



Foot Guidance

Gait Assessment and Orthotics 2013

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Dip Clinical Gait Analysis

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Shore Orthotics



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Consultation



- Visual appearance – usually the hands are a good starting point.
- X-ray and report
- GP/ Specialist referral
- History
- Current complaint
- Pedograph
- Discussion

Consultation Cont.

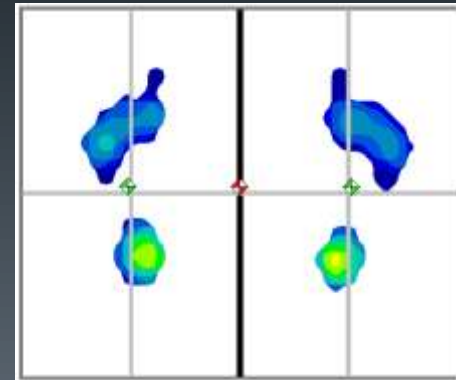
- Patient need to maintain a balance between rest and exercise
- Therefore the orthotic needs to be able to accommodate both aspects.
- Acute Phase – reduce movement in the affect joint/s
- Post-Acute Phase – support the joint/s in the Biomechanical neutral position.
- Long term/ Chronic – relieve symptoms.

Treatment goals

- Relieve pain
- Reduce inflammation
- Stop or reduce joint damage
- Return the patient to their normal life style
- These aspects need to be dealt with on an individual basis

Conditions

- Hallux Valgus / Hallux limitus / Hallux Rigidus
- Loss of plantar fat pad
- Weakness of the longitudinal ligaments – Tib Post
- Reduced arch height
- Forefoot splaying
- Hammer toe
- Claw toe
- *Plantar fasciitis*
- *Tarsal tunnel syndrome*
- *Posterior tibial nerve compression syndrome*
- *Heel spur 80/20*

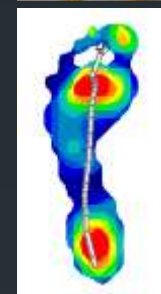
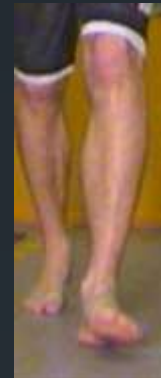


Clinical Gait Analysis

- Aim of Clinical Gait Analysis
- To restore a gait to that which is as normal as possible, keeping in mind the patient's physical condition

Gait Analysis

- Visual
 - Standing
 - Walking – Indoors and outdoors
- Video
 - Standing
 - Walking
 - Treadmill (walking/ running)
- Pedoscan (Force Plate)
 - Standing / Balance
 - Walking
- Foot Impression Ink Mat
- Reading the shoes!



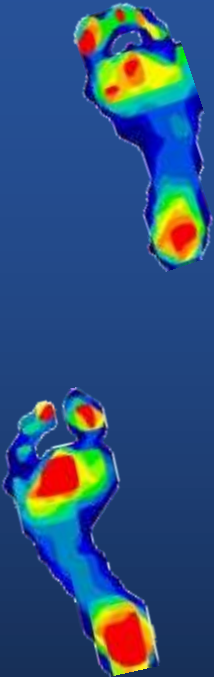
Gait Analysis

- Three Stages of Gait Analysis
 - Cold
 - Warm
 - Tired
 - Survival Mode

Video Analysis



Pedograph Measurements



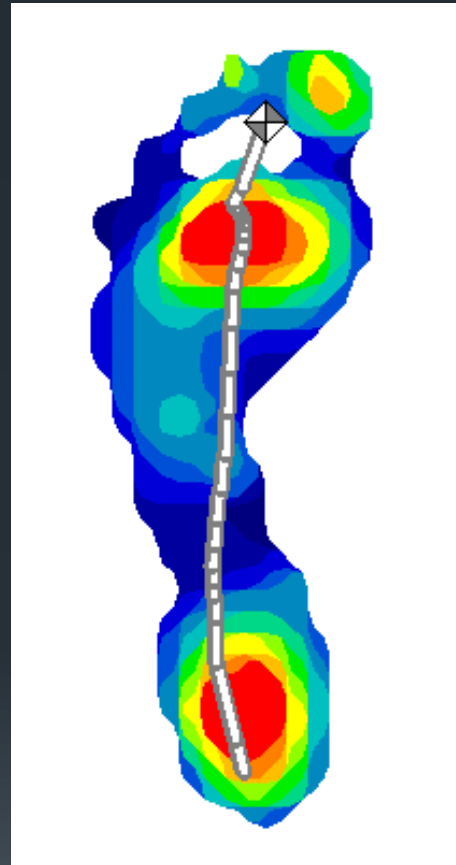
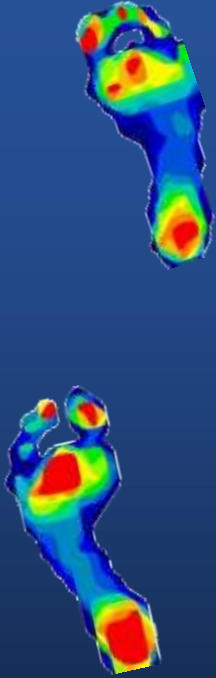
Walking



