

The High Risk Remaining Foot of an Amputee

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(Based on a presentation by Stella Panaretos and Dean Hassall)

WHAT IS PODIATRY?



- FEET, FEET AND MORE FEET!!!
- Prevention, diagnosis, treatment & rehabilitation of various foot & lower limb conditions.
- Bone, joint, soft tissue, muscle & neurovascular pathologies.
- Improve mobility & enhance independence via prevention & management of pathological foot problems.

Lower Limb Amputee Patients

- The majority of amputee patients treated by High Risk Podiatry Clinics have Diabetes Mellitus and / or Peripheral Vascular Disease (PVD).
- A patient with a history of amputation in relation to one of the above would be classified as **HIGH RISK** of developing a foot pathology in the intact limb.
- It could also be considered wise to try and maintain the health of the remaining foot of a traumatic lower limb amputee.

SOME HIGH RISK FOOT STATISTICS...

- Approximately 40 to 60% of all lower extremity amputations occur in patients with diabetes
- More than 70% of these amputations are precipitated by a foot ulcer
- 15% of all those with diabetes during their lifetime will develop foot ulcers

Diabetic foot facts and figures

- Approximately 3000 Australians will lose a limb each year as a result of diabetic foot disease.



DIABETIC FOOT FACTS AND FIGURES...

- Up to 85% of amputations may be preventable



Podiatry's role ?

- Podiatry can play a vitally important role in the assessment and management of the intact limb.



Assessment

- History
- Neurological / Vascular testing
- Dermatological
- Foot structure / deformities
- Biomechanics
- Footwear
- Personal factors

Vascular Assessment

Is there arterial or venous insufficiency?

- Pedal pulses and popliteal pulses



Vascular Assessment

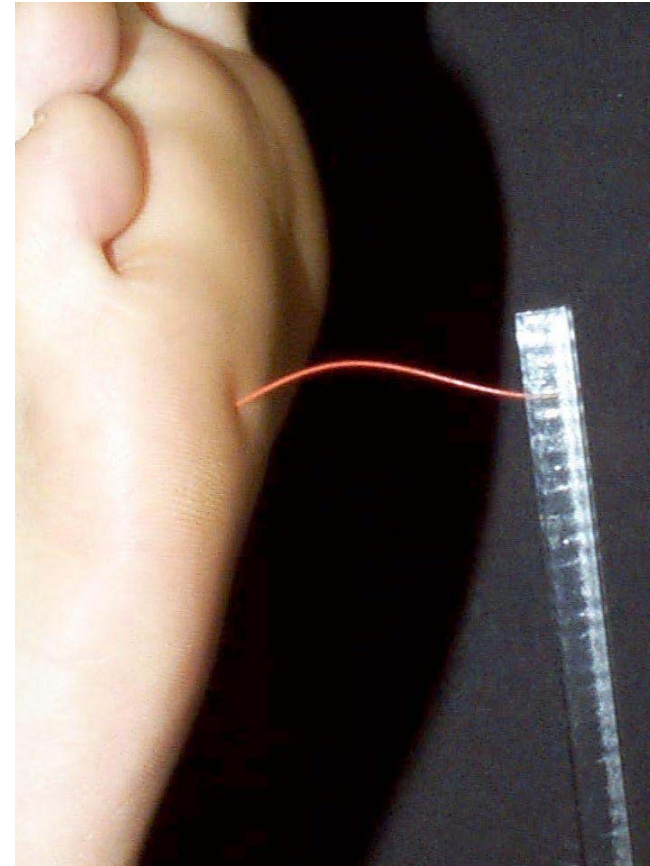
- Skin temperature
- Oedema
- Hair Growth
- Skin colour / integrity
- Varicosities, haemosiderosis
- Cramping, claudication, rest pain
- Doppler / ABI



Neurological Assessment

Monofilament – 5.07

- A loss of protective sensation can be detected by using a 5.07 monofilament – 10g of pressure applied to areas of the foot



Neurological Assessment

- Vibration Perception, tuning fork or biothesiometer



Neurological Assessment

- Anhydrosis \ altered skin tone, decreased sweating
- Paraesthesia
- Pain, Burning etc
- Muscle atrophy, restricted joint movement

Biomechanical Assessment

- Joint and muscle testing
- Cavoid foot type (high arch, claw toes)
- Charcot Neuroarthropathy
- Gait abnormalities



High-Arch Foot



Dermatology Assessment

- Corns \ callous



- A painless corn or callous if left untreated can become haemorrhagic and then lead to ulceration.



