

Wednesday 8th March 2023

Brisbane Bushwalkers Club



Professor Deborah Turner
Queensland University of Technology

the university for the real world[®]

Ageing – effects on the feet



**Skin
Nails**

**Bones & Joints
Muscles
Tendons
Ligaments
Soft-tissues**

**Arterial system
Venous system
Nervous system**

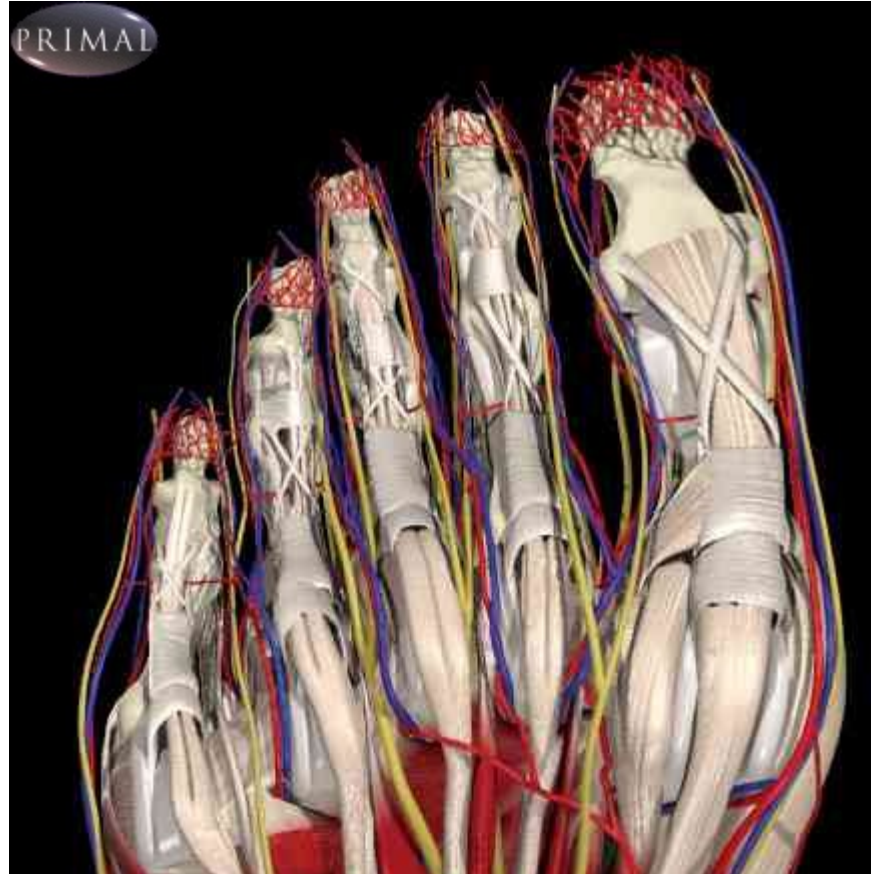
Presence of disease



Anatomy and function of the foot

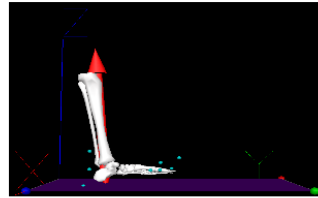


Anatomy and function of the foot

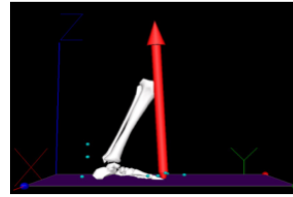


Foot function

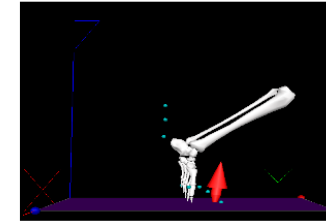
Joint Range of Motion During Walking



1- Heel-rocker

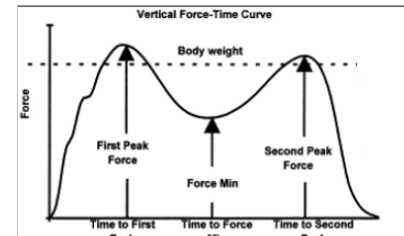
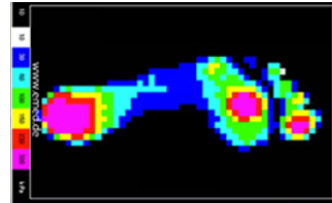