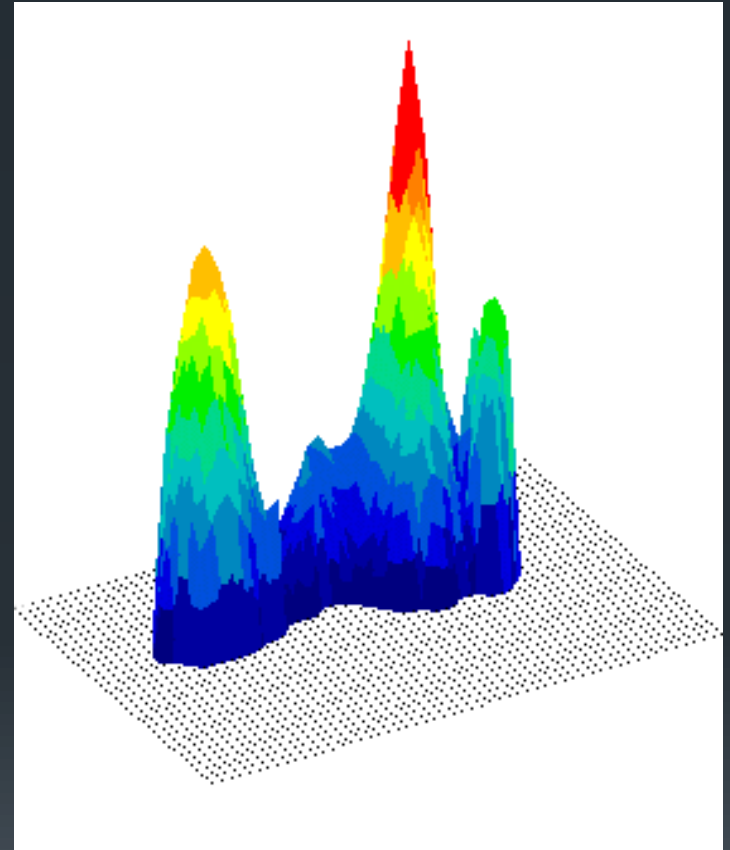
Standing

The Presto-Scan measures foot pressure distribution while walking or standing on the mat.

Display Profiles



2-D Contour



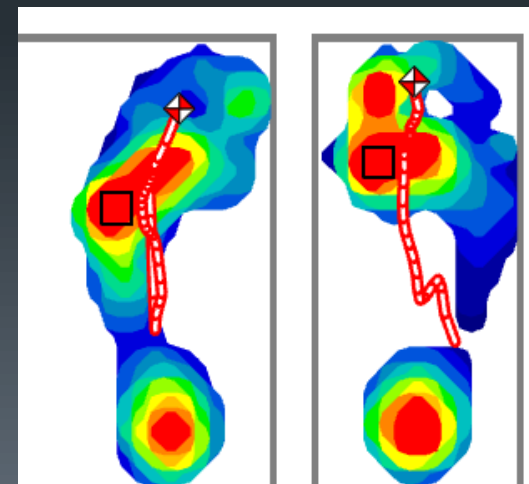
3-D Contour

Foot Types

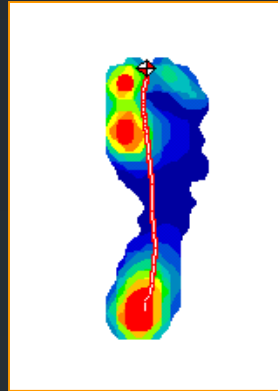
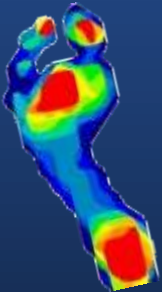
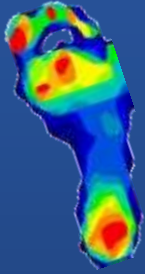
- | | | | |
|--------------|------|--------------------|----------------------------|
| ■ Pes Cavus | High | Medium | Low |
| | ▪ . | | Often seen as a Flat Foot. |
| ■ Normal | High | Medium | Low |
| ■ Pes Planus | High | Medium | Low |
| | ▪ . | Flat Foot Flexible | Flat Foot Rigid |



