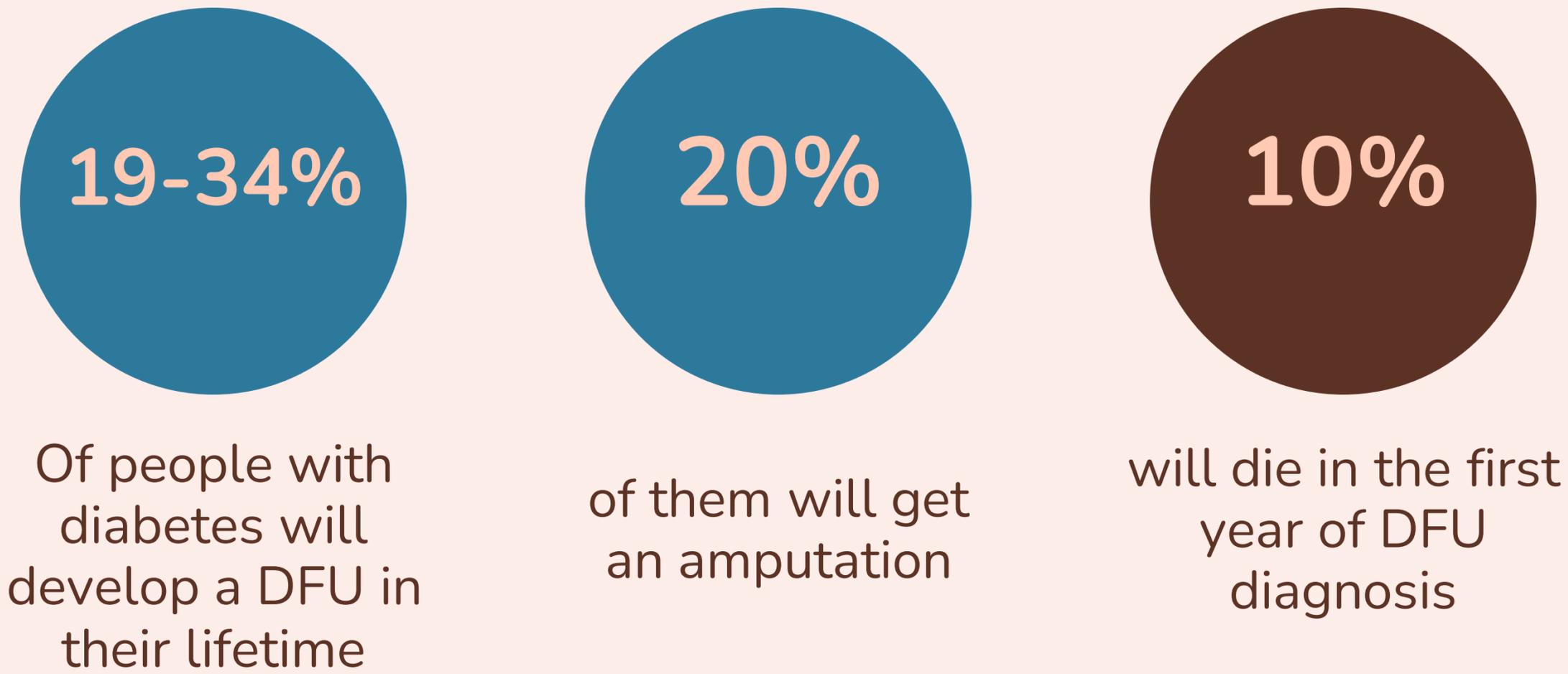




DIABETIC FOOT

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Diabetic foot are common, highly morbid consequence of long-standing and poorly managed diabetes



19-34%

Of people with diabetes will develop a DFU in their lifetime

20%

of them will get an amputation

10%

will die in the first year of DFU diagnosis

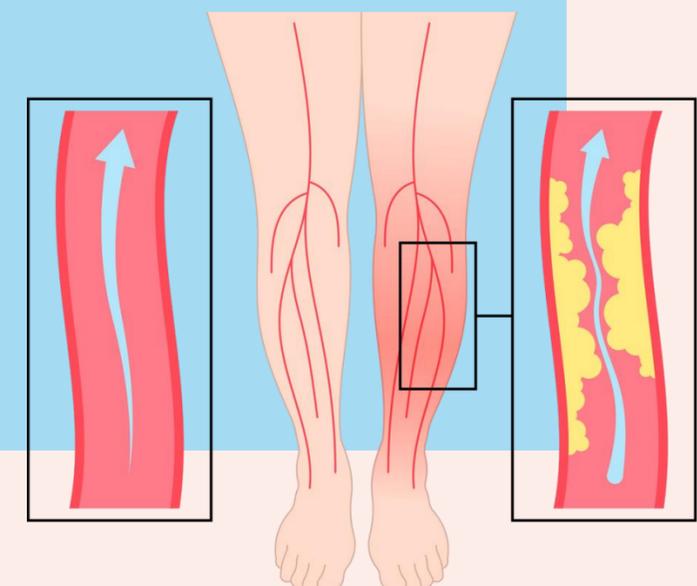
INTRODUCTION

Up to 40% of people with diabetes have peripheral neuropathy and 40% have peripheral vascular disease, both of which contribute to a 15% lifetime risk of foot ulcers