2- Ankle rocker



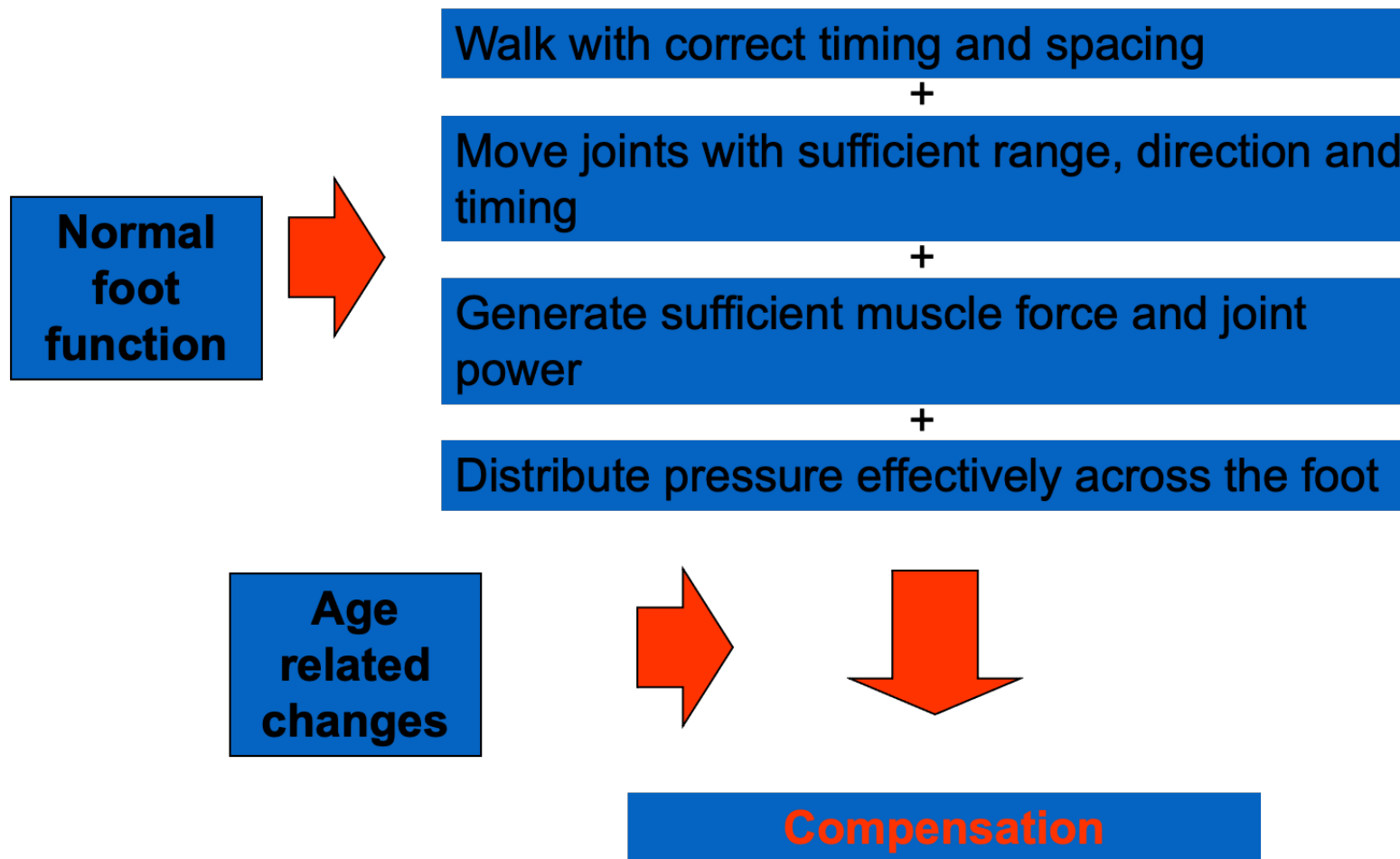
3- Toe-rocker

Force and pressure distribution during Walking



Spatial and Temporal parameters





The biomechanical consequences....increased risk of falls, foot pain, changes in foot shape