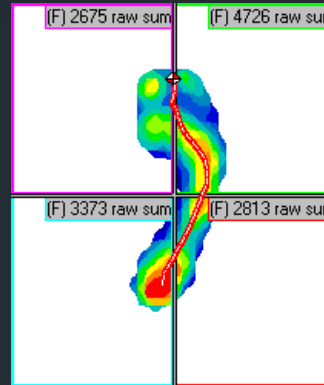
Best evaluated on the Pedograph/ Ink Mat



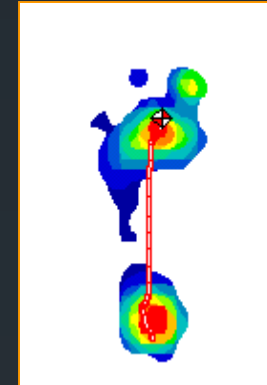
Profile Foot Types/ Actions



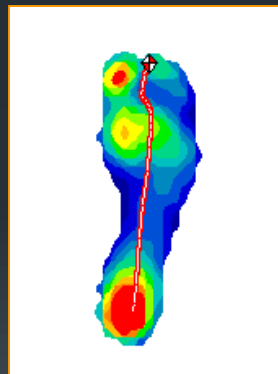
Pronated



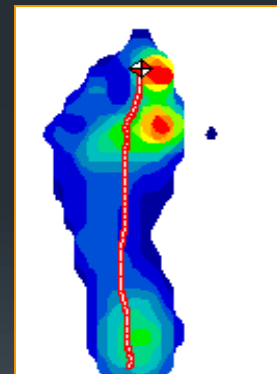
Supinated



High Arch



Heavy Heel



Flat Foot

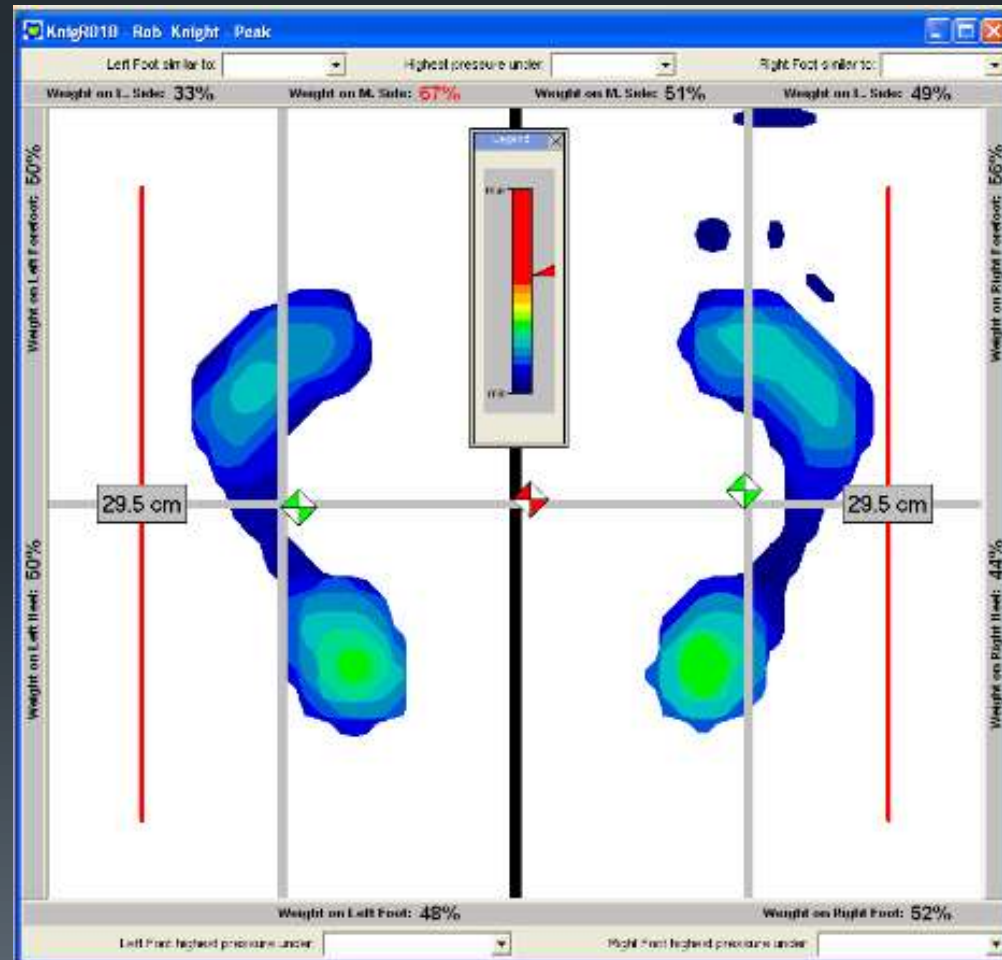
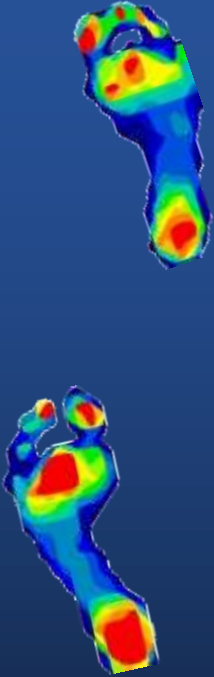


