

◆ NCLEX 2026 · CARDIOVASCULAR SYSTEM

Peripheral Vascular Disease

Arterial vs. Venous — the highest-yield distinction on the NCLEX. Master the ulcers, the pulses, the positioning, and the 6 Ps emergency — and you master PVD.

🔴 Arterial (PAD)

🔵 Venous Insufficiency

⚠️ Acute Arterial Occlusion

💊 Antiplatelets & Vasodilators

1

Definition & Overview

Disorders of blood vessels outside the heart and brain — split into two completely different problems



Peripheral Arterial Disease (PAD)

Atherosclerotic narrowing of arteries → decreased blood flow **TO** the tissues. Legs starve for oxygen.



Venous Insufficiency (PVD)

Damaged valves in veins → blood pools; decreased return **FROM** the tissues back to the heart. Legs swell and stain.



Why It Matters

PAD increases MI & stroke risk (systemic atherosclerosis). Venous disease causes non-healing ulcers & DVT risk. **Positioning & teaching are opposite** for each.

2

Pathophysiology — Two Tracks

Follow the blood flow to understand everything else

🔴 PAD (Arterial) Pathway

Risk factors: smoking, DM, HTN, hyperlipidemia, age > 60



Atherosclerotic plaque builds inside artery walls



Lumen narrows → decreased oxygenated blood to extremity



Tissue ischemia with activity → **intermittent claudication**



Chronic ischemia → hair loss, thin shiny skin, thick nails, cool pale leg



Severe: rest pain, tissue necrosis, arterial ulcers, gangrene

🔵 Venous Insufficiency Pathway

Risk factors: prolonged standing, obesity, pregnancy, DVT hx, varicose veins



Vein valves become incompetent (damaged or stretched)



Blood refluxes & pools in lower extremities (venous stasis)



Increased venous pressure → fluid leaks into tissue → **edema**



RBCs leak & break down → hemosiderin staining (brown/bronze skin)



Stasis dermatitis → venous ulcers (medial malleolus), DVT risk

3

Signs & Symptoms — The Great Divide

If you memorize nothing else, memorize this table

ARTERIAL · PAD

🔴 **Cold, Pale, Painful**

VENOUS · INSUFFICIENCY

🔵 **Warm, Brown, Swollen**

PAIN	Intermittent claudication — cramping with walking, relieved by rest. Severe: rest pain, worse at night .
PULSES	Diminished or absent (dorsalis pedis, posterior tibial)
SKIN	Cool, pale, shiny, thin; hair loss on legs; thick ridged nails
COLOR	Elevation pallor · Dependent rubor (red when down)
EDEMA	Minimal to none
TEMP	Cool extremity
POSITION	DANGLE legs (dependent) — gravity pulls arterial blood in

PAIN	Aching, heavy, throbbing ; worse at end of day & with standing; relieved by elevation
PULSES	Present (may be hard to palpate through edema)
SKIN	Thick, leathery; brown/bronze hemosiderin staining ; stasis dermatitis
COLOR	Reddish-brown discoloration; may be cyanotic when dependent
EDEMA	Pronounced , pitting, worse at end of day
TEMP	Warm extremity
POSITION	ELEVATE legs above heart — helps venous return

🔍 Ulcer Characteristics — NCLEX Favorite

🔴 Arterial Ulcer

LOCATION	Toes, feet, lateral malleolus, over pressure points
APPEARANCE	Round, "punched-out" , deep, pale base
DRAINAGE	Minimal
PAIN	Severe
SURROUNDING	Pale, cool, hairless skin

🔵 Venous Ulcer

LOCATION	Medial malleolus ("gaiter area")
APPEARANCE	Irregular edges, shallow , ruddy base
DRAINAGE	Heavy exudate
PAIN	Mild to moderate
SURROUNDING	Brown-stained, edematous, warm skin

EMERGENCY

The 6 Ps — Acute Arterial Occlusion

Sudden, complete blockage of an artery = **SURGICAL EMERGENCY**. Tissue dies within 4–6 hours. Call provider STAT.

