

A Literature Review on the Topics of Peripheral Artery Disease and Endovascular Interventions

White Paper

Fast facts from published medical sources:

- Among those diagnosed with PAD, **≈11%** have critical limb ischemia (CLI). With CLI, the blood supply to the limb is insufficient to meet the resting metabolic needs of the tissue, causing persistent pain, skin ulceration, and gangrene. – *Journal of Vascular Surgery, Volume 60, Issue 3, P686-69*
- In the United States, the mortality rate one year after major amputation is about **48%**. – *Vascular Health and Risk Management, Volume 10, P417-424*
- While roughly **50%** of patients with peripheral artery disease (PAD) are asymptomatic, they are at an **increased risk** of mortality, myocardial infarction, and stroke. – *Atherosclerosis, Volume 189, Issue 1, P61-69*
- **54%** of amputations in the United States are a result of peripheral vascular disease. – *Archives of Physical Medicine and Rehabilitation, Volume 89, Issue 3, P422-429*

The Takeaway:

- These statistics illustrate that PAD is life-threatening, with or without symptoms, and also puts patients at risk of amputation.
- Without the blood flow necessary to oxygenate tissue, healthy tissue dies.
- Without the blood flow necessary to bring the variety of healing cells to a foot wound, the wound will not heal and is likely to become infected.
- With neuropathy or nerve damage commonly associated with diabetes and PAD, the patient may not even know they have an ulcer or wound until it becomes swollen and/or infected.
- If PAD is not resolved in one of the less traumatic ways than amputation, the patient is at a higher risk for mortality.

So What Can Be Done?

An argument for early outpatient intervention

According to an article in Podiatry Today, “The World Health Organization and the International Diabetes Federation have stated that [up to 85 percent](#) of diabetic lower extremity amputations are preventable.”⁵

Peripheral Artery Disease is not curable, but is treatable, and often without major surgery. The best method of treatment depends on the patient and severity of disease. All patients with PAD are advised to maintain a healthy low sodium diet and take aspirin and blood pressure/cholesterol/diabetes medications as prescribed, as well as cease smoking and begin a structured walking program if possible. If disease cannot be managed with these lifestyle changes alone, other options for treatment are endovascular intervention (which Modern Vascular specializes in) or peripheral artery bypass surgery (usually in a hospital setting).

A study comparing outcomes of peripheral artery bypass surgery and angioplasty found that “Angioplasty is non-inferior to bypass surgery in regarding the amputation free survival, re-vascularization, leg amputation and overall mortality. However, angioplasty is safer, simple, and less invasive and less cost procedure. It should be considered as the first choice for feasible CLI patients.” In fact, the same study found that angioplasty has a significantly lower 30 day mortality rate than peripheral artery bypass surgery.⁶ Still, there are some scenarios where peripheral bypass surgery might be indicated as a last resort if endovascular treatment is, for any reason, not maintaining patency of the arteries.

Why Modern Vascular?

- Modern Vascular was recognized at the 2020 Global Healthcare and Pharmaceutical Awards as the **Best Peripheral Artery Disease Treatment Specialist** in the United States.
- In 2021, Modern Vascular saw over **10,000 patients** nationwide, and received over **500 five star reviews**.

Highly Specialized

- Modern Vascular is a group of outpatient treatment centers specializing in PAD treatment and pedal loop reconstruction.
- Through its unique training program, doctors who are already skilled and knowledgeable about vascular disease become experts in pedal loop reconstruction and other endovascular approaches to returning blood flow to the feet.
- This places Modern Vascular doctors among the few who revascularize arteries below the knee, all the way to the pedal loop.

Multidisciplinary Specialists Coming Together

- Modern Vascular is a multispecialty organization of interventional radiologists, [vascular surgeons](#), and interventional cardiologists.
- This encourages the exchange of ideas and techniques for the highest quality care.

Individualized Outpatient Care

- Patients return to their home about an hour after their procedure.
- The outpatient setting allows for more focused, individualized care than staff are able to give in a hospital setting at a hospital pace.
- Each time patients return, they recognize the same faces of staff who are already familiar with their case.

Early Intervention

- Endovascular treatment of PAD is minimally invasive and can be performed multiple times if needed.
- For this reason, intervention can be done before PAD becomes severe enough to keep them from walking/exercising.
- This means that the patient maintains the ability to be an active participant in their treatment from diagnosis through and beyond procedure.
- Intervening early also means intervening before PAD can cause secondary outcomes such as blood clots or gangrene, which is optimal for both patient health and expense.

Conservative Treatment

- There is still a window where PAD is not advanced enough that endovascular procedure is indicated, but the patient should still address their disease to slow its progression.
- For patients in this window, Modern Vascular partners with them to make healthy lifestyle changes.
- Modern Vascular has a nurse-guided structured walking program, so that a knowledgeable professional can modify the recommended walking program to fit the patient's unique needs and obstacles.

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2. Nehler MR, Duval S, Diao L, Annex BH, Hiatt WR, Rogers K, Zakharyan A, Hirsch AT. Epidemiology of peripheral arterial disease and critical limb ischemia in an insured national population. *J Vasc Surg*. 2014 Sep;60(3):686-95.e2. doi: 10.1016/j.jvs.2014.03.290. Epub 2014 May 10. PMID: 24820900.

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