# Painful Joints

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# Objectives

- Spotting a rheumatological disorder
- When to investigate and how
- JIA
- Growing pains
- Hypermobility
- Referral pathways
- Further resources for you and patients

# What to ask in clinic

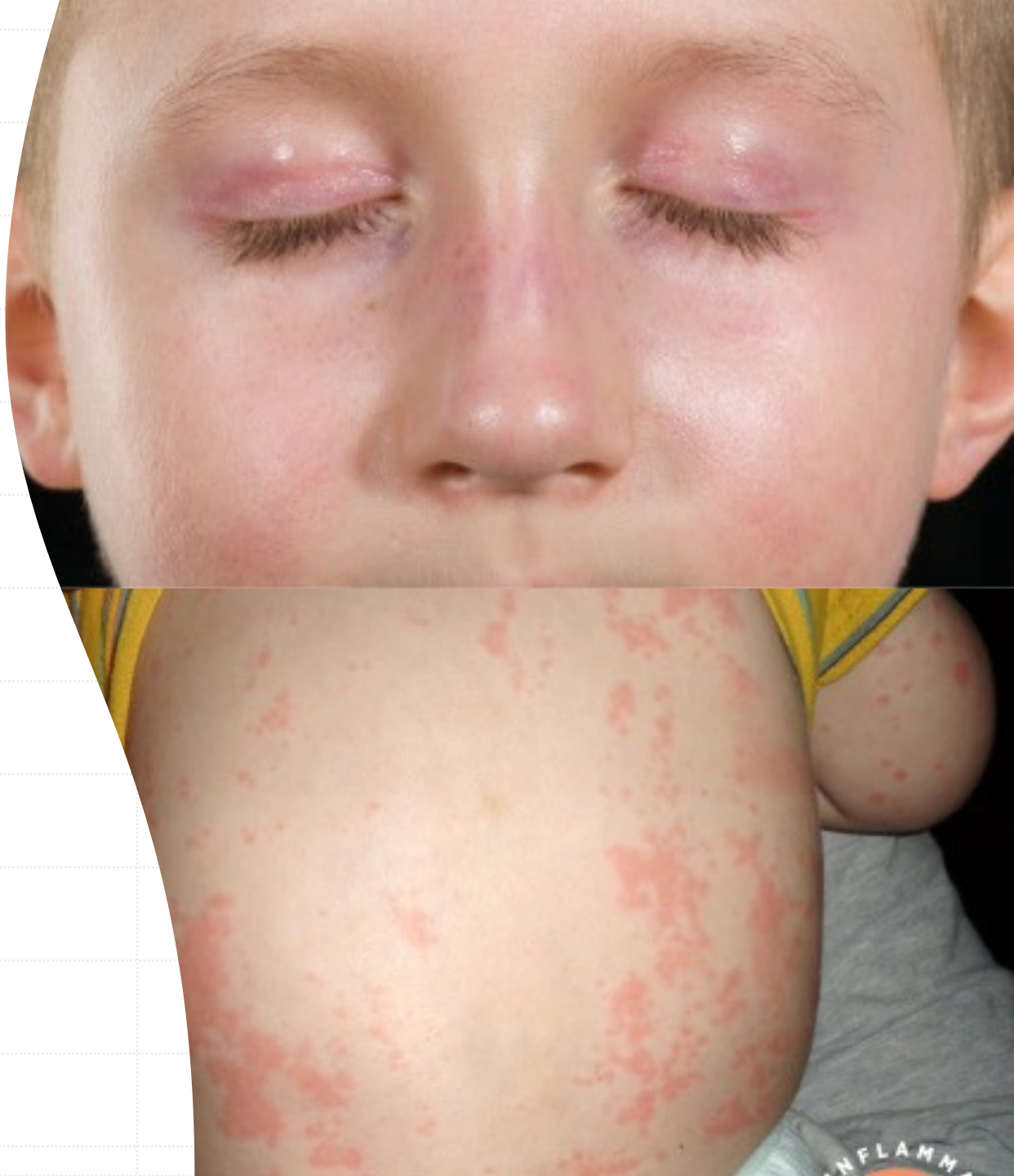
- Red flags

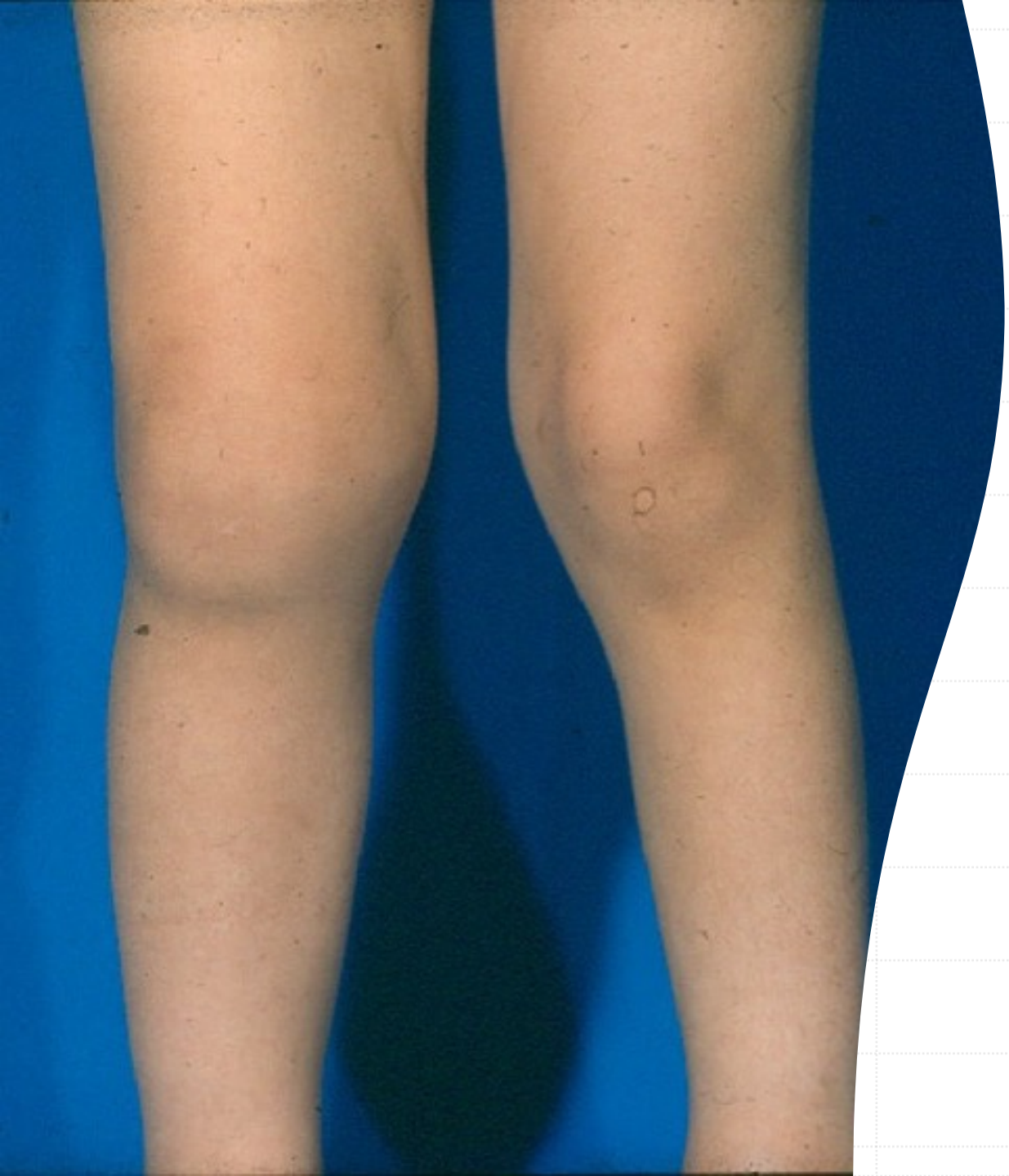
| | |
|---|---|
| **Fever** | **Back Pain <5 yrs** |
| **Weight loss** | **Night pain/waking** |
| **Night sweats** | **Neurological signs** |
| **Marrow suppression** | **?NAI** |

- Duration of symptoms
- Stiffness in the morning
- Effect of activity on pain
- Functional impairment/baseline activity levels, schooling
- Psychosocial history

# Clues to rheumatological diagnosis

- Joint restriction, pain or swelling
- Morning stiffness
- Pain better with activity
- Duration of symptoms >3 weeks
- Atypical skin rashes e.g photosensitivity
- Proximal muscle weakness
- Family history



