

The Pathology Specific Approach

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Company Timeline



* All products designed, developed ® and owned by Healthy Step (Sensograph) Ltd







Consider Mechanical Aspects





Why is Root so popular?

- Text Book complete package
- Gave a rationale for why pathology occurs
- Provides a formula to follow for treatment
- It seems to work!
 - In most cases





Podiatry Paradigms

- 1. Strapping (Dye)
- 2. Criteria for normalcy (Root, Weed & Orien)
- 3. Mathematical model (Demp)
- 4. Rotational equilibrium theory (Kirby)
- 5. Sagittal plane facilitation (Dananberg)
- 6. Tissue Stress model (McPoil and Hunt)
- 7. Impact forces and muscle tuning (Nigg)
- 8. Centre of pressure model (Fuller)
- 9. Unification theory (Harradine)
- 10. Eversion buffer (Rodrigues et al)





Paradigms Are Just Models





How Do Insoles Work?

- Mechanically?
- Alter foot position?
- Change joint moments?
- Block or enhance movements?
- Slow down or speed up movements?
- Alter pressure? (line of progression/ application)
- Alter muscle function?
- Placebo?
- Improve comfort?
- Improve proprioception? Somato-sensory



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What We Do in Terms of Physics



- External forces are placed on the body
- Internal forces counteract (resist) these
- If external moments exceed the internal resistance, stress is applied to the tissues at this point causing tissue damage
- Treatment must either reduce the external moments, or increase the internal forces to act against the external



Phasic Muscle Action

In terms of the gait cycle:

Muscles that have their action in the sagittal plane

Muscles fire at different phases of the gait cycle and for different reasons



HealthyStep:

Functional Anatomy

- Know your anatomy
- Understand the anatomical structures
 - Joint
 - Ligament
 - Tendon
 - Muscle
- Know what moves and when
- And WHY
- Thereafter the symptom causing movement is more easily identified

What Modalities We Use To Treat Pathology?

Surgery

- Orthoses
- Tape
- Footwear
- Braces
- Activity Modification
- Rehabilitation & Strengthening

- Why?
- What are we hoping to achieve?

Foot Orthotic Prescribing Practises

Morphology

Functional

- Forefoot Varus/Valgus
- Rearfoot Varus/Valgus
- Ankle Equinus
- Metatarsus Primus Elevatus
- etc

- Functional Hallux Limitus
- Rotational Equilibrium
- 3 Point Rocker
- Supination resistance
- Windlass mechanism
- Lunge test
- Navicular drop and drift

Treatment

A Sensible Approach

- Diagnosis (Orthopaedic tests, Palpation, Imaging....)
- Mechanism of Injury (Overuse, weakness, injury, underlying pathology.....)

Treatment

- Rehabilitation (fear avoidance, swelling, stiffness....)
- Exercises (what type, how often,,,,etc)
- Insoles (with a rationale to do what?)

Phasic posting

• To influence the part of the gait cycle that the injured tissue is stressed in

The Pathology Specific Approach

Identify the Stressed Tissue

- Where is the injury?
- What is the anatomical damage?

Phasic Action Consideration

- When is the structure loaded in gait?
- Is there abnormal function at this phase

Orthotic Design

- There is no one best orthotic, material, manufacturing process etc
- The best one is the one that has the design features that deliver the variables that are needed for that patient

Shape

Shoes

Conclusion

- Think about forces in the tissues rather than foot posture and alignment
- Think about clinical tests to derive prescription variables
- Think about what design features are needed to deliver those variables

Take Home Messages

- That treatment should be devised after a diagnosis
- Importance of understanding the mechanism of injury
- Understanding which phase of the gait cycle the injured tissue is being stressed at and how this relates to posting on insoles
- Treating 'morphology' **can** lead to problems.

Healthy Step Orthotics

- Designed with phasic foot motion in mind
- Easily adapted and re-adapted if needed

The customisable orthotic system

HealthyStep. foot health innovation

Thank You!

Questions?