Normal Foot

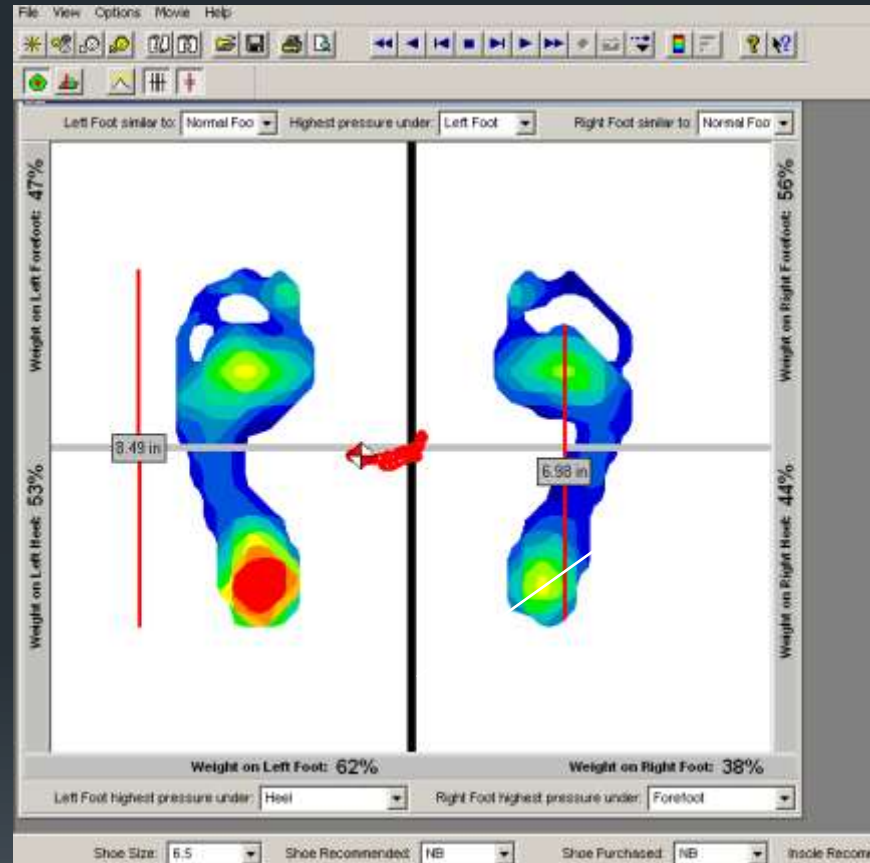
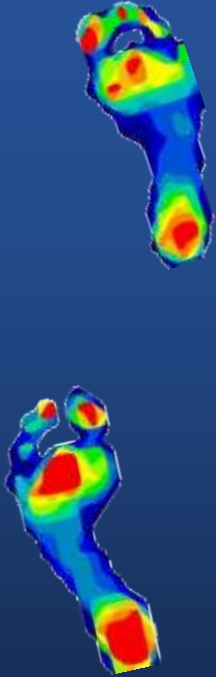
Ability to differentiate
between different foot types

