Full Assessment of the Foot and its Function

Acute Injury Assessment and Action Pathways

Step Force Training

Presented By
Paul Graham

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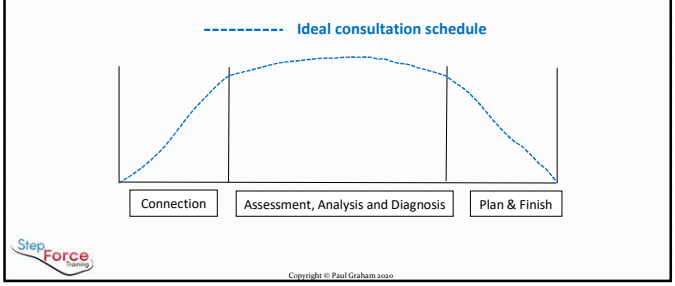
Optimal Appointment Schedule



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Components of Acute Examination

History →

1. Initial Palpation of injured area
2. Non Weight bearing assessment
3. Weight bearing assessment
4. Plantar Pressure & Gait analysis

→ Decision on Treatment strategy

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Why do we examine?

What is the aim of this appointment?

We need to gain a reasonably confident hypothesis to explain:

- What is the diagnosis?
- What is the cause:
  - From a direct injury?
  - If not from a direct injury, what is the underlying cause?

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Why do we examine?

How do we gain this Hypothesis effectively and efficiently?

• Patient's History	Background information
• Diagnostic tests	How severe is the injury / inflammation
• Compensation tests	Bodies ability to prevent overloading
• Structural tests	Primary pathways of force trajectory
• Adaptation tests	Changes that compromise function

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Case Study : Acute 2nd – 3rd MTPJt Pain

1. **HISTORY**
   - 84-year-old John is in good overall health still working 3-4 days /week
   - Presented complaining of pain sub L/2nd – 3rd MTPJT with first weight bearing that has been present for the last 2 months and is worsening
   - In the morning is feels swollen with background continual ache. During the day he has episodes of sharp pain, up to 7/10 VAS
   - This has happened previously, but the cause of this episode is unknown
   - He wants to be pain free so he can continue with the work he loves.

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Initial Palpation of injured area

Diagnostic

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Initial Palpation of injured area

Diagnostic

	Right	Left
Rearfoot Joint ROM	Please select	Please select
Cuboid Alignment Test	Please select	Please select
Midfoot Joint ROM	Please select	Please select
Forefoot Joint ROM	Please select	Please select
Beighton Hypermobility Test	Please select	Please select
Neuroma / Bursitis Test	Please select	Please select
AP Translation of 2nd and 3rd Joints	Please select	Dull (Mod)
Splaying between 1-3 MTPJIs	Please select	Mod
Short 1st Metatarsal	Please select	Please select
Hallux Dorsiflexion	Please select	Please select
1st Metatarsal Alignment	Please select	Please select
Functional Hallux Limitus	Please select	Please select
Forefoot Supinatus	Please select	Please select
Vibration Test	Please select	Please select
Resistive Strength Testing - Anterior Compt	Please select	Please select
Resistive Strength Testing - Deep Flexor Compt	Please select	Please select
Resistive Strength Testing - Peroneal Compt	Please select	Please select
Resistive Strength Testing - Posterior Compt	Please select	Please select
Other		

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Acute Non-Weight Bearing Tests

Compensation

Potential

- Joint ROM

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Acute Non-Weight Bearing Tests

Compensation

Potential

- Joint ROM

	Right	Left
Rearfoot Joint ROM	Normal	Normal
Cuboid Alignment Test	Normal	Normal
Midfoot Joint ROM	Restricted (Mod)	Restricted (Mod)
Forefoot Joint ROM	Normal	Restricted (Slight)
Beighton Hypermobility Test	Please select	Please select
Neuroma / Bursitis Test	Please select	Please select
AP Translation of 2nd and 3rd Joints	Please select	Dull (Mod)
Splaying between 1-3 MTPJts	Please select	Mod
Short 1st Metatarsal	Please select	Please select
Hallux Dorsiflexion	Normal	Normal
1st Metatarsal Alignment	Please select	Please select
Functional Hallux Limitus	Please select	Please select
Forefoot Supinatus	Please select	Please select
Vibration Test	Please select	Please select
Resistive Strength Testing - Anterior Compt	Please select	Please select
Resistive Strength Testing - Deep Flexor Compt	Please select	Please select
Resistive Strength Testing - Peroneal Compt	Please select	Please select
Resistive Strength Testing - Posterior Compt	Please select	Please select
Other		