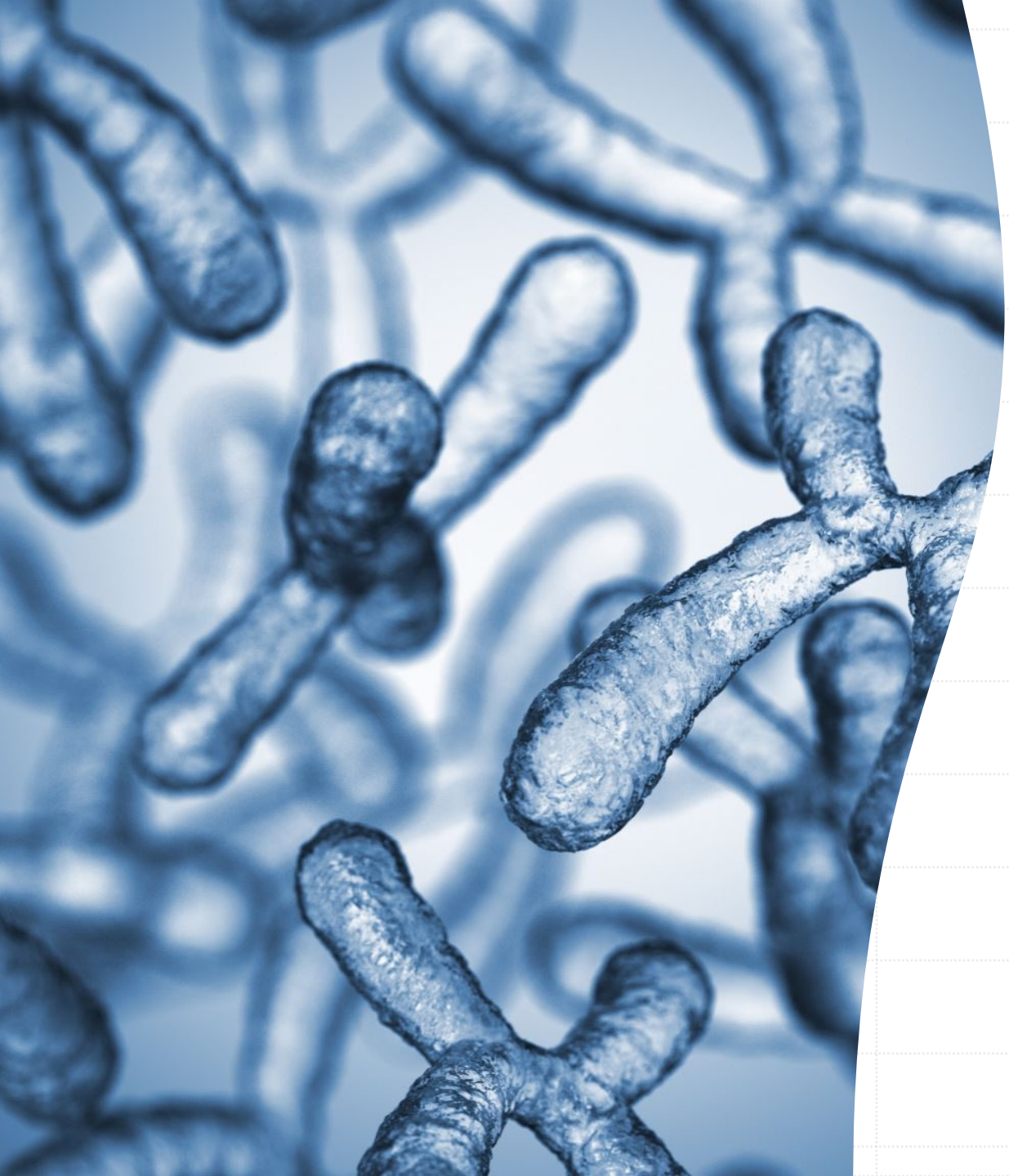


# Examination

- At least the joints above and below
- pGALS and Beighton score
- Skin
- Eyes
- Lymph nodes
- Systems review
- Don’t forget referred pain!


# Investigations – first line

- Full blood count, film, ESR
- U&Es, LFTs, Bone profile, Vitamin D, CRP, ferritin, consider ANA*, consider CK+LDH if muscle pain/weakness
- X-rays of affected joints – exclude trauma
- Don't do full rheumatology screen unless discussed with someone with an interest

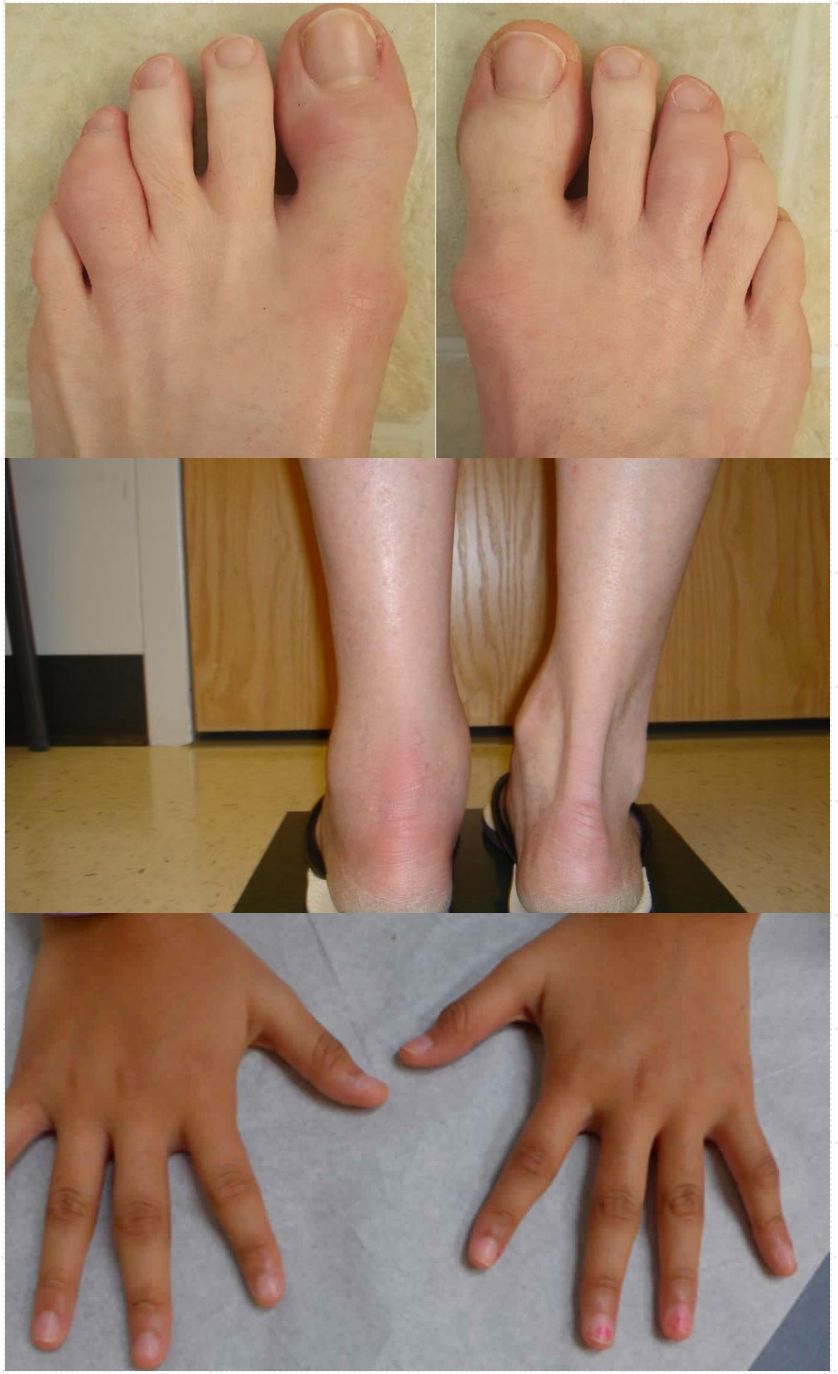


# Antinuclear antibody

- Only test if convincing history and examination for autoimmune disease
- Common post infection
- If negative doesn't exclude autoimmune disease
- If titre is low, i.e. less than 1:640, no need to repeat or follow-up in the absence of symptoms or signs suggestive of autoimmunity
- If ANA titre >1:640, refer