Ageing – effects on bones and joints

Loss of articular cartilage

Joint space narrowing

Osteophyte formation

Deformity

Reduced / loss of function

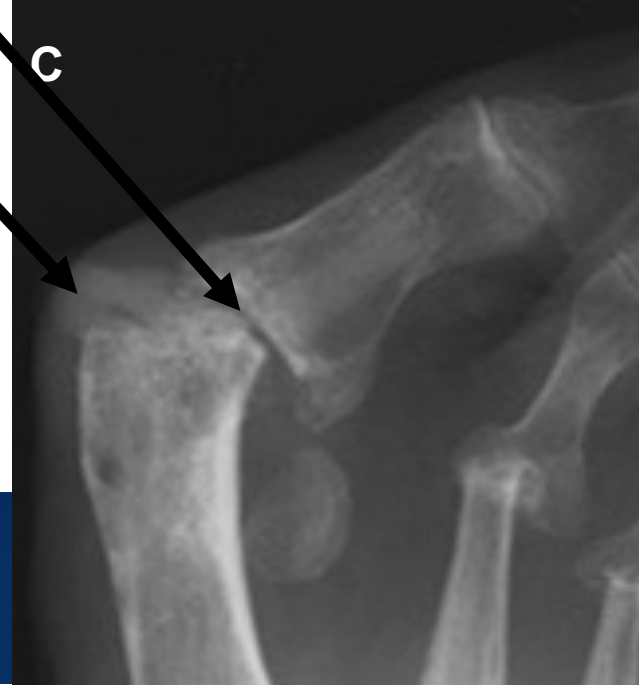
Decreased bone mineral density



A



B



C



Ageing – effects on muscles and tendons



Decreased muscle mass

