

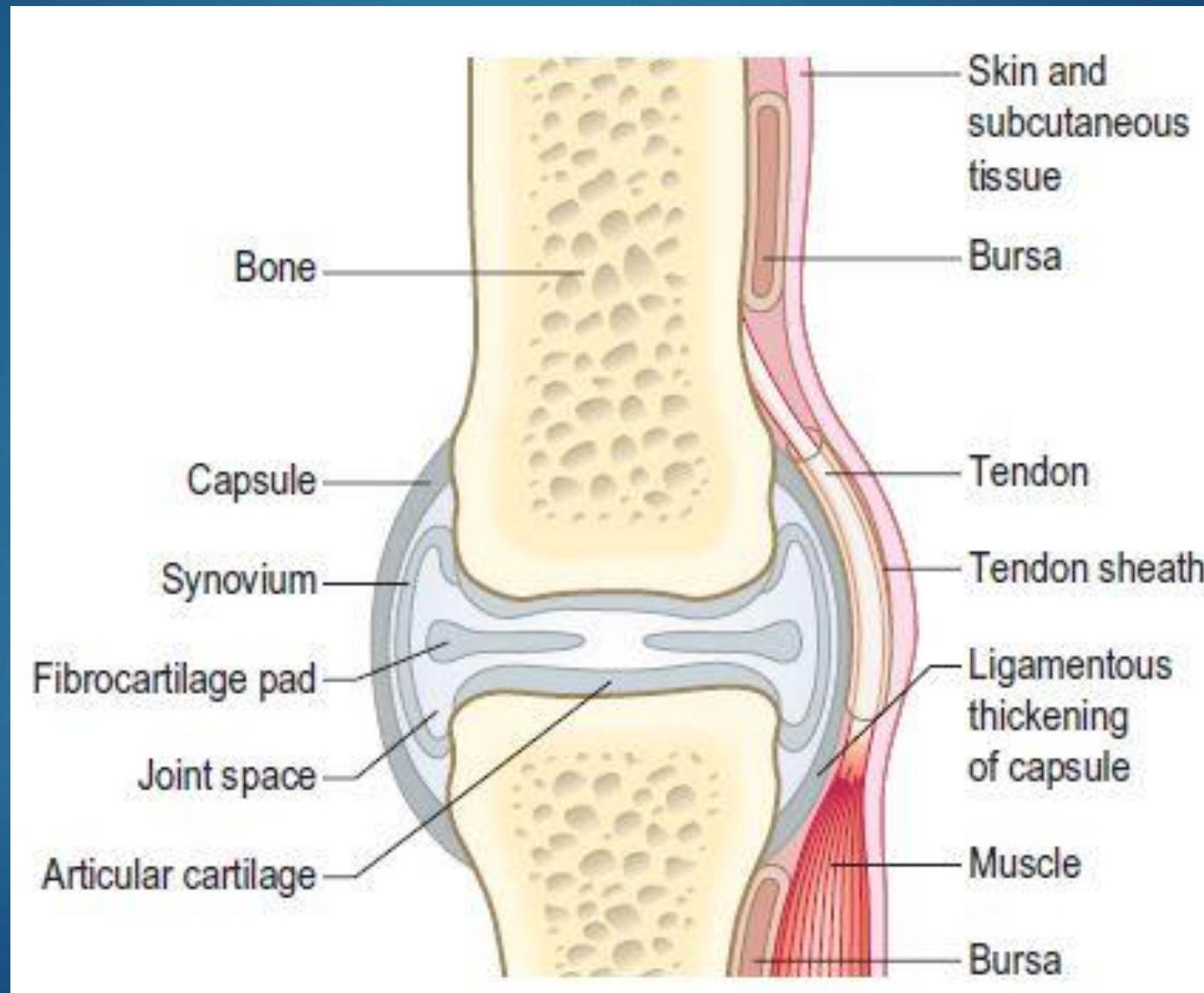
Musculoskeletal symptoms

BY

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Joint structure



Pain



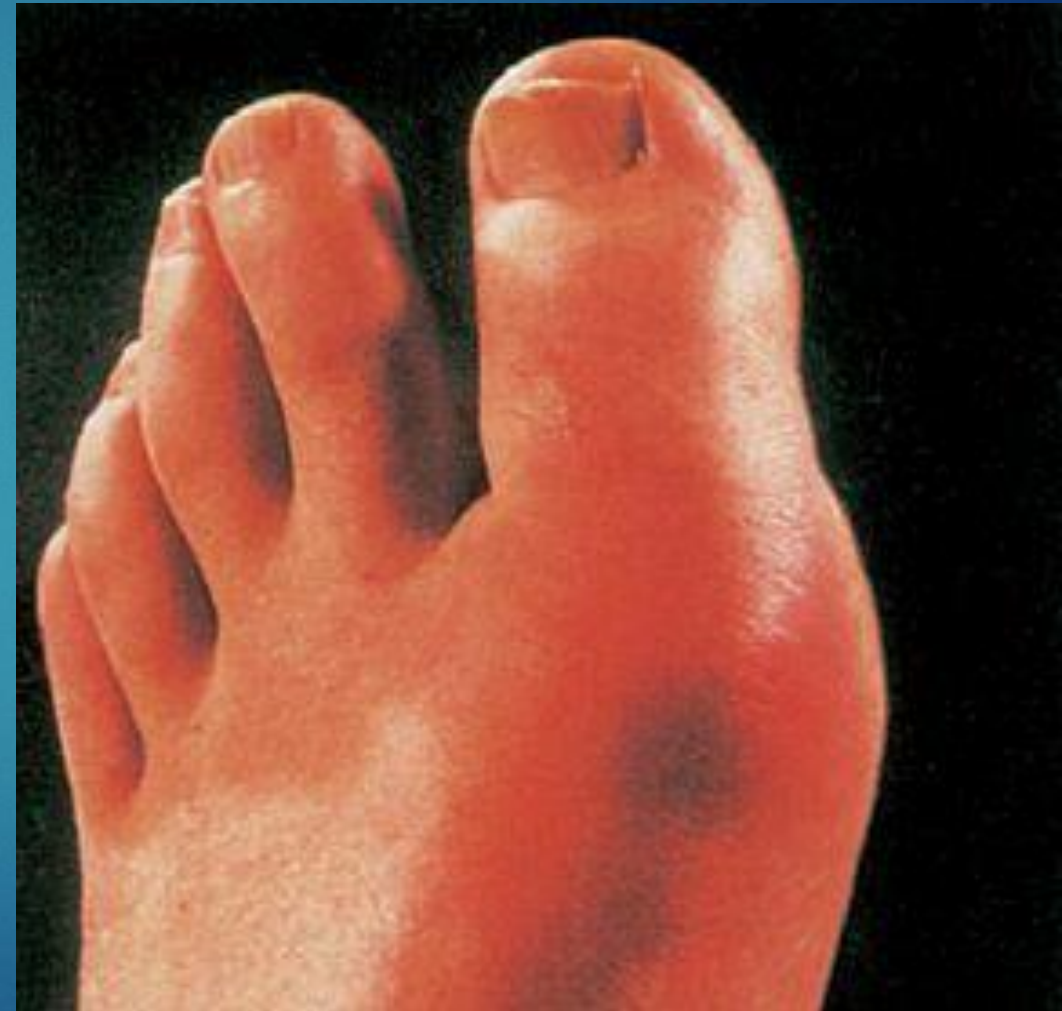
Site

- ▶ Determine whether the pain originates from a joint (arthralgia), muscle (myalgia) or other soft tissue.
- ▶ may be well localised and suggest the diagnosis, e.g. the first metatarsophalangeal joint in gout, or in several joints suggesting an inflammatory arthritis.