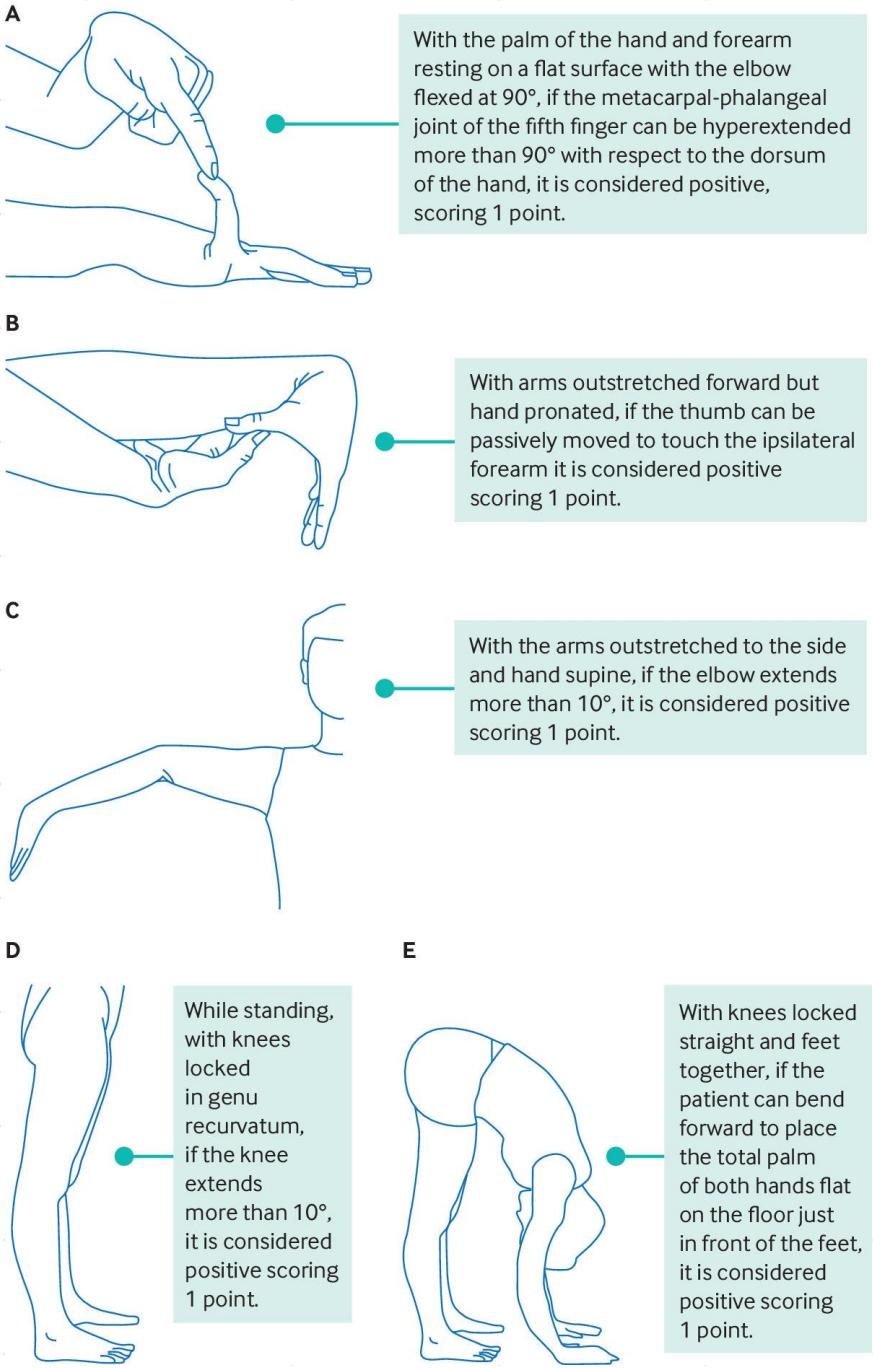
# Juvenile idiopathic arthritis

- Incidence 1:100000 per year, prevalence 1:1000, cases increasing
- **Oligoarticular** (<5 joints at onset, 70% of cases), ANA predicts uveitis risk
- **Polyarticular** ( >4 joints at onset, 20% of cases), RhF +ve/-ve
- **Systemic onset** (10% cases) – systemic features, fever (*quotidian* i.e. daily fever spikes – usually late evening to early morning and normal or below normal in between spikes), evanescent maculopapular rash, polyarthritis/arthralgia
- **Enthesitis related** – older often adolescent boys, back pain, family history of ank spond, HLA-B27 positive
- **Psoriatic** – Dactylitis, nail changes, poor correlation to skin findings
- Consider JIA in patient with ?osteomyelitis/septic arthritis not responding typically to treatment