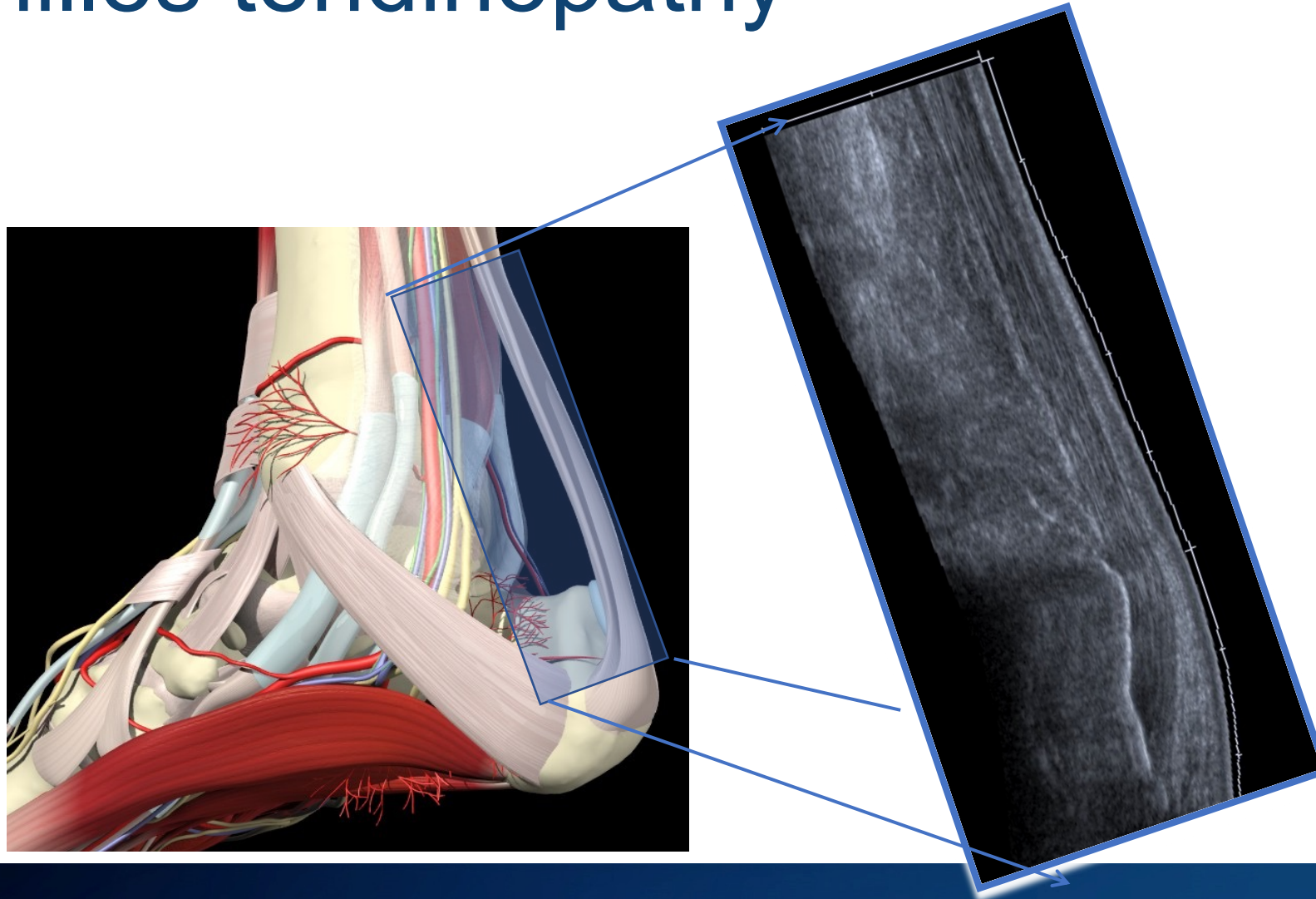
Decreased muscle strength

Flexion deformities

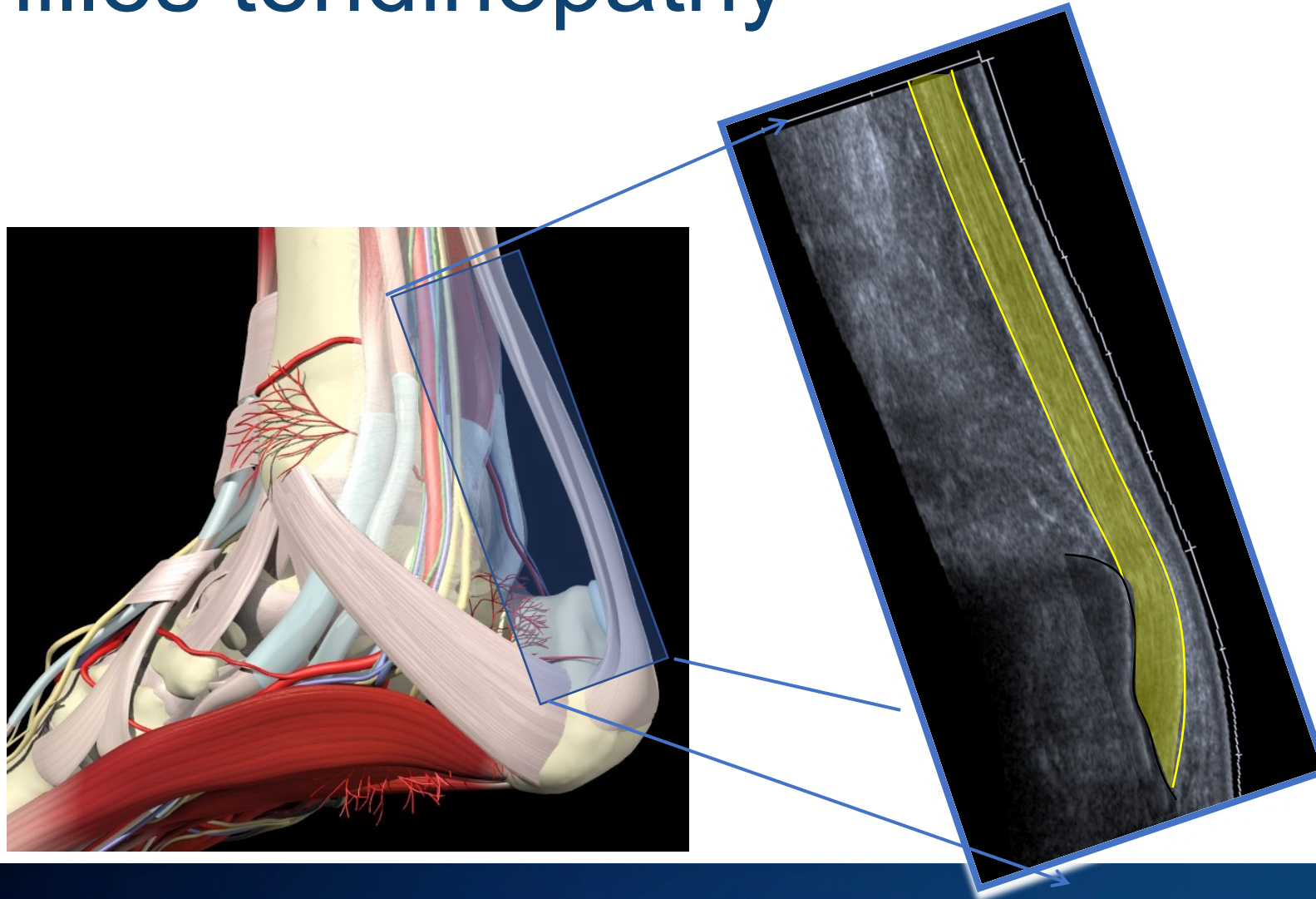
**Wasting of small muscles
in the foot – toe deformities**



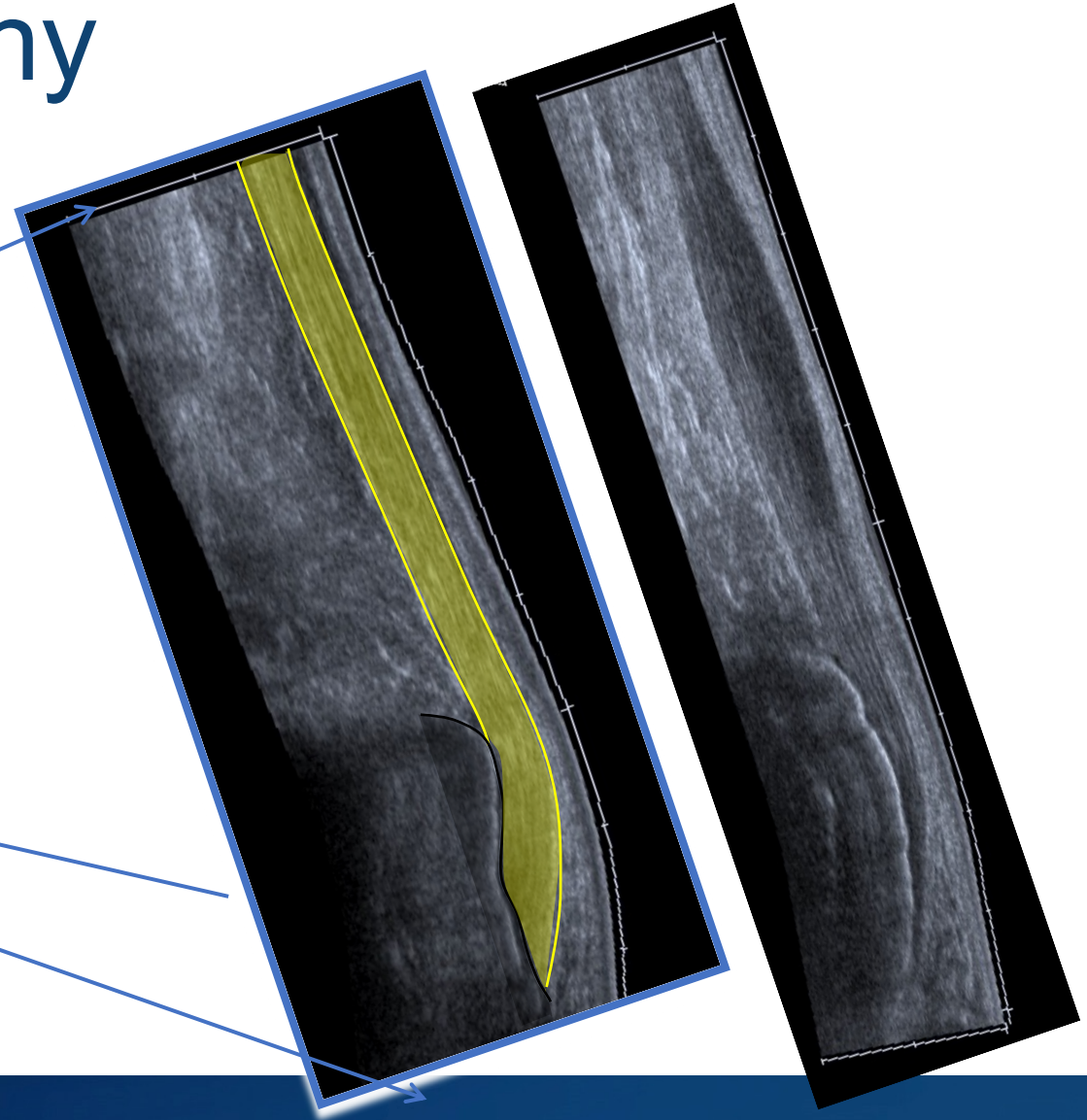
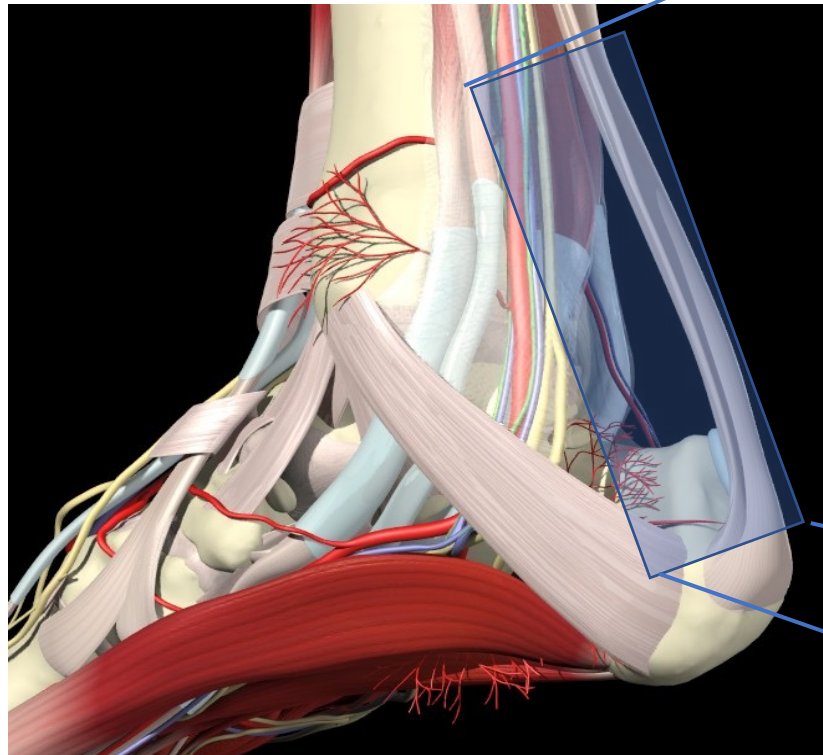
Achilles tendinopathy