Pinpoint problem areas

Static / Balance Pedograph

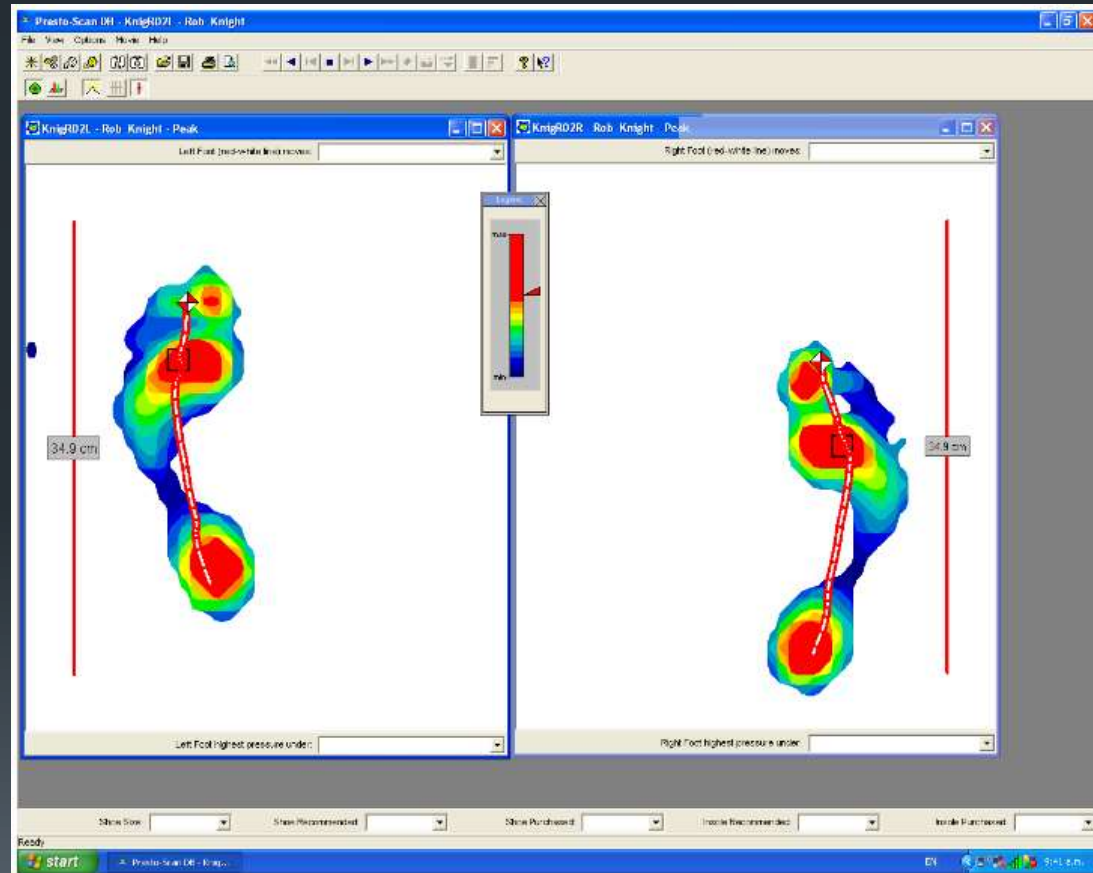
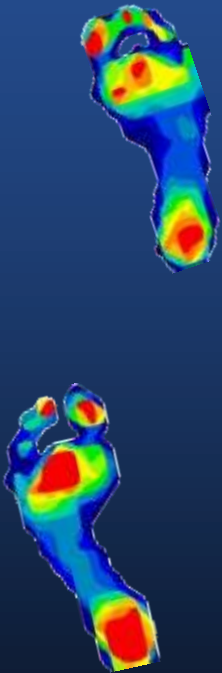


View Weight Distribution



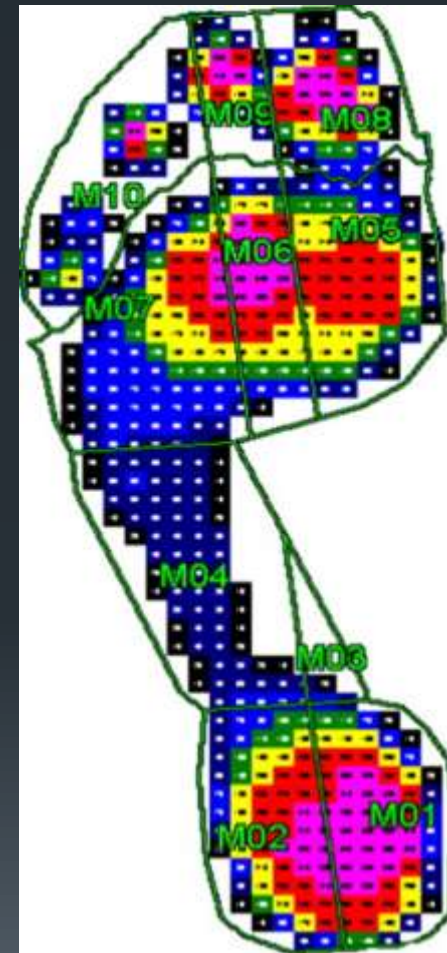
Percentage Distribution of rearfoot vs. forefoot to determine symmetry, alignment, posture, & balance.