14.1 Common causes of arthralgia (joint pain)

Generalised

- Infective
 - Viral, e.g. rubella, parvovirus B19, mumps, hepatitis B, chikungunya
 - Bacterial, e.g. staphylococci, tuberculosis, Borrelia
 - Fungal
- Postinfective
 - Rheumatic fever, reactive arthritis
- Inflammatory
 - Rheumatoid arthritis, systemic lupus erythematosus (SLE), ankylosing spondylitis, systemic sclerosis
- Degenerative
 - Osteoarthritis
- Tumour
 - Primary, e.g. osteosarcoma, chondrosarcoma
 - Metastatic, e.g. from lung, breast, prostate
 - Systemic tumour effects, e.g. hypertrophic pulmonary osteoarthropathy
- Crystal formation
 - Gout, pseudogout
- Trauma, e.g. road traffic accidents
- Others
 - Chronic pain disorders, e.g. fibromyalgia
 - Benign joint hypermobility syndrome



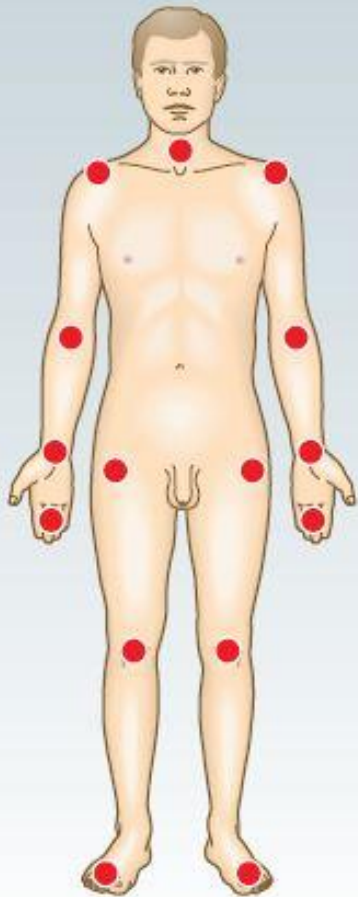
How many joints are involved?

- ▶ One joint is a monoarthritis;
- ▶ 2–4 joints, oligoarthritis;
- ▶ >4 is polyarthritis.

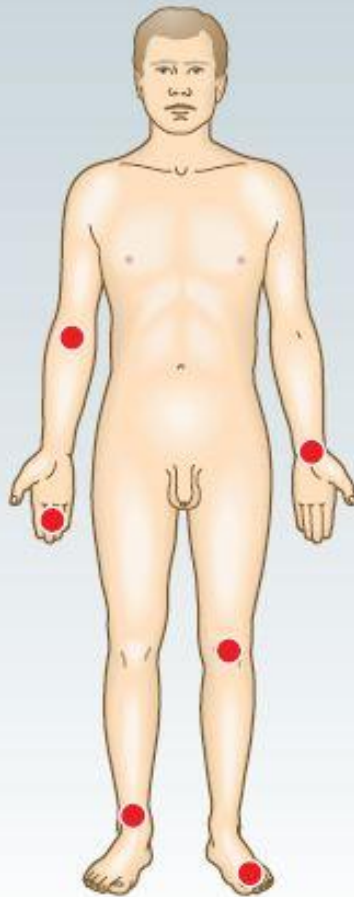
Monoarthritis (single joint involvement)	Infective	<i>Staphylococcus aureus</i> , <i>Staphylococcus epidermidis</i> , <i>Salmonella</i> , tuberculosis, <i>Neisseria gonorrhoeae</i> , <i>Escherichia coli</i> , <i>Haemophilus</i>
	Traumatic Bleeding diathesis Post-traumatic Degenerative Metabolic Inflammatory polyarthritis presenting as monoarthritis	Haemarthrosis Acute exacerbation of underlying state Osteoarthritis, Charcot joint Crystal arthropathies: gout, pseudogout Rheumatoid arthritis
Oligoarthritis (involvement of 2–4 joints)	Infective	Bacterial endocarditis, <i>Neisseria gonorrhoeae</i> , <i>Mycobacterium tuberculosis</i>
	Degenerative Inflammatory oligoarthritis Inflammatory polyarthritis presenting as oligoarthritis	Osteoarthritis Sarcoidosis, reactive arthritis, psoriatic arthritis, ankylosing spondylitis Rheumatoid arthritis
Polyarthritis (involvement of ≥ 5 joints)	Infective Post-infective Degenerative Metabolic Inflammatory Other	Bacterial: Lyme disease, subacute bacterial endocarditis Viral: rubella, mumps, glandular fever, chickenpox, hepatitis B and C, human immunodeficiency virus (HIV) Rheumatic fever Osteoarthritis: nodal with Heberden's/Bouchard's nodes Haemochromatosis, gout Rheumatoid arthritis, SLE, psoriatic arthritis Hypertrophic pulmonary osteoarthropathy

