## Patient history

- Is there any numbness and tingling in the feet? Is the numbness and tingling worse at night or at rest? (This is a sign of Advanced Neuropathy).
- Is there a sensation of bugs crawling on the feet?
- Is there any burning?
- Is there any sharp shooting pain down the legs?
- Are there any leg or foot symptoms on walking relieved immediately with sitting or bending forward? (Possible Spinal Stenosis – prevalent in our aging population).
- What is the patient's activity level?
- Is there a presence or history of open wounds on the feet?
- Is there any swelling in the legs or feet?
- Are the feet cold or hot to touch?

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| Risk category 0 | Risk category 1 | Risk category 2 | Risk category 3 |
|---|---|---|---|
| Normal Plantar Sensation | Loss of Protective Sensation (LOPS) | LOPS with either High Pressure or Poor Circulation (PAD*) or Structural Foot Deformities or Onychomycosis | History of Ulceration, Amputation or Neuropathic Fracture |
| LOW RISK | MODERATE RISK | HIGH RISK<br>*Peripheral Arterial Disease | VERY HIGH RISK |

## FOLLOW-UP BASED ON RISK CATEGORIES

| Risk category 0 | Risk category 1 | Risk category 2 | Risk category 3 |
|---|---|---|---|
| LOW RISK | MODERATE RISK | HIGH RISK | VERY HIGH RISK |
| Re-check in 12 months | Re-check in 6 months | Re-check in 3 months | Immediate referral if active ulcer or Charcot foot.<br>Re-check in 1 month if history of ulcer or Charcot foot. |

## TREATMENT PLAN

| Risk category 0 | Risk category 1 | Risk category 2 | Risk category 3 |
|---|---|---|---|
| Patient education, daily inspection, proper footwear, routine foot care as needed, yearly follow-up. Tight glycemic control necessary to maintain this risk category. | Patient education, proper footwear, soft molded insoles, routine foot care as needed, daily self-inspection, 6 month follow-up | Patient education, proper footwear with possible modifications, custom molded insoles fitted into footwear with possible modification to relieve areas of pressure, scheduled routine foot care, daily self-inspection, 3 month follow-up | Patient education, extra depth footwear with custom modification, custom molded insoles with modifications to relieve pressure, offload with cast as necessary, scheduled routine foot care, daily self-inspection, monthly follow-up |

# Diabetic Foot Screening Pocket Chart

International Diabetes Federation

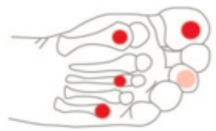
**IDF urges all health care practitioners to identify, assess and treat the patients earlier in the "WINDOW OF PRESENTATION" between when neuropathy is diagnosed and prior to developing an ulcer**

## Diabetic Foot Screening

In the progression of peripheral neuropathy; vibration sense is lost initially. Motor neuropathy and position sense is lost in conjunction with protective sensation.

Therefore, even if the patient has full or partial sensation, it is important to check the intrinsic musculature of the feet (small muscles in the feet) progressing to the extrinsic musculature (muscles of the leg) to monitor the progression of neuropathy. This progression limits their ability to walk and maintain their mobility.

Eventual progression of neuropathy results in the loss of pain and temperature fibers.



## Test for Sensory Neuropathy

Protective sensation testing is the most critical test of the whole assessment: using the 5.07 Monofilament exerting 10 grams of pressure assess the 4 main areas on the plantar surface of the patient's foot. If they cannot feel even one area then this increases their risk category from 0 to 1.

If normal sensation with the monofilament; then carry on with the rest of the screening.

If the patient is neuropathic and presents with a red, hot swollen foot; with or without pain in the foot, then one must consider a possible Charcot foot. Test for temperature in both feet with a digital thermometer.

Temperature differential of 4 degrees Fahrenheit or 2 degrees Celsius, with elevation in the foot in question, can signify either an infection or an already early Stage 0 or 1 active Charcot foot.

Elevated temperature differential, with the previous mentioned signs and symptoms, is a big red flag for Charcot foot – refer for X-Rays and immediate off-loading.

## Test for Motor Neuropathy

Ask the patient to flex and extend the big toe and ankle against resistance, and to splay the toes to assess for weakness. As neuropathy progresses from the intrinsic muscles of the foot to the extrinsic muscles of the foot (above the ankle), walking becomes more difficult and the patient will become more sedentary.

## Test for Vibration Loss

Test for vibration loss with a 128-Hz tuning fork. Test from the distal Hallux initially and if the patient cannot feel it move proximally to map out where they are able to feel vibration again. As soon as there is vibration loss proximal to the ankle, it is possible that sensory neuropathy is progressing proximally. Ask the patient to walk on their heels and toes.

## Assess Pedal Pulses

Does the foot feel warm or cold to touch?

Is there hair growing on the toes, feet or legs? Difficult to assess in women due to shaving.

Can you feel the Dorsalis Pedal Pulse? If weak or not present, can you feel the Tibial pulse?

If weak or not present, can you feel the Popliteal pulse?

