

PHTY1024

HISTORY TAKING

Current history	Past History	Social History	Special Questions
<ul style="list-style-type: none"> Area of symptoms Behaviour of symptoms over 24hour period Ease/aggs (what eases the pain, what aggravates it) Irritability of symptoms (pain level) → Time: how easily & quickly can increase pain → Severity → Time: how long after stopping activity til pain stops Treatments received Analysis of pain 	<ul style="list-style-type: none"> Pain and sickness in the past 10 years Family history of conditions 	<ul style="list-style-type: none"> Participation: what they need to get back into Living conditions: who with, what their living environment is like Work, hobbies, exercise patterns 	<ul style="list-style-type: none"> To determine contraindications, precautions to treatments Current medications (brand name, strength, dosage) Weight loss Steroids Anticoagulants Past history

- History-taking is conducted with the purpose of constructing a management plan and implementing treatment
 - Identification of main presenting problems
 - Selection of treatment modalities to address problems
 - Selecting treatment options based on EBP (not just addressing symptoms)

SYNOVIAL JOINTS

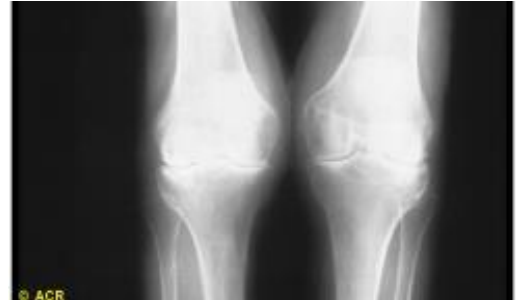
- The synovial capsule surrounds the joint and helps stabilise it. The synovial membrane is a thin and smooth structure that lines the capsule, reducing friction and secreting synovial fluid.
- The synovial fluid is thick and sticky, acting as a lubricant for the joint.
- Articular cartilage provides a smooth surface to reduce friction, as the bones move across each other.
- Articular discs are cartilaginous discs that act as shock absorbers.
- Bursae are fluid filled sacs which also act as shock absorbers.
- Accessory ligaments join the bones and keep them together.

OSTEOARTHRITIS

- A form of arthritis caused by inflammation, breakdown and the eventual loss of cartilage in the joints.
- Cartilage allows joints to move smoothly, so when it breaks down, the bones rub together, causing friction which in turn causes inflammation, pain and stiffness. Occurs when rate of damage >rate of repair.
- There are 2 types of knee OA:
 - Idiopathic (primary): OA appears to arise spontaneously
 - Secondary: attributed to some underlying disease or injury
- It has high rates of epidemiology, being the number 1 health problem amongst older Australians.
- Number 3 cause of disability burden amongst Australian women.
- By the age of 65, 1/3 of females and 1/5 of males will suffer from OA.
- OA is strongly related to, but not caused by ageing.
- It results in changes in joint shape secondary to:
 - ✗ Vertical clefts (joint space narrows)
 - ✗ Loss of articular cartilage
 - ✗ Osteophyte formation (bony projections forming along joint margins)



- ✗ Subchondral sclerosis (increased bone density and mass, producing a thin layer of bone beneath cartilage in the joints. Causes joint pain and numbness).
- ✗ Subchondral cysts: fluid-filled sacs extending from bone underlying the joint space
- ✗ Synovial proliferation: swelling, large effusion
- Note: subchondral bone is the layer of bone just below the cartilage. When someone has OA, there is increased blood flow and other changes that develop in the subchondral layer → increased pressure, causes pain.
- These all encompass alteration of MECHANICAL properties (as oppose to RA), and loss of stability, movement and loading.
- Ground reaction forces pass medial to the knee joint. Around 70% of the knee joint loading passes through the medial compartment. Knee OA is attributed to medial degeneration, so on radiographic images, just the medial side is reduced, causing the bones to crush together.
- In knee RA both sides degenerate and thus are both crushed together.
- There are certain biomechanical properties that increase the risk of OA, such as varus alignment, whereby a 5° varus (patients with flat feet) increases medial loading by 90%.
- OA in the hands is characterised by Heberden's (DIPs)- when closest to the fingernail and Bouchard's nodes (PIPs).



Systemic risk factors	Biomechanical Risk Factors
<ul style="list-style-type: none"> ▪ Old age ▪ Female: more women than men develop it ▪ Genetics: tends to run in the family ▪ Metabolic/endocrine factors: initiate failing chondrocyte responses 	<ul style="list-style-type: none"> ▪ Adverse biomechanical environment (eg. varus knee, flat feet), intra or extra-articular malalignment (cause abnormal stress) ▪ High levels of physical activity ▪ Occupational and sports-related repetitive use: torn cartilage, dislocated joints, ligament injuries ▪ Obesity: excess pressure on joints, excess fat tissue produces inflammatory chemicals (cytokines) that damage the joint ▪ Muscular imbalances or weakness: leads to altered movement and cartilage breakdown in joints ▪ Neuromuscular insufficiency: make cartilage more vulnerable to daily injuries, and less capable of repair

- Abnormal cartilage may be caused by: vulnerable cartilage, metabolic disorders or weak subchondral bone.
- Symptoms of OA:
 - Joint pain (intermittent- chronic)
 - Stiffness after rest, 'start pain'
 - Morning stiffness <30minutes
 - Bony enlargement
 - Occasional effusion, local inflammation
 - Crepitus and/or 'creaking'
 - Loss of muscle strength
 - Limitation of joint movement/ROM
 - Increasing activity limitations and hence more sedentary lifestyle/loss of fitness
 - Increased risk various co-morbidity
- Management
 - Strengthening and aerobic exercise, water-based activities associated with relief of pain in knee OA
 - Weight reduction
 - Acupuncture for relief of pain
 - NSAIDs for pain relief, although possible gastrointestinal effects
 - Opioids for pain relief and improvement in physical function, although many frequent side effects like nausea, constipation, dizziness.