Dynamic one step analysis



Pressure Mapping

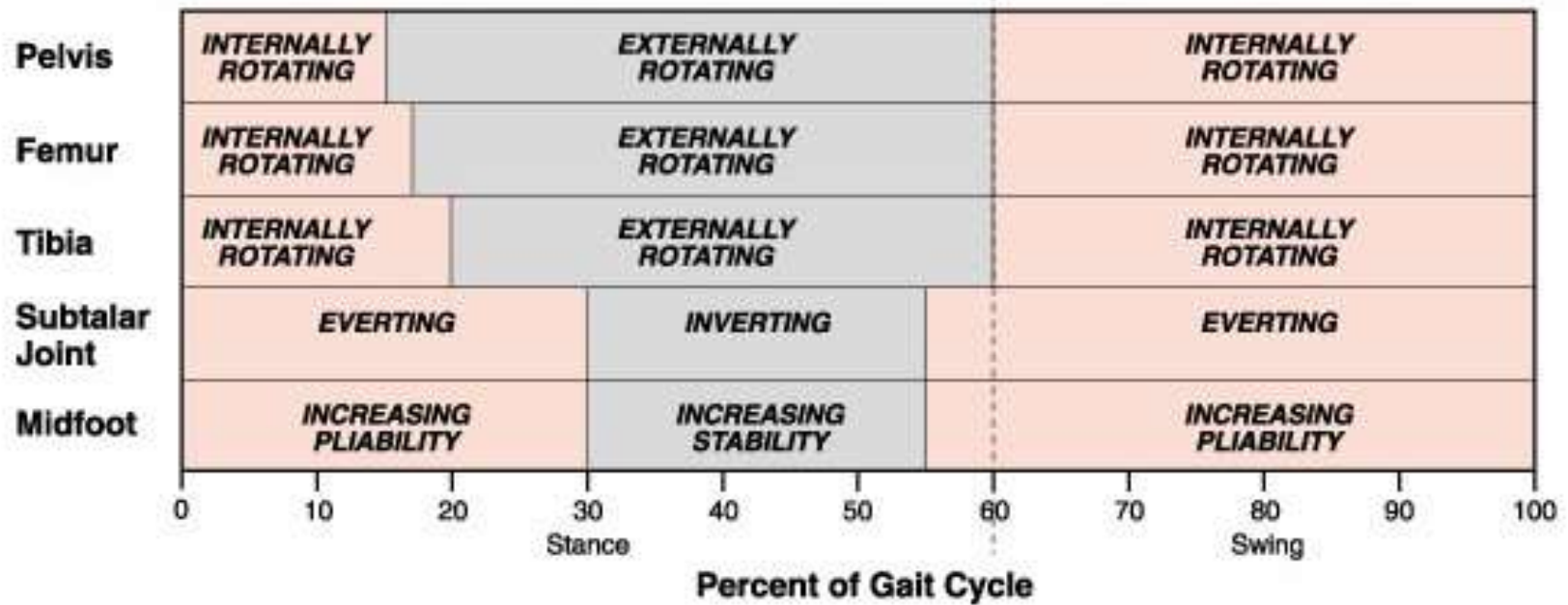
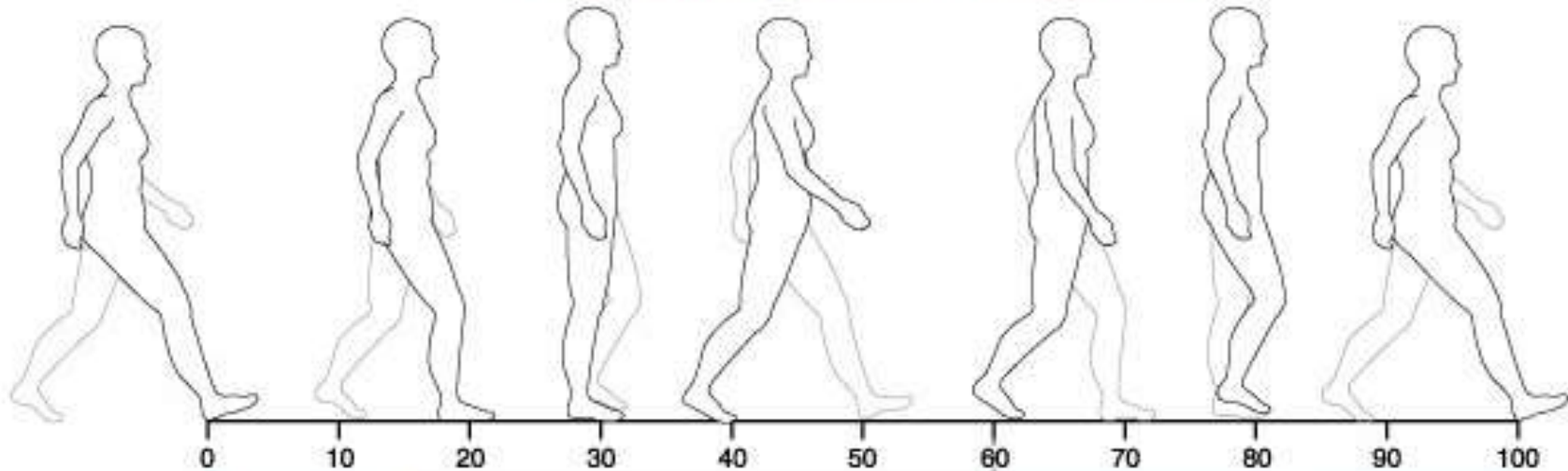
- Identify pressure areas
- Have a reference for future comparison
- Some countries have standard protocols for Orthotic therapy when certain levels are exceeded – Diabetic patients