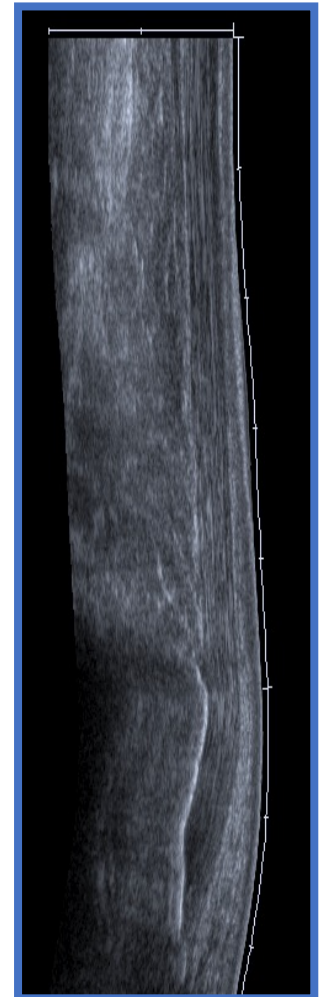
Achilles tendinopathy



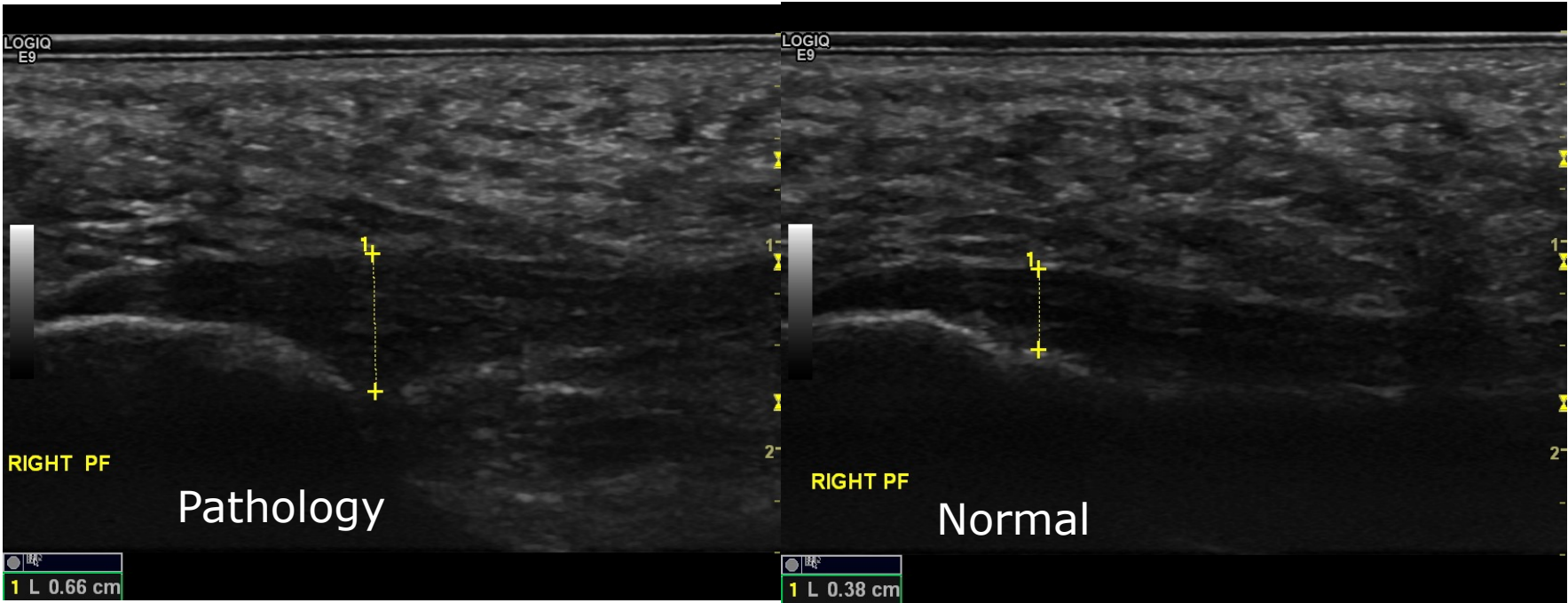
Achilles tendinopathy



Achilles tendinopathy



Plantar heel pain



Ageing – effects on soft tissues

Thinning of fat pad

Displacement of fat pad

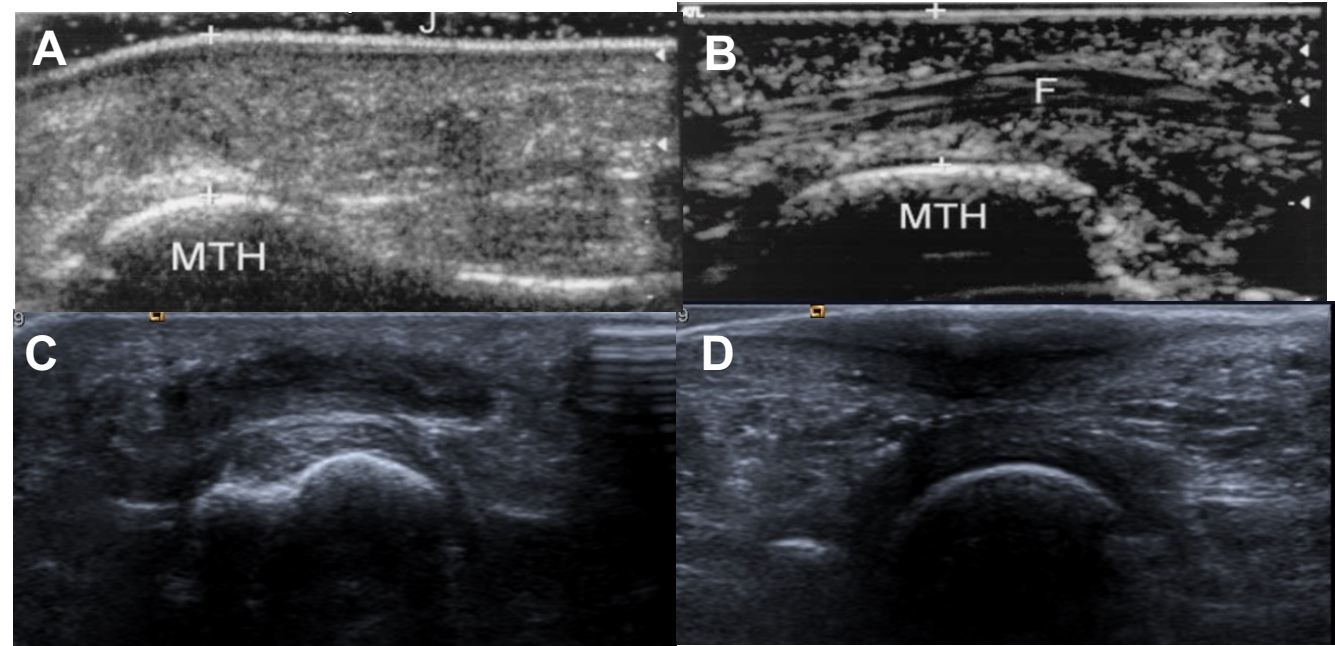
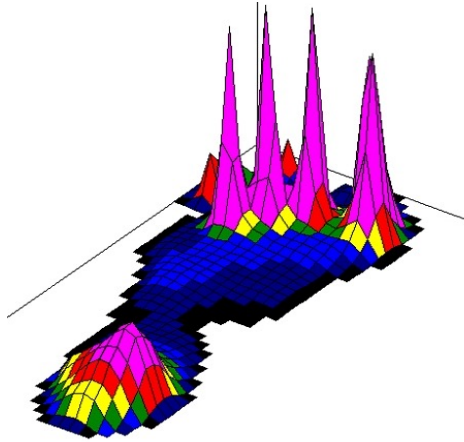
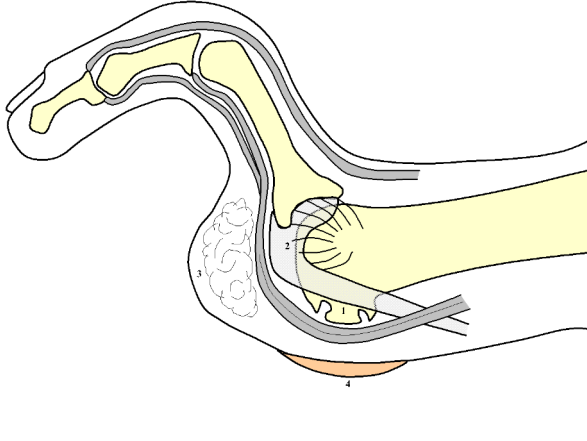
Reduced elasticity

Increased stiffness

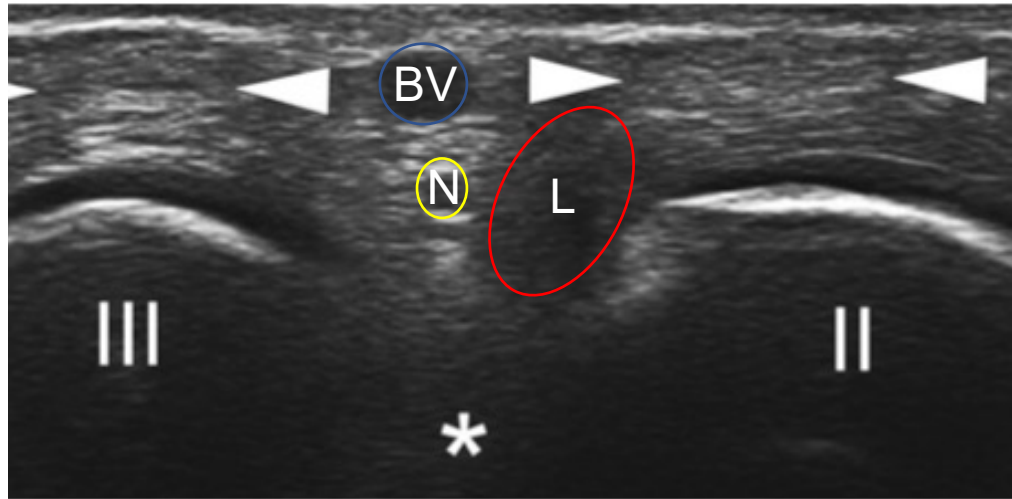
Increased risk of injury



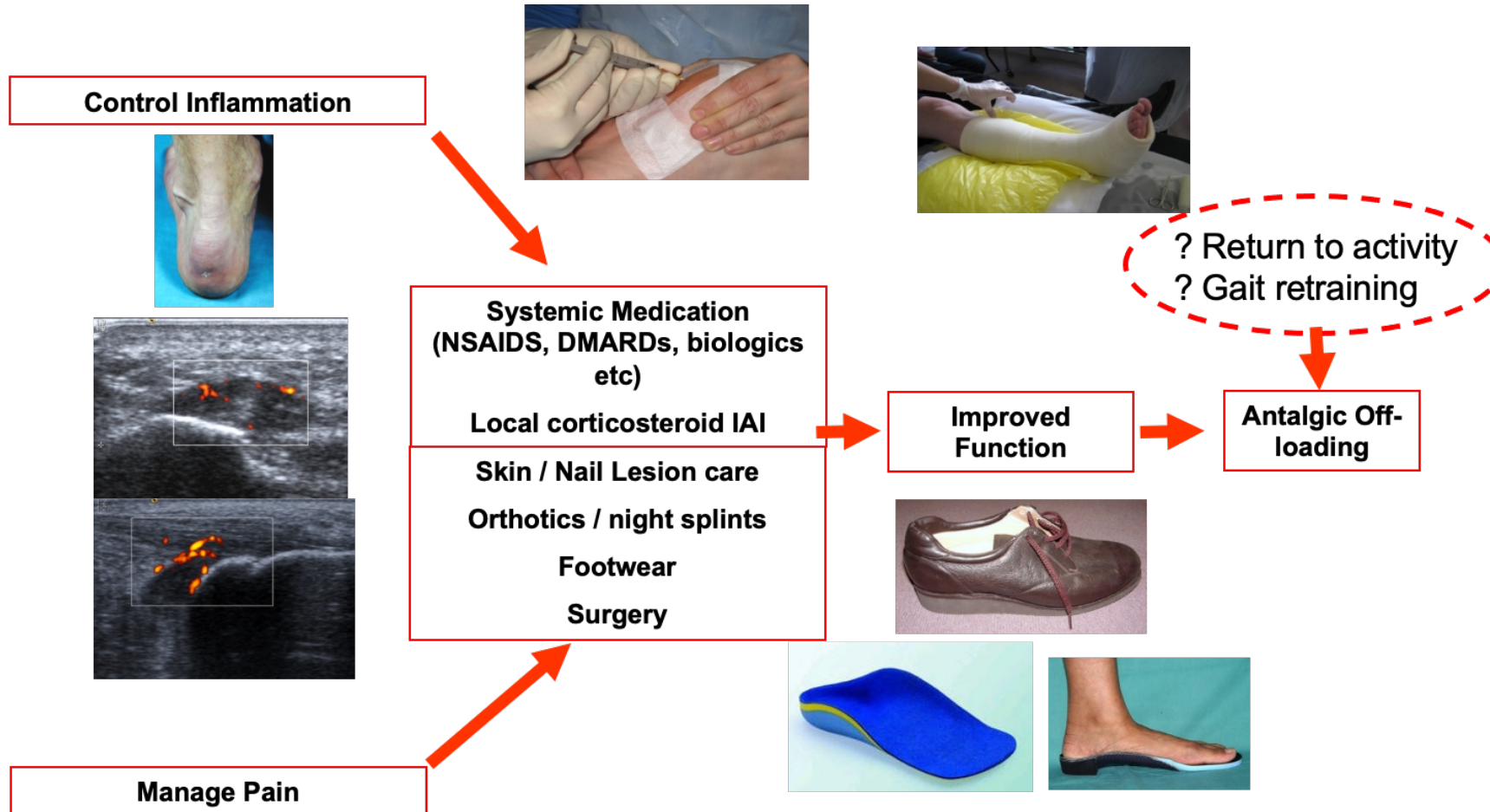
Why 'walking on pebbles'