Early recognition of the 'at-risk' foot is essential. There are two main presentations:

- Neuropathic: neuropathy predominates but the major arterial supply is intact. (oxidative stress on nerves leading to their death)
- Neuroischaemic: reduced arterial supply produces ischemia and exacerbates neuropathy.
- Ischemia: microvascular damage by diabetes

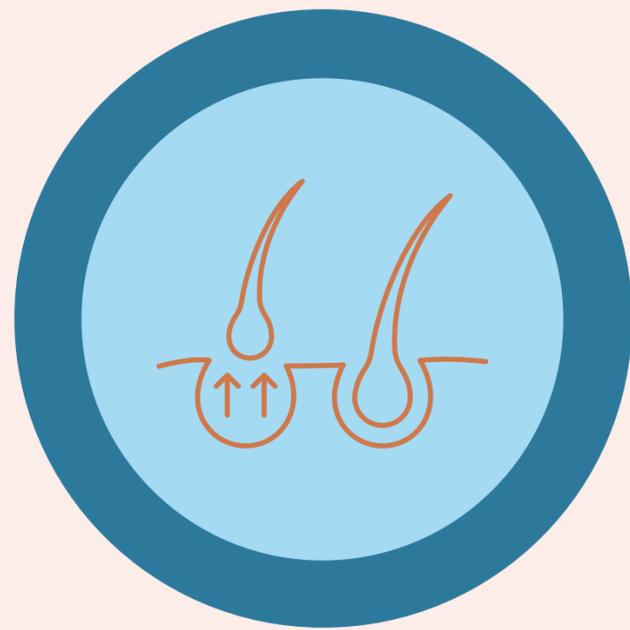
Infection may complicate both presentations





Diabetic foot presentation





Hair loss and nail dystrophy with ischaemia



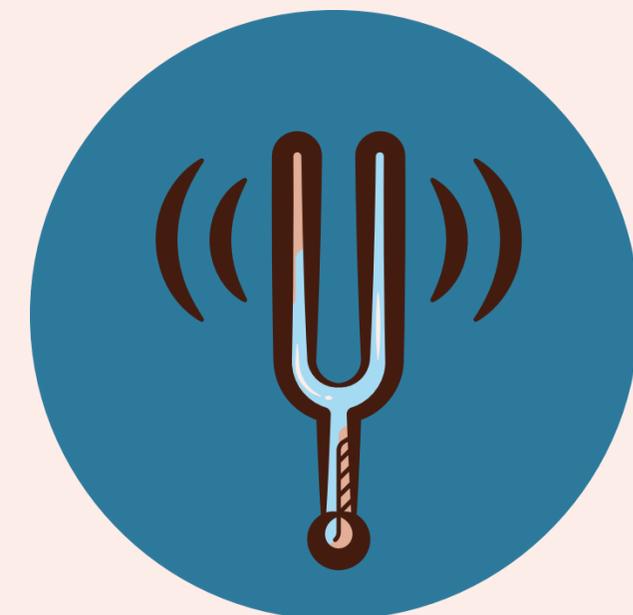
Feet are warm in neuropathy



Feet are cold in ischaemia



Ischaemic ulcers are typically found distally: at the tips of toes.



Loss of sensation to vibration and proprioception are early signs of diabetic peripheral neuropathy.

- Peripheral neuropathy suggests loss of protective pain sensation and is a good predictor of future ulceration.
- With significant neuropathy, the foot arch may be excessive or collapsed (rocker-bottom sole).
- Both conditions cause abnormal pressures and increase the risk of plantar ulceration, particularly in the forefoot.



Complications





A



**Infected foot ulcer
with cellulitis and
ascending
lymphangitis**



B



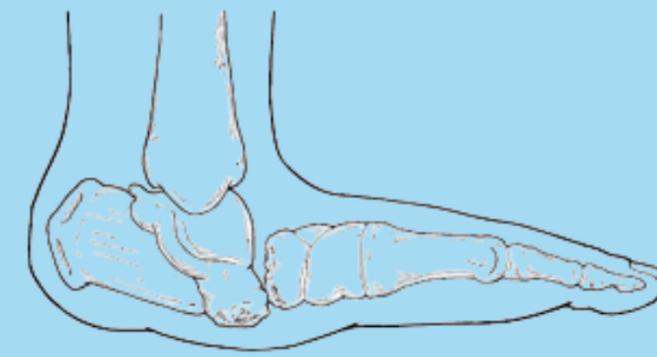
**Ischaemic foot:
digital gangrene**

✓ Charcot Arthropathy

- Also known as neuropathic arthropathy: Nerve damage leading to the breaking down of bone and muscle
- It is disorganized foot architecture, acute inflammation, fracture, and bone thinning in a patient with neuropathy.
- It presents acutely as a hot, red, swollen foot and is often difficult to distinguish clinically from infection.