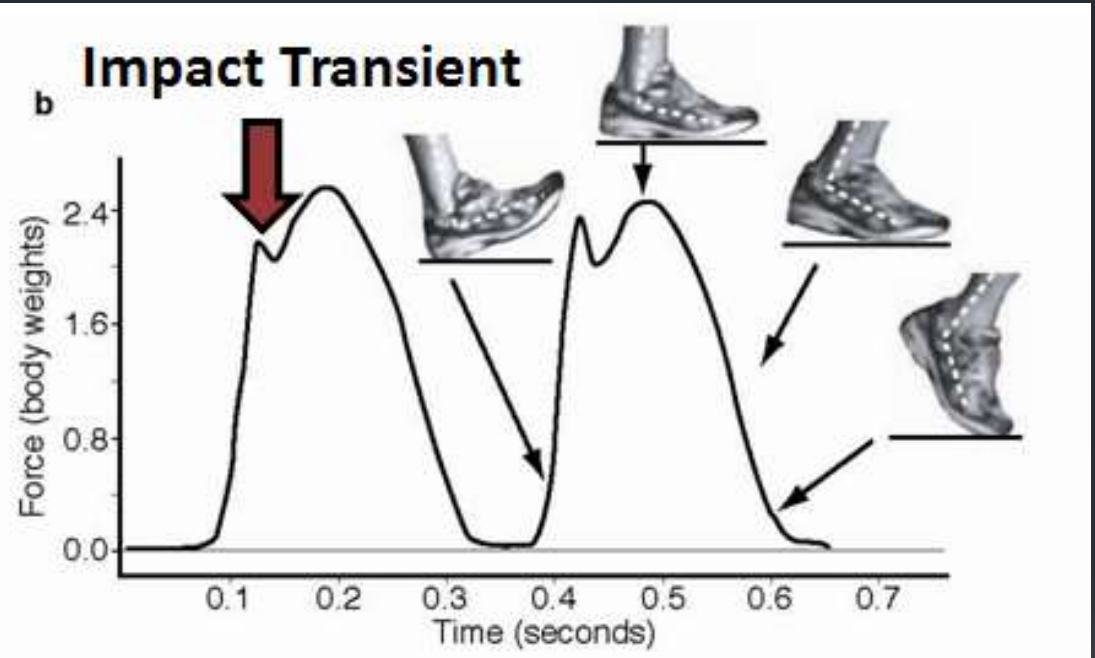
Gait Range of Movement

Movement	normal ROM	gait ROM
Ankle dorsiflexion	20	10
Ankle planter flexion	50	20
Knee flexion	135	65
Knee extension	0	0
Hip flexion	125	25
Hip extension	25	20
Hip adduction	30	5
Hip abduction	50	0
Hip internal rotation	40	5
Hip external rotation	45	5

