The Foot

AT A GLANCE

A QUICK REFERENCE GUIDE TO:

- Plantar Fasciopathy
- Plantar Plate Injury
- Stress Fractures
- Tarsal Tunnel Syndrome
- And More...

Zoe Wilson

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PLEASE REMEMBER – THIS GUIDE IS NOT A REPLACEMENT FOR CLINICAL REASONING. IF YOU ARE UNSURE GET ADVICE

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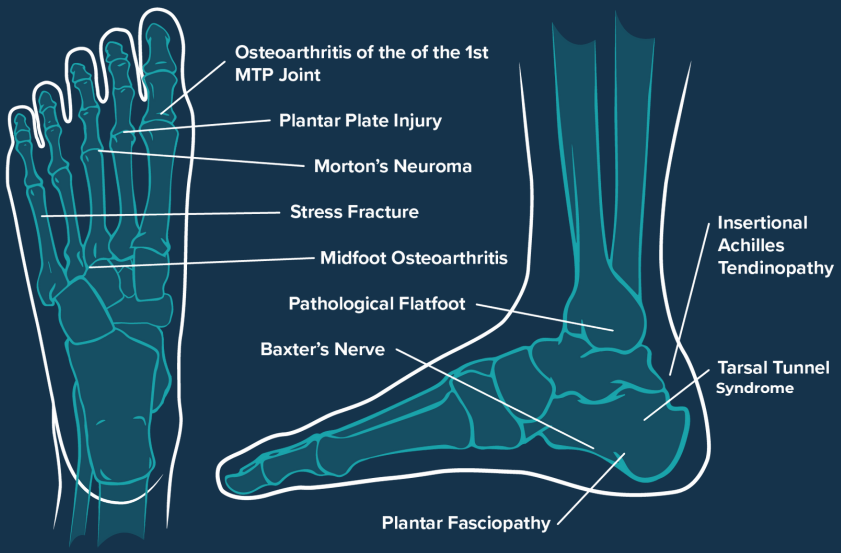
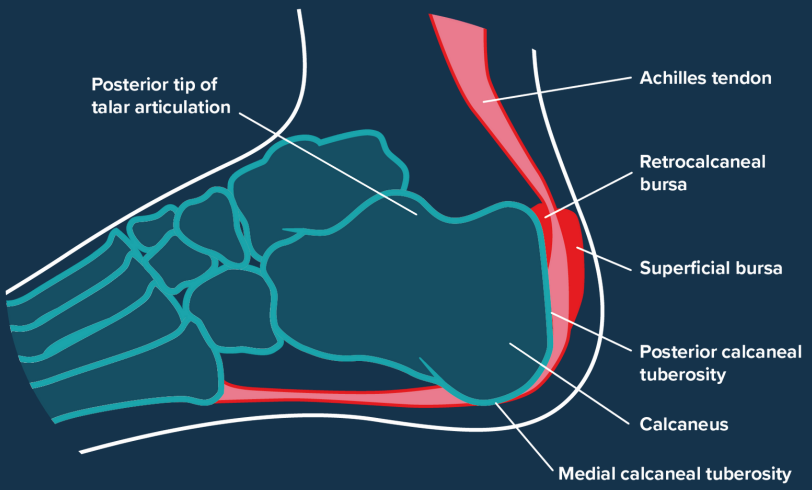
Symptom Anatomy





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Plantar Fasciopathy AT A GLANCE

Presenting Features

First step pain which eases with movement, aggravated by prolonged weight-bearing and worsening towards the end of the day

Assessment

Pain on palpation of medial process of calcaneal tuberosity, pain on single leg heel raise, reduction in range of motion during dorsiflexion of hallux

Comorbid/PMH

Diabetes Mellitus
Rheumatoid Arthritis
Polymyalgia Rheumatica
70% have a raised BMI

Investigation

Ultrasound or MRI

Differential Diagnosis

Baxter's Nerve Entrapment
Fat Pad Atrophy/Irritation
Tarsal Tunnel Syndrome

Treatment Principles

Acute Phase

Off-loading, NSAIDs, Stretching/Mobilisation, Footwear Modification, Injection Therapy

Chronic Phase

ESWT, Loading, Possible Surgery

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Plantar AT A GLANCE

Plate Injury/Tear

Presenting Features

Pain on plantar aspect of MTPJ (most commonly 2nd).
May experience sensation of “walking on a pebble).
Pain is worst during propulsion phase of gait

Clinical Test

Lachman’s (drawer test: dorsal) test to assess for instability of the MTPJ. Medial deviation is most commonly seen. In cases of rupture, subluxation/ dislocation may be seen.