Normal Foot



Charcot Foot



Examination

General points +
inspection

Ulcer examination

Palpation

Pulses

Special tests

Nerve function



General Points

Don't forget the general points of inspection, we will just focus on what's related to DF

- Exposure from umbilicus and below
- You should check everything bilaterally

Inspection

- Color= red or cyanosed
- Hair distribution
- Deformities
- Dry skin? Shiny?
- Any scars or amputations
- Edema



- Muscle wasting
- Black discolouration
- Nail changes
- Don't forget to check dorsal aspect and between toes

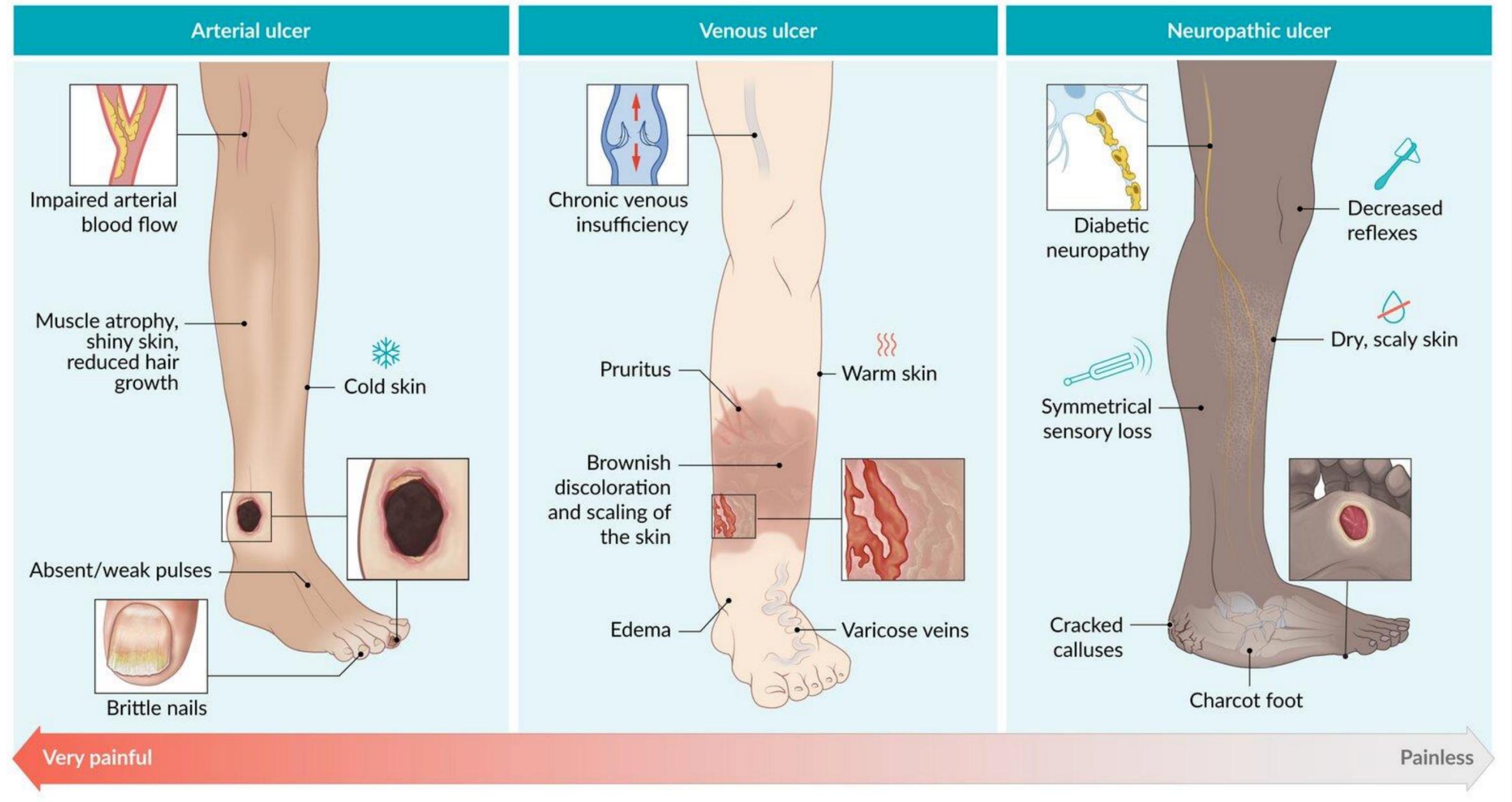


Ulcer

Examination

Check for:

- Site
- Venous ulcer or arterial ulcer
- Shape
- Number

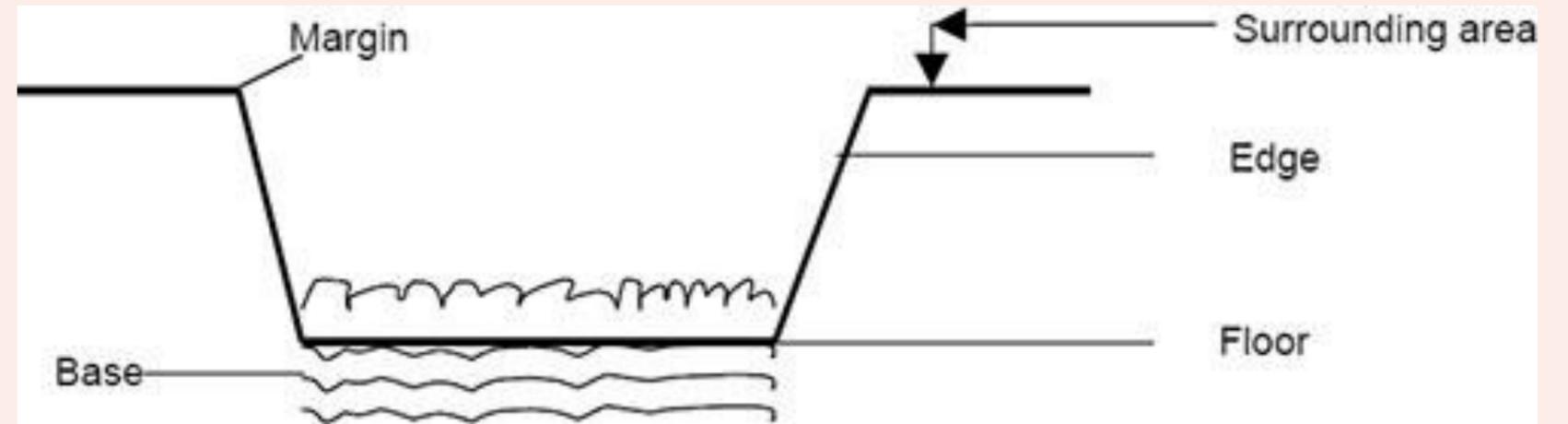




Ulcer Examination Cont...

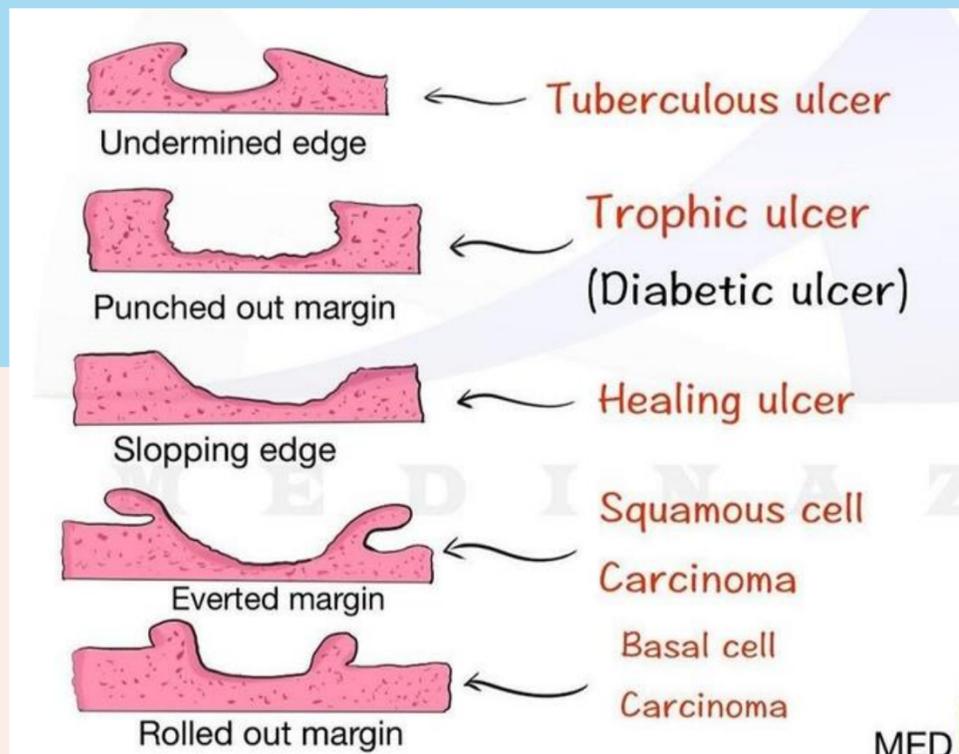
Surrounding tissue- is it red?
Necrotic?