Dermatology Assessment

- Nail Types



Dermatology Assessment

- Ulcerations: venous, arterial, neuropathic
- Interdigital maceration, skin integrity-does a skin condition require treatment? An example would be tinea pedis.



Neuropathic Ulcer



Neuropathic Ulcer



Neuro-ischaemic ulcers



Neuro-ischaemic ulcers



Causes

Insensate foot



Pressure areas



Hyperkeratosis / callous



Tissue breakdown

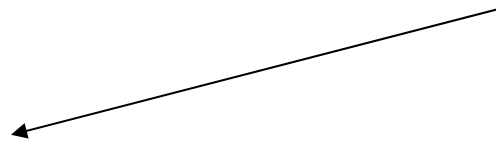
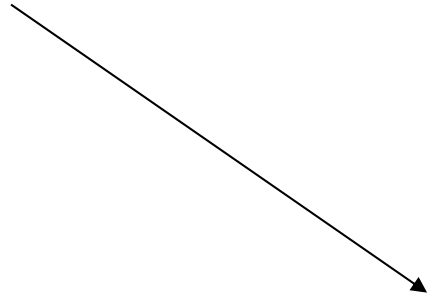


Ulceration

PVD



Trauma/Injury



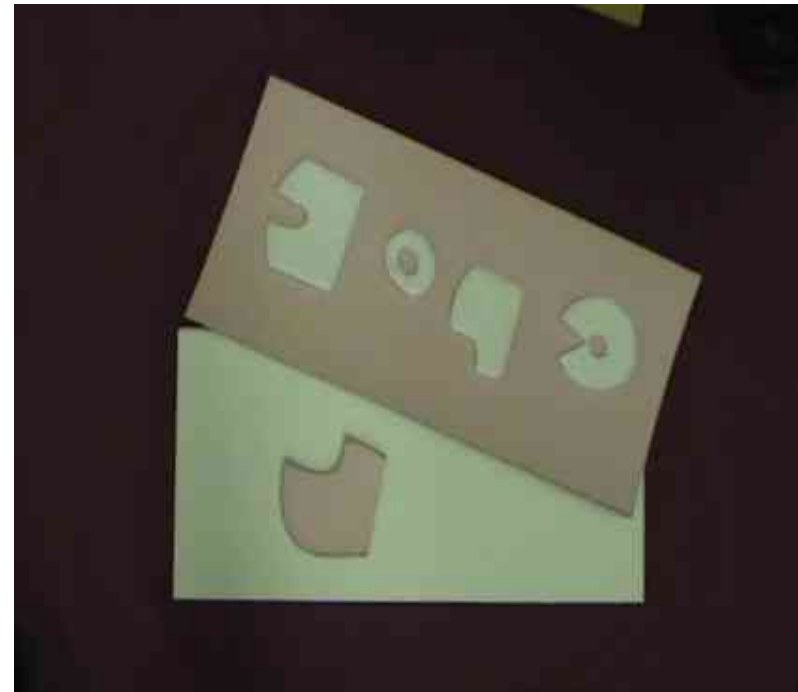
Treatment aims

- Encourage tissue repair
- Decrease pressure
- Prevent / Minimise
 - Risk of infection
 - Hospitalisation
 - Amputation
- Heal the ulcer (may not be main priority)



Off-loading / Footwear considerations

- Pressure relief → **VERY IMPORTANT**
- Palliative padding
 - Directly to foot
 - Added to footwear



Off-loading / Footwear considerations

- Accommodative / corrective orthoses



Off-loading / Footwear considerations

- Footwear needs to be assessed and should:
 - Fit properly to ↓ shearing forces
 - Allow for anatomical anomalies
- Issues surrounding gender related footwear choices-some shoes are too fashion orientated to be practical and there may be a difference between what the patients would like and what the practitioner would like.

