

Ankle and Foot Pain VINDICATE.

Students Team 1 and 3 Summer 2010

	Vascular	Inflammatory & Infection	Neoplasm	Degenerative & Deficiency	Idiopathic & intoxication & iatrogenic	Congenital & Acquired anomaly	Auto immune Allergic	Trauma	Endocrine / metabolic
Bone	Avascular necrosis. Osteochondrosis Sever's (calcaneum in children) Kohler's (navicular age 5) Calcaneal spur.	Osteomyelitis Sesamoiditis	Osteosarcoma	Osteophytes		Thalidomide Claw toe Hammer toe Talipes equino varus		Fracture; Pott's (spiral fracture distal tibia and fibula)	Acromegaly
Capsule / ligament / retinaculum	Haemarthrosis	Transient synovitis, Septic (acute pyogenic) arthritis **** TB Reiter's		Dropped cuboid		Hypermobility (Ehler's Danlos, Marfan's)	RA, AS , psoriatic Reiter's Enteropathic Crohn's Whipple's UC SLE	Strain, subluxation, dislocation. Retinacular strain. Inversion / eversion strains	Gout
Fascia				Plantar fasciitis					
Cartilage				Osteoarthritis primary and secondary					
Muscle / tendon	Varicose veins. DVT, pitting oedema, poor calf pump. Intermittent claudication	ganglion		Dropped transverse arch, pes planus (medial longitudinal arch).				Achilles rupture ***	Diabetic gangreen
Nerve	Anterior, lateral compartment syndrome*** Stroke	Tabes dorsalis Charot's joints. Polio	Plantar neuroma	Radiculopathy. Complex regional pain syndrome (Sudeck's atrophy / reflex sympathetic dystrophy)	Post surgery - complex regional pain syndrome.	Metatarsalgia	MS	Morton's neuralgia. Proprioceptive loss with ligament damage.	Peripheral neuropathy. Diabetic Charcot's joint.
Lymph		Lymphangitis							
Viscera	Right sided heart failure								
Lumbar spine		Referred pain. Neuropathy		Referred pain. NR pain. L5,S1 foot drop.				Fracture	Peripheral neuropathy

Condition : Achilles Tendon Rupture	
definition (including guidelines if available)	Onset: repetitive forceful dorsiflexion, sudden fall or deep laceration Risk factors: Increasing age, Recurrent Achilles tendonitis, Steroids, Rheumatologic conditions
who gets it	Explosive sports. Especially 30-50yoa with sporadic activities
symptoms	Sudden snap or pop, pain may have rapidly resolved, persisting weakness in dorsiflexion, possible low level pain (several days) preceding rupture
signs	Localised swelling, visible & palpable defect in tendon proximal to calcaneal insertion
tests you can do	absent or weak plantar flexion, Thompson test – (pt prone) absence of normal plantar flexion on squeezing calf mm
medical tests	MRI, or possibly Lateral Xray
medical treatments (and side effects)	Urgent referral Surgery for pt's with: active sporting, delayed diagnosis, recurrent rupture Conservative management (for older inactive pt's): Rest, pain control, Splinting/Casting
contraindications to specific osteopathic techniques	Risk of reinjury due to: Lig laxity, Proprioceptive loss

Condition : Acromegaly	
definition (including guidelines if available)	<ul style="list-style-type: none"> - Syndrome where pituitary gland produces excess hGH after epiphyseal plate closure at puberty, - Feet & hands become larger and facial features become more prominent (bones continue to grow) - Often associated with gigantism
who gets it	mainly due to pituitary adenoma, 3 per million in UK (30-40yoa)
Symptoms / signs	<ul style="list-style-type: none"> - Hard to diagnose in early stages due to slow progression (sometimes first 15 years), increased size of facial features, hands and feet, Possible: mm weakness, tiredness, high BP, diabetes
medical tests	<ul style="list-style-type: none"> - Blood test to measure hGH: IGF-1, Glucose tolerance test, - MRI test
medical treatments (and side effects)	<ul style="list-style-type: none"> - Surgery - Medication: somatostatin analogues, dopamine agonists, pegvisomant - Radiotherapy
contraindications to specific osteopathic techniques	<ul style="list-style-type: none"> - Risk of bowel Ca - Increased load on bones

Condition : Avascular Necrosis	
definition (including guidelines if available)	Death (necrosis) of components of bone, due to an interruption of the blood supply.
who gets it	Affect men + women of any age, but most commonly men, and aged 30-50. There is also a link with SLE.
symptoms	Early stages: no symptoms Later stages: Gradually worsening joint pain, worse on weight-bearing then progressing to at rest too (usually over 1 year).
signs	Decreased ROM of affected joint. Difficulty walking.
tests you can do	Full case history, joint examination, depending on affected area CV exam.
medical tests	X-ray, MRI, biopsy (conclusive but rarely done),
medical treatments (and side effects)	Non-Surgical: NSAID's, ROM exercises, electrical stimulation. Surgical: joint replacement, Core decompression (removing part of bone to allow new capillaries to grow), bone graft (usually with vascular graft as well) Side effects: Often TTT is not effective, and recovery from surgery is slow.
contraindications to specific osteopathic techniques	Osteopaths should not work directly on affected area.

Condition : Calcaneal Spur	
definition (including guidelines if available)	A bony spur projecting from the back or underside of the heel bone (the calcaneus)
who gets it	Anyone, often asymptomatic. Patients with Sever's disease, Reiter's, A.S, are more at risk, as are people over 40.
symptoms	Localised tenderness, plantar fasciitis, Achilles tendinitis.
signs	Localised swelling, limping (in more severe cases), posterior spurs often palpable.
tests you can do	Palpate
medical tests	X-ray (often discovered when looking for other things)
medical treatments (and side effects)	Removal of spur (especially posterior), RICE, orthotics.
contraindications to specific osteopathic techniques	

Condition : Charcot's Joints	
definition (including guidelines if available)	An extreme form of osteoarthritis resulting from damage to the sensory nerves that supply a joint.
who gets it	Sufferers of diabetes mellitus, tabes dorsalis, syringomyelia, leprosy, and disorders that cause insensitivity to pain.
symptoms	Stiffness in the joint. Followed by pain due to swelling from excess fluid and abnormal bone growth.
signs	Crepitus, feeling of "bag of bones" on examination. Looks deformed, ligaments stretched and possibility of undetected fractures.
tests you can do	Active and passive examination.
medical tests	X-ray. Testing for the underlying disorder it is a complication of.
medical treatments (and side effects)	Splints, special boots to protect vulnerable joints. TTT of any underlying fractures. TTT of underlying disorder causing it.
contraindications to specific osteopathic techniques	Possibility of undiagnosed fractures.

Condition : Claw Toe	
definition (including guidelines if available)	A claw toe involves abnormal positions of all three joints in the toe. It consists of an extension contracture with dorsal subluxation of the metatarsophalangeal (MTP) joint, together with flexion deformities of the proximal and distal interphalangeal (P/DIP) joints.
who gets it	Occurs throughout life, although most often seen in the seventh and eighth decades. Women are affected five times more often than men.
symptoms	
signs	abnormal positions of all three joints in the toe.
tests you can do	Assess degree of MTP hyperextension and PIP flexion. Toes flexible or fixed? Note whether the clawing becomes worse during walking Note presence of pes cavus deformity.
medical tests	As above + test for RH factor to screen for RA + imaging
medical treatments (and side effects)	Chiropody orthotics Injecting anti-inflammatories to relieve pain and inflammation surgery
contraindications to specific osteopathic techniques	

Condition : Anterior, Lateral Compartment Syndrome	
definition (including guidelines if available)	Swelling of mms in the compartment of the LEx raising the pressure so that the blood supply is compromised causing ischaemia and further swelling. Can cause the mms and nerves within to die (=Volkmann's Contracture)
who gets it	Caused by trauma, damage to blood vessels, haemorrhage, inflamm, reperfusion after ischaemia, tight casts or bandages.
Symptoms	Numbness, tingling, pain or loss of movement in an extremity. Sequelae (the lasting effects) can include nerve compression, paralysis, contracture or even death.
Signs	Pain, inflamm, restricted and painful movement. Swelling.
tests you can do	Palpation, observation, case hxx
medical tests	
medical treatments (and side effects)	Release the pressure so loosen any tight dressings. If severe, surgery to divide the fascia surrounding the compartment may be needed.
contraindications to specific osteopathic techniques	Will be TTP

Condition : Complex regional pain syndrome	
definition (including guidelines if available)	chronic progressive disease characterized by severe pain, swelling and changes in the skin. Type 1: no demonstrable nerve damage. Type 2: evidence of nerve damage
who gets it	Fem: Male 3:1. More common in smokers. Increasingly common in young adults
symptoms	Burning, "electric shocks," shooting pain, local swelling, sweating, mm spasm, painful movement
signs	Softening / thinning of bones, changes in skin temp and colour, joint TTP and restricted
tests you can do	
medical tests	<ol style="list-style-type: none"> 1. disproportionate spontaneous pain or allodynia not limited to the territory of a single peripheral nerve 2. Hxx of swelling in pain area 3. No other condition can account for degree of pain and dysfunction
medical treatments (and side effects)	Including anti-depressants, anti-inflammatories such as cortico-steroids and COX inhibitors Physical and occupational therapies
contraindications to specific osteopathic techniques	

Condition : Crohn's disease	
definition (including guidelines if available)	An autoimmune inflammatory disease that may affect any part of the GI tract from mouth to anus with a variety of symptoms.
who gets it	Men and women equally age 20 - 30. Possible familial link. People of Jewish heritage at increased risk.
symptoms	Abdominal pain, diarrhoea, rectal bleeding and fever.
signs	Weight loss, skin problems, signs of nutritional deficiencies, signs of anaemia.
tests you can do	Abdominal examination.
medical tests	Physical examination, blood tests for anaemia and white cell count, colonoscopy.
medical treatments (and side effects)	Depends on location and severity: anti inflammatory drugs (can cause nausea, vomiting, diarrhoea, headache), steroids (can cause greater susceptibility to infection, and longer term – osteoporosis), immunosuppressants (can cause nausea, vomiting, diarrhoea) Nutritional supplements
contraindications to specific osteopathic techniques	If on steroids – possibility of osteoporosis – no HVT.

Condition : DVT	
definition (including guidelines if available)	Obstruction to circulation in a deep vein by a blood clot without preceding inflamm of its' wall. Most common in deep veins of calf. Danger of emboli. Caused by: damage to blood vessels, changes to flow, hypercoagulability.
who gets it	Increased likelihood: long-haul air travel, immobility, injury, surgery, trauma, obesity, heart attack/failure, pregnancy, childbirth, post-partum, increased altitude, use of HRT or oral contraceptives, cancer, conditions affecting clotting factors, increasing age (40 yoa+).
Symptoms	Pain, cramps (esp. at night)
Signs	Red, tender, warm and swollen. Pain increases on dorsiflexion of the ankle on the affected LEx. May be bluish/white discolouration of the skin.
tests you can do	Gentle palpation and case hxx. REFER.
medical tests	Doppler Ultrasound Scan, Venography
medical treatments (and side effects)	Exx, education, compression stockings, anticoagulant meds (eg. Heparin, warfarin), in the case of large clots: thrombectomy, thrombolytic therapy or inferior vena cava filter.
contraindications to specific osteopathic techniques	NO soft tissue work in case dislodge thrombus. REFER.