# Rules of growing pains

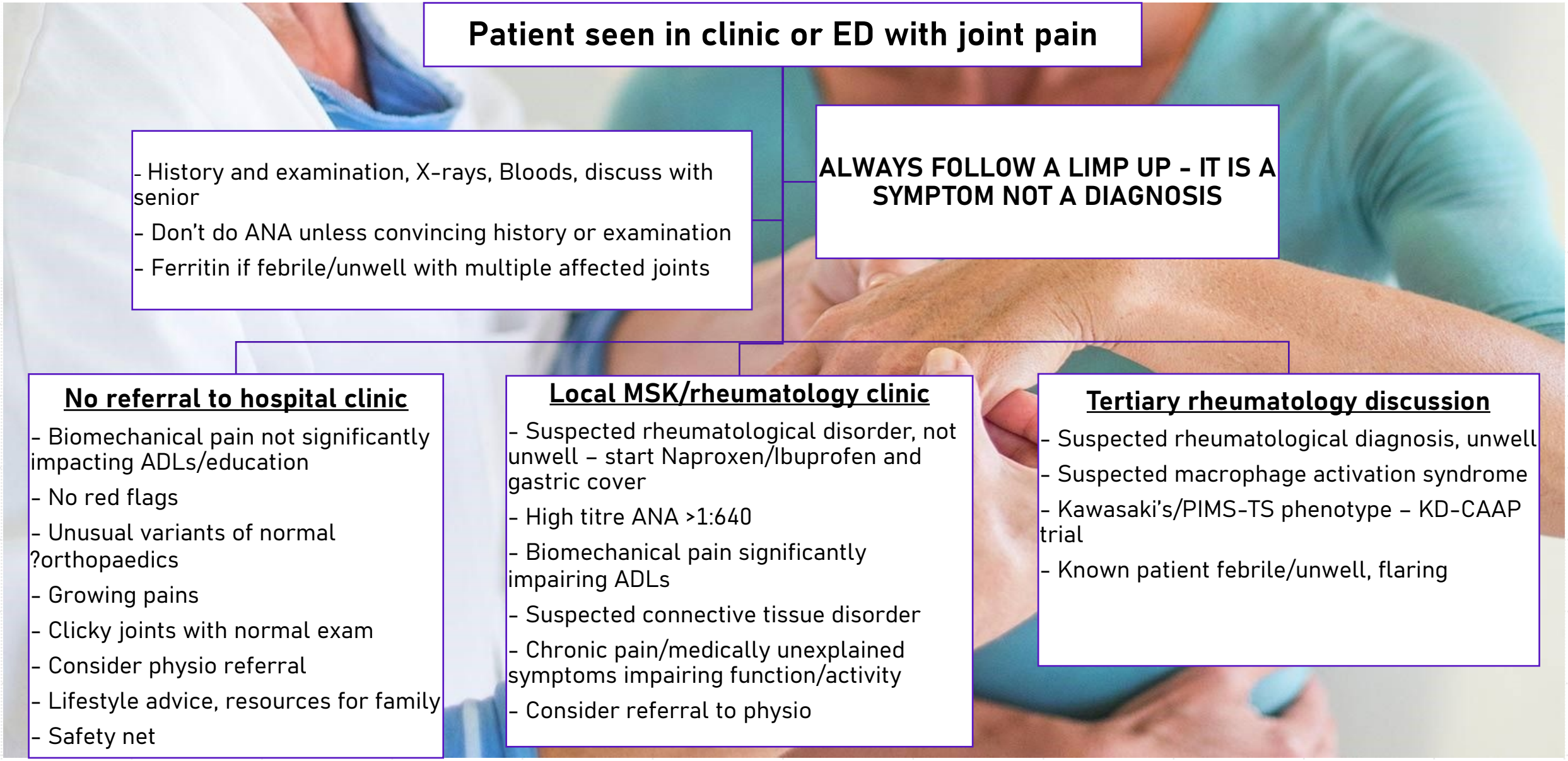
- Age 3-12 yrs
- Pains never present at start of day on waking
- Child doesn't limp
- Physical activity not limited by symptoms
- Pains symmetrical and not confined to joints
- Physical examination normal (nb hypermobility)
- No systemic red flag symptoms
- Nocturnal pain is common – refer if night waking more frequent or pain limited to one site




# Hypermobility

- Beighton score
- Exclude connective tissue disorder
- Functional impairment
- Associated symptoms
  - Pain - usually lower limb, after activity, DOMS, stiffness
  - Easy bruising – benign
  - Clicky joints - usually habitual , not dangerous
  - Poor co-ordination and balance - poor proprioception, weak core and muscle stability
  - GI, cardiac, mental health
- Refer to physio if significant functional impairment
- EDS 2017 diagnostic criteria

# Referral pathways



**Patient seen in clinic or ED with joint pain**

- History and examination, X-rays, Bloods, discuss with senior
- Don't do ANA unless convincing history or examination
- Ferritin if febrile/unwell with multiple affected joints

**ALWAYS FOLLOW A LIMP UP - IT IS A SYMPTOM NOT A DIAGNOSIS**

## No referral to hospital clinic

- Biomechanical pain not significantly impacting ADLs/education
- No red flags
- Unusual variants of normal ?orthopaedics
- Growing pains
- Clicky joints with normal exam
- Consider physio referral
- Lifestyle advice, resources for family
- Safety net