Inter-metatarsal problems



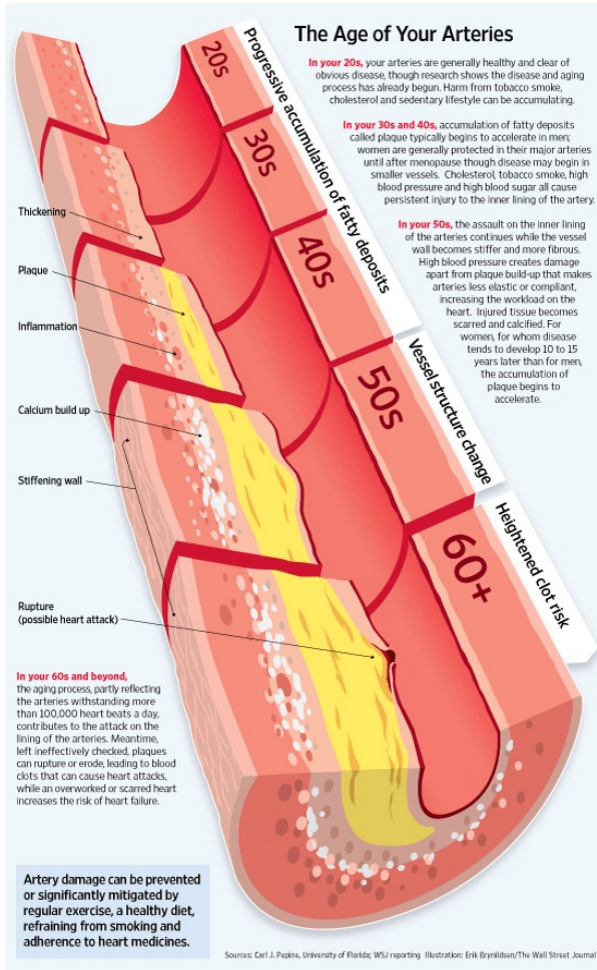
Treatments that can help



Footwear advice – different parts of the shoe and how they are designed can provide different features which can be helpful

Getting appropriate footwear can sometimes be effective on its own!

Ageing – effects on vascular system



Intermittent claudication

Rest pain

Loss of hair

Skin colour & temperature changes

Changes in condition of nails

Impaired wound healing

Taken from - Your Risk of Heart Disease. How to Turn Back the Clock When Your Blood Vessels Grow Old Before You Do. Ron Winslow.

<http://online.wsj.com/article/SB10001424052748703406604575278713597433300.html>

Absolute Cardiovascular Risk management – Podiatrist role for health promotion and screening

An initiative of the National Vascular Disease Prevention Alliance



The NVDPA is an alliance of four leading Australian charities: Diabetes Australia, Kidney Health Australia, the National Stroke Foundation and the National Heart Foundation of Australia. The NVDPA was established in 2000 to reduce cardiovascular disease in Australia.

Target group for assessment

- All adults aged 45 years and over without known history of CVD (**EBR Grade B**)
- Aboriginal and Torres Strait Islander peoples aged 35 years or older (**EBR Grade D**)



Consider the following as part of a comprehensive risk assessment: (PP)

Modifiable risk factors

- Smoking status*
- Blood pressure*
- Serum lipids*
- Waist circumference and BMI
- Nutrition
- Physical activity level
- Alcohol intake*

Non-modifiable risk factors

- Age* and sex*
- Family history of premature CVD
- Social history including cultural identity, ethnicity, socioeconomic status and mental health

Related Conditions

- Diabetes*
- Chronic Kidney Disease (albuminuria ± urine protein, eGFR)
- Familial hypercholesterolaemia[#]
- Evidence of atrial fibrillation (history, examination, electrocardiogram)



All adults aged 45 and over without known history of CVD should have an assessment. Aboriginal and Torres Strait Islander Peoples aged 35 or older



Embargoed: 10 October 2022

2 out of 5 podiatrists identify life threatening health issues

Australian Podiatry Association are issuing a stark reminder this Foot Health Week (10-16 October) to get your feet checked by a podiatrist – it could save your life!

New research by the Australian Podiatry Association shows almost 2 out of 5 Australians (39%) had life-threatening health issues identified by their podiatrist.

The Australian Podiatry Association are raising awareness this Foot Health Week 10-16 October 2022 on the importance of having your feet checked by podiatrists – it could save your life.

The research showed Australians who had visited a podiatrist for foot pain were unexpectedly found to have other life-threatening health issues, including:

- 33% circulatory issues
- 11% heart problems
- 25% diabetes (including risk of amputation)
- 23% gout
- 7% other health issues