Condition : Diabetic Charcot's Joint	
definition (including guidelines if available)	Progressive joint destruction, often very rapid, that develops because pt. can not sense pain. If unchecked can lead to ulceration, infection & amputation. (Also known as: Neuropathic osteoarthropathy.)
who gets it	Usually diabetics (present in ~1/600 diabetics). Also: spinal cord injury, alcoholic neuropathy, cerebral palsy, syphilis Typical age: 50-70yoa
signs & symptoms	60% in Tarso-Met joint, 30% in M-P joint, also sometimes ankle, knee or shoulder -Erythema, -Oedema, -Heat, -Ulcers may be present Early (stage 1): often similar to OA as joint is stiff & fluid accumulates, usually joint is less painful than would be expected. Late (stage 3): reduced oedema, bone hypertrophy, possible osteolysis. May feel like a "bag of bones"
tests you can do	Joint exam, Neurological,
medical tests	-Xray: -atrophic (osteolysis of MP joints), -hypertrophic joint disease -Biopsy (bone or synovial), as difficult to Diff Diagnose from Osteomyelitis, as similar WBC and MRI feature
medical treatments (and side effects)	Success depends on early diagnosis. -Treat underlying disorder, -Immobilization (cast), -Surgical correction (poor prognosis) Can take 6-9months for oedema & erythema to recede
contraindications to specific osteopathic techniques	Fracture, Infection, Ulcers

Condition : Diabetic Gangrene	
definition (including guidelines if available)	Involves tissue death & decay Mainly as a result of foot ulcers due to: -Reduced sensation, -Reduced circulation - Reduced sensation (peripheral neuropathy) High blood sugar can damages nerves especially at extremities - leading to injury or blister Gangrene usually in the extremities - Reduced circulation. High blood sugar can damage blood vessels - leading to reduced blood flow or circulation
who gets it	diabetics
symptoms / signs	Numbness of the affected part, Cold to touch Initially area is Reddened, then progresses to Brownish with skin appearing waxy Finally area is withered and Black
medical tests	Blood test, Fluid/tissue culture, Imaging, Surgery
medical treatments (and side effects)	- Debridement (remove affected tissue), - Prevent infection (antibiotics), - Vascular surgery Avoid injury by Foot care & general health measures
contraindications to specific osteopathic techniques	Avoid damaging tissue, infection

Condition : DISLOCATION- Foot/Ankle	
definition (including guidelines if available)	Displacement from their normal position of bones meeting at a joint such as that there is complete loss of contact.
who gets it	Post trauma of people with severe hypermobility.
symptoms	Extreme pain and loss of function.
signs	Displacement of bone.
tests you can do	
medical tests	X-Ray
medical treatments (and side effects)	Relocation.
contraindications to specific osteopathic techniques	Relocation to be done by doctor in hospital.

Condition : EHLERS DANLOS	
definition (including guidelines if available)	Inherited disorder of connective tissue causing hypermobility.
who gets it	Anyone
symptoms	Joints are hypermobile and dislocate easily. Skin bruises and skin scars poorly.
signs	Joint hypermobility.
tests you can do	Beightons hypermobility scale.
medical tests	Skin biopsy.
medical treatments (and side effects)	Exercises to strengthen muscles to support joints. Joint bracing.
contraindications to specific osteopathic techniques	Be aware of easy bruising and dislocation.

Enteropathic arthropathy (seronegative)	
definition (including guidelines if available)	A group SNA's linked to inflammatory bowel diseases which may present clinically as peripheral arthritis or as sacro-iliitis and ankylosing spondylitis (AS). Enthesitis commonly present. (Crohn's disease, UC, whipples (very rare) Bechet's disease (rare)
who gets it	Sudden onset ratio 1M;1F
symptoms	Abdominal cramping/ Stools: Diarrhoea, blood, mucus. Fever, malaise. Pain in tendon insertions + stiffness AM and after inactivity
signs	Weight loss
tests you can do	
medical tests	Immune mediated. HLA-B27 +ve (30%) of cases
medical treatments (and side effects)	NSAID's (effects on GIT) Sulfasalazine/ Corticosteroids TNF inhibitors
contraindications to specific Osteopathic techniques	HVT (corticosteroid)

Condition : foot drop	
definition (including guidelines if available)	Inability to dorsiflex
who gets it	Those with lesion to Lumbosacral plexus, L5 root, sciatic nerve, common / deep fibular nerve. CNS. Neuromuscular disease. Charcot-Marie-Tooth Disease
symptoms	
signs	
tests you can do	
medical tests	
medical treatments (and side effects)	
contraindications to specific osteopathic techniques	

Ganglion cyst	
definition (including guidelines if available)	Swelling that often appears on or around joints and tendons in the hand or foot. idiopathic
who gets it	20 – 40year old F3/1M
symptoms	Possible local tenderness
signs	Ganglion visible or palpable
tests you can do	palpation
medical tests	
medical treatments (and side effects)	Surgery (scar tissue), aspiration, excision
contraindications to specific Osteopathic techniques	none

Condition : Gout	
definition (including guidelines if available)	<p>Recurrent acute or chronic arthritis of peripheral joints from deposition in and around the joints and tendons of monosodium urate crystals.</p> <p>Cause: -Under excretion (most common, defective renal management), -Overproduction</p> <p>(Pseudo Gout: deposition Calcium Pyrophosphate Dihydrate crystals in: cartilage, synovium, joint capsules, tendons, >60yoa, usually knee or shoulder)</p>
who gets it	<p>M>F - 5:1, 40-60yoa (uncommon < 30yoa),</p> <p>Trigger factors: prolonged stress, alcohol, diet (purines), obesity, hypertension, trauma...</p>
symptoms	<p>-Gnawing pain, -Hot, -Inflammation, -Tender, -Low grade fever</p> <p>Onset at night & peak 1-2 days later, Usually LEx (↓body temp, trauma- stubbed toe)</p> <p>Site: 1st MP joint (also - ankle, Knee, DIP joint)</p>
signs	<p>Tophi (later stages – nodular masses deposited in soft tissues)</p>
medical tests	<p>-Synovial fluid analysis (most important test), -Blood test (serum uric acid, ESR, CRP), -Xray, -Kidney Fxx tests</p>
medical treatments (and side effects)	<p>Acute Gout: NSAIDs, Corticosteroids, Colchicine, NOT aspirin (increases uric acid in blood)</p> <p>Recurrent Gout: Allopurinol, Uricosuric drugs</p> <p>Diet: ↓Purines (red meat, seafood, alcohol), ↓Weight, ↑Water intake, ↑low fat Dairy & Cherries, Possibly ↓nuts, tomatoes, strawberries</p>
contraindications to specific osteopathic techniques	<p>Consider impaired Renal Fxx,</p> <p>Assoc factors: Obesity (28%), Coronary Heart Disease (25%), Syndrome X (76%) (insulin resistance syndrome)</p>

Condition : Haemarthrosis	
definition (including guidelines if available)	Bleeding into a joint-space.
who gets it	Haemophiliacs, patients taking Warfarin (common) Can follow trauma.
symptoms	Joint swelling and pain over a period of hours/days
signs	Excessive discolouration (red,brown) and swelling around a joint.
tests you can do	Joint examination
medical tests	Fluid sample from joint-space.
medical treatments (and side effects)	Cause dependant: haemophilia treatment differs from traumatic onset. Trauma usually requires drainage and then RICE. People with haemophilia often have drug TTT for underlying condition.
contraindications to specific osteopathic techniques	Depending on cause. Pts with haemophilia will bruise easily so avoid ST and firm techniques.

Condition : Hammer Toe	
definition (including guidelines if available)	Extension of the metatarsophalangeal joints and the distal interphalangeal joints. The proximal interphalangeal joints are hyperflexed.
who gets it	Occurs throughout life, although most often seen in the seventh and eighth decades. Women are affected five times more often than men.
symptoms	
signs	Extension of the metatarsophalangeal joints and the distal interphalangeal joints. The proximal interphalangeal joints are hyperflexed.
tests you can do	Assess deformity whilst standing. Are there associated deformities e.g. hallux valgus or pes cavus? Palpate the webspace and compress the forefoot (by squeezing the metatarsals together) to exclude interdigital neuroma.
medical tests	As above + test for RH factor to screen for RA + imaging
medical treatments (and side effects)	Chiropody orthotics Injecting anti-inflammatories to relieve pain and inflammation surgery
contraindications to specific osteopathic techniques	

Condition : Intermittent Claudication	
definition (including guidelines if available)	Aching and cramp-like pain in the LEx due to an inadequate supply of blood to the mms. Caused by: atherosclerosis of the arteries; occlusion; or due to vasospasm. This narrowing of the arteries limits oxygen to the mms causing ischaemia and pain.
who gets it	More common in men than women. 1-2% of under 60 yoa, then increases likelihood with advancing age.
Symptoms	An aching, cramping, tired, and sometimes burning pain in the legs that comes and goes usu. worse on walking and relieved by rest. Can be uni- or bi- lateral. Occ. men suffer with impotence. Can be felt as 'tired' buttocks.
Signs	Decreased or absent pulses in the LEx, cold feet
tests you can do	Pulses in legs and feet, BP
medical tests	Doppler Ultrasonography, ECG, arteriography.
medical treatments (and side effects)	Exx, stop smoking, avoid heat/cold on legs, avoid tight shoes. Meds: 'Trental' (decreases viscosity) or 'Pletal' (vasodilator and clot inhibitor). If severe may need surgery (eg. bypass grafting, balloon angioplasty). TTT often the same as that for atheroma.
contraindications to specific osteopathic techniques	

Condition : Inversion/Eversion Strain	
definition (including guidelines if available)	<p><u>Inversion</u></p> <ul style="list-style-type: none"> - Affects the Lateral Collateral Ligaments - Far more common than Eversion strain due to: <ul style="list-style-type: none"> 1. Medial Collateral (Deltoid) is stronger & 2. Relative shortness of the medial malleolus, (acts as a pivot against the talus) <p><i>Lateral Collateral- 3 bands:-</i> 1. <i>Anterior talo-fibular (ATF)</i>, 2. <i>Calcaneo-fibular (CF)</i>, 3. <i>Posterior talo-fibular (PTF)</i></p> <ul style="list-style-type: none"> - Most inversion strains are isolated to ATF. - If CF ligament involved, this can lead to avulsion of 5th met. due to tendon control <p><u>Eversion</u></p> <ul style="list-style-type: none"> - Affects the Medial Collateral Ligaments (far less common) <p><i>Medial Collateral (Deltoid):-</i> <i>Superficial</i> 1. Tibio-navicular, 2. Calcaneo-tibial, 3. Posterior <i>Deep</i> 3. Anterior talo-tibial</p> <p>Classification of sprain: 1st degree – lig stretch w/out instability, 2nd degree – partial tear w/ moderate instability, 3rd degree – complete rupture w/ gross instability</p>
who gets it	<ul style="list-style-type: none"> - Traumatic Onset: Inversion -Extreme inversion & plantar flexion. - Previous lig injury
signs & symptoms	<p>Case History:- Mechanism of injury, Site of pain, Pop may indicate ruptured ligament</p> <ul style="list-style-type: none"> -Altered gait, -Swelling, Bruising & Tenderness over injured ligament
tests you can do	<ul style="list-style-type: none"> - General Ankle examination. Especially Anterior drawer test, - Assess for neurovascular injury
medical tests	Xray diagnosis for 3 rd degree,
medical treatments (and side effects)	<p>Conservative TTT: RICE</p> <p>Prevention of further injury</p>
contraindications to specific osteopathic techniques	<p>Inversion - Possible avulsion of proximal end of 5th Metatarsal or ruptured ligaments</p> <p>Eversion - Possible fibular # or tear of the tibiofibular lig</p> <ul style="list-style-type: none"> - Possible ligament or Achilles tendon rupture, - Hxx of osteoporosis

Condition : Kohler's Disease	
definition (including guidelines if available)	Avascular Necrosis of the navicular
who gets it	Mainly boys aged approx 5 years
symptoms	Pain in navicular, difficulty walking.
signs	Limping, walking on lateral border of foot, redness and swelling over the navicular.
tests you can do	Foot examination.
medical tests	X-ray comparison of feet
medical treatments (and side effects)	NSAID's, medial arch support (if mild), casting the foot (if severe)
contraindications to specific osteopathic techniques	Foot articulation will be too painful in some cases.