## Local MSK/rheumatology clinic

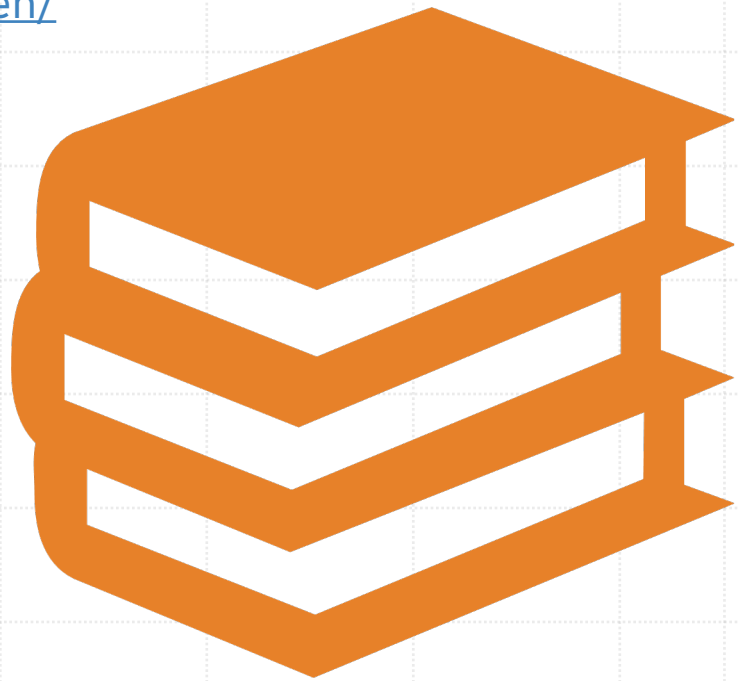
- Suspected rheumatological disorder, not unwell – start Naproxen/Ibuprofen and gastric cover
- High titre ANA >1:640
- Biomechanical pain significantly impairing ADLs
- Suspected connective tissue disorder
- Chronic pain/medically unexplained symptoms impairing function/activity
- Consider referral to physio

## Tertiary rheumatology discussion

- Suspected rheumatological diagnosis, unwell
- Suspected macrophage activation syndrome
- Kawasaki's/PIMS-TS phenotype – KD-CAAP trial
- Known patient febrile/unwell, flaring

# Resources

- NICE – Developmental rheumatology in children, common scenarios
  - https://cks.nice.org.uk/topics/developmental-rheumatology-in-children/
- Paediatric musculoskeletal matters
  - http://www.pmmonline.org/doctor#
- Versus Arthritis
  - https://www.versusarthritis.org/
- The Ehlers-Danlos Society
  - https://www.ehlers-danlos.com/
- The British Society of paediatric and adolescent Rheumatology
  - https://bspar.org.uk/
- The British Society for Rheumatology
  - https://www.rheumatology.org.uk/practice-quality/guidelines/paediatric-adolescent-guidance/



# Appendix 1

- **'Rheumatology screen'**
  - FBC, film, U&Es, LFTs, bone profile, vitamin D, CK, LDH, CRP, ESR, ferritin
  - C3/C4, immunoglobulins
  - Anti-nuclear antibody, extractable nuclear antigen (ENA) panel, rheumatoid factor,  dsDNA, ANCA, HLA-B27, serum ACE, anti-CCP antibody
  - VZV IgG, TB quantiferon/elispot, ASOT, Mycoplasma serology, borrelia serology (if relevant), COVID antibody
- **Macrophage activation syndrome**
  - Suspect if febrile, unwell, polyarthritis/arthralgia, known rheum diagnosis (esp SoJIA) and unwell, lymphadenopathy, hepatosplenomegaly, CNS dysfunction (lethargy), SOJIA rash
  - Clues in bloods – cytopaenias (esp plts), ferritin >500, transaminitis, high LDH
  - Bloods to add – Fibrinogen (low), lipids (high triglycerides), soluble CD25 (if available, raised)

# Appendix 2

- **NSAID doses** – remember gastric cover
  - **Naproxen** – 10–20 mg per kg per day in 2 divided doses, liquid or 250/500mg tablets
  - **Ibuprofen** – 30–40 mg/kg/day in 3 to 4 divided doses. Max 2.4g per day.