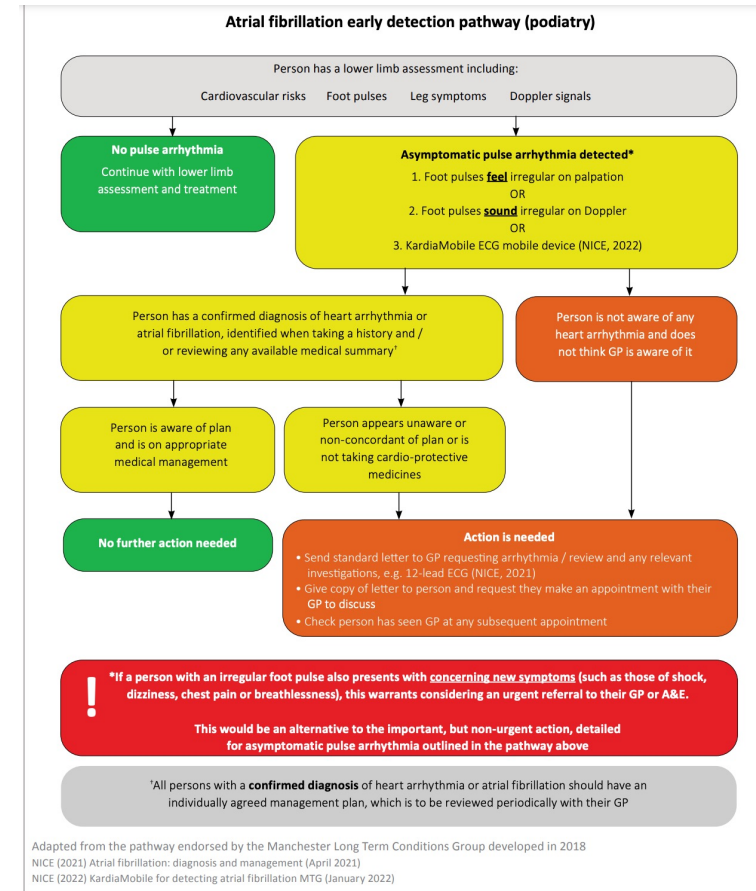
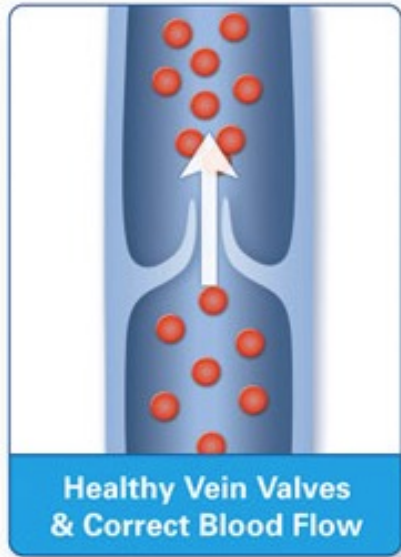


Figure 3. Atrial fibrillation early detection pathway (updated from Royal College of Podiatry, 2019)

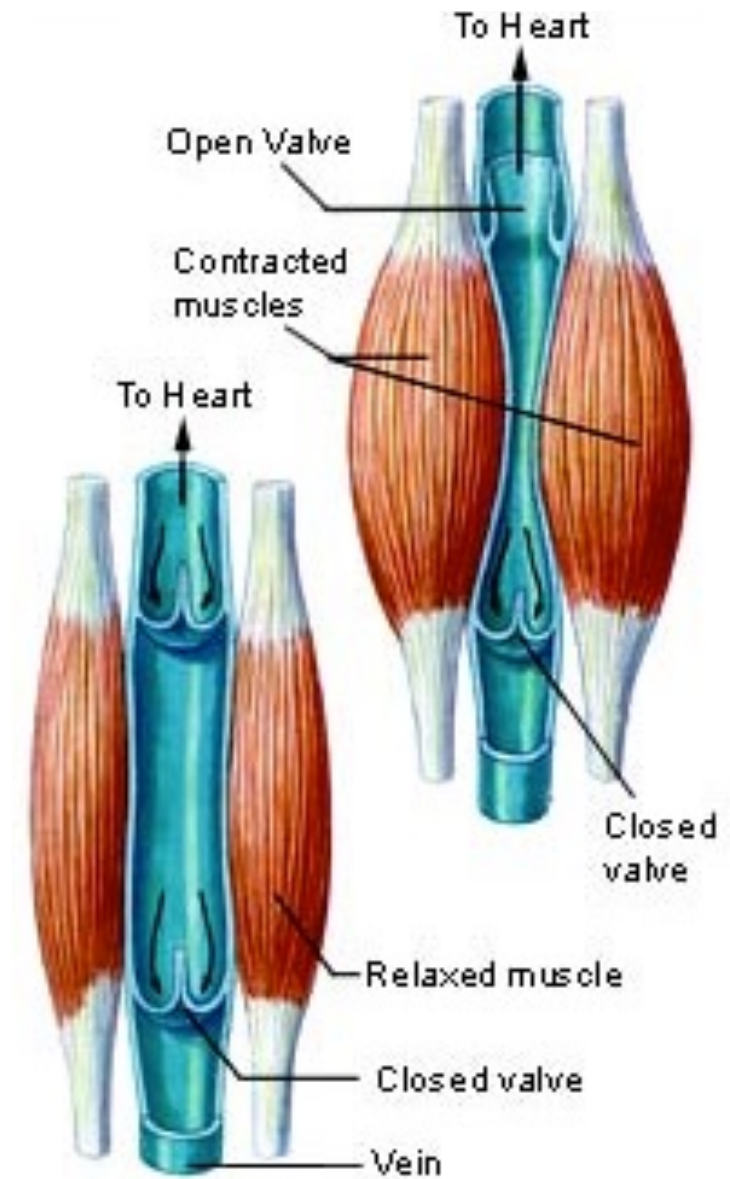
Opportunistic podiatry-led detection of heart arrhythmias (atrial fibrillation): a step towards standard care

This document has been co-developed by BMS on behalf of the BMS/Pfizer Alliance, *The Diabetic Foot Journal* and a four nations expert working group and was fully funded by BMS on behalf of the BMS/Pfizer Alliance, following a round table meeting, which was organised and funded by BMS on behalf of the BMS/Pfizer Alliance.

Ageing – effects on venous system



http://cheshire-med.com/vein_procedure_understanding_venous_reflux_disease.html



Ageing – effects on Skin

Thinning of skin

Lower oil secretion – Dry itchy skin

Colour changes (venous)

Reduced strength

Reduced elasticity



Ageing – effects on nails

Thickening of nails

Increased prevalence of fungal infections

Trauma to nail bed – nail pathologies

**Difficulty cutting nails –
ingrowing toenails**

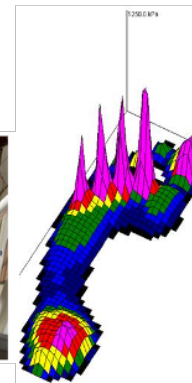
Neglect



Structure	Age related change	Impact
Bones and joints	Osteopenia, osteoarthritis	Increased risk of fracture, pain, reduced movement in joints, deformity
Fat pad	Atrophy of fat pads Fat deposition around ankle	Pain under heel and forefoot Reduced movement at the ankle
Muscles	Reduced muscle mass	Reduced muscle strength, impact of gait style
Ligaments	Less elastic, stiffer, reduced proprioceptive function	More prone to injury Widening of forefoot and lowering of arch
Tendons	Changes in tendon structure - collagen	Decreased tensile strength, tendinopathy, increased risk of rupture, Foot deformity

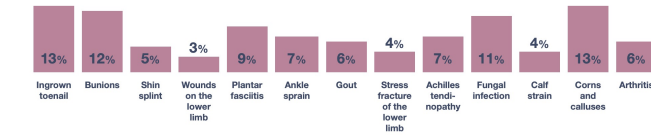
Structure	Age related change	Impact
Skin	Thinner, drier	More fragile Prone to cracking, callus, ulceration formation
Nail	Thicker, brittle	Difficult to cut, more prone to ingrowing toenails, fungal nails
Arterial system	Loss of artery compliance Changes in resistance Arteriosclerosis	Higher blood pressure Reduced blood supply, loss of hair, nails changes, pain, impaired healing, ulceration
Venous system	Less elastic tissue Incompetent valves, increased venous pressure	Varicose veins Swelling (Oedema) – limited joint movement Colour changes (Hemosiderin deposition), stasis dermatitis, ulcers
Neurological system	Reduced nerve conduction velocities, muscle strength, sensory loss, autonomic responses (dizzy when standing up quickly)	Decreased sensation, loss of protective sensation, motor control, strength, balance

What does a podiatrist do?