Condition : ANKLE LIGAMENT SPRAIN- Foot/Ankle	
definition (including guidelines if available)	Injury to a ligament, caused by sudden overstretching.
who gets it	Anyone. Often sports people.
symptoms	"Pop" heard with injury. Ankle swelling and decreased function.
signs	Pain on passive movements and/or excessive movement at joint line.
tests you can do	Drawer test.
medical tests	MRI scan
medical treatments (and side effects)	Ice, ultrasound. Stabilising exercises.
contraindications to specific osteopathic techniques	None

Condition : Lymphangitis	
definition (including guidelines if available)	an infection of the lymph vessels (channels). It is a common complication of certain bacterial infections e.g. streptococcus.
who gets it	Most often as a result of an acute strep infection of the skin.
symptoms	Throbbing pain along the affected area. Fever of 100 to 104 degrees Fahrenheit. Chills. Malaise. Headache. Loss of appetite. Muscle aches.
signs	Red streaks from infected area to the armpit or groin. Enlarged lymph nodes above the area of red streaks -- usually in the elbow, armpit, or groin
tests you can do	Lymph exam
medical tests	Lymph exam and blood test.
medical treatments (and side effects)	Antibiotics, analgesics, anti-inflammatory.
contraindications to specific osteopathic techniques	Infection – S/T work may spread infection via lymph channels.

Condition :MARFANS	
definition (including guidelines if available)	Inherited disorder of connective tissue. Characterised by excessive tallness, abnormally long and slender fingers and toes (Arachnodactyly).
who gets it	Inherited
symptoms	Excessive tallness, abnormally long and slender fingers and toes.
signs	
tests you can do	
medical tests	Children need regular checks for scoliosis and eye exams.
medical treatments (and side effects)	
contraindications to specific osteopathic techniques	

Condition : METATARSALGIA- Foot/Ankle	
definition (including guidelines if available)	Aching pain in the metatarsal bones of the foot.
who gets it	Most commonly women in 40s and 50s
symptoms	Pain in anterior foot- 'like having a stone in the shoe'
signs	May cause paraesthesia in 3 rd and 4 th toes.
tests you can do	Compression of foot causes symptoms.
medical tests	
medical treatments (and side effects)	Orthotics
contraindications to specific osteopathic techniques	None

Condition : Morton's Neuroma	
definition (including guidelines if available)	Fibrous thickening of an interdigital nerve, usually in 3-4 cleft. (Benign tumour grows from the fibrous coverings of a nerve)
who gets it	F>M - 3:1, Peak age: 40-50yoa, poorly fitting shoes (high heels or ballet)
Symptoms / signs	Pain: -metatarsal pain combined with Radiating Pain or P+N / Numb in 3 rd & 4 th toes, -AGG standing or walking, -pt wants to not wear shoes,
tests you can do	Palpation of neuroma (may be tender)
medical tests	Possible ultrasound or MRI
medical treatments (and side effects)	- Conservative: Footwear adjustments, Calf-stretching Ex, Steroid/local anaesthetic injections (~3/4 respond well) - Surgery for poor response to conservative TTT
contraindications to specific osteopathic techniques	Infections & Vascular insufficiency

Condition :Nerve root pain (lumbar)	
definition (including guidelines if available)	Pain from insult to a nerve root
who gets it	
symptoms	Shooting pain in a dermatomal pattern Concurrent parasthesia, myotomal weakness
signs	Reduced reflex, weakness, dermatomal parasthesia
tests you can do	Neuro exam
medical tests	
medical treatments (and side effects)	Anti-inflammatories
contraindications to specific osteopathic techniques	Maybe caused by disc injury

Condition : Neuropathy	
definition (including guidelines if available)	Disease of the peripheral nerves. Mononeuropathy – one nerve is affected, symptoms in that nerves distribution. Polyneuropathy – many nerves affected. Symptoms most profound at extremities of limbs.
who gets it	Sufferers of diabetes mellitus, cancer, connective tissue diseases, HIV, hypothyroidism, critical illnesses. B1, B6, B12, folate, Vit E deficiencies.
symptoms	Weakness and numbness
signs	Weakness, occasionally wasting (in axon degeneration), sensory change on examination
tests you can do	Neurological examination
medical tests	Neurological examination, genetic testing, testing for possible causes of which neuropathy is a complication.
medical treatments (and side effects)	Treatment of underlying condition, pain relief (can cause constipation), anti seizure medication (can cause drowsiness and dizziness), Lidocaine anaesthetic patch (can cause a rash), tricyclic antidepressants (can cause nausea, drowsiness, dizziness, constipation)
contraindications to specific osteopathic techniques	If the underlying condition requires special care – i.e. diabetes, poor healing rate – strong soft tissue may cause micro trauma that takes a long time to heal.

Condition : Osteochondrosis	
definition (including guidelines if available)	A class of diseases characterised by disturbance of ossification at the epiphyseal plate often due to an interruption in blood supply.
who gets it	Children and teenagers
symptoms	Depending on site of disease, joint pain, difficulty moving joint, pain on movement.
signs	Depending on site of disease, palpable "lump" on bone.
tests you can do	Joint examination, palpation, case history, ARMT
medical tests	X-rays usually all that is necessary.
medical treatments (and side effects)	Excision of bony spur (rare) Casting, rest and support are usually sufficient in most cases.
contraindications to specific osteopathic techniques	HVT in certain areas of body not recommended due to ossification problems and bony spurs in area.

Osteomyelitis	
definition (including guidelines if available)	Infection of the bone or bone marrow Medical emergency
who gets it	Anyone from newborn & childrens (acute) to adult (secondary) Following surgery
symptoms	Pain, loss of function
signs	Fever, inflammation (hot, red, swollen, pain and loss of function)
tests you can do	palpation
medical tests	Radiology, blood sample, biopsy
medical treatments (and side effects)	Antibiotic surgery
contraindications to specific osteopathic techniques	Patient unwell total contraindication Local contra-indication ST, HVT

Condition : Osteosarcoma	
definition (including guidelines if available)	highly malignant tumour usually in the metaphysis of long bones
who gets it	all ages BUT usually seen in children and young adolescents- association with Pagets disease
symptoms	Pain, swelling at sight of tumour, preceding trauma
signs	
tests you can do	Palaption, PMH
medical tests	bloods
medical treatments (and side effects)	neoadjuvant chemotherapy, adjuvant therapy (drugs used: doxorubicin, cisplatin, vincristine, cyclophosphamide, methotrexate)
contraindications to specific osteopathic techniques	Refer if suspect

Condition : Peripheral neuropathy	
definition (including guidelines if available)	-Lesion to nerves of the peripheral nervous system caused by disease or injury. -Many Types: Mononeuropathy, Polyneuropathy, Mononeuritis multiplex, Autonomic. -Most Common: Peripheral Polyneuropathy: Typically present with altered glove & stocking distribution
who gets it	Trauma (mononeuropathy), DCB CDV: Diabetes Mellitus, Carcinoma, Vitamin, Chemicals, Drugs, Vasculopathy
symptoms	Weakness, Numbness
signs	↓mm tone, ↓tendon reflex, fasciculations, mm atrophy & weakness/paralysis, sensory deficits
tests you can do	Neurological test, Case Hxx
medical tests	Electromyography, Nerve biopsy
medical treatments (and side effects)	Treat specific cause
contraindications to specific osteopathic techniques	Diabetic foot ulcer, Gangrene

Condition : Pes planus	
definition (including guidelines if available)	Flat feet. Collapse of longitudinal arches
who gets it	Very common. Congenital, pregnancy, RA (destroys tendons)
symptoms	Usually asymptomatic.
signs	Collapse of longitudinal arches esp on weightbearing. If same off weightbearing
tests you can do	Standing exam. If developing (children) or due to pronation flatness will disappear on tip toes
medical tests	Physical exam. "wet footprint" test
medical treatments (and side effects)	Orthotics, surgery, exercise (mainly for children)
contraindications to specific osteopathic techniques	

Condition : Pitting Oedema	
definition (including guidelines if available)	Capillaries leak fluid into the surrounding tissues causing them to swell. Usually in dependent areas such as the legs (peripheral or ankle oedema), or it may accumulate in the lungs. Due to: too much force or pressure inside the blood vessels; force outside of the blood vessel causes the fluid to be drawn through it; or the wall of the blood vessel is compromised and cannot maintain equilibrium.
who gets it	Heart failure (RHF = peripheral oedema), venous insufficiency, liver/kidney disease, pregnancy and post-partum women, idiopathic or as a side-effect of some meds: steroids, calcium channel blockers, NSAIDS, oestrogens
Symptoms	Stiff ankle joints, decreased ROM, swelling.
Signs	Swelling; tight, shiny skin; indentation appears when pressed.
tests you can do	Fingertip pressure to the oedema leaves a temporary indentation.
medical tests	Need to find and treat the underlying cause so: chest x-ray, ultrasound of the LEx, blood tests (liver func), urinalysis.
medical treatments (and side effects)	Compression stockings can be helpful by increasing the resistance to fluid leaking out of the vessels. Body positioning can ease symptoms eg. elevating the legs.
contraindications to specific osteopathic techniques	If due to steroid use avoid HVT techniques

Condition : Plantar Fasciitis	
definition (including guidelines if available)	inflammation of the point of attachment of fascia in sole of foot to calcaneus causing pain, localized tenderness of heel.
who gets it	pdn pronated feet, overuse, unsupported shoes
Symptoms and signs	insidious onset, pain at initial activity/post activity, morning stiffness, stand on toes/walk on heels tight Achilles, occasionally numb lat sole
tests you can do	palpation, CH
medical tests	
medical treatments (and side effects)	RICE, crutches, static fascial stretch incl Achilles
contraindications to specific Osteopathic techniques - Deep S/T advise patients to roll golf ball under foot	

Condition : Plantar Neuroma (Morton's, Intermetatarsal Neuroma, Benign Neuroma)	
definition (including guidelines if available)	Thickening of the interdigital plantar nerve. Often 3 rd /4 th Met
who gets it	
symptoms	Pain on weight bearing after short time, shooting pain along the two halves of Mets. Numbness & Pain. No direct signs of inflammation or limit of mvt.
signs	
tests you can do	Direct pressure between Met heads in toe off can cause irritation and local swelling/thickening of nerves increase risk of compression, ill fitting shoes depressing Ant TV arch.
medical tests	
medical treatments (and side effects)	Rest, Wide shoes, avoid pushing –off activity, NSAID's, orthotics, Cortisone, surgery
contraindications to specific osteopathic techniques	

Condition : Poliomyelitis & Post Polio Syndrome	
definition (including guidelines if available)	An infectious virus which can affect the CNS. For most people it is a mild flu like illness, but it can be fatal. (Spread by feco-oral route)
who gets it	Unvaccinated. Children more susceptible.
symptoms	Sore throat, fever, nausea, vomiting, diarrhoea, constipation. More seriously (paralytic polio): headache, back and neck stiffness, increased sensitivity to touch. PPS (affects motor neurones): fatigue, muscle weakness and atrophy, muscle and joint pain similar to arthritis, all of which cause difficulty walking.
signs	PPS: difficulty walking.
tests you can do	Usually diagnosed by the symptoms
medical tests	Saliva, stool or CSF testing.
medical treatments (and side effects)	No antiviral TTT currently. TTT focuses on easing symptoms. Manual therapy when over initial phase of virus.
contraindications to specific osteopathic techniques	Infective virus. PPS symptoms may be eased by manual therapy.