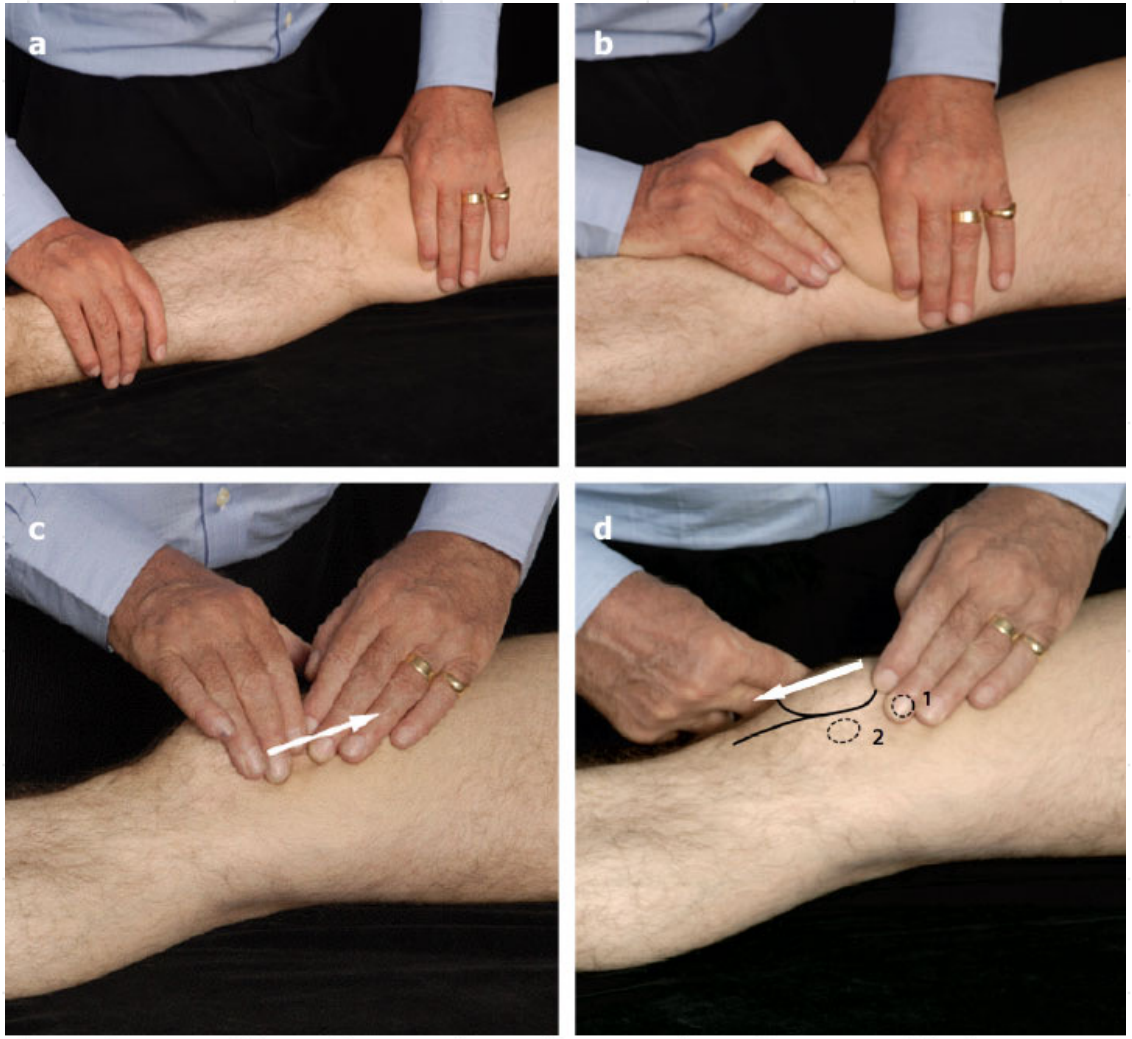


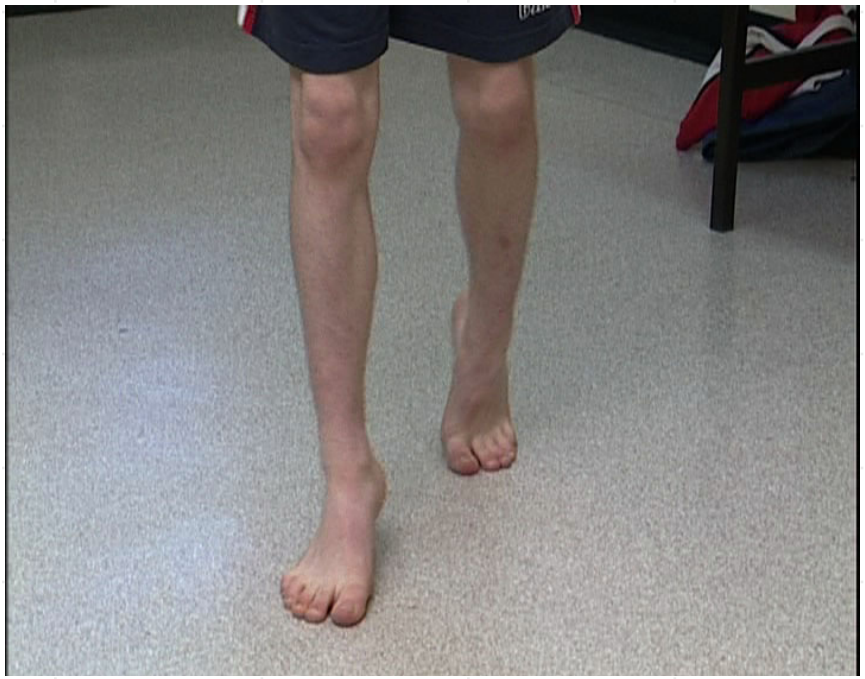

**Figure 94** Tests of knee effusion: a,b. patellar tap; c,d. small amounts of fluid are swept into and retained in the suprapatellar pouch. Two hands used sequentially to compress fluid from medial compartment of knee to suprapatellar pouch – left hand used to retain fluid in this position by pressure on 1. tip of middle finger; right hand drawn down along lateral aspect of knee. Small quantities of fluid are compressed back into medial compartment, and produce a bulge 2. behind middle of patella

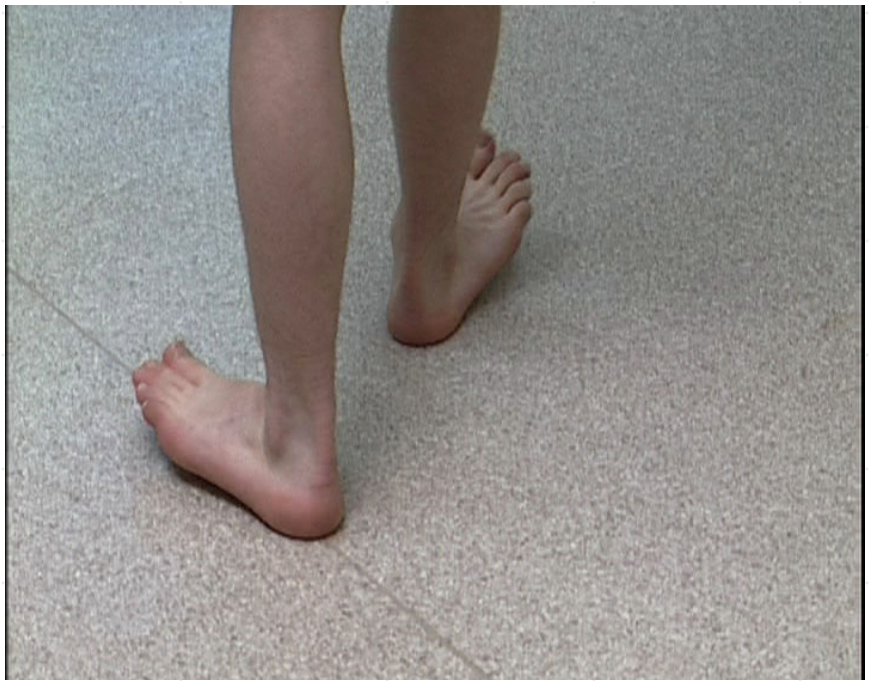
# pGALS – http://www.pmmonline.org/page.aspx?id=342

