

An Update of the 2024 American Heart Association (AHA) Guideline for the Management of Lower Extremity Peripheral Artery Disease (PAD)

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BACKGROUND



What is Peripheral Artery Disease?

- Peripheral Artery Disease (PAD) occurs when there is narrowing or a blockage of the vessels that carries blood from the heart to the legs
- PAD is primarily atherosclerosis, which is the buildup of fatty plaques in the arteries
- PAD is mostly seen in the legs and arms, but it can also occur in any blood vessel

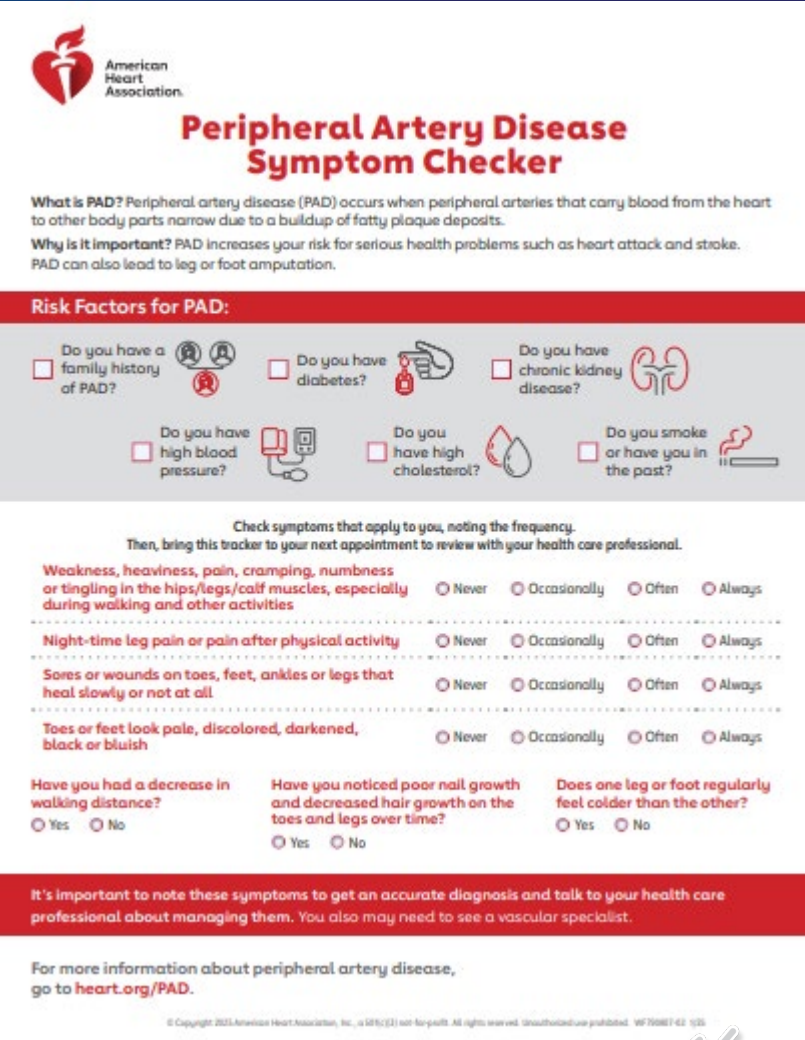
The 2024 American Heart Association (AHA) guidelines define 4 clinical subsets of PAD

- Asymptomatic PAD
 - > Functional impairment
- Chronic Symptomatic PAD
 - > Claudication
- Chronic Limb Threatening Ischemia (CLTI)
- Acute Limb Ischemia (ALI)



Risk Factors

- Age $\geq$ 65 years
- Age 50-64 years with risk factors of atherosclerosis, chronic kidney disease, or a family history of PAD
 - (ex. diabetes, hypertension, dyslipidemia, history of smoking)
- Age < 50 years with diabetes + 1 additional atherosclerotic risk factor
- Individuals with known atherosclerotic disease in another vascular bed
 - (ex. coronary, carotid, subclavian, renal, mesenteric stenosis, or abdominal aortic aneurysm [AAA])



American Heart Association

Peripheral Artery Disease Symptom Checker

What is PAD? Peripheral artery disease (PAD) occurs when peripheral arteries that carry blood from the heart to other body parts narrow due to a buildup of fatty plaque deposits.