Condition : Poor Calf Pump	
definition (including guidelines if available)	Decreased efficiency of the pumping mechanism by the gastrocs-soleus complex which on contraction, helps pumps blood through the veins back towards the heart. A major factor in chronic venous insufficiency.
who gets it	Immobile, paralysed, injured, stationary and static. Increased incidence with advancing age.
Symptoms	Aching, tired legs. Occ. cramping. Swollen ankles, feet and/or legs due to pooling.
Signs	Oedema in the ankles and feet, increased tone in the calf muscles, decreased ankle ROM, can lead to DVTs and decreases healing time and can predispose to leg ulcers and varicosities. Restless leg syndrome often is a sign of poor circulation. Can be accompanied by Achilles tendonitis.
tests you can do	ROM and QOM of ankle joints, joints of the feet and the sup' tib-fib joint, palpate tone of the mms of the LEx. CVS exam inc' BP.
medical tests	
medical treatments (and side effects)	Stretching of the mms, Exx (esp. walking), elevation of the LEx
contraindications to specific osteopathic techniques	

Condition : Post surgery Complex regional pain syndrome	
definition (including guidelines if available)	Chronic progressive disease characterized by severe pain, swelling and changes in the skin
who gets it	May occur after injury or surgery. Cause unknown but thought to be related to CNS sensitisation
symptoms	<ul style="list-style-type: none"> • usually manifest near the site of an injury, either major or minor. • The most common symptoms overall are burning and electrical sensations - "shooting pain." • Muscle spasms, local swelling, abnormally increased sweating, changes in skin temperature and color, softening and thinning of bones, joint tenderness or stiffness, restricted or painful movement.
signs	Allodynia
tests you can do	
medical tests	Thermography (altered blood flow to painful area) Sweat testing (Radiography (Patchy osteoporosis)
medical treatments (and side effects)	anti-inflammatories painkillers
contraindications to specific osteopathic techniques	

Condition : POTTS FRACTURE- Foot/Ankle	
definition (including guidelines if available)	A fracture to the lateral, medial or posterior malleoli in the ankle.
who gets it	
symptoms	Pain at distal fibula. Unable to ambulate .
signs	Fibula fractured 4.3 cm above malleolus tip, Talus displaced laterally and posterior, No active range of motion of ankle, Increased distance between medial and lateral malleolus. Shortened foot dorsum.
tests you can do	Tuning fork
medical tests	X-Ray
medical treatments (and side effects)	Immobilisation in plaster cast
contraindications to specific osteopathic techniques	

Condition : Proprioceptive loss with ligament damage	
definition (including guidelines if available)	Reduction in JPS following ligament strain, most commonly ankle inversion sprain. -Mechanoreceptors & their Afferent nerve fibres exist in the ankle ligaments and capsule. -Disruption of these leads to impairment of the reflex stabilization of the foot, resulting in the foot giving way. -Also dysfunction of peroneal nerve can result in delayed muscle response of the peroneal muscles.
who gets it	Trauma, usually ankle inversion strain
signs & symptoms	Feeling of instability, Local mm hypertonicity, Local tenderness
tests you can do	Single leg balance test & squat, Joint exams
medical tests	Possible Xray for grade 3 strain (complete lig rupture)
medical treatments (and side effects)	-Full ROM & Strength Exercises, -Weight-bearing multidirectional balance exercises, -Protective support as needed (taping, orthoses)
contraindications to specific osteopathic techniques	Patients with bleeding disorders, CVS disorders

Psoriatic arthritis – (seronegative)	
definition (including guidelines if available)	A chronic inflammatory that occurs in association with psoriasis of the skin or nails (occasionally develop without psoriasis). asymmetric and can involve any joint. Idiopathic
who gets it	onset 36-46 - Male : Female ratio = 1 : 1 Risks increase in patients with HLA-B27 or can be familial
symptoms	Inflammation, pain distal interphelangeal joints: finger, toe, elbow, shoulder, ankle. Large and small joints including SIJ & spine common
signs	sausage-shape deformity finger or toe
tests you can do	
medical tests	X-Ray, blood test, exclusion of other rheumatological problem
medical treatments (and side effects)	NSAIDs, oral or topical corticosteroids, cortocosteroids injections / Diet and exercise advise
contraindications to specific osteopathic techniques	HVT due to corticosteroid injection (osteoporosis)

Condition : Radiculopathy	
definition (including guidelines if available)	Neuropathy of a nerve root
who gets it	Those with nerve root insult i.e. inflammation, compression, ischaemia etc
symptoms	referred pain / parasthesia / weakness (derma / myotomal)
signs	Reproduction of symptoms
tests you can do	LMNL Neuro tests – power, reflexes, sensation
medical tests	LMNL Neuro tests – power, reflexes, sensation
medical treatments (and side effects)	Anti-inflammatories. Physical therapy
contraindications to specific osteopathic techniques	Presence of causes with contraindications e.g. disc prolapse, disease

Reactive arthritis -reiter's syndrome (Seronegative)	
definition (including guidelines if available)	Autoimmune reaction triggered by an infectious agent outside the joint.Characterize by arthritis, urethritis and conjunctivitis. 'Pain in their knees when they see and pee'
who gets it	Young adults. Genetic predisposition: associated with HLA-B27
symptoms	Pain, swelling weight bearing jts (fingers and toes). Asymmetric / Back pain + tendon insertions (enthesopathy), Eye irritation /Increased urinary freq, urethral discharge precedes musculoskeletal symptoms by up to 1/12. Fatigue. Weight loss.
signs	Fever / Red eyes / Skin rash on palms and soles / Sausage shaped deformity of fingers and toes/ Shedding of nails.
tests you can do	
medical tests	Full blood count ESR and CRP similar to AS. Blood, urine and synovial fluid tests identify causative organism
medical treatments (and side effects)	NSAID'/ Corticosteroid injections into joint. Antibiotics for initial infection
contraindications to specific osteopathic techniques	Local contra-indication HVT

Condition : Referred pain (lumbar spine)	
definition (including guidelines if available)	Pain felt at a site other than where the cause is situated
who gets it	Those with insult to non-nerve root structures in the lumbar area
symptoms	Pain in the buttocks / legs. Non dermatomal, non-linear
signs	
tests you can do	
medical tests	
medical treatments (and side effects)	
contraindications to specific osteopathic techniques	

Condition : Rheumatoid Arthritis	
definition (including guidelines if available)	Systemic autoimmune disorder, causing inflammation (most often) of peripheral joints.
who gets it	Women more than men (3:1), most commonly aged 30-40+
symptoms	Bilateral joint inflammation, fever, fatigue, malaise, joint pain in morning, carpal tunnel syndrome.
signs	Warm swollen and red joints, Muscle wasting, flattened foot arches, Rheumatoid nodules, swan neck deformities, Bouttonieres deformities. Ligamentous laxity.
tests you can do	Joint examination, palpation of rheumatoid nodules
medical tests	Blood test: for HLAB27 elevated ESR, and Rheumatoid factor
medical treatments (and side effects)	NSAID's, DMARD's, exercise and diet advice, joint replacement (if severe)
contraindications to specific osteopathic techniques	Ligamentous laxity a contraindication to working at end of range, cervical myelopathy contraindication to Csp HVT.

Condition : Right-Sided Heart Failure (aka right ventricular heart failure)	
definition (including guidelines if available)	The pumping action of the heart muscle is inadequate due to damaged valves, ventricular mm, or both. This results in back pressure of blood with congestion of organs. R= engorged neck veins, peripheral oedema or, when advanced, ascites (fluid accumulation in the abdominal cavity).
who gets it	
Symptoms	Exercise intolerance; fluid retention; and swelling in the legs, the feet, and the ankles may occur, particularly at the end of the day or after prolonged sitting or standing. Swelling may be so severe as to reach up to the hips, scrotum, abdominal wall, and eventually the abdominal cavity (ascites).
Signs	Weight gain, fluid retention and pitting oedema (Nonpitting edema is not caused by heart failure).
tests you can do	Pressure to oedema to see if it's pitting.
medical tests	B-type natriuretic peptide (BNP) -This is a hormone produced at higher levels by the failing heart muscle. This is a good screening test; the levels of this hormone generally increase as the severity of heart failure worsens. An echocardiogram (ECG) can be useful in determining the cause of heart failure (such as muscle, valves, or pericardium) but can be normal in heart failure, and it provides an accurate measurement of ejection fraction. An Xray may show an enlarged heart.
medical treatments (and side effects)	Vasodilators, Betablockers, Diuretic meds and BNP hormone, heart surgery for correction of valve function. The treatment of heart failure depends on the exact cause, but it can usually be treated effectively. The overall goals of treatment are to correct underlying causes, to relieve symptoms, and to prevent worsening of the condition. Symptoms are relieved by removing excess fluid from the body, improving blood flow, improving heart muscle function, and increasing delivery of oxygen to the body tissues. Other treatment or procedures, such as angioplasty or a pacemaker , may be offered, depending on the underlying cause of the heart failure. Surgery can repair some underlying causes of heart failure, such as blockage of the coronary arteries, a valve problem, a congenital heart defect, or too thick of a pericardium. However, once the heart's ability to pump blood is severely, permanently, and irreversibly impaired, no surgery can repair the damage. The only alternative is a heart transplant . This option is for patients who are not elderly and who do not have other medical conditions that would make it unlikely for a heart transplant to be successful.
contraindications to specific osteopathic techniques	

Septic arthritis	
definition (including guidelines if available)	Inflammatory reaction in a joint, caused by an infection. This Medical emergency
who gets it	Anyone but people with replace joint are more are risk
symptoms	Fever, pain and unwell
signs	
tests you can do	
medical tests	Arthrocentesis (aspiration), blood test (CRP>20 mg/dL; ESR > 40 mm/hr)
medical treatments (and side effects)	Antibiotic, analgesia (NSAID, paracetamol, opioid etc)
contraindications to specific Osteopathic techniques	Patient unwell total contraindication Local contra-indication ST, HVT

Sesamoiditis	
definition (including guidelines if available)	Inflammation of sesamoid bone (1 st metatarsal)
who gets it	Anyone can follow a trauma or wearing heel
symptoms	Pain on the sole of the foot under the big toe on walking due to pressure
signs	inflammation
tests you can do	
medical tests	
medical treatments (and side effects)	Inflammatory, cortisone injection, strapping to immobilize big toe
contraindications to specific osteopathic techniques	none

Condition : Sever's Disease	
definition (including guidelines if available)	Osteochondrosis of calcaneus at the insertion of the calcaneal tendon.
who gets it	Boys usually aged 10-12 Girls usually aged 8-11
symptoms	Pain in heel when running TTP insertion of calcaneal tendon (often bilateral)
signs	Altered gait if severe
tests you can do	Examine and palpate the ankle and calf
medical tests	X-ray if severe
medical treatments (and side effects)	Self-limiting, often RICE is sufficient. Cast or heel lift in (plantar flexed) NSAID's
contraindications to specific osteopathic techniques	none known