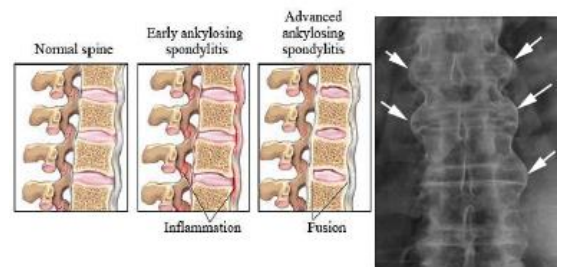
RHEUMATOID ARTHRITIS (RA)

- 438, 000 people in Australia suffered from RA in 2005. 70% of people suffering are female.

- Both the medial and lateral sides of the knee (in knee RA) degenerate, and are crushed together, distinguishing it from OA. Thus distinguishing factor is that RA is bilateral.
- OA and RA are also distinguished from each other as RA of the hands generally results in nodes (swelling) of the PIPs, whilst OA is generally more DIPs.
- RA in the hands can cause muscle atrophy, and thus ulnar deviation of the MCPs.
- Risk factors
 - ✖ Genetic susceptibility (and hormonal factors)
 - ✖ Gender (ratio 3:1 female:male)
 - ✖ Environmental trigger (smoking, viral infections)
- Symptoms
 - Morning stiffness >1 hour (>6 weeks)
 - Three or more affected joints
 - At least one area swollen in wrist/MCP/PIP (small joints are affected)
 - Symmetrical arthritis: same joints on both sides of the body are affected
 - Presence of rheumatoid nodules
 - Positive Rh Factor (antibody, 70-80%)
 - Bony erosions evident on hands, wrist or feet radiographs
 - Other organ systems may also be affected
 - 4 or more features for diagnosis ('red flag')
 - Approximately 90% sensitivity/specificity.
- May also experience fatigue, loss of appetite and low grade fever.
- Management
 - Strength training for muscle strength and endurance programs for CR fitness can improve physical fitness and function
 - Vagus Nerve Stimulation is a new innovation that releases signals that blocks inflammation. Identifies the close relationship between the nervous and immune systems.
 - There are different medications for RA, some to primarily ease symptoms (NSAIDs), others to slow or stop course of disease and inhibit structural damage (corticosteroids).
 - Surgery may never be needed, but is an option for people with permanent damage that limits daily function, mobility and independence.

❖ JUVENILE RHEUMATOID ARTHRITIS (JRA)

- 50-100 per 100,000 per year, with higher rates for girls>boys.
- Risk factor includes genetic susceptibility, although they only develop the disease after being exposed to an (unknown) environmental trigger (virus or bacterium).
- Age at onset <16 years
- Red flags:
 - ✖ Arthritis in 1 or more joints: articular swelling/effusion
 - ✖ Limitation of RM
 - ✖ Joint tenderness on palpation
 - ✖ Increased heat over joint
 - ✖ Duration of arthritis >6 weeks
 - ✖ Exclusion of other causes of arthritis
 - ✖ Pain on joint movement
- Vicious cycle that often they have reduced physical activity contributing to the arthritis, which then poses a further physical limitation, thus reinforcing an inactive lifestyle.
- So treatment should include exercise programs that break the cycle.



ANKYLOSING SPONDYLITIS (AS)

- A type of inflammatory arthritis that targets the joints of the spine. Over time, it can cause some of the vertebrae to fuse, making the spine less flexible and resulting in a hunched-over posture.
- Approximately 2% of the Australian population suffer from it, with higher rates males>females(3:1).
- Results in thoracic kyphosis (hunch back), loss of lumbar lordosis (loss of concavity, so more hunch) and flexion contractures in hips/knees.
- Risk factors include:
 - ✖ Gender: men>women

- ✗ Age: late adolescence, early adulthood
- ✗ Genetics: HLA-B27 gene
- Diagnostic criteria:
 - Lower back pain >3months that's not relieved by rest
 - Limitation lumbar spine ROM
 - Chest expansion decreased (age/sex norms)- if spine is affected, so are ribcages, so breathing is an issue.
 - Bilateral sacroiliitis grade 2-4 or unilateral sacroiliitis grade 3-4 (sacroiliitis is inflammation of the SIJ, where lower spine and pelvis connect).
- Management
 - Constantly work on chest expansion to reduce breathing complications
 - NSAIDs can be used to relieve inflammation, pain and stiffness.
 - ROM and stretching exercises help maintain flexibility in joints and preserve good posture.