Why is it important? PAD increases your risk for serious health problems such as heart attack and stroke. PAD can also lead to leg or foot amputation.

Risk Factors for PAD:

☐ Do you have a family history of PAD?	☐ Do you have diabetes?	☐ Do you have chronic kidney disease?
☐ Do you have high blood pressure?	☐ Do you have high cholesterol?	☐ Do you smoke or have you in the past?

Check symptoms that apply to you, noting the frequency. Then, bring this tracker to your next appointment to review with your health care professional.

Weakness, heaviness, pain, cramping, numbness or tingling in the hips/legs/calf muscles, especially during walking and other activities	☐ Never ☐ Occasionally ☐ Often ☐ Always
Night-time leg pain or pain after physical activity	☐ Never ☐ Occasionally ☐ Often ☐ Always
Sores or wounds on toes, feet, ankles or legs that heal slowly or not at all	☐ Never ☐ Occasionally ☐ Often ☐ Always
Toes or feet look pale, discolored, darkened, black or bluish	☐ Never ☐ Occasionally ☐ Often ☐ Always

Have you had a decrease in walking distance? ☐ Yes ☐ No	Have you noticed poor nail growth and decreased hair growth on the toes and legs over time? ☐ Yes ☐ No	Does one leg or foot regularly feel colder than the other? ☐ Yes ☐ No
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It's important to note these symptoms to get an accurate diagnosis and talk to your health care professional about managing them. You also may need to see a vascular specialist.

For more information about peripheral artery disease, go to heart.org/PAD.

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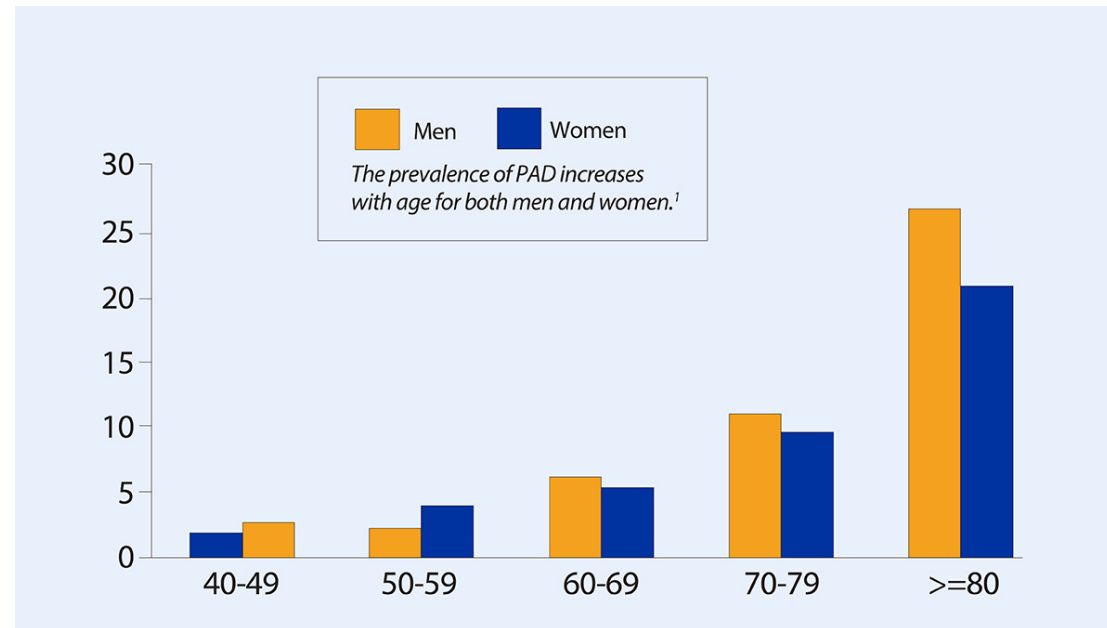
EARLY DETECTION IS KEY!!!