Condition : Stroke	
definition (including guidelines if available)	Interruption/blockage of blood flow to the brain. Ischaemic stroke (80%) caused by: atherosclerosis, a thrombosis, or an embolism. A haemorrhagic stroke results from a ruptured artery wall.
who gets it	More common with increasing age but not exclusively the elderly. Most common in African Americans. Predisposed by high cholesterol and high blood pressure.
Symptoms	No pain, unilateral weakness, altered sensation, weak face, slurred speech, dysphasia, dysphagia, clumsiness, dizziness, change in vision, sudden HA, loss of consciousness. (Can vary in severity from a tingling limb (TIA) to a profound paralysis, coma and death).
Signs	Unilateral actual weakness, UMN signs on Neurological testing
tests you can do	BP, pulses, CVS, Resp, Neurological examination
medical tests	Blood tests, CT Scan, MRI – no one test for strokes.
medical treatments (and side effects)	Oxygen, fluids, control BP. Do not smoke. Med: Tissue plasminogen activator (t-PA) dissolves blockage (only effective for short period of time after initial symptoms appear).
contraindications to specific osteopathic techniques	

Condition : osteoarthritis in subtalar	
definition (including guidelines if available)	Degenerative disease of the joints resulting from wear of the articular cartilage which may lead to 2 nd changes in underlying bone. Presence of osteophytes, osteosclerosis seen by X-ray
who gets it	<p>pd by trauma ie. Fractures. Talo-navicular joint osteo can affect young people – has an association with congenital bars or fusions</p> <p>Halloo rigidus – 1st met – common condition occurring in young adult. Often bilateral.</p>
symptoms	<p>Joints become progressively painful when walking esp. toe off.</p> <p>Joint stiffens, reduced dorsi flexion, toe becoming rigid.</p> <p>Compensatory hyperextension of the interphalangeal joint is usual</p>
signs	
tests you can do	
medical tests	
medical treatments (and side effects)	
contraindications to specific osteopathic techniques	

Condition : SLE Systemic lupus erythematosus	
definition (including guidelines if available)	Chronic systemic autoimmune (connective tissue) disease
who gets it	Fem: Male 9:1. Usually aged 15 – 50. More common in non-European origin
symptoms	Variable and unpredictable. Fever, malaise, fatigue, joint pain (small joints of hand & wrist), myalgia, temporary loss of cognitive ability. Red, scaly skin patches.
signs	Malar (butterfly) rash Can affect most organs esp heart, lungs, kidneys Occurs in flares
tests you can do	
medical tests	ANA test. Immunofluorescence
medical treatments (and side effects)	Cortico-steroids, anti-malaria drugs. DMARDs
contraindications to specific osteopathic techniques	Cushings from corticosteroids

Condition :Tabes Dorsalis	
definition (including guidelines if available)	slow degeneration (demyelination) of dorsal columns as a result of untreated syphilis infection
who gets it	People with syphilis. 5-20 years post infection. Commonly mid life. Men more than women.
symptoms	Lightning pain in the legs and loss of sensation
signs	Charcot joints, wide based high stepping gait, diminished reflexes.
tests you can do	Joint position sense, vibration, discriminative touch
medical tests	Blood tests – serum VDRL test. CSF test – VDRL or chronic meningitis.
medical treatments (and side effects)	Intravenous penicillin.
contraindications to specific osteopathic techniques	

Condition :Talipes equino varus aka club foot	
definition (including guidelines if available)	Congenital deformity involving one foot or both. The affected foot appears rotated internally at the ankle
who gets it	It is a common birth defect, occurring in about one in every 1,000 live births. Approximately 50% of cases of clubfoot are bilateral. Male-to-female ratio is 2:1.
symptoms	
signs	InAdEquate In version at subtalar joint Ad duction at talonavicular joint and Equinus at ankle joint
tests you can do	
medical tests	Xray - AP plus lateral standing or simulated-standing Ultrasound
medical treatments (and side effects)	Cast, braces & manipulation surgery
contraindications to specific osteopathic techniques	

Transient synovitis of the hip	
definition (including guidelines if available)	Inflammation of the synovial capsule of the hip joint. Self-limiting condition.
who gets it	children between three and ten years old – M3 :F1
symptoms	Sudden hip pain, limping not associated to trauma
signs	↓ ROM hip joint (abd + ext rotation)
tests you can do	
medical tests	Blood test ESR CRP(inflammation), ultrasound scan (effusion)
medical treatments (and side effects)	NSAID and non weight bearing
contraindications to specific Osteopathic techniques	Local HVT

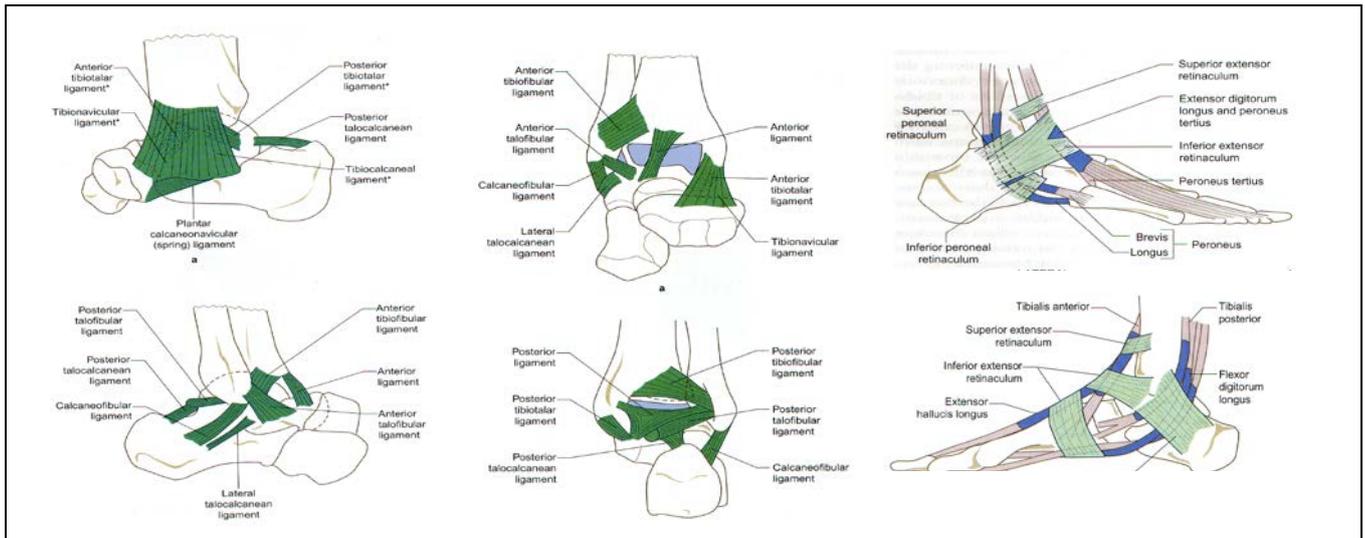
Tuberculosis	
definition (including guidelines if available)	Infectious disease caused by Mycobacterium tuberculosis Attacks lungs usually. - Granulomatous inflammation with a central caseous necrosis. - 25% of cases are 'extrapulmonary'. Sites include: Nervous system, lymphatic, urogenital.
who gets it	Any age. People with lower immunity are more at risk. the elderly and those from sub-Saharan Africa, India, China
symptoms	Chronic cough (more than 3 weeks) with blood-tinged sputum, fever, night sweats, and unexplained weight loss
signs	
tests you can do	Respiratory examination
medical tests	X-Ray and tuberculin skin test
medical treatments (and side effects)	3 or 4 antibiotics taken over 6 months.
contraindications to specific osteopathic techniques	HVT

Condition : Ulcerative Colitis	
definition (including guidelines if available)	A disease that causes inflammation and sores, called ulcers, in the lining of the rectum and colon. Ulcers form where inflammation has killed the cells that usually line the colon, then bleed and produce pus
who gets it	Can occur in people of any age, but it usually starts between the ages of 15 and 30, and less frequently between 50 and 70 years of age. It affects men and women equally and appears to run in families
symptoms	Abdominal pain and bloody diarrhea. Patients also may experience anemia, fatigue, loss of appetite, rectal bleeding, loss of body fluids and nutrients, joint pain, growth failure (specifically in children).
signs	Weight loss, skin lesions
tests you can do	
medical tests	Physical exam, blood test, stool sample, colonoscopy, barium enema.
medical treatments (and side effects)	Aminosalicylates (side effects such as nausea, vomiting, heartburn, diarrhoea, and headache), Corticosteroids (weight gain, acne, facial hair, hypertension, diabetes, mood swings, bone mass loss, and an increased risk of infection), Immunomodulators (complications including pancreatitis, hepatitis, a reduced white blood cell count, and an increased risk of infection) Surgery.
contraindications to specific osteopathic techniques	

Condition : Varicose Veins	
definition (including guidelines if available)	Tortuous, persistently distended, superficial veins, engorged with blood under the effect of gravity; due to incompetent, absent or weak valves in perforating veins so blood is forced from the deep venous plexus to the superficial one. (Can also affect the Oesophagus and Testes). Less commonly due to phlebitis.
who gets it	Inherited tendency. 10-20% population; Females:Males 4:1; incidence increases with age, usu. Above 50 yoa.
Symptoms	Tired, heavy, achey limbs. Severe cases can lead to varicose ulcers.
Signs	Visible bulging veins
tests you can do	Observation
medical tests	
medical treatments (and side effects)	Elastic support stockings, maintaining healthy weight, exx, sclerotherapy, avulsion (stripping), excision (phlebectomy), endovenous laser ttt.
contraindications to specific osteopathic techniques	Avoid soft tissue work to these areas as the vessels may be delicate

Condition : Whipples Disease	
definition (including guidelines if available)	A rare bacterial infection primarily affecting the small intestine. It can also affect the heart, lungs, brain, joints, and eyes. Left untreated, Whipple's disease is fatal
who gets it	Middle aged Caucasian men
symptoms	<p>Periodic joint pain, with or without inflammation, which may persist for years before the appearance of other symptoms. Chronic diarrhea, with or without blood. Abdominal pain. Fever. Fatigue. Anemia.</p> <p>In some people: neurological symptoms: dementia, facial numbness, headache, muscle weakness and twitching, difficulty walking.</p>
signs	Weight loss. Abdominal bloating. Less commonly, darkening of the skin, enlarged lymph nodes.
tests you can do	Abdominal examination, neurological examination.
medical tests	Evaluation of symptoms, endoscopy, biopsy
medical treatments (and side effects)	Long term antibiotics – intravenous for 2 weeks, oral for 2 years. Can cause poor gut health due to lack of healthy bacteria.
contraindications to specific osteopathic techniques	

The Ankle



Anatomy

- Function: Propulsion + restraint in gait. Adjusting line of gravity in standing. (normally in front of joint line)

Talo-crural joint: Synovial hinge, Tib/Fib/Talus. Mortis shape. Axis horizontal but 20-25° oblique so ankle mvt also include subtalar+ midtarsal joints (that should absorb most rolling/yawing forces).

