duplex” examination.
- ❑ **Peripheral Arteriogram (Angiogram):** An invasive method to provide images of arteries of the leg, performed in a manner analogous to those performed to view heart arteries in patients with coronary heart disease.