Are the small or large joints of the arms or legs affected?

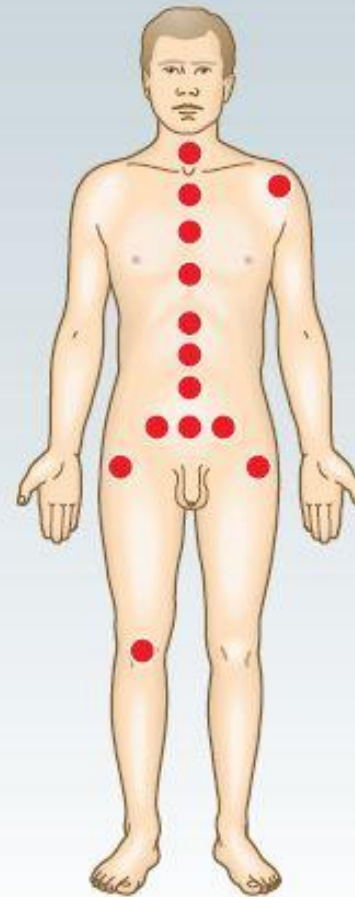
- Different patterns of joint involvement help the differential diagnosis.



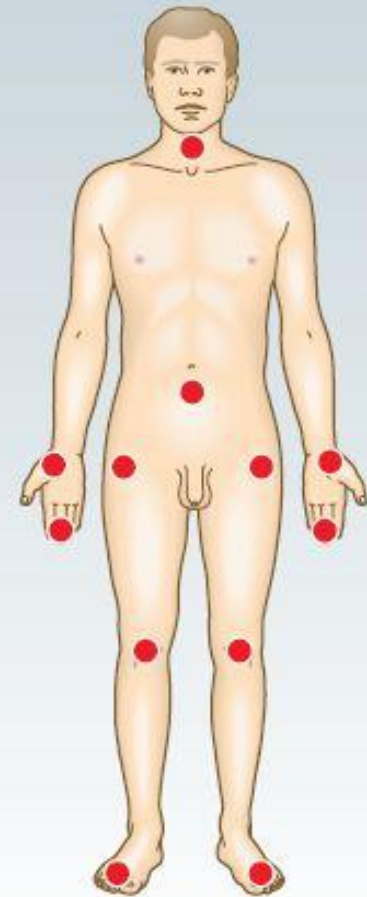
Rheumatoid arthritis



Psoriatic arthritis



Inflammatory spondylitis




Osteoarthritis

Onset

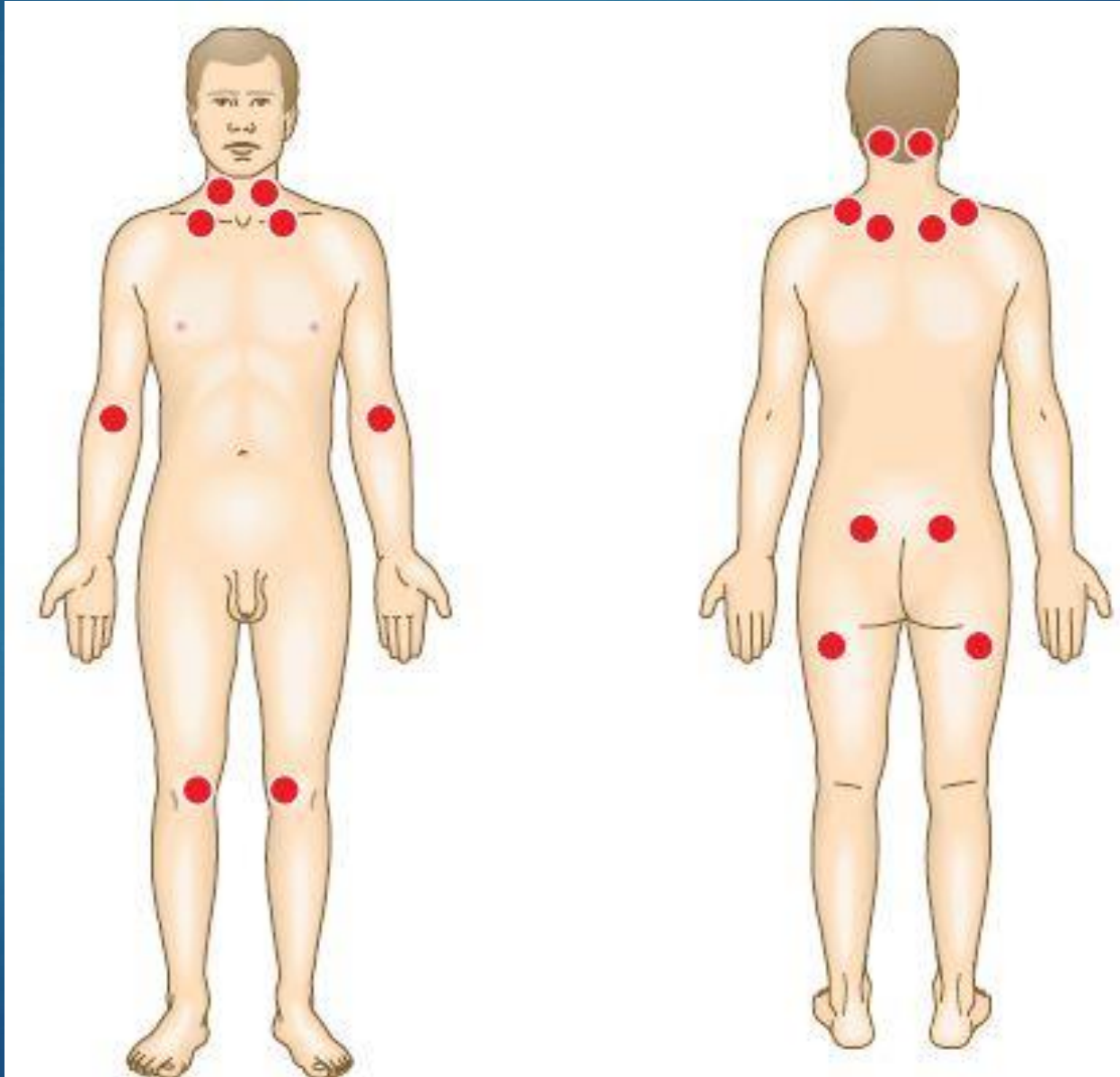
- ▶ Pain from **traumatic injury** is usually immediate and is exacerbated by movement or haemarthrosis (bleeding into the affected joint).
- ▶ Pain from **inflammatory arthritis** can develop over 24 hours, or more insidiously.
- ▶ **Crystal arthritis** (gout and pseudogout) causes acute, sometimes extreme pain which develops quickly, often overnight.
- ▶ **Joint sepsis** causes pain that develops over a day or two.