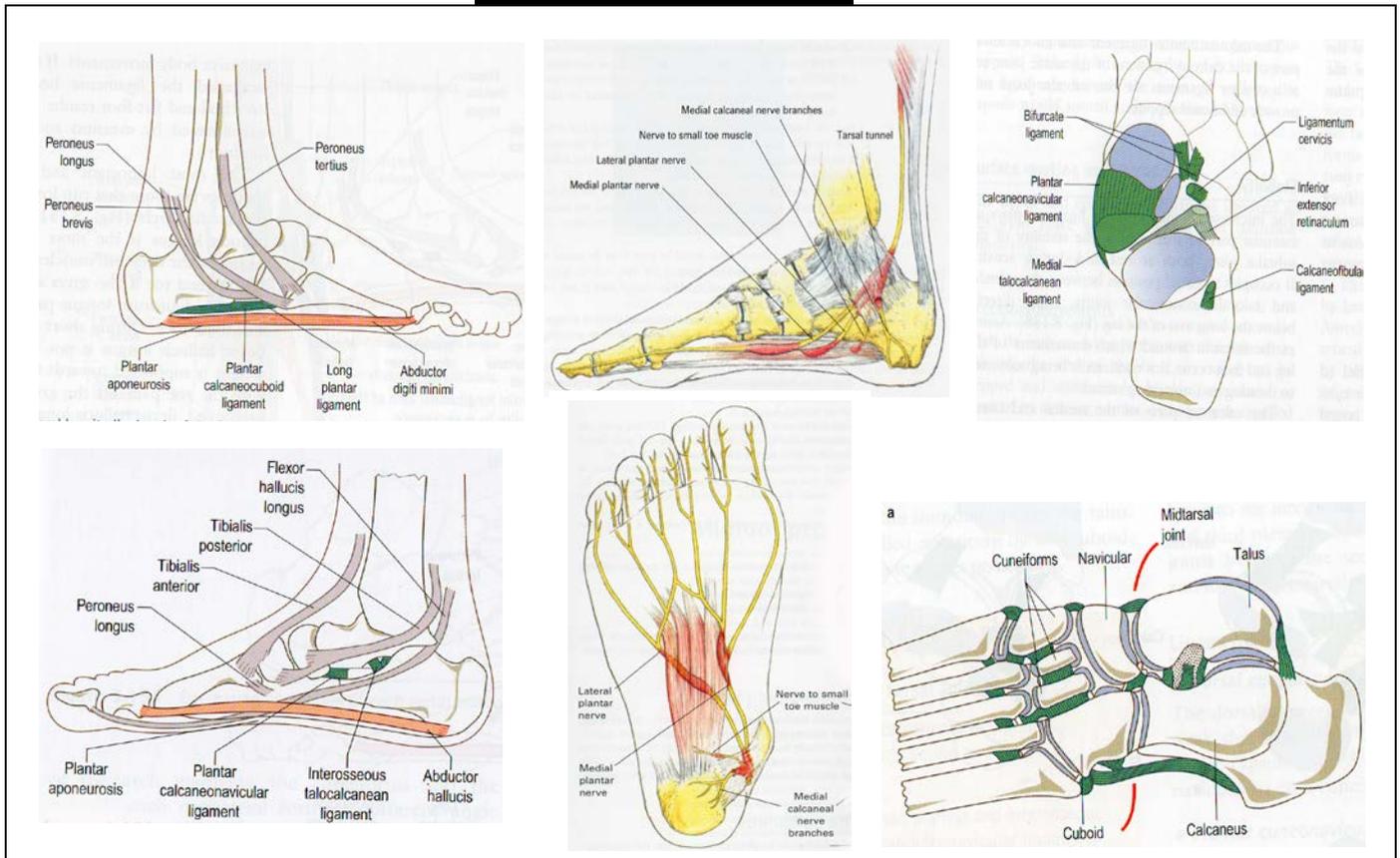
Movements	<ul style="list-style-type: none"> • Plantarflexion (30-50°) associated with add+sup=inversion, Some side mvt in full flexion • Dorsiflexion[extension] (20-30°) associated with abduction+pronation=eversion.
Stability	<ul style="list-style-type: none"> • Depend on articular surfaces, collateral ligaments and muscles. Stable in full dorsiflexion.
Capsule	<ul style="list-style-type: none"> • Thin loose attach to art margins + neck of talus. 1 cm recess between tib/fib
Ligaments	<ul style="list-style-type: none"> • <u>Medial collateral/Deltoid</u>. Stronger, 4 fused: <ul style="list-style-type: none"> 2 Deep: Ant + Post Tib/Talo ligaments. 2 Superficial: Tib/Nav - blending in with Cal/Nav (spring) lig, Tib/Cal attach to whole sustentaculum tali. • <u>Lateral collateral</u>. Less strong, 3 separate, fused at top: <ul style="list-style-type: none"> Ant Talo/Fib (flat, weak, antro medially to neck, important stabiliser, most injured,) Post Talo/Fib (strong, thick, horisontal), Cal/Fib (narrow cord free from capsule) • <u>Anterior and posterior ligaments</u>. Local thickenings of capsule. Ant: Tib → Talus. Post: Tib+Fib → Talus
Supply	<ul style="list-style-type: none"> • <u>NERVE</u>: L4-S2 (Tibial N + Deep Fib N) • <u>VASC</u>: Ant and Post Tibial and Fibular AA, Long/Short Saphenous VV
Retinaculum	<ul style="list-style-type: none"> • <u>Flexor R</u>, medial side, hold 3 muscle of deep post compartment. ("Tom, Dick AND' Harry: Tib post M, FDL, Post Tib A, Tib N, FHL) • <u>Superior Extensor R</u> – proximal to ankle, hold 4 M in ant comp, Ant Tib A, Deep Fib N • <u>Inferior Extensor</u> (y shape, divide on medial side) • <u>Superior Fibular+ Inferior Fibular</u> (each side of Inf Ext R) both hold Fibularis long/brevis
Sup Tib/Fib	Synovial plane joint, head of fib/tib condyle, slight movements during ankle mvt + M pull (Biceps etc) Occasionally communicates with popliteal bursae.
Movements	<ul style="list-style-type: none"> • MVT: Sup/Inf + rot Accessory MVT: ant/post glide
Ligaments	<ul style="list-style-type: none"> • Anterior lig (short thick)+ Posterior ligament (single band crossed by popliteus)
Supply.	<ul style="list-style-type: none"> • <u>NERVE</u> - L5 (Common Fib N + Tib N). • <u>VASC</u>: Lat inf genicular + ant Tib recurrent AA.
Interosseous membrane:	Fibrous joint. interosseous borders of tib/fib. Separates ant/post compartment For M attachments, Large proximal opening for Ant Tib vessels, Small distal opening for branch of fibular artery
Inf Tib/Fib:	Syndesmosis, distal end fib/tib, little movements (transmit mvt of fibula to movable sup Tib/Fib)
Ligaments	<p>A synovial-lined recess of ankle joint cavity usually extends up between tib/fib 1 cm or less.</p> <ul style="list-style-type: none"> • <u>Interosseous lig</u> (strong), Blends with Interosseous membrane higher up. • <u>Ant+Post Tib/Fib</u> (long, superficial), • <u>Transverse Tib/Fib</u> (strong, thick along inferior Fibular and Tibial border, runs below

Supply	margin of bones and partly forming post art surface of the Talo-Crural joint. <ul style="list-style-type: none"> • <u>NERVE</u>: L4-S2 (Deep Fibular N) • <u>VASC</u>: Fibular and Ant Tib AA
Movement of fibula	<u>Dorsiflexion</u> : Mortise widen→lift fib sup + axial rot. Direction of rot depend on shape of lat Talar surface. (if it's convex in a/p plane=medial rot . Plane surface =lat rot of fibula) <u>Plantarflexion</u> : Fibula moves inferiorly and rotates in opposite direction
Vindicator	
Vascular	osteocondritis dissecans (effect dome of Talus often medial side), lymphedema,
Inflammatory	Local inflammation, cuts, abrasions,
Neurological	L4-S2 lesion/disc;Tarsal tunnel syndrome(entrapment of Tibial nerve), Charcot arthropathy
Degenerative	O/A (used mostly in mid range -rarely symptomatic unless very reduced ROM→ fixation,)
Infection	Septic arthritis, Osteomyelitis (distal Tib metaphysis), cellulitis, TB (joint, tendon sheaths)
Congenital	Club foot,
Autoimmune	
Trauma	#, Pott's # , Lig sprains/rupture, tendonitis (chronic/acute,rupture),Ostochondritis dissecans
Endocrine	
Rheumatologic	Gout, RA (often produce valgus hindfoot→tarsal tunnel syndrome)

Common Problems	
Sprained Ankle	<ul style="list-style-type: none"> • Inversion injury. Most common Ant Talo/Fib lig (65%), then in combination with Calc/Fib lig.(20%) Post Talo/Fib lig vary rarely damaged compared to the others. Capsular damage→effusion, hematoma, pain. Test: Ant drawer test for ATFL • First degree – Few lig fibres damage. Pain on inversion/eversion + TTP.1/52 to heal. • Second – Lig damage+swelling all around area, painful to walk. 2-3 weeks to heal • Third – complete rupture of lig+possible dislocation. Pain, walk impossible. 4-8 weeks TTT: Strap, tape, proprieceptive exx. But problems can remain for 8-10/12 • Eversion injury. Tear of Deltoid lig (<3%) often partial ant part. 3-4 weeks. • Can lead to Osteochondral lesion to Talus, post-traumatic synovitis,meniscoid lesion
High ankle sprain Injury to Syndesmosis	<ul style="list-style-type: none"> • Lig damage to 'Ankle syndesmosis' : Excessive dorsi flexion+tibial ext rot. Usually not much swelling (like collateral sprain). Rupture→periosteal damage→ hematoma→ possible calcification of syndesmosis – synostosis. • First degree: Only few ruptured fibres in Interosseous membrane. 1-2/12 recovery • Second degree: extensive damage to membrane+some widening of Tib/Fib joint. 1-2/12 to recover using crutches to protect ancle • Third degree: Complete rupture of Interosseous ligament+ gross widening of Tib/Fib joint→ diastasis (widening of mortice) and possible joint dislocation. Risk of Potts #
Rupture of Inf tibiofib lig	<ul style="list-style-type: none"> • Can lead to diastasis of ankle (widening of mortice)→talus not held tight and are able to rotate about its long axis – tilting. (Increased if deltoid lig is ruptured too)→Pott's #
Pott's Fractures	<ul style="list-style-type: none"> • Malleolar #, single, bi-malleolar, tri-malleolar (post Tib), Trauma/twisting ('stuck in rabbit hole'). Single malleolar # can be possible be treated non surgically with immobilization. Complication: # malunion/non union→ possibly no pain but reduced function.
Oseochondral lesion	<ul style="list-style-type: none"> • Often lat Talus in sprains. . Most commonly anterolateral and posteromedial Compression→detached fragment→loose bodies→inflam within capsule causing intermittent pain swelling, clicking, Locking. Less ankle mvt, swelling
# of Talus Snowboarder's #	<ul style="list-style-type: none"> • # of lat process of Talus. 1% of ankle injuries, 15 times more often in snowboarders. • Forceful pronation in full dorsiflexion. Compression talus/fibula→#. Swelling, bruising (severe sprain misdiagnosed), persistent pain over weeks, loose bodies→further damage, degeneration. Talus' bad blood supply limits healing.
Osteophyte	<ul style="list-style-type: none"> • Hyperflex/ext→traction in attachment of capsule Talus/Tib or minor# from impact.
Os trigonum syndrome	<ul style="list-style-type: none"> • Spurs on post Talus. Inflammation, impingement, locking. From excessive plantar flex. 5% (20% in football players). Rest, Ice, NSAID, brace to reduce plantarflexion,