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Acute Non-Weight Bearing Tests

Force pathways

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Acute Non-Weight Bearing Tests

Force pathways:

Structure

Adaptation

	Right	Left
Rearfoot Joint ROM	Normal	Normal
Cuboid Alignment Test	Normal	Normal
Midfoot Joint ROM	Restricted (Mod)	Restricted (Mod)
Forefoot Joint ROM	Normal	Restricted (Slight)
Beighton Hypermobility Test	Please select	Please select
Neuroma / Bursitis Test	Please select	Please select
AP Translation of 2nd and 3rd Joints	Please select	Dull (Mod)
Splaying between 1-3 MTPJts	Please select	Mod
Short 1st Metatarsal	Please select	Please select
Hallux Dorsiflexion	Normal	Normal
1st Metatarsal Alignment	Normal	Dorsiflexed (Marked - Flex)
Functional Hallux Limitus	Normal	Moderate
Forefoot Supinatus	Normal	Flexible (Mod)
Vibration Test	Please select	Please select
Resistive Strength Testing - Anterior Compt	Please select	Please select
Resistive Strength Testing - Deep Flexor Compt	Please select	Please select
Resistive Strength Testing - Peroneal Compt	Please select	Please select
Resistive Strength Testing - Posterior Compt	Please select	Please select
Other		

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Acute Non-Weight Bearing Tests

Compensation

Potential

- Muscles

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Initial Palpation of injured area

Compensation

Potential

- Muscles

	Right	Left
Rearfoot Joint ROM	Normal	Normal
Cuboid Alignment Test	Normal	Normal
Midfoot Joint ROM	Restricted (Mod)	Restricted (Mod)
Forefoot Joint ROM	Normal	Restricted (Slight)
Beighton Hypermobility Test	Please select	Please select
Neuroma / Bursitis Test	Please select	Please select
AP Translation of 2nd and 3rd Joints	Please select	Dull (Mod)
Splaying between 1-3 MTPJIs	Please select	Mod
Short 1st Metatarsal	Please select	Please select
Hallux Dorsiflexion	Normal	Normal
1st Metatarsal Alignment	Normal	Dorsiflexed (Marked - Flex)
Functional Hallux Limitus	Normal	Moderate
Forefoot Supinatus	Normal	Flexible (Mod)
Vibration Test	Please select	Please select
Resistive Strength Testing - Anterior Compt	4/5 Grade	4/5 Grade
Resistive Strength Testing - Deep Flexor Compt	4/5 Grade	3/5 Grade
Resistive Strength Testing - Peroneal Compt	4/5 Grade	3/5 Grade
Resistive Strength Testing - Posterior Compt	4/5 Grade	4/5 Grade
Other		

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Acute Weight Bearing Tests

Double leg squat
and
Lunge test

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Acute Weight Bearing Tests

Weight Bearing:	Right	Left	Notes
Double Leg Squat	Normal	Normal	Knee valgus / varus
Lunge	Restricted (Slight)	Restricted (Mod)	Normal: 9-11cm / 34-45°
Single Leg Heel Raise	Normal	Unable to do	Strength / Does heels invert
Single Heel Drop (Straight Leg)	Normal	Restricted (Mod)	Keeping leg straight and pelvis neutral
Other			

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Acute Weight Bearing Tests

Single leg heel raise
and
Heel drop

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Acute Weight Bearing Tests

Weight Bearing:	Right	Left	Notes
Double Leg Squat	Normal	Normal	Knee valgus / varus
Lunge	Restricted (Slight)	Restricted (Mod)	Normal: 9-11cm / 34-45°
Single Leg Heel Raise	Normal	Unable to do	Strength / Does heels invert
Single Heel Drop (Straight Leg)	Normal	Restricted (Mod)	Keeping leg straight and pelvis neutral
Other			