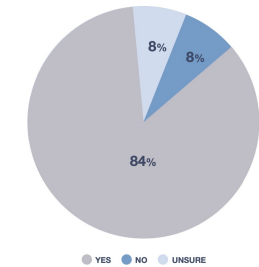
Which of the following do you believe a podiatrist is qualified to treat?

Most Australians are unaware of the scope podiatrists are qualified to treat

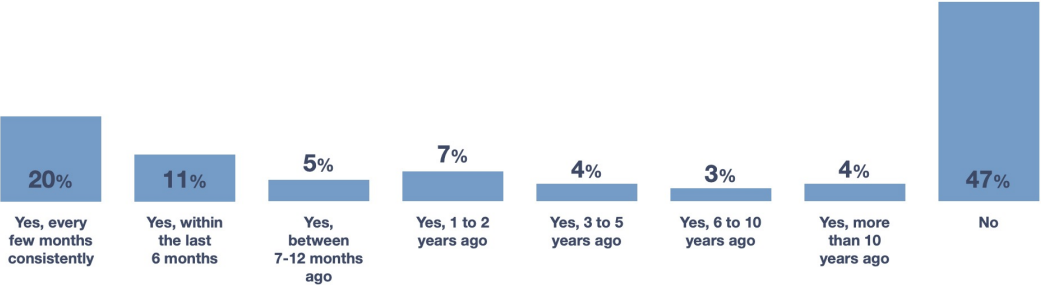


Would you recommend seeing a podiatrist to a friend or family member?

84% of Australians who saw a podiatrist would recommend based on their positive experience

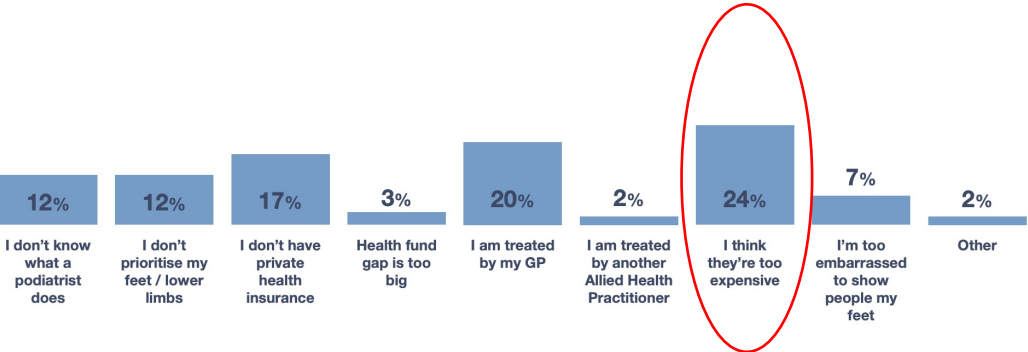


Have you ever seen a podiatrist?




What stops you from seeing a podiatrist?

More than 1 in 10 Australians don't prioritise their feet and lower limbs, while 24% think it's too expensive




2022

Australian Foot Health Survey



Australian Podiatry Association



Conducted by the Australian Podiatry Association

PODIATRY





GENERAL PODIATRY CARE

The QUT Podiatry Clinic offers comprehensive general foot care including treatment of nails, corns, callus, bunions, cracked heels, and dry skin.

The service has a specific focus on the foot care and maintenance of people with diabetes and uses the latest in diagnostic and therapeutic equipment, dressings and advice.

SPECIALIST SERVICES

BIOMECHANICS AND GAIT ANALYSIS
Examination and treatment of problems relating to lower limb function from a whole body perspective. Patients are reviewed while standing, walking and running, so that a complete picture of lower limb function can be established.

ORTHOTIC PRESCRIPTION AND DISPENSING
This service allows patients to obtain a custom-made in-shoe device which has been precisely designed for their individual requirements. This includes lower limb orthoses, splints and braces. These services are available to all members of the community.

PHYSICAL MEDICINE
Provides a full range of treatment for musculoskeletal and sports injury, including ultrasound, heat therapy, laser therapy, dry needling, joint mobilisation/manipulation and strapping, as well as muscle stretching and strengthening exercise programs.

VASCULAR AND SENSORY ASSESSMENT
Provides assessment for patients with poor circulation and inadequate sensation in the feet. Vascular examination includes assessment of the large and small blood vessels. Sensory tests measure nerve function and are particularly important in patients with diabetes.

COMPUTERISED GAIT AND PLANTAR PRESSURE ANALYSIS CLINIC
Provides a scientific evaluation of human walking, including essential information for the diagnosis and treatment of lower limb disorders. One of the specific applications of this technology is in the diagnosis and management of diabetic foot problems and sports injury.

SURGERY
Treatment of ingrown toenails, plantar verrucae (warts) and other skin lesions requiring surgical intervention. All procedures are performed under local anaesthetic.

PAEDIATRICS CLINIC
Children as young as nine months and up to 18 years of age are seen in our specialised Paediatrics Clinic. Conditions such as skew foot, in-toeing, flat feet, high arches, heel pain, growing pains and other foot problems are effectively treated in this clinic.

HIGH RISK FOOT CLINIC
Provide special services for patients with complex podiatry needs.

CONTACT US

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Address

Web

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44 Musk Avenue, Kelvin Grove QLD 4059

healthclincs.qut.edu.au

[fb.me/QUTHC](https://www.facebook.com/QUTHC)

CRICOS No.00191A

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Initial Consultation \$35 (concession \$25)
Review Consultation \$25 (concession \$15)
General Consultation \$35 (concession \$25)
Paediatric Initial and Review Consultations \$25
Surgery Package \$120 (concession \$90)

Kelvin Grove
44 Musk Avenue
Kelvin Grove QLD
4059 Australia

Patient Resources

Discover our Foot Health Magazine, Foot Health Fact sheets, kids colouring pages + more!

DOWNLOAD



Where can I get good quality Information?

<https://www.foothealthaustralia.org.au/fact-sheets-guides>

PODIATRY



QUT Health Clinics – Podiatry Clinic provides high-quality podiatric clinical education and patient care to the community. All patients attending the Podiatry Clinic receive comprehensive examinations by podiatry students under the direct supervision of fully-qualified podiatrists.

No referral is necessary to attend the clinic. Following the initial consultation, patients may be requested to return for further specialist services. The low-cost service uses the most up-to-date research and equipment and offers extended opening hours to meet your needs.

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Web healthclinics.qut.edu.au
Facebook fb.me/QUTHC

Please come and visit, the
podiatry team and our students
QUT Health Clinics !

Call 07 3138 9777

44 Musk Avenue
Kelvin Grove
4059

Free underground parking and
good public transport links

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Review Consultation \$25 (concession \$15)
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Questions?