	Surgery.
Tendonitis, Tendon rupture	<ul style="list-style-type: none"> • Tib Post. Pain at Flexor retinaculum crepitus, tender naviculum. From over pronation, inverted calcanium, Over use (runners), Direct impact(football). Inflamed TP tendon/shieth/ Navicular periosteum. Reduced medial arch support→ Aquired pes planus. TTT: PRICE, NSAID, less running, shock absorbing insoles, Orthotics Other: <u>Post-Achilles</u> <u>Lateral:</u> FL/FB <u>Medial:</u> TP, FHL, FDL <u>Ant:</u> TA, EHL, EDL, FT
Meniscoid lesion	<ul style="list-style-type: none"> • Entrapped mass of hyalinised tissue between Talus/Fib after sprain. Lock. Ant pain
Ant Fat pad	<ul style="list-style-type: none"> • Fat pad around Ant Tib. Agg by constantly kicking ball or getting foot stuck in grate
Sinus Tarsi tunnel syndrome	<ul style="list-style-type: none"> • Compression of Med/Lat plantar N(Tibial N) in tarsal tunnel. Tarsal tunnel TTP, local pain, referred pain along medial sole. Cause: Pronation (→stretch flexor tendon→swelling), Pes planus, Trauma, cyst, RA (swelling). • TTT: Arch support, medial heel wedge, ice, NSAID, steroid inject (temp relief), surgery
Club foot	<ul style="list-style-type: none"> • Talipes. Developemental deformity mostly effecting Talus→dorsiflex+inversion

THE FOOT



Anatomy

Function:	<ul style="list-style-type: none"> Ankle=sagittal mvt Subtalar joint=side to side adjustment midtarsal joints=putting spring into propulsive phase of gait allowing forefoot to adjust to hindfoot enabling ant footplate full contact with surface
Inversion/eversion	<ul style="list-style-type: none"> Forefoot rotation along longitudinal axis primarily from Subtalar and Mid talar joints together Inversion=Adduction at subtalar and supination of forefoot at midtarsal joint Eversion= Opposite. Plantar flexion at ankle increases inversion and eversion
Add/Abduction	<ul style="list-style-type: none"> only available if knee is bend (tibial rot) (35-45°), knee is straight (hip/Fem rot) or combined: Tib/Fem rot (90°) (Dancer's "turn out" (allow easy side propulsion)should be most hip rot to spare knees/feet)
Pronation	<ul style="list-style-type: none"> (25-30°)=dorsiflex+eversion+abduction
Supination	<ul style="list-style-type: none"> (50°)=plantarflex+inversion+adduction
Blood supply	<ul style="list-style-type: none"> Ant Tibial A→Dorsalis pedis+lat tarsal A Post Tib A→medial+plantar AA→Plantar arch
Venous drain	<ul style="list-style-type: none"> Superficial=Dorsal V arch→ 1: Med marginal V→Great Saphenous V→Fem V or Dorsal V arch→Lat marginal V→small/short Saphenous V→Popliteal V→Fem V Deep= Vena Comitantes following arteries
Cutaneous Nerve supply (L4-S1)	<ul style="list-style-type: none"> Saphenous (Fem N) → medial dorsum Superficial Fib N → mid dorsum Sural (Tib+Com Fib NN)→lateral dorsum Deep Fib N →web between 1-2 digit Med plantar N (Tib N)→ ant plantar asp Lat plantar N (Tib N)→ lat post asp Med calcaneal N (Tb N)→med post asp / heal
Plantar aponeurosis	<p>Thickest fascia in body. 80 layers. Longitudinal fibres post→ant 5 slips. Transverse ant fibres joins slips. Ant- fibro osseous tunnel for tendons, Mid- M attachment. Support arches</p>
ARCHES	
Medial longitudinal	<ul style="list-style-type: none"> Greater curve, elastic, absorbing. Ligamentus support important. Mostly Plantar aponeurosis. Then Spring lig (if stretched→arch falls), finally interosseous ligaments. Muscular support of the pillar of arch:FHL (largest, most efficient. Especially in toe-off+landing.), AbH and medial part of FDB. TA and TP assist by inversion+adduction→

<p>Lateral longitudinal</p> <p>Transverse arches</p>	<p>raise medial boarder. FL may accentuat medial arch as it pulls it to ground in evertion.</p> <ul style="list-style-type: none"> • More rigid, flatter, contact with ground, firm base. Depend even more on ligamentus support: Lat part of plantar aponeurosis, short plantar lig (thick), long plantar lig (thin). Muscular support: FL (most important-pulls arch and provide elastic support for Calcaneus as runnig under fibular tubercle.). FB+FT, FDL to 4th 5th toe, AbDM. • In proximal arch bony factors play small part, depend more on muscular and lig support (Cun/Met lig). Most important is FL as it pulls medial + lateral borders of foot together. • In ant shallow arch, TV fibres of plantar aponeurosis and TV head of AdH help support
<p>INTERTALSAL JOINTS - . All have interosseous, dorsal (strong) and plantar weaker) lig</p>	
<p>Subtalar joint</p> <p>Ligaments</p> <p>Accesory lig <i>Sinus Tarsi</i></p>	<ul style="list-style-type: none"> • Anatomically:Talus(concave)/Calcaneous(convex). Synovial plane(cylindrical). <u>Axis</u>-ant/lat/sup→ post/med/inf. <u>Inversion/eversion</u>. Surgeons also add:Tal part of Tal/Cal/Nav J • Talus- No M attatch, only Lig. 70% is articular surface+synovium (site for RA)→poor blood supply→poor healing, risk for necrosis if damaged. • Interosseous within Sinus tarsi, strongest, fulcrum-Mid axis of leg!; Med/Lat/Post talo-cal and Lig Cervisi (strong) at lateral opening of Sinus Tarsi. • Calcaneofib and talocalcaneal part of Deltoid lig provide additional support • Tunnel ant of subtalar joint. Depression ant to lat malleolar under flexor retinaculum .. Run obliquely ant/lat open onto dorsum of foot. Contain: Anastemoses forming <u>vascular sling</u> under neck of talus and <u>Post Tib N</u> running outside bony part of tunnel under flexor retinaculum (later branching off to Cal N, Med+Lat plantar NN.)
<p>Talo/Cal/Nav J Ligaments</p>	<ul style="list-style-type: none"> • Modified ball (Talus)and socket (Cal, Sustentaculum tali, Spring lig). Inversion/eversion • Plant Cal-Nav (Sring) lig underneath. Strong, thick, fibroelastic, blends medially with Deltoid lig. Figrocartilagionou plate on upper surface for art with head of Talus. Bifurcate lig (Cal-Nav part) to lateral side of socket. Dorsal Tal-Nav lig above. <u>Tibialis posterior</u> runs underneath and support. <u>Fat Pad</u> in mid joint spread synovium
<p>Cal/Cuboid Ligaments</p>	<ul style="list-style-type: none"> • Plane, <u>MVT</u>: Pronation/Supernation. Transmit body weight to lat arches. • Dorsal Cal-Cuboid lig (thin broad), Bifurcate lig (Cal-cub part) dorso medial asp, in Cal hollow under ext retinaculum, one of main connection between 1st and 2nd row of tarsals. <u>Plantar asp:2 lig divided by areolar tissue</u>: Plantar Cal-Cuboid lig (aka Short plantar lig, deeper, strong). Long plantar lig (Cal tubercles→Cuboid (Roof over FL tendon), superficial fibers continue to bases of 4 lat metatarsals. Fib longus reinforce lig.(also for Cub-Cun joint)
<p>TRANSVERSE (MID) TARSAL JOINT</p>	<p>Combined above Tal-Cal-Nav joint and Cal-Cub joint as a functional unit. Irregular transverse joint line with Tal+Cal behind and Nav+Cub in front. Mvt at this joint always combine with mvt at Subtalar joint and vice versa giving most in/eversion in the foot.</p>
<p>Tarso-metatarsal joint</p> <p>Movement</p> <p>Ligaments</p>	<p>Cuboid+3 cuneiforms//5 metatarsals. 1st Met→Med Cun, most mobile to adapt to surface; 2nd Met in a mortise by all 3 Cun - midline of foot, least mobile, prone to stress #; 3rd Met→ Lat Cun;4th Met→mainly Cuboid and some Lat Cuneiform;5th Met→Cuboid only</p> <p>Oblique, irregular joint line makes flex/ext contribute to inv/eversion. Plantar flexion: Met adduct to midline, 2nd Met, (1st Met also rot) and increasing the transverse arch (for toe off). Short slips of weak Dorsal lig, stronger Plantar lig (especially 1st+2nd Met) the rest are reinforced by the Long plantar lig.. 2 strong interosseous lig between 2/3 and 4/5 Met.tarsal. No joint between 1st-2nd Met base but 2nd-5th. Interosseous lig help holding transverse arch</p>
<p>Intermetatarsals</p> <p>MET/PHAL J Movement Lignaments</p> <p>1st MPJ</p>	<p>Condyloid. The convex art surfaces of Met is longer on dorsum to facilitate plantarflexion. Dorsiflexion (+toes spread)→Extensors+Lumbricals); Plantarflexion (+toes together)→Flexors+Lumbricals+Dorsal interosseous. Adduction→Plantar Interossei+AddH; Abduction→Dorsal Interossei+AbH+AbDM Collateral lig (oblique/forward to help restrict dorsi flexion) attach to Plantar lig (dense fibrocarilaginous plate forming part of art surface). Deep transverse metatarsal lig interconnect Plantar lig and blend with lumbricals on plantar asp and interosseous tendon on dorsal asp). Long Extensor/Flexor tendons support 2nd-5th MPJ on dorsal/plantar asp. No extensor expansion nor flexor sheath, instead deep fascia support. If that fail and MPJ moves laterally,EHL+EHB becomes oblique increasing Hallux valgus+displaced sesamoids. In Rheumatoid Arthritis MPJ tend to be held dorsiflexed due to muscle imbalance</p>
<p>Interphalangeal Movements Ligaments</p>	<ul style="list-style-type: none"> • Hinge joints. Pulley shaped. Double convex heads (proximal end), double concave base. Flexion (FDL @ DIP]+FDB @ PIP) Dorsiflexion (ED + Lumbricals, Interossei) • Collateral lig (strong, down/forward) Plantar lig (fibrocartelage pad, partly art surface)
<p> </p>	