Margin= line of demarcation
between normal and abnormal
Edge= the part between margin
and floor



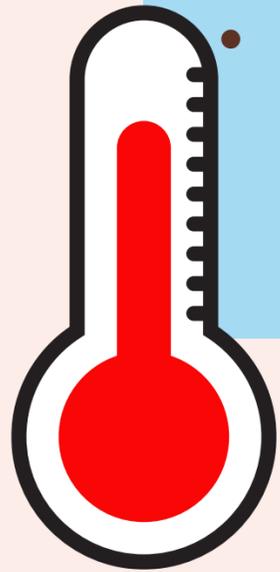
Floor- exposed part of ulcer
Moist or dry dead tissue, Granulation tissue
Base-
Sc fat, Muscle tendon, Bone

Discharge=
Serous- healing ulcer
Blood stained- malignant
Purulent- bacterial
Greenish- pseudomonas infection



Palpation

- Check temperature of both legs with the back of your hand
- Cool- peripheral vascular disease
- Hot- cellulitis
- Check capillary refill time, >2 seconds suggests PVD



Pulses



Dorsalis pedis pulse- on dorsum of foot in the first intermetatarsal space just lateral to extensor tendon of great toe



Tibialis pulse- 2cm inferior and posterior to medial malleolus

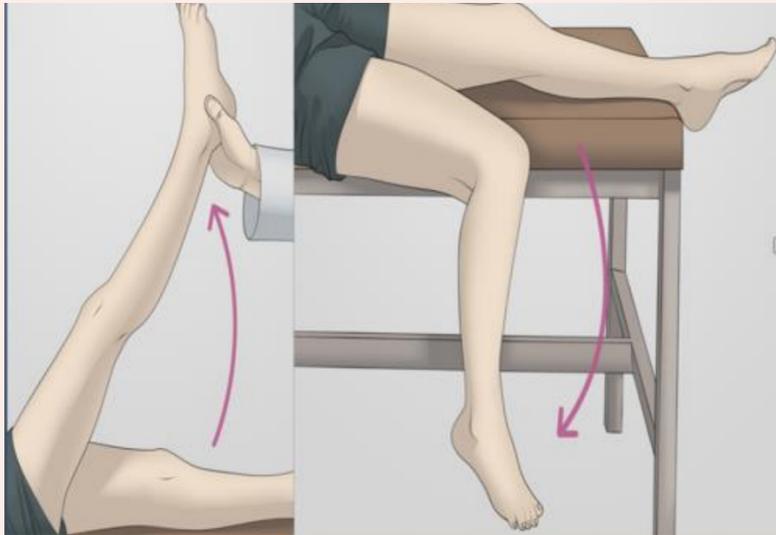


Popliteal pulse- flex leg a knee and palpate with both hands



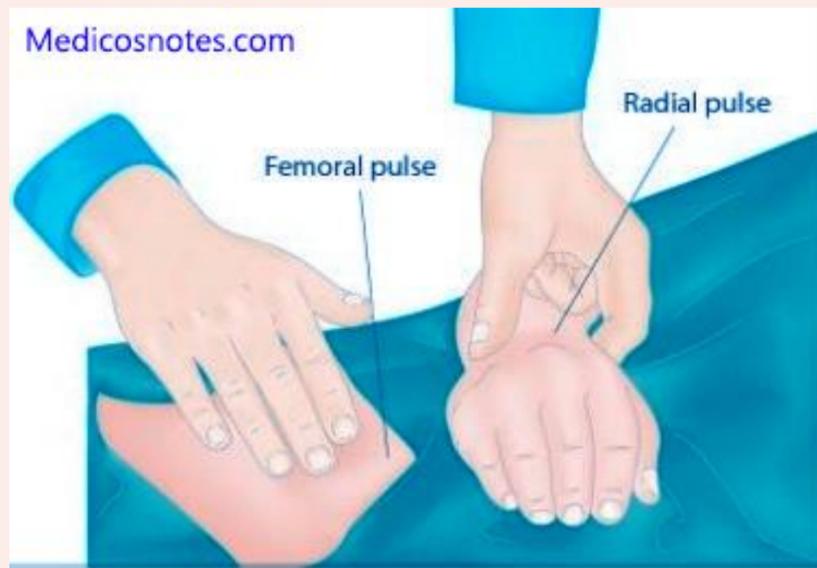
Femoral- just below the midpoint of inguinal ligament (half way between the ASIS and symphysis pubis)