Off-loading / Footwear considerations

- When a shoe is purchased/fitted it should:
 - Fit well enough so that when the foot moves, the shoe bends and moves with the foot so they act as a single unit.
 - A cushioned but supportive midsole should be chosen-soft enough to provide cushioning, however the shoe should not be unstable as some patients will have poor stability and balance.
 - Have a firm heel counter.

Off-loading / Footwear considerations

- When a shoe is purchased/fitted it should:
 - Have a removable insole and enough depth to replace that insole with an orthotic.
 - Have no sharp internal seams.
 - Have a firm, supportive midfoot that resists being 'wrung out' like washing.
 - Have a lace or velcro strap/s (pref. More than 1).
 - The shoe should bend at the MTP joint area reasonably easily and resist bending in the centre of the shoe.

Off-loading / Footwear considerations

- It is important to remember that an unusual shaped foot such as a neuro-arthropathic foot may require special attention and either shoe modifications or custom footwear.
- The features that have been described may not be suitable for every foot!

Footwear

This Asics shoe below has a zipper at the side meaning it can be laced when it is fitted and then a zipper at the side allows the shoe to be more easily taken on and off. The shoes to the left and below are extra depth and will accommodate more difficult to fit feet.



Off-loading / footwear

- Post-op shoes / boots
- Total contact cast
- Scotch cast boot
- Cam Walker
- Footwear modification
 - Rocker bottom soles
 - Stretching and moulding
(for lumps / bumps)
 - “Backyard” modifications



Offloading / footwear



Accommodative / In-shoe devices

- Custom made
- May incorporate palliative padding
- Short & Long term modality
- Varying materials
 - 2 to 3 layers of differing densities
 - Redistribution of pressure
 - Cushioning / shock absorbing
- Require appropriate footwear

Ongoing assessment and management

- Review
 - patients → weekly, monthly etc
 - treatment plan
 - dressing choices
 - padding / footwear
- Patient education / feedback

Referral

- May be indicated initially or throughout
- Dependent on stage of 1st contact
- Need for multidisciplinary approach
- G.P.'s
- Specialists
- Allied Health
- Educators
- Community Nursing
- Enable NSW

References

- Edmonds, E. M. & Foster, A. V. M. (2000). *Managing the Diabetic Foot*. Victoria : Blackwell Science.
- Tollafield, D. R. & Merriman, I. M. (1997). *Clinical Skills in Treating the Foot*. New York : Churchill Livingston.
- Merriman, I.M. & Tollafield, D. R. (1997). *Assessment of the Lower Limb*. New York : Churchill Livingston.
- Diabetes Management : A Journal for General Practitioners & Other Health Related Professionals. *Diabetes Australia*. Vol 7: March 2004. P.16.
- Armstrong, D. G. & Lavery, L. A. (1998). Diabetic Foot Ulcers: Prevention, Diagnosis and Classification. *American Family Physician*. March15. Pp. 1-9.
- Levin, E. L. (2002). Management of the Diabetic Foot: Preventing Amputation. *Southern Medical Journal*. 95(1): 10-20.
- Millington, J. T. & Norris, T. W. (Nov 2000). Effective Treatment Strategies for Diabetic Foot Wounds. *Journal of Family Practice*. p1-14.
- Sndyer, R. J. (Aug 2003). Passive and active dressings in wound care: today there's a wide array of treatment options available. (Wound Care & Diabetes O & A). *Podiatry Management*

References

- NSW Department of Health. Sydney. (2004). *Lower Limb Ulcers in Diabetes - a Practical guide to diagnosis and management.*
- Lorimer D. L, French G. J & West S. (1997). *Neale's Disorders of the Foot: Diagnosis and Management.*
- Diabetes Care. (2004). *National Study of Eye and Foot Care.*; 27:688-93
- Payne C. B. (2000). *Diabetes-related lower limb amputations in Australia.* Med J Aust; 173:352-4.
- Oyibo SO et al. (2001). *The effects of ulcer size and site, patient's age, sex and type and duration of diabetes on the outcomes of diabetic foot ulcers.* Diabetic Medicine; 18:133-8.
- *National Diabetes Foot Screening Project.* Jan 2004