P

PAIN

sudden, severe

P

PALLOR

white limb

P

PULSELESS

no pulse distal

P

PARESTHESIA

numb/tingle

P

PARALYSIS

late & severe

P

POIKILOthermia

cold limb

4

Priority Nursing Interventions

Arterial and venous require **OPPOSITE** nursing actions — this is where students lose points

PAD Interventions

POSITION	Dangle legs (dependent position); never elevate — worsens ischemia
ASSESS	Pedal pulses, cap refill, color, temp, ABI (ankle–brachial index)
PROMOTE	Walking program: walk to pain → rest → resume (builds collateral circulation)
PROTECT	Keep extremities warm (socks, blankets) — never apply direct heat (burns)
AVOID	Crossing legs, tight clothing, cold exposure, nicotine, stress (all vasoconstrict)
FOOT CARE	Inspect daily; never go barefoot; clean, dry between toes; podiatrist for nails

Venous Interventions

POSITION	Elevate legs above heart several times daily; avoid prolonged standing/sitting
ASSESS	Edema (pitting grade), skin integrity, ulcer status, Homan's sign NOT reliable for DVT
APPLY	Compression stockings (apply in AM before getting up, remove at night) — ONLY for venous
SKIN CARE	Keep skin clean & moisturized; treat stasis dermatitis; protect from trauma
WOUND CARE	Unna boot or compression dressing for venous ulcers; promote moist wound healing
EDUCATE	Weight loss, avoid constrictive clothing, change position often, ankle pumps

MEDICATE Antiplatelets, cilostazol, statins; stop smoking is #1 priority

MONITOR Signs of DVT (unilateral warmth, swelling, pain) — medical emergency

5 Pharmacology

Know the class, the job, and the bleeding risk

Aspirin (ASA)

ANTIPLATELET · PAD

MOA	Irreversibly inhibits platelet aggregation (COX-1)
USE	First-line for PAD; prevents MI/stroke
SIDE FX	GI bleed, tinnitus, Reye's syndrome (kids)
NURSING	Give with food; monitor bleeding signs

Clopidogrel (Plavix)

ANTIPLATELET · PAD

MOA	Blocks ADP receptor → prevents platelet clumping
USE	PAD, post-stent, ASA intolerance
SIDE FX	Bleeding, bruising, rare TTP
NURSING	Hold 5–7 days before surgery; watch for bleeding

Cilostazol (Pletal)

VASODILATOR · CLAUDICATION

MOA	Phosphodiesterase inhibitor → vasodilation + antiplatelet
USE	Intermittent claudication (improves walking distance)
SIDE FX	Headache, palpitations, diarrhea
NURSING	Contraindicated in HF ; take 30 min before or 2 hr after meals

Pentoxifylline (Trental)

HEMORHEOLOGIC · PAD

MOA	Decreases blood viscosity; improves RBC flexibility
USE	Intermittent claudication
SIDE FX	Nausea, dizziness, headache
NURSING	Take with food; effects may take 2–4 weeks

Statins (Atorvastatin, Simvastatin)

LIPID-LOWERING · PAD

Anticoagulants (Heparin, Warfarin, DOACs)

ANTICOAGULANT · DVT/OCLUSION

MOA	HMG-CoA reductase inhibitor → lowers LDL
USE	Slows atherosclerotic progression
SIDE FX	Rhabdomyolysis (muscle pain/dark urine), hepatotoxicity
NURSING	Take at bedtime; monitor LFTs & CK; no grapefruit

USE	Acute arterial occlusion, DVT prevention/treatment
LABS	Heparin → aPTT · Warfarin → INR (goal 2–3)
ANTIDOTE	Heparin → protamine · Warfarin → vitamin K
NURSING	Bleeding precautions; soft toothbrush, electric razor, fall prevention

6

NCLEX Test Traps !

Where students consistently lose points

1

Elevating legs for PAD

Elevation **worsens** arterial flow — gravity works against you. The leg becomes more ischemic and painful.

✓ PAD = **DANGLE** · Venous = **ELEVATE**

2

Applying compression stockings to PAD

Compression on an already-ischemic limb causes tissue necrosis. Stockings are **only for venous** disease.

✓ Always assess ABI before compression; **contraindicated if ABI < 0.5**

3

Applying direct heat to a cold PAD leg

The leg feels cold, but the nerves are damaged — patient cannot sense burns. Heating pads cause severe burns and ulceration.

✓ Use **socks and blankets**, never direct heat or hot water

4

Confusing the ulcer locations

"Medial malleolus ulcer" = venous, every time. "Toe / lateral / pressure point ulcer" = arterial. Wrong answer = wrong plan of care.

✓ Medial = VeiNous · Lateral/toes = ArterialL

5 Stopping walking when claudication starts

Students tell patients to "stop and stay down." Correct teaching is **walk → rest → resume**. This builds collateral circulation.

✓ Walking program is therapeutic for PAD (walk to pain, rest, walk again)

6 Missing the 6 Ps as an emergency

A "cold, painful, pulseless leg" is NOT something to watch — it is a surgical emergency. Tissue dies within 4–6 hours.

✓ 6 Ps = **notify provider STAT**, not reposition & reassess

7 Picking "Homan's sign" to assess for DVT

Homan's sign is unreliable and can dislodge a clot. It is **no longer recommended**.