Special Test - Buerger's test



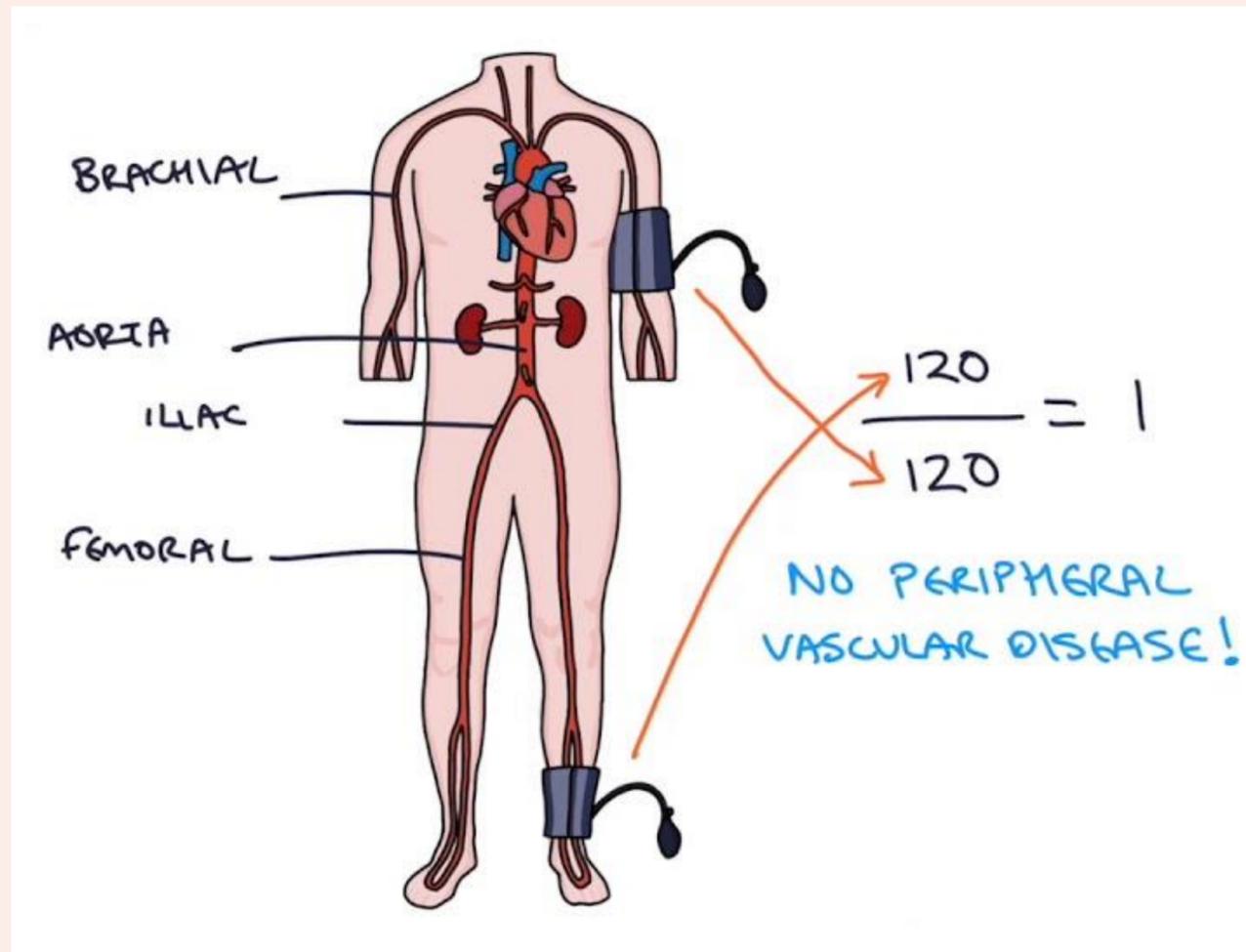
Raise leg of patient to 45 degrees and wait for 30 seconds > would change to pale if there is PVD, you can repeat at 90 degrees

Special Test - Radio-femoral delay



If present it can indicate coarctation of aorta

Special Test - Check ankle-brachial index



Measure blood pressure at brachial artery and ankle, if it's >1.4 there is a higher chance of having narrowed arteries

Nerve Function



1. TAP THE TUNING FORK TO CREATE VIBRATION
2. APPLY BASE OF THE TUNING FORK TO A BONE ON THE TIP OF THE GREAT TOE
3. ASK THE PATIENT TO TELL YOU WHERE THE VIBRATION STOPS
4. CONFIRM