Differential Diagnosis

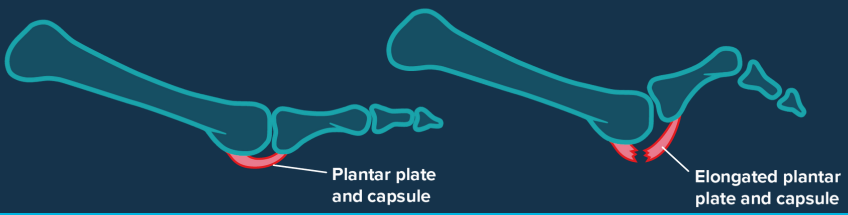
Intermetatarsal Bursa/Neuroma
Capsulitis
Osteoarthritis

Investigation

MRI / Ultrasound / Xray to assess osseus alignment

Treatment Principles

Offload affected structure and reduce peak dorsiflexion with orthoses. Rocker soled shoes to reduce peak dorsiflexion/ forces through forefoot
Mobilise/Strengthening of ankle and posterior chain
Surgical Considerations: Plantar Plate repair, Osseus fixation.



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Midfoot AT A GLANCE

Osteoarthritis

Presenting Features

Deep ache mid-portion of foot with dorsal irritation on footwear. Visible dorsal lump. Increased pain with prolonged weight-bearing. Pain during end of mid-stance gait and propulsion initiation.

Clinical Test

"Piano" Key test - assess motion of metatarsal relative to cuneiform

Single leg tip toe may reproduce symptoms

Investigation

Weight-bearing X-ray

MRI or CT

Treatment Principles

Reduce inflammation and irritation at the level of the affected joint/neighbouring joints

Orthoses to stabilise the midfoot, rocker soled shoes to assist mid-stance and propulsion phase of gait

Steroid Injection Therapy: Shared joint capsule at the level of the 2-4 tarsometatarsal joints

Surgical Consideration: Arthrodesis of affected joint

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PTTD AT A GLANCE

Posterior Tibial Tendon

Presenting Features

Medial ankle pain and swelling often indicates tenosynovitis. Lateral ankle pain at the level of sinus tarsi, sub-fibular/ lateral ankle gutter, midfoot pain, plantar fascia and possible metatarsalgia. Pain on climbing stairs and on uneven surfaces

Demographics

Family history of flatfoot deformity

50% attributable to eversion related trauma

>3% of women age 40+

>10% of adults age 65+

Comorbid/PMH

Hypertension

Rheumatoid Arthritis

Raised BMI

Previous Steroid Injection

Investigation

MRI/Ultrasound/X-ray

Treatment Principles

Reduce Inflammation: Associated with tenosynovitis

Off-loading: ankle, medial column and midfoot: Orthoses/ AFO Therapy

Strengthening: Inversion, eversion, plantarflexion of ankle, proximal structures, Gastroc/Soleus complex

Steroid Injection: Tendon sheath/ Joint injections

Surgical Considerations: Tendon procedures, Midfoot and Hindfoot procedures, Lateral column lengthening, Gastroc recession, Tendoachilles lengthening

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1st MTPJ Osteoarthritis AT A GLANCE

Presenting Features

Joint pain, stiffness which worsens with activity and dorsiflexion. Dorsal exostosis/osteophyte protrusion which may cause irritation on footwear. Pain during mid-stance and propulsion

Demographics

Prevalance 8% age 50+

Radiograph changes in up tp 35% age 35+

Clinical Test

Passive NWB 1st MTP Maximal dorsiflexion

Jack's Test

Foot Posture Index

Axial Grind Test

Treatment Principles

Reduce degree of stress and dorsiflexion force through the joint. Improve functional motion of the joint during the gait cycle

Conservative approach: Rocker soled shoes, Carbon rocker plates, Custom made orthoses, Rehabilitation of the associated structures, Injection Therapies

Surgical considerations: Joint preserving procedures e.g. Cheilectomy, Joint replacement. Joint Destructive procedures e.g Fusion

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Neuroma AT A GLANCE

Morton's

Presenting Features

Parasthesia that may radiate towards the distal aspect of the affected toe. Pain that worsens with weight bearing or tighter fitting footwear.

4 other webspaces described as: Joplin (Medial 1st), Heuter (1st), Hauser (2nd) and Iselin (Lateral 5th).