Vindicator	
Vascular	Ischaemia (intermittent claudication), Ulcers
Inflammatory	RA, Plantar fasciitis, Reiter's D, Osteochondritis (Navicular / Metatarsal head), bunion
Neurological	L4-S1 lesion/disc; Tarsal tunnel syndrome, Pes cavus, Acquired talipes (club foot), Metatarsalgia. Morton's metatarsalgia (digital neuroma), Periferal neuropathy, Ulcers
Degenerative	O/A, Pes planus, Hallus rigidus (1° OA 1 st MTP),
Infection	Osteomyelitis(post infection, diabetes), Cellulitis (wound), Pyogenic arthritis(rare), warts, Verruca, Fungal infection, Tinea pedis - Athlete's foot
Congenital	Club foot,
Autoimmune	
Trauma	#, March/Stress # (often 2 nd Met),
Endocrine	
Rheumatologic	Gout (often 1 st MTP), RA (often produce valgus hindfoot→tarsal tunnel syndrome)
Common Problems	
Pes Planus	<ul style="list-style-type: none"> • Partial/total collapse of arch. Toedrift/splaying, Calcaneal eversion, short Achilles tendon (lifting heel of the ground earlier in gait), Bunions, Hammertoes • 1st degree. Flexible, Arch is flat on weight bearing but returns by itself when off ground. Commonest childhood/adolescence progressive→stretch tendon, soft tissue→inflammation, tears. General weakness/fatigue in foot/leg, shin splints, pain in heel/arch/lat foot. TTT: Avoid prolong walking/standing, Weight loss, soft adjunct/orthotics, NSAIDs • 2nd degree. Arch can be molded into shape when off weight bearing. TTT: semi rigid support/adjunct for poss 6/12, swap to soft when pt have moved towards a grade 1. • 3rd degree. Arch can not be molded. Structural changes. TTT: Prevent further problems, control hind foot, pads for calluses etc. Rigid support can damage arch. • Adult-acquired flatfoot. PTTD. Post Tib tendon dysfunction (tendonitis). Most common type developed in adulthood. Mostly unilateral, usually progressive. Symptoms: Medial pain along tendon/insertion, navicular tuberosity/Cuneiform, inflammation, flattened arch, Calcaneal eversion, in late stage pain shift to lat side with tendon deteriorated, OA in foot or even ankle. Cause: Overuse, hiking, running... • Pediatric. Asymptomatic or Symptomatic (congenital tarsal coalition, vertical talus)
Flat Ant TV arch	<ul style="list-style-type: none"> • Toes spread out. Pain on load, calluses under ball, possible hallux valgus, bunion, hammertoes,
Pes Cavus	<ul style="list-style-type: none"> • Aka Claw foot. High arch, less common. Rigidity of foot, decreased mobility of Subtalar joint and int rot of tibia in gait. After heel strike foot remain everted, arches high and mid tarsal joint does not unlock. Inflexible foot absorb full force of impact→ stress #, plantar fasciitis, achilles tendonitis. Footwear cause problem on dorsal asp. Cause: Idiopathic, Neurological (Charcot-Marie-Tooth, Spina bifida/occulta, Ortopedic, Neuromuscular (poliomyelitis).
Heel fat pad hypotrophy	<ul style="list-style-type: none"> • Hypotrophy of fat pad (>40 yoa)→less shock absorbence/pain→possible bursitis. TTT: smaller running steps(reduce impact), better shoes, heel cushions, arch support.
Plantar Fasciitis	<ul style="list-style-type: none"> • Taut aponeurosis→rupture by insertions (+FDB). Proximal (+spur at FDB insertion) or distal (more in sprinters running on toes). Cause unclear. Trauma (fast turn). Predisposed by pronated feet, over use, unsupported shoes (no clear link with Pes planus/cavus), obesity. Symptoms: insidious onset, pain at initial activity (disappear with activity) and post activity, morning stiffness, stand on toes/walk on heels, tight Achilles, occasionally numb lat sole. If chronic- over 6/12 to heal (or up to 4 years!) TTT: Often self limiting, Ice, contrast bathing, crutches, static fascial stretch (incl Achilles), orthotics, ics, heel cup, change shoes (too hard/soft?), NSAIDs, Cortisone
Extensor peritenonitis	<ul style="list-style-type: none"> • Inflammation of tendon sheath. Dorsal pain over tendon (if acute:+crepitus) Cause: Ill-fitted/tight shoes, running in hills/sand. TTT: Rest, NSAIDs, alter shoes
Spurs "Pump-Bump"	<ul style="list-style-type: none"> • Bony prominences/exostoses or loose extra bones. From pressure on dorsum or M pull (Achilles, FDB). A bursa is sometimes formed over and can become inflamed. Bony post Calcaneal enlargement→bursitis from wearing rigid backed pumps
Midtarsal sprains	<ul style="list-style-type: none"> • Nondisplaced lig injury (TTT: immobilize, rest), subluxations, dislocation(requires surgery-internal fixation):.
Stress/March fractures	<ul style="list-style-type: none"> • Most common 2nd Met (least mv). Also 3rd-5th + Cal or Nav (In runners/jumpers): Diffuse pain on weightbearing, limited flex/ext. Consider: Overuse, obesity, poor M contr, amenorrhoea, osteoporosis. TTT: No weight bearing (3/52)→mild activity(2/52)

Metatarsal # Simple Avulsion Stress	<ul style="list-style-type: none"> • Transverse # common to 2nd-4th Met. Direct blow. Pain on weightbearing, local TTP. TTT: Mostly nonoperative, rigid boot/cast →3/12 to recover • Jones' # - transverse # of base of 5th Met by forefoot adduction and plantar flexion • Avulsion # of 5th Met. Forceful contraction of FB in response to sudden inversion • Most commonly 2nd Met that has least mvmt. Also 3rd-5th Met. TTT: see above 6-8/52
Fib Brevis tendonitis	<ul style="list-style-type: none"> • Inflamed/partial tear at 5th Met (often footballers). Sometimes inflamed tendon sheath→crepitus. TTT: NSAIDs
Hallux valgus	<ul style="list-style-type: none"> • Lat displacement of 1st Met >10°. →exostosis (bony growth), bunion(bursitis) and callus under 2nd Met. Sesamoids displace→M pull PIP further medially pressing on 2nd +3rd Met affecting fore foot more. Cause: depressed Ant TV arch, contractures o M of big toe, itt-fitting shoes. TTT: Arch support, wear wider shoes, Surgery: remove bursa (4-6/52), – osteotomy, wedge cut out (3-4/12)
Hammer toes	<ul style="list-style-type: none"> • Subluxed+flexed PIP Mostly 2nd-4th toe.Often with corns/calluses + poss Morton;s metatarsalgia. Both from poorly fitted shoes (short + narrow,
Mallet toe	<ul style="list-style-type: none"> • Subluxed+flexed DIP high heels). RA, Stroke, weak ant TV arch, Charcot-Marie-Tooth (Fib N→foot drop), Peripheral Neuropathy, Diabetes.
Hallux rigidus	<ul style="list-style-type: none"> • Restricted dorsiflexion→compensatory inversion. Repeat injuries, OA, dorsal spurs
Surfers toe	<ul style="list-style-type: none"> • Over dorsiflex→Strain of Plant 1st Met/Phal lig. Pain on flex/ext. TTT: RICE 2-4 days
Fracture to sesamoids	<ul style="list-style-type: none"> • FHB. 1st MPJ mostly from direct impact or excessive dorsiflexion. (take off/landing) possibly + inflam of tendon sheath. Prone: High arches TTT:Boot/cast few weeks.
Nerve entrapment	<ul style="list-style-type: none"> • Tarsal tunnel syndrome Compression of Med/Lat plantar N(Tibial N) in tarsal tunnel. Opening TTP, local pain, referred pain along medial sole. Cause: Pronation (→stretch flexor tendon→swelling), Pes planus, Trauma, cyst, RA (swelling). TTT: Arch support,medial heel wedge, ice,NSAID, steroid inject (temp relief),surgery • Baxter's nerve. Entrapment of 1st Lateral plantar N branch (not Med Cal N branches) (20% of chronic heel pain). Cause: Infl and spur at FDB calcaneal insertion→N compression along plantar fascia. Symptoms: Tenderness at proximal plantar fascia insertion +plantar heel numbness. End of day, prolonged activity, plantar fasciitis, sprinters (running on toes) • Jogger's foot. Entrapment of Medial plantar N at "Knot of Henry" under AdHB. Cause: Hyperpronation, abducted fore foot, Cal eversion (valgus). Running uphill or in curves, prev ankle injury Symptoms: Med pain radiate→distal toes, ankle TTT: Medial longitudinal arch support, heel lift, surgery
Metatarsalgia	<ul style="list-style-type: none"> • Cramping/burning. Cause: Strain, Morton's, Stress #, Hammer toe, Sesamoiditis etc • Inter metatarsal lig inflammation or bursitis (3rd/4th met)→Neuroma like symptoms
Morton's Neuroma	<ul style="list-style-type: none"> • Aka M's metatarslgia/Neuralgia, Plantar/ Intermetatarsal neuroma. Benign neuroma/thickening of the interdigital plantar nerve.Often 3rd/4th Met, then 2/3.1/2 + 4/5 is rare. • Symptoms: pain on weight bearing after short time, shooting pain along the two halves of Mets. Numbness +pain. No direct signs of inflammation or limit mvmt. • Test: Direct pressure between Met heads or compress TV arch→symptoms. MRI • Cause: Moving Met heads in toe off can cause irritation and local swelling/thickening of nerves increasing risk of compression + Ill-fitting shoes depressing Ant TV arch. • TTT: Rest, wide shoes, avoid pushing-off activity, NSAIDs, orthotics, Cortisone, surgery (effective but cause permanent loss of sensation in that area)
Charcot foot	<ul style="list-style-type: none"> • Neuropathic joint disease. Often in Diabetics after sudden trauma, repetitive strain: Weak M, reduced proprioception+ sensation→further osteochondral damage, deformity, ulceration. Symptoms: inflammation, mimic cellulites/gout. TTT: immobilisation
Foot drop	<ul style="list-style-type: none"> • Aka steppage gait or equinovarus deformity. Weak dorsiflexors. TA, EHL, EDL. Signs: Slapping foot on ground after heel strike. Difficult to clear foot in swing faze→adapting by exaggerated swing/lift hip. Males 3:1. Mid-age athletics, Cause: Nerve damage from knee surgery, Motor neuron disease (ALS (amyotrophic lateral sclerosis), post-polio syndrome), Charcot-Marie-Tooth, NR, UMND, LMN
Dermatologic al	<ul style="list-style-type: none"> • Ingrowing nails(onychocryptosis), Black nails (bruised nails) • Verrucas, (Plantar warts). Human papiloma viral infection→Benign skin growth. • Bunions (swelling, inflamed bursae over 1st MP joint), • Corns Skin ove rgrowth. Hard-top of toes, Soft-between toes, Seed corn-on heel(ball) • Callus Hardened skin from friction-white centre. Hereditary calluses from no friction • Fungus <u>Tinea pedis</u>/Athlete's foot/foot ringworm. Between toes. (+bact infection). <u>Tinea Unguim</u> - Thickened nals/nail loss. More prone: Diabetes, obesity, contraceptives, corticosteroids, antibiotics,AIDS,
Gout	<ul style="list-style-type: none"> • Metabolic arthritis, congenital disorder of uric acid metabolism. Monosodium urate or uric acid crystals→synovium→deposited on articular cartilage, tendons, tissues→

	inflammation. 75% in Hallux. Pain from crystal and surrounding inflammation, fever
OSTEO TTT	
Descending influence on foot	<ul style="list-style-type: none"> • Tibia→Fibular→Ankle→Hindfoot→Midfoot→Forefoot→1st ray→Big toe <p>In Treatment, work through same process:</p> <ul style="list-style-type: none"> • <u>Tib/Fib</u> Fibular movements-important tense interosseous and pretense M fascia. Long muscles supporting ankle -nutrition, drainage, space within fascial comp) • <u>Hind-foot</u> Talus/Calcaneus, particularly valgus/varum of Calcaneus • <u>Mid-foot</u> Arch, M support system, lig/bony integrity. Using adjunct/wedge/support • <u>Forefoot</u>→1st ray (big toe). TV head of AddHB important for Ant TV arch. EXX <u>both</u> TV+Oblique head by Add/Abd of big toe with AbdH as antagonist <p>Consider</p> <ul style="list-style-type: none"> • Venous compartments, possible compartment syndromes, • Voluntary Nerve supply (L5-S1), ANS supply to blood vessels (T11-L1) <p>Failure of various supporting structures→ “Cascade of Failure”. Treat accordingly: Start with Muscles → if needed, then Ligaments→treat Articular support (degeneration)</p>
Arches	