Lower Extremity Kinematics (Horizontal Plane)



Loading vs. Unloading





Corrected
biomechanical
alignment

Incorrect
biomechanical
alignment

Barefoot
Gait
Pattern

Orthotic
Corrected
Gait Pattern

In Shoe
Gait
Pattern



Orthotics

Corrective

Accommodative

Rigid or Semi Rigid | Soft

- Depending on the diagnosis and the orthotic prescription the design will be somewhere in-between.
- The actual prescription is designed for each individual

Orthotics

- UCBL - University of California Berkeley Laboratory
- Rigid
- Semi Rigid
- Soft – hard
- Soft – medium
- Soft – soft

UCBL

- Maximum control
- Fits most shoes with a removable insole



UCBL Rigid and Semi Rigid

- Optimal control
- Thermoplastic carbon
- Fits most shoes with a removable insole
- Very light weight
- Better tolerated than the UCBL



Soft – Custom Over Cast



Soft – Custom Fit



Metatarsal



1st MPJ



Plantarfasciitis



Soft – TOP Covers

- Nylon / Neoprene
- EVA
- Poron
- PPT
- Ultra Stop



Shoe Modifications

Rigid soles



Rocker soles



Flares



Wedges



SACH Heel –
Solid Ankle
Cushion Heel



VACOPED

VACOcast



VACOpedes



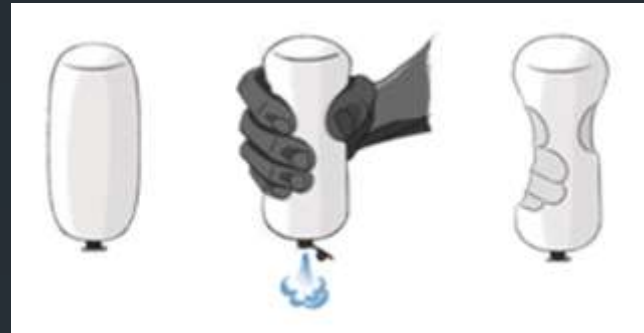
VACOped



VACUUM TECHNOLOGY

Why Vacuum technology?

- Deflated, it modulates perfectly to the patient's anatomy.
- when the edema reduces, VACOped assures the perfect fit due to the vacuum system
- By creating a vacuum, the system is immediately self-stabilized without hurting the injured area.
- Important! Not the vacuum cushion gives the form - the body forms the cushion



**This is the principle of
our vacuum technology**

Prescriptions - Rx

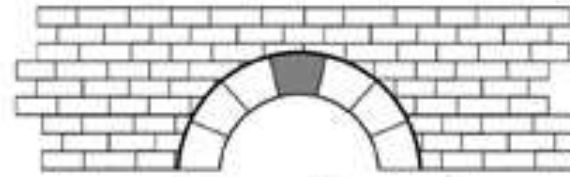
- - RA - Phase
- - Reduce joint movement
- - Support joint movement
- - Any other specific requirement



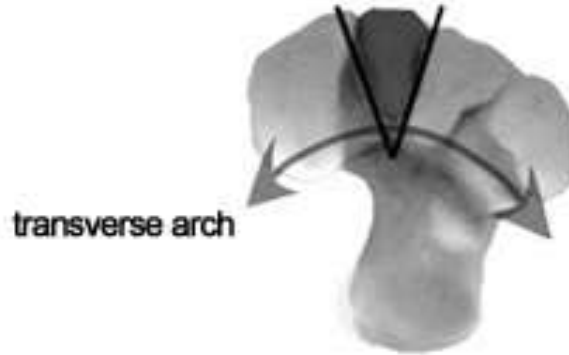
Thank You

■ Questions?

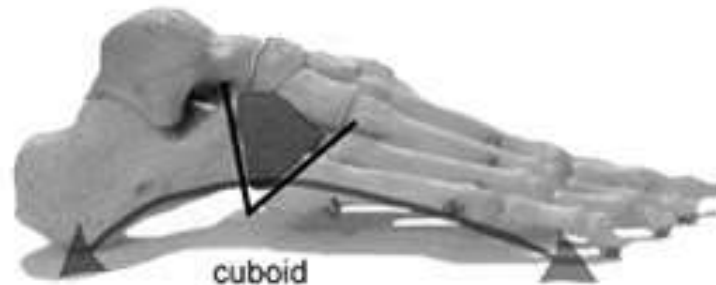




intermediate cuneiform



transverse arch



cuboid

lateral longitudinal arch



talus

medial longitudinal arch