Epidemiology



Epidemiology

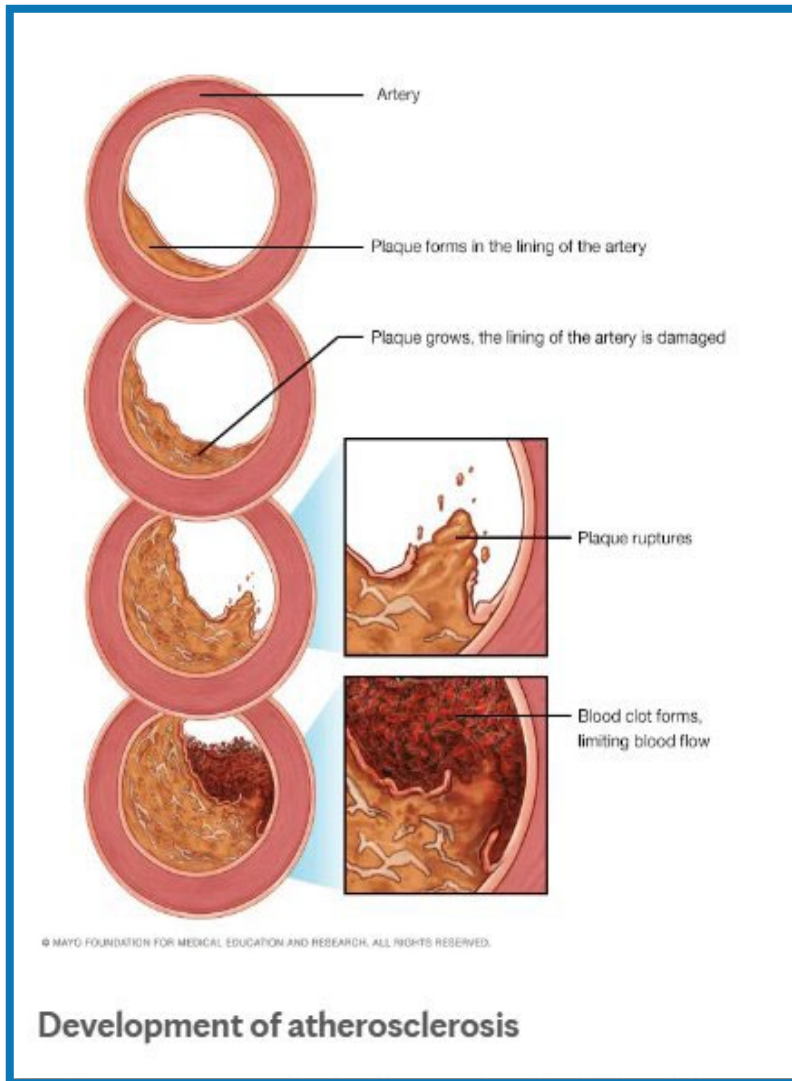
- 10-12 million individuals in the United States are affected by PAD
- 113-236 million people worldwide have PAD
- The prevalence of PAD increases with age for both men and women