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Acute Exam Plantar Pressure Analysis

Plantar Pressure

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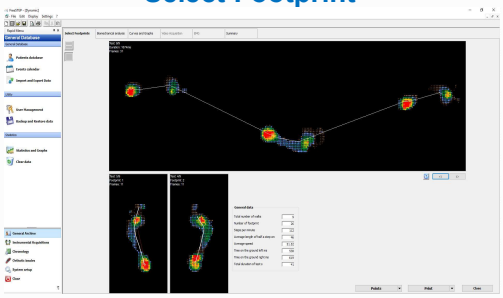
Select Footprint



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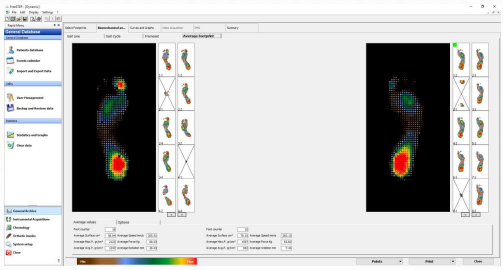
Average Footprint



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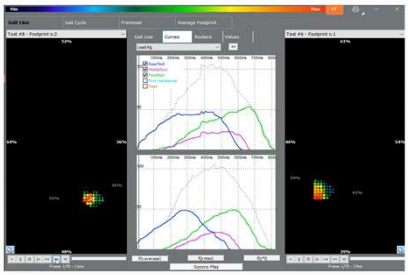
Acute Exam Plantar Pressure Analysis

1. **Overloaded Cells**
   - Peak View & Line
   - Integral View
2. **Protective Gait**



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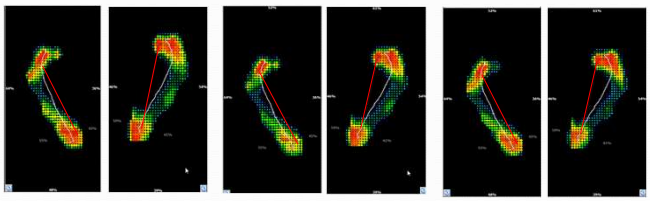
Pressure display Options



Averaged Pressure | Maximum Pressure | Integral Pressure

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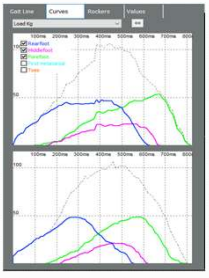
Acute Plantar Pressure Analysis

Protective gait
- Weight sharing
- Timing changes

But only to the point that the body can compensate



R/Foot Normal PvT graph

Almost surprisingly!

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Why do we examine?

How do our findings lead us to a Treatment Strategy?

- How are we going to address the inflammation?
- What treatments will we use to assist healing?
- How are we going to offload Injured tissues?
- What therapies would be appropriate to address the contractions, restriction and adaptations?

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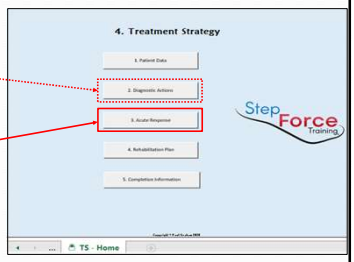
Decision on Treatment Strategy

Treatment Strategy

Do you need more information?

OR

Is the pathway clear cut?



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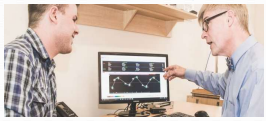
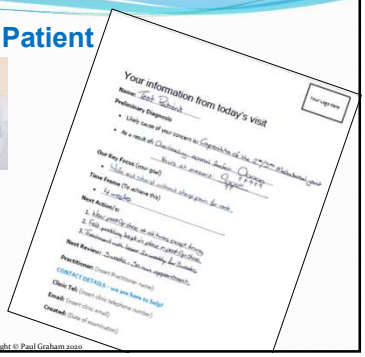
Get to know your Patient





3. Plan and Finish

(aim for 10 – 15 Minutes)

- Explain your hypothesis
- Provide a clear plan
- Initial Strategy

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Questions?

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