Clinical Test

Mulder's Click

Palpation of affected Webspace

Digital Stretch Test

Investigation

Ultrasound/MRI

XRay when surgical planning

Differential Diagnosis

Fat Pad Atrophy

Capsulitis

MTPJ OA

Intermetatarsal Bursitis

Plantar Plate Tear

Treatment Principles

Off-load the affected intermetatarsal space. Association with Flat Foot types so this may be appropriately managed with an orthotic device. Rocker soled and/or wider fitting shoes with an appropriately sized toe box

Steroid Injection Therapy

Surgical considerations: Neurectomy

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Tarsal Tunnel Syndrome AT A GLANCE

Background

Pain located at the level of the Tarsal Tunnel and overlying Flexor Retinaculum. Pain radiating into the medial arch/ plantar aspect of the foot. Sharp, shooting pain with associated Paresthesia. Percussion of this area may reproduce symptoms. Pain can be felt with extremes of Dorsiflexion/plantarflexion.

Comorbid/PMH

Diabetes Mellitus
Hypothyroidism
Gout
Hyperlipidaemia

Demographics

43% have a history of ankle trauma

Investigation

MRI or Ultrasound
To rule out compression causes

Differential Diagnosis

PTTD
Achilles Tendinopathy
Retrocalcaneal Bursitis
Plantar Fasciopathy

Treatment Principles

Decrease pain, inflammation and tissue stress if applicable. Foot posture and muscle weakness should be addressed with appropriate orthoses in Pes Planus/Pronatory foot types

Surgical Considerations: Neurovascular decompression/ release of the Flexor Retinaculum

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Fractures AT A GLANCE

Stress

Presenting Features

Gradual onset of pain, swelling and immobility which worsen with continued weight bearing.

There is often point tenderness overlying fracture site (Periosteal Reaction). Dorsal swelling/possible bruising. Pain will ease with rest.

Most frequent sites: Metatarsals, Tibia (MTSS) and Fibula.

Comorbid/PMH

Up to 20% of sports medicine injury presentations

BMI <19

Low Bone Density

Low Vit. D

RED-S

Imaging

Ultrasound or MRI

XRay may show bone callus following healed Stress #

Treatment Principles

Immobilisation and activity modification to allow fracture site to heal and pain scores to reduce

NSAID's, Immobilisation Boot, Stiff rocker soled shoes, Orthoses to deflect biomechanically overloaded structures

Gradual return to activity warranted

Surgical Considerations: If becomes displaced

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Baxter's AT A GLANCE

Nerve Entrapment

Presenting Features

Heel pain that may radiate laterally which is often exacerbated by prolonged weight bearing. There is often tenderness around the origin of Abductor Hallucis. Symptoms may include a sharp pain, dull ache and Paraesthesia.

Demographics

Present in up to 20% of heel pain
Common in Pes Planus Foot types
May co-exist with Plantar Fascopathy

Differential Diagnosis

Plantar Fasciopathy
Heel Fat Pad atrophy
Tarsal Tunnel syndrome
Adjacent bone oedema associated with chronic PF

Imaging

Ultrasound or MRI

Treatment Principles

Reduce irritation at the level of entrapment. Confirm if plantar fascia thickening is an associated finding which may exacerbate symptoms and compression

Steroid Injection Therapy

Surgical Treatment: Nerve decompression, Plantar Fasciectomy/Abductor release, Neurolysis

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Achilles AT A GLANCE

Insertional Tendinopathy

Presenting Features

Achilles Stiffness and posterior heel pain exacerbated by prolonged rest/ weight bearing/ footwear. calcification at the level of tendon attachment may also contribute to condition. Retrocalcaneal bursitis May develop as a result of irritation

Demographics

20-24% of Achilles Tendinopathy cases

Comorbid/PMH

Raised BMI
Diabetes Mellitus
Inflammatory Arthropathy

Treatment Principles

Reduce irritation by means of reducing peak ankle dorsiflexion: orthoses/heel raises

ESWT to increase blood flow/ cellular proliferation

Rehabilitation utilising Isometric, Concentric and Eccentric loading of the Achilles tendon

Injection therapy may be used as steroid +/- High volume.

Surgical considerations: Removal of calcific deposits, tendon debridation/ removal of Haglund's Deformity

Zoe Wilson

Zoe Wilson

Specialist MSK Podiatrist based in Cumbria in the UK. Zoe completed her undergraduate degree in Podiatric Medicine at The University of Salford and has completed her Masters in Theory of Podiatric Surgery at Glasgow Caledonian University. Zoe has since opened two practices in Kendal and Kirkby Lonsdale, Cumbria. Zoe has been involved in a variety of speaking appearances across her profession. Zoe continues to enjoy building on her own professional experience and goals as well as assisting others in developing a greater understanding of the Foot and its associated structures.

Website: www.zwclinics.com Twitter: @zoewilsonpod
Instagram: @zwclinics Facebook: ZW Clinics

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