Pathophysiology



Pathophysiology

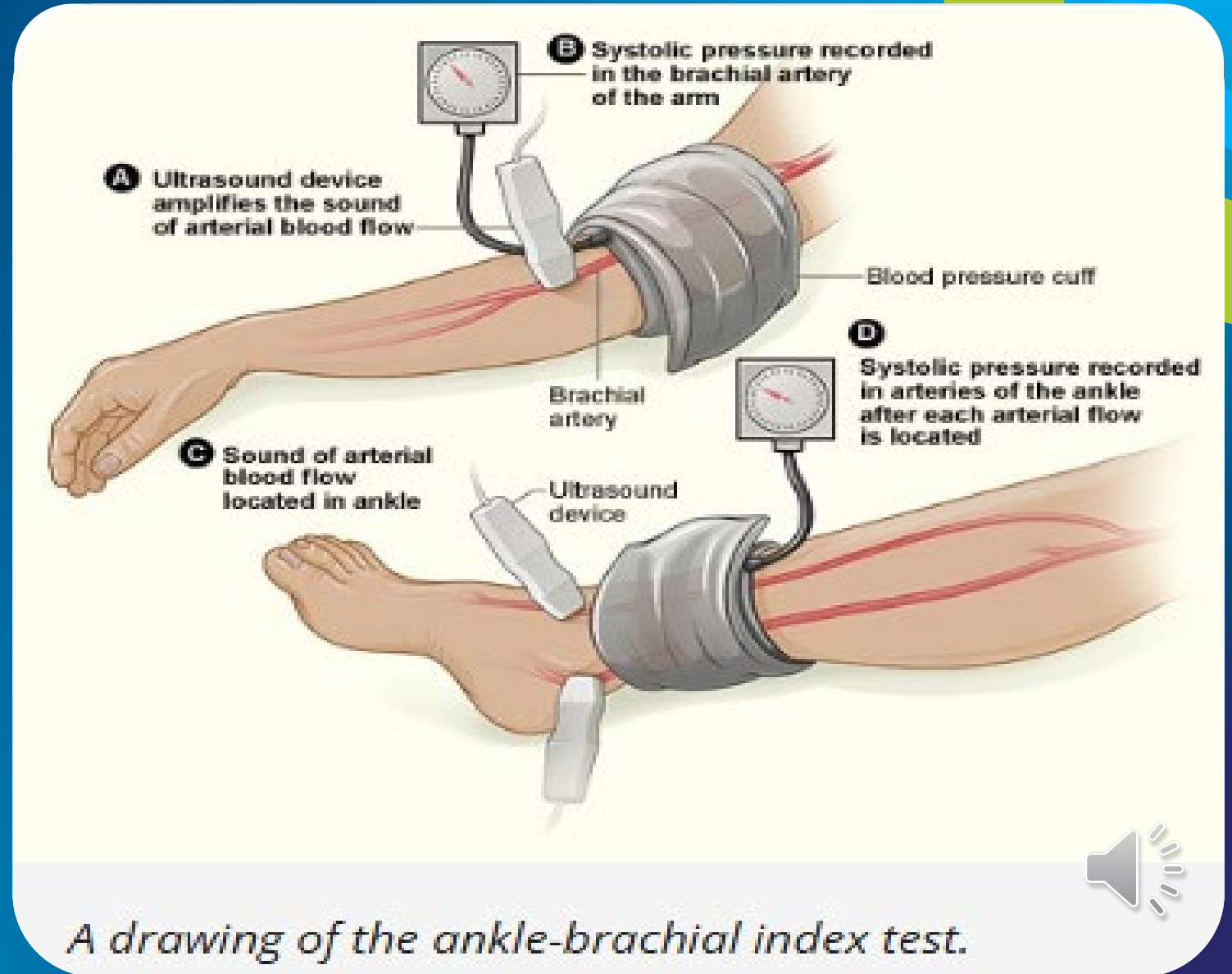


- PAD is caused by atherosclerosis in the abdominal aorta, iliac, and femoral arteries
- Early plaque buildup leads to arterial dilation to maintain blood flow
- As plaque progresses, arteries can no longer dilate, narrowing the lumen and restricting flow
- Reduced blood flow causes muscle ischemia during exertion due to increased oxygen demand in the lower limbs