- Use monofilament-
Provide an example of monofilament on patient's sternum

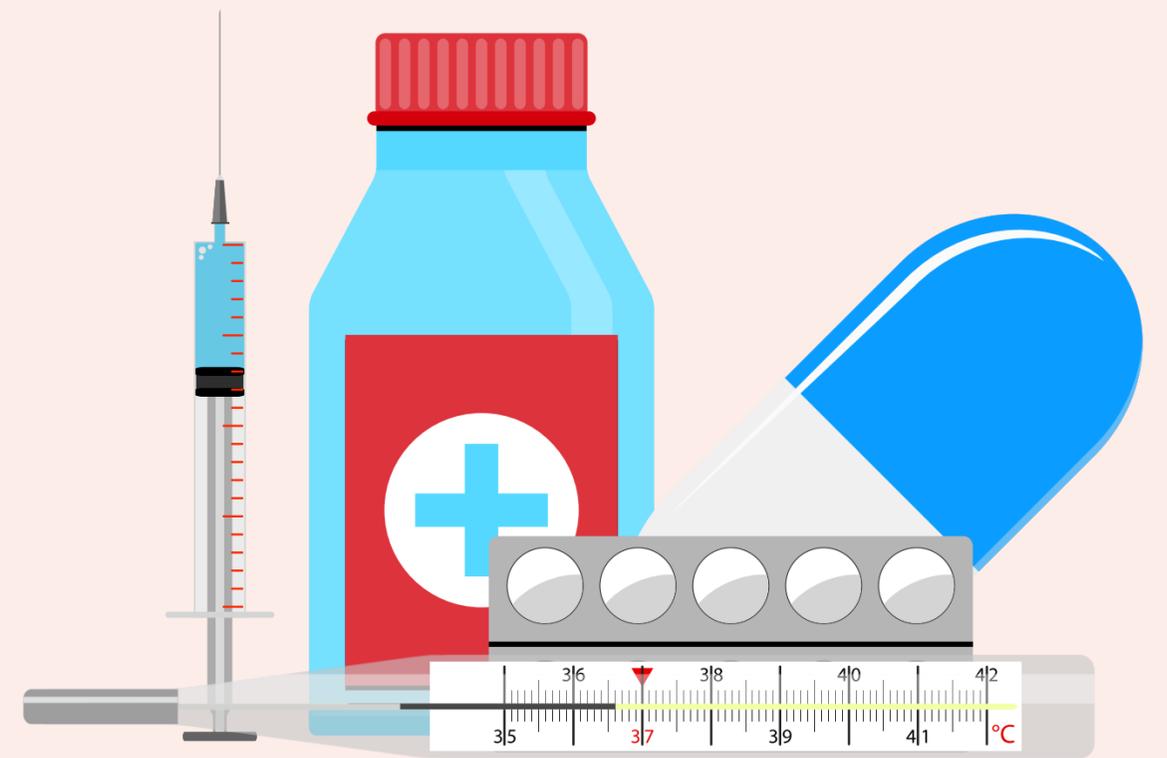
Let the patient close eyes

Let them tell you if they feel monofilament

- Vibration assessment using tuning fork
Start at the distal phalanx and move proximally if impaired

- Proprioception-
If patient can tell direction of movement of big toe > if impaired move proximally