Character

- ▶ **Bone pain** is penetrating, deep or boring, and is characteristically worse at night. Localised pain suggests tumour, osteomyelitis (infection), osteonecrosis or osteoid osteoma (benign bone tumour). Generalised bony conditions, such as osteomalacia, usually cause diffuse pain.
- ▶ **Muscle pain** (Box 14.5) is often described as 'stiffness' and is poorly localised, deep and aggravated by use of the affected muscle(s). It is associated with muscle weakness in some conditions, e.g. polymyositis, but not in polymyalgia rheumatica. Partial muscle tears are painful; complete rupture may be less so.
- ▶ Fracture pain is sharp and stabbing, aggravated by attempted movement or use, and relieved by rest and splintage.
- ▶ 'Shooting' pain is often caused by mechanical impingement of a peripheral nerve or nerve root: e.g. buttock pain which 'shoots down the back of the leg', caused by lumbar intervertebral disc protrusion.

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- ▶ **Chronic joint pain** in patients >40 years with progression over years is commonly caused by osteoarthritis.
 - ▶ **Neurological** involvement in diabetes mellitus, leprosy, syringomyelia and syphilis (tabes dorsalis) may cause loss of joint sensation, so pain is less than expected from examination. In these conditions, even grossly abnormal joints may be painfree (Charcot joint).
 - ▶ **Chronic pain syndrome** (fibromyalgia) causes widespread, unremitting pain with little diurnal variation that is poorly controlled by conventional analgesic/ anti-inflammatory drugs. **defined as** pain present for more than 3 months.

Chronic pain syndrome



Radiation

- ▶ Pain from **nerve compression** radiates to the distribution of that nerve, e.g. lower leg pain in prolapsed intervertebral disc or hand pain in carpal tunnel syndrome.
- ▶ **Neck pain** radiates to the shoulder or over the top of the head.
- ▶ **Hip pain** is usually felt in the groin, but may radiate to the thigh or knee.

Common patterns of referred and radicular musculoskeletal pain

Site of pathology	Perceived at
Cervical spine	
C1/C2	Occiput
C3, 4	Interscapular region
C5	Tip of shoulder, upper outer aspect of arm
C6, 7	Interscapular region or the radial fingers and thumb
C8	Ulnar side of the forearm, ring and little fingers
Thoracic spine	Chest
Lumbar spine	Buttocks, knees, legs
Shoulder	Lateral aspect of upper arm
Elbow	Forearm
Hip	Anterior thigh, knee
Knee	Thigh, hip

Alleviating factors/associated symptoms

- ▶ Pain caused by a **mechanical** problem is worse on movement and eases with rest.
- ▶ Pain due to **inflammation** is worse first thing in the morning and eases with movement.
- ▶ Pain from a **septic joint** is present both at rest and with movement.

Timing (frequency, duration and periodicity of symptoms)

- ▶ A history of **several years** of pain with a normal examination suggests chronic pain syndrome.
- ▶ A history of **several weeks** of pain, early-morning stiffness and loss of function is likely to be an inflammatory arthritis.
- ▶ '**Flitting**' pain starting in one joint and moving to others over a period of days is a feature of rheumatic fever and gonococcal arthritis.
- ▶ If **intermittent** with resolution between episodes it is likely to be palindromic rheumatism.

Severity

- ▶ Apart from trauma, the most severe joint pain occurs in septic and crystal arthritis.

Stiffness



Establish what the patient means by stiffness?

- ▶ Is it:
 - restricted range of movement?
 - difficulty moving, but with a normal range?
 - painful movement?
 - localised to a particular joint or more generalised?
- ▶ may relate to the soft tissues rather than the joint itself.
- ▶ In polymyalgia rheumatica stiffness commonly affects the shoulder and pelvic areas.

characteristic differences between inflammatory and non-inflammatory presentations of joint stiffness

- ▶ **Inflammatory arthritis** presents with early-morning stiffness that takes at least 30 minutes to wear off with activity.
- ▶ **Non-inflammatory**, mechanical arthritis has stiffness after rest which lasts only a few minutes on movement.