✓ Look for unilateral warmth, swelling, redness, pain → Doppler ultrasound is gold standard

7

Patient Education

Teaching is different for each — mix them up and you fail the question

🔴 Teaching for PAD

- ✓ **Stop smoking** — the single most important intervention
- ✓ Walk daily: walk until pain, rest, then resume
- ✓ Dangle legs when resting; never elevate above heart
- ✓ Keep legs warm with socks & blankets; never heating pads

🔵 Teaching for Venous Insufficiency

- ✓ Elevate legs above heart several times a day
- ✓ Apply compression stockings **in AM before getting out of bed**
- ✓ Remove stockings at bedtime; wash and replace every 6 months
- ✓ Avoid prolonged standing or sitting — move/pump ankles

- ✓ Inspect feet daily with a mirror; never go barefoot
- ✓ Wear well-fitting, closed-toe shoes
- ✓ Do not cross legs or wear tight clothing
- ✓ Control DM, HTN, cholesterol tightly
- ✓ Report any non-healing sore, color change, or rest pain
- ✓ Take antiplatelets as prescribed; bleeding precautions

- ✓ Maintain healthy weight; low-sodium diet if edema severe
- ✓ Keep skin clean, moisturized; protect from trauma
- ✓ No crossing legs; no constrictive clothing
- ✓ Report signs of DVT: one swollen/warm/painful calf
- ✓ Report non-healing ulcer (especially medial ankle)
- ✓ Anticoagulants as prescribed; INR monitoring if warfarin

NGN 2026 · CLINICAL JUDGMENT

NCJMM Framework — PVD Application

STEP 1

Recognize Cues

Cold pale foot + diminished pulse + claudication → arterial. Swollen brown warm leg + medial ulcer → venous. Sudden cold pulseless painful limb → 6 Ps emergency.

STEP 2

Analyze Cues

Differentiate arterial vs venous by pulses, temperature, edema, skin color, ulcer location. Identify ABI trends (< 0.9 = PAD; < 0.5 = severe).

STEP 3

Prioritize Hypotheses

Acute arterial occlusion (6 Ps) > chronic PAD worsening > DVT > chronic venous insufficiency. Always rule out the time-sensitive emergency first.

STEP 4

Generate Solutions

PAD: dangle, walking program, antiplatelets, smoking cessation. Venous: elevate, compression, skin care, anticoagulation if DVT. Occlusion: NPO, prep for surgery.

STEP 5

Take Action

Assess pulses/color/temp Q-shift, administer meds, apply stockings correctly, teach foot care, notify provider for 6 Ps, maintain bleeding precautions on anticoagulants.

STEP 6

Evaluate Outcomes

Improved pulses, pain relief, decreased edema, healing ulcer, increased walking distance, stable INR/aPTT, intact skin, no DVT or occlusion.

8

Memory Boosters

Lock it in with these tricks



6 Ps

Acute arterial occlusion — surgical emergency

- P** — Pain (sudden & severe)
- P** — Pallor (white)
- P** — Pulselessness
- P** — Paresthesia
- P** — Paralysis (late)
- P** — Poikilothermia (cold)



PAD = DANGLE

Arterial patients drop it down

- D** — Dependent position
- A** — Antiplatelets
- N** — No smoking / No tight clothes
- G** — Gangrene risk → foot care
- L** — Limb cool & pale
- E** — Exercise (walk → rest → walk)



VEIN = EEB

Venous insufficiency, 3 things to remember

- E** — Elevate legs
- E** — Edema (pitting)
- B** — Brown/bronze skin (hemosiderin)
- + Compression stockings in AM
- + Medial malleolus ulcer



Ulcer Location

Alphabet trick

- M** edial = **N** ous (think "M for Moist, Messy, Medial")
- L** ateral/toes = **L** (think "L for Lateral = Lacks blood")

Arterial = "punched out"

Venous = shallow & wet



Cold vs Warm

Feel the foot, know the dx

- Cold** pale foot → Arterial (no blood getting IN)
- Warm** swollen foot → Venous (blood can't get OUT)

Cool = Clogged arteries

Warm = Won't return



Pharm Quick Hits

Tie drug to disease

- A** spirin & Plavix → PAD antiplatelets
- C** ilostazol → Claudication (not in HF!)
- S** tatins → Slow atherosclerosis

Heparin → aPTT → Protamine

Warfarin → INR → Vitamin K

NGN NCLEX 2026 · Cardiovascular Series

Peripheral Vascular Disease · Arterial vs Venous · Built for the NCJMM clinical judgment model