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Early treatment options in Diabetes and foot care

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# Early treatment Options in Diabetes: Foot Care.

Presentation and Workshop

**Veronica Newton  
and Peter Roberts**

*Senior Lecturers  
in Podiatry*

“The tidal wave of Diabetes  
Prevention vs. Complications”

6<sup>th</sup> Nov 2013

FERA Lakeside conference centre, York.



Inspiring tomorrow's professionals

- The diabetic foot – what do we know?
- Foot **morphology**
- Discuss determinants of **gait**
- What are the **gait changes** for people with diabetes?
- Treatments to **prevent and manage** active foot ulcers.
- Practical session on manufacturing **orthotics**.

- DH (NICE clinical guidelines) Cg10 basic foot check should include assessment of:

- Vascular
- Neurological
- Foot Deformity
- Footwear





- Flat foot
- High arched foot
- Toe deformities
- Hallux abducto valgus
- Insert images

- What should the foot do in walking (gait) ?
- How does it do it?
- Why does it do it?

<http://www.youtube.com/watch?v=GV6CAZiv5Zo>

<http://www.youtube.com/watch?v=9ZIBUqIE6Hc>

- Normal determinants of gait
- Pelvic tilt, rotation, knee flexion, ankle mechanism, foot mechanisms.

# Are there gait changes in diabetes?

.....Yes,

- Peripheral Neurological changes
- Muscle atrophy
- Joint immobility
  
- Gait and balance are altered in diabetic patients increasing falls risk. Exercises can help improve co-ordination and increase strength. Allett ( 2009)

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# Are there foot changes in diabetes?

- Yes
- Formosa (2013) recently highlighted the importance of biomechanical assessment of foot deformity and joint mobility in TD2.
- Foot deformities are predictive of **foot ulcerations** in the diabetic foot due to increased pressure areas.



# Is it just deformity that creates abnormal pressure?

How can we  
reduce  
the pressure  
here?



Inspiring tomorrow's professionals

# How can we shift the pressure off the foot? .....Simple as 1,2,3

1) Maciejewski et al (2004) therapeutic footwear reduces reulceration events compared with own footwear.

2) Offloading pressure – Armstrong (2005) removable and irremovable cast walkers to heal DFU

3) Orthotics – Mueller (2006)

Demonstrated how orthotics can reduce Pressure over the metatarsal heads.



# foot wear, offloading and orthotics



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## The person

- i. Foot Morphology**
- ii. Gait**
- iii. Deformity**
- iv. Footwear**

## The orthotic

(material property)

- i. Decelerate pressure  
(cushion)**
- ii. Redistribute pressure  
(offload)**
- iii. Functional correction  
(change the gait)**

# Let's Create an insole

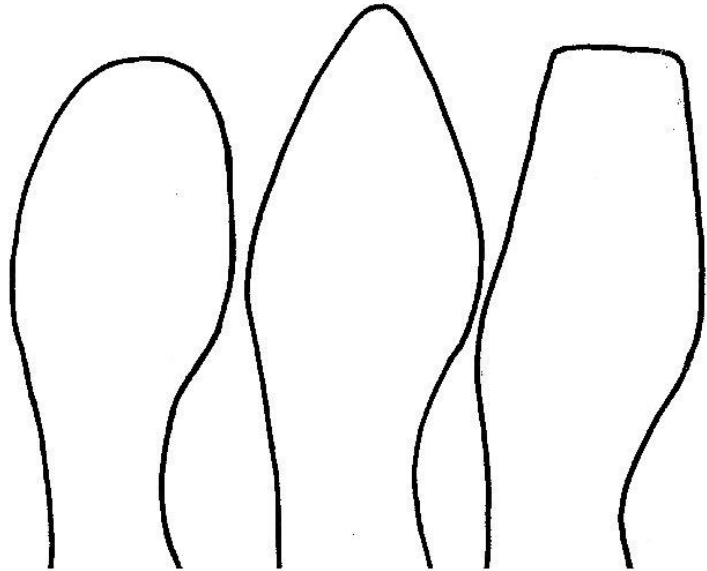
Groups of 4/5

Minimum 1 volunteer

Take an insole

Fit to a shoe

- Add some materials.
- Put it in your shoe.
- Walk!



## Checklist of Trigger factors for offloading treatment

- History of foot ulceration
- Foot Morphology creating a risk
- Gait disturbances
- Deformity creating a risk
- Footwear not fit for purpose

If the answer is yes....Consider referral to a podiatrist for offloading treatment.

- Armstrong, D. et al (2005). Evaluation of Removable and Irremovable Cast Walkers in the Healing of Diabetic Foot Wounds. A randomized controlled trial. *Diabetes Care* 28:3: pp551-554.  
Available at: <http://care.diabetesjournals.org/content/28/3/551>. doi: 10.2337. Date of access 20/10/13.
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- Mueller, M. et al (2006). Efficacy and Mechanism of Orthotic Devices to Unload Metatarsal Heads in People With Diabetes and a History of Plantar Ulcers. *Physical Therapy*. 86: pp833-42.  
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