Swelling



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site, extent and time course of any swelling

- ▶ Active **inflammatory** arthritis from any cause results in swelling.
- ▶ When **vascular** structures, e.g. bone and ligament, are injured, bleeding into the joint or soft tissues produces tense swelling within minutes. This is even more rapid and severe if the patient takes anticoagulants or has an underlying bleeding disorder, e.g. haemophilia.
- ▶ If **avascular** structures, e.g. the menisci, are torn or articular cartilage is abraded, it can take hours or days to produce a significant effusion.

Erythema (redness) and warmth



Erythema (redness) and warmth

- ▶ **Erythema** is common in infective, traumatic and crystalinduced conditions and may be mildly present in inflammatory arthritis.
- ▶ All joints with an inflammatory or infective component will be **warm**.
- ▶ Erythema associated with distal interphalangeal (DIP) joint swelling helps to distinguish DIP joint psoriatic arthritis from the Heberden's nodes of osteoarthritis.

Weakness



Weakness

- ▶ Weakness suggests joint, neurological or muscle disease.
- ▶ may be focal or generalised.
- ▶ Weakness due to joint disorders is **either from** pain inhibiting function **or** to disruption of the joint or its supporting structures.
- ▶ Always consider nerve entrapment as a cause, e.g. carpal tunnel syndrome at the wrist and leg weakness due to spinal root compression caused by a prolapsed intervertebral disc or spinal stenosis.

Weakness

- ▶ **Muscle disorders** can produce widespread weakness associated with pain and fatigue, e.g. in polymyositis and with a rash in dermatomyositis. Proximal muscle weakness can occur in endocrine disorders, e.g. hypothyroidism.

Locking and triggering



Locking

- ▶ an incomplete range of movement at a joint because of an anatomical block.
- ▶ It may be associated with pain.
- ▶ Patients use 'locking' to describe a variety of problems, so clarify exactly what they mean.
- ▶ **True locking** is a block to the normal range of movement caused by mechanical obstruction, e.g. a loose body or torn meniscus, within the joint. This prevents the joint from reaching the extremes of normal range. The patient is characteristically able to 'unlock' the joint by trick manoeuvres.
- ▶ **Pseudo-locking** is a loss of range of movement due to pain.

Triggering

- ▶ a block to extension, which then 'gives' suddenly when extending a finger from a flexed position.
- ▶ In adults it usually affects the ring or middle fingers and results from nodular tendon thickening or fibrous thickening of the flexor sheath due to chronic low-grade trauma, e.g. occupational or associated with inflammatory arthritis.
- ▶ Triggering can be congenital, usually affecting the thumb.

Extra-articular features



Extra-articular features

Condition	Extra-articular features
Septic arthritis	Fever, malaise, source of sepsis, e.g. skin, throat, gut
Gout	Tophi, signs of renal failure or alcoholic liver disease
Reactive arthritis	Urethritis, mouth and/or genital ulcers, conjunctivitis, iritis, enthesopathy, e.g. Achilles tendinopathy/plantar fasciitis, rash (keratoderma blenorrhagica)
Ankylosing spondylitis	Enthesopathy, iritis, aortic regurgitation, pulmonary fibrosis
Psoriatic arthritis	Psoriasis, nail pitting, onycholysis

Rheumatoid arthritis	Subcutaneous rheumatoid nodules, episcleritis, dry eyes, pulmonary fibrosis, pleural effusion, small-vessel vasculitis, splenomegaly, Raynaud's phenomenon
Sjögren's syndrome	'Dry eyes' (keratoconjunctivitis sicca), xerostomia (reduced or absent saliva production), salivary gland enlargement and Raynaud's phenomenon
Systemic lupus erythematosus	Photosensitive rash, especially on face, mucocutaneous ulcers, alopecia, fever, serositis, Raynaud's phenomenon, lymphopenia
Juvenile idiopathic arthritis	Rash, fever, hepatomegaly, splenomegaly

thank you