Diagnostic Criteria

- History & Physical Exam
- Ankle-Brachial Index (ABI) test
- Toe-Brachial Index (TBI) test
- 6-minute walking test
- Noninvasive / invasive angiography
- Doppler Waveforms
- Computed tomography angiography (CTA)
- Magnetic resonance angiography (MRA)



Complications



Complications

Associated Risks

- Amputation of Limbs
- Impaired quality of life (QoL)
- Impaired walking performance
- Impaired functional status
- Stroke
- Myocardial infarction
- Death



Nonpharmacological Treatment



Preventative & Lifestyle Recommendations

Strong Recommendation (Benefit >>> Risk)

- Annual flu and COVID-19 vaccines (including boosters)
 - Stay physically active
 - Control blood pressure, diabetes, and cholesterol.
- Follow the DASH diet.
 - Advise smoking cessation at every visit, support continued abstinence, refer to counseling or cessation programs, and avoid second-hand smoke.
- Educate on diabetic foot self-care, perform foot exams at every visit, conduct annual comprehensive exams, and recommend therapeutic footwear for high-risk patients.

Pharmacological Treatment



Antiplatelet & Antithrombotic Therapy

Strong Recommendation (Benefit >>> Risk)

Symptomatic PAD

- Single antiplatelet therapy is recommended to lower the risk of major adverse cardiovascular events (MACE)

Symptomatic PAD: (High Risk, Post- Endovascular or Surgical Revascularization)

- Low-dose rivaroxaban (2.5 mg twice daily) plus low dose aspirin (81 mg once daily) is recommended to reduce MACE and major adverse limb events (MALE)



Antiplatelet & Antithrombotic Therapy Cont.

Strong Recommendation (Benefit >>> Risk)

- In patients with ALI, regardless of cause or anatomic level of occlusion, systemic anticoagulation with unfractionated heparin should be administered on diagnosis unless contraindicated

Strong Recommendation (Risk > Benefit)

- In patients with PAD, without another indication (ex. Atrial fibrillation), full-intensity oral anticoagulation should **not** be used to reduce the risk of MACE and MALE



PAD Risk Factor Management



Lipid-Lowering Pharmacological Treatment for PAD

Strong Recommendation (Benefit >>> Risk)

- Recommend High Intensity Statins that lower LDL-C $\geq$ 50%
 - Atorvastatin 40 – 80 mg
 - Rosuvastatin 20 – 40 mg

Moderate recommendation (Benefit >> Risk)

- For patients on max tolerated statin therapy with an LDL-C level of > 70 mg/dL
 - Add on a PCSK9 inhibitor
 - Repatha
 - Ezetimibe therapy



Antihypertensive Pharmacological Treatment for PAD

**Strong
Recommendation
(Benefit >> Risk)**

For patients with
hypertension, the
blood pressure target
goal is <130/80 mmHg

Diabetes Treatment for PAD

Strong Recommendation (Benefit >>> Risk)

- Patients with type 2 diabetes can benefit from GLP-1 RAs and SGLT-2 inhibitors
 - GLP-1 RAs
 - Liraglutide and Semaglutide
 - SGLT-2 inhibitors
 - Canagliflozin, Dapagliflozin, and Empagliflozin



Smoking Cessation Treatment



Smoking Cessation Therapy

- Varenicline (Chantix)
- Bupropion SR (Zyban)
- Nicotine Replacement Therapies (NRT)



Other Pharmacotherapy Treatment



Other Pharmacological Treatment

Moderate Recommendation

- In patients with PAD, Cilostazol may be useful to reduce restenosis after endovascular therapy for femoropopliteal disease

No benefit

- In patients with PAD and congestive heart failure of any sensitivity, cilostazol should **not** be administered
- In patients with PAD, vitamin D supplementation is **not** beneficial for prevention of MACE.



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Thank You.



Questions?