Treatment



With appropriate treatment, 24% of diabetic foot ulcers can heal within 12 weeks

Clean wounds-

Minimal debridement and damp gauze or hydrogel based dressing changes

Antibiotic therapy

For infected wounds, initial antibiotic therapy should be broad spectrum

In acute phase= parenteral treatment is indicated

Wound cultures should be obtained

Specific antibiotics used

Infected wounds-

Diagnosed based on clinical signs of infection

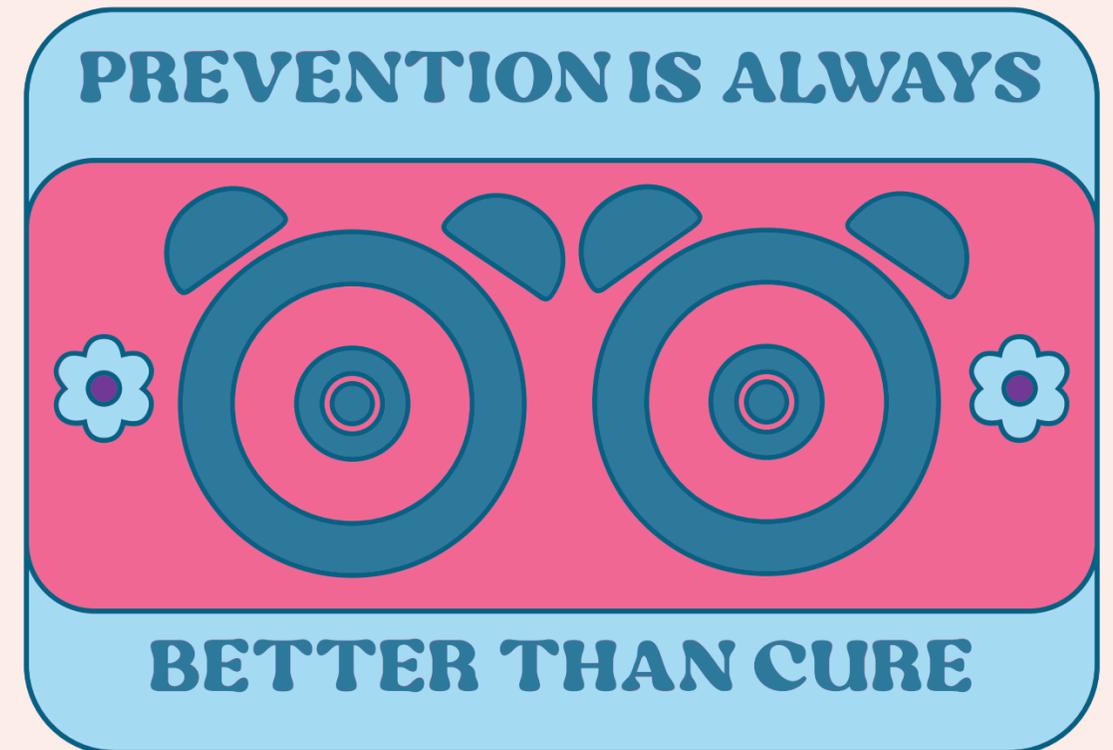
Plain X-rays may show osteomyelitis or gas in soft tissue

Should be admitted for inpatient and broad spectrum antibiotic is given

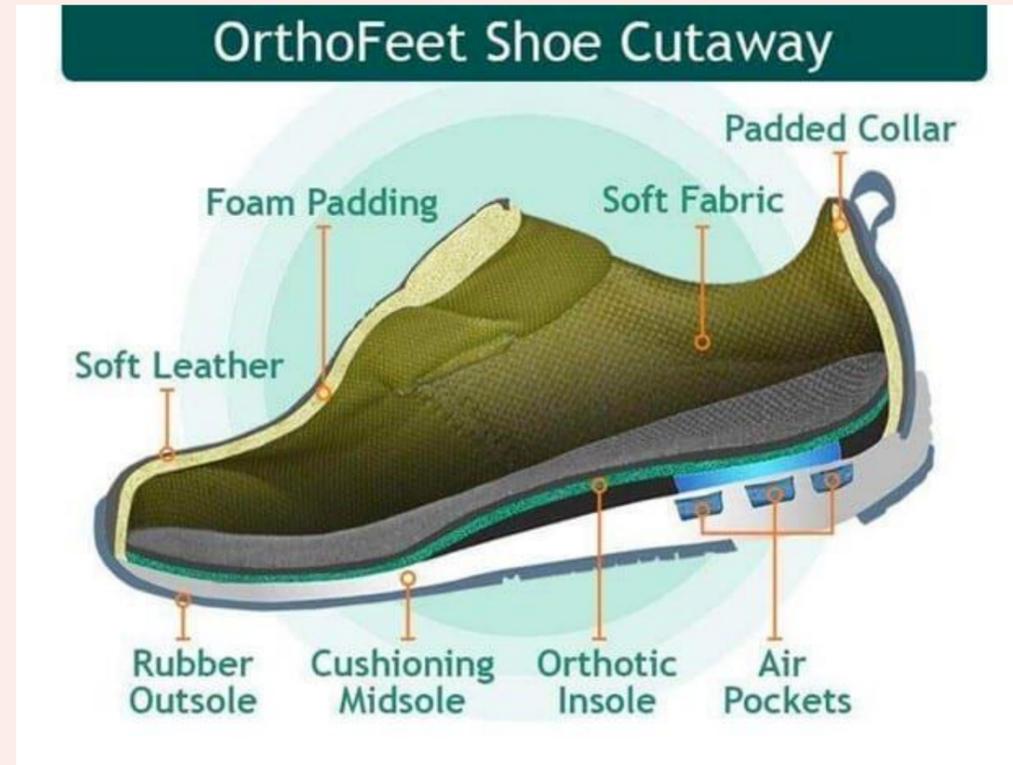
Drainage of abscess

Debridement of infected, necrotic or devitalized tissues

Prevention



It's one of the most important elements in the management of the diabetic foot.



Careful attention to hygiene and daily inspection for signs of tissue trauma prevent the progression of injury. Podiatric appliances or custom-made shoes help relieve pressure on weight-bearing areas and should be prescribed for any patient who has had neuropathic ulceration.





THANK YOU!