Is there Dependent Rubor? This is a fiery to dusky-red coloration visible when the leg is in a dependent position (sitting) but not when it is elevated above the heart. The cause is peripheral arterial disease. To test, elevate the legs from supine to 60 degrees for 1 minute. Pallor within 25 seconds requires an Ankle Brachial Index (ABI). If abnormal findings, refer for vascular consultation.

*ABI less than 0.90 consistent with Peripheral Arterial Disease – refer for vascular consultation.*

## Integrity of Nails

Does the patient have any thickening of the toenails? Ingrown nails? Is Onychomycosis present?

*Refer for footcare nursing to prevent little problems from becoming big problems. Refer for treatment of Onychomycosis if present. Onychomycosis is a silent infection that is opportunistic and progressive, and the body is unable to recognize it to fight the infection. Treat this in the early stages as this escalates the patients risk category for complications. Early Treatment for Onychomycosis can be done with topicals as opposed to oral medications.*

## Integrity of Skin

Any calluses or corns?

Any ulcerations? Is the wound infected? Is there any redness, swelling, pain, exudate or odor?

Is there any fissuring?

Is the skin dry due to Autonomic Neuropathy?

Any red hot spots indicating high peak pressure areas either on the plantar surface or on the sides or dorsally, due to foot wear and the repetitive stress of walking?

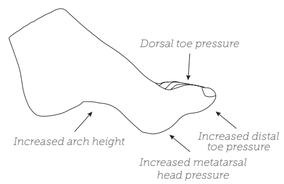
Is Tinea Pedis present? Refer for foot care nursing or wound care as necessary. Additionally refer for education on caring for the neuropathic foot and for treatment of the Tinea Pedis if present.

**The goal is to keep patients active and walking so that they can manage their blood sugars with simple exercise. Please assess, identify and treat pre-ulcerative areas, balance issues and any painful foot conditions that will limit the patients' mobility and encourage sedentary behavior. Simple walking must be maintained in order to assist these patients in managing their glycemic levels to prevent the progression of neuropathy.**

## Structural Foot Deformities

Are there any bunions (bony protuberances on the medial Hallux) or osteoarthritis limiting range of motion?

Is there an 'Intrinsic Minus Foot' due to advanced peripheral sensory and motor neuropathy?




*Adapted from the Lower Extremity Amputation Prevention Program (LEAP) Level 1 - Foot Screen pdf. National Hansen's Disease Programs. US Department of Health and Human Services. Health Resources and Services Administration.*

Palpate the plantar foot and assess for structural deformities or painful areas that will limit the patients' walking. Remember the goal is to make walking easier and not painful so that they can get on their feet and be active to manage their blood glucose to prevent progression of neuropathy.

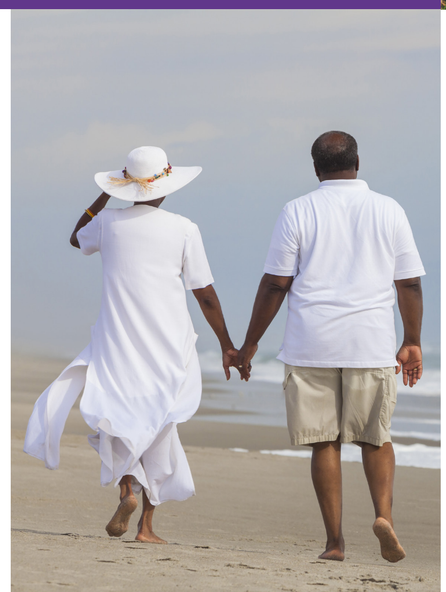
## Range of Motion

Can you bring the ankle to 90 degrees and then get the last critical 10 degree range of motion necessary for normal gait? Limited joint mobility affects the foot's ability to distribute pressure and stress and increases the risk for foot complications.

Does the Hallux (big toe) dorsiflex (bend upwards) to 70 degrees necessary for normal gait?

Does the Subtalar Joint invert and evert or has it stiffened up?

As the Achilles tendon shortens and the foot stiffens up, off-loading preventatively in Risk Category 1 and 2 is critical to prevent future ulceration.



## Footcare

Is the patient able to care for their feet and nails?

Is the patient cognizant and able to understand the need to assess and care for their feet on a daily basis?

Is the patient able to see the bottom of their feet?

Is there neuropathy, obesity or retinopathy preventing footcare?

Does the patient understand what Diabetic Neuropathy and Peripheral Arterial Disease is?

Does the patient understand how managing their blood glucose prevents irreversible neuropathy that damages their feet? Do they understand the link between elevated blood glucose, neuropathy, ulcers and amputations?

*Refer for diabetes education and foot care nursing, including toenail care and corn and callus removal.*

## Footwear and offloading

What is the structural integrity of the shoe? Is it flexible?

Is it appropriate for the insensate foot – is it seamless?

Does it have a stable heel counter to control the neuropathic foot? Refer for proper footwear if need be.

What is the depth of the removable insert?

Is there a thumb width between the end of the longest toe and the end of the shoe?

Based on their needs recommended for their Risk Category; do they have diabetic custom orthoses for protection if necessary? Diabetic custom orthoses are flexible, accommodative and usually made of a pink plastazote to show any blood from ulcerations.