**Screening questions**

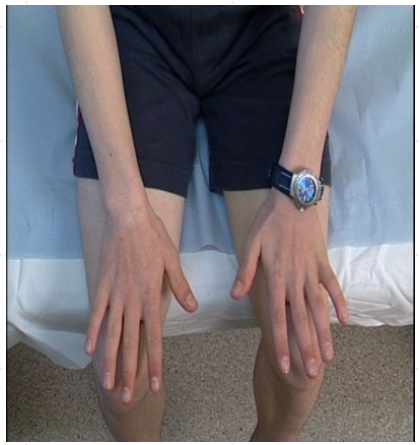
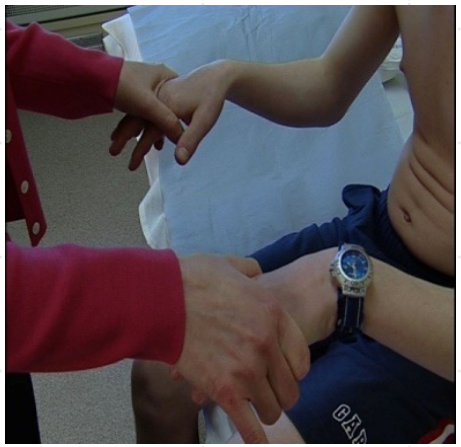
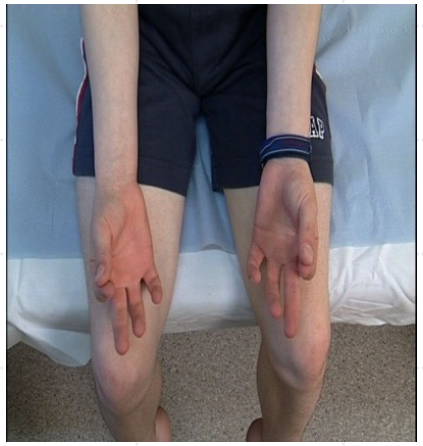
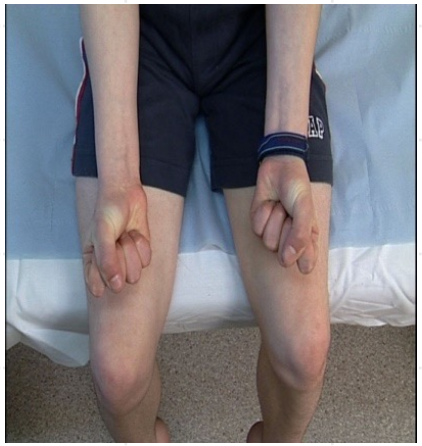
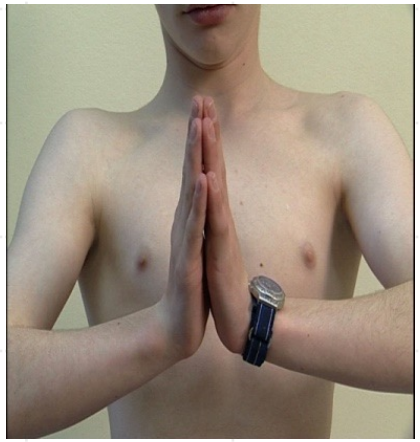
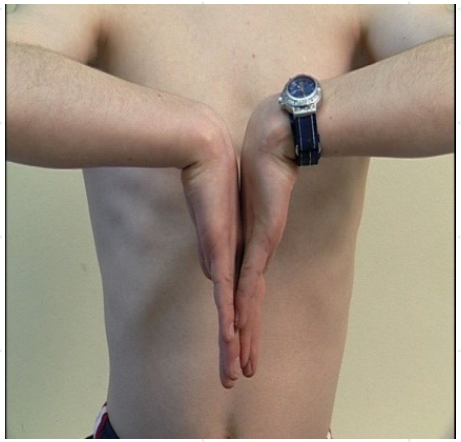
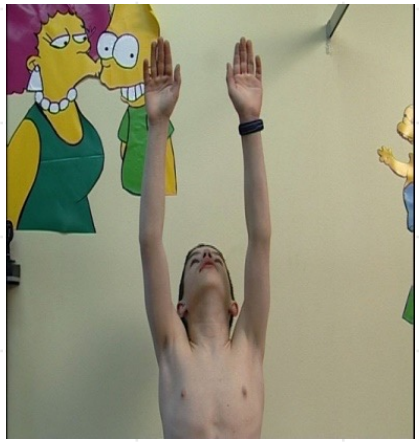
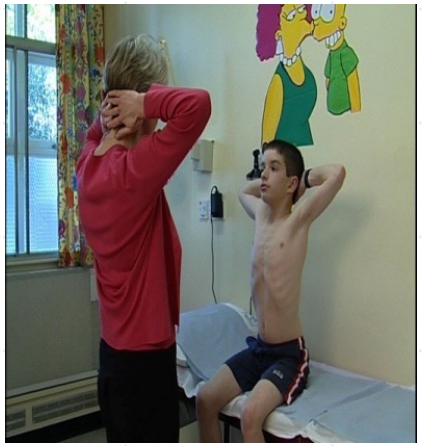
- Do you have any pain or stiffness in your joints, muscles or your back?
- Do you have any difficulty getting yourself dressed without any help?
- Do you have any difficulty going up and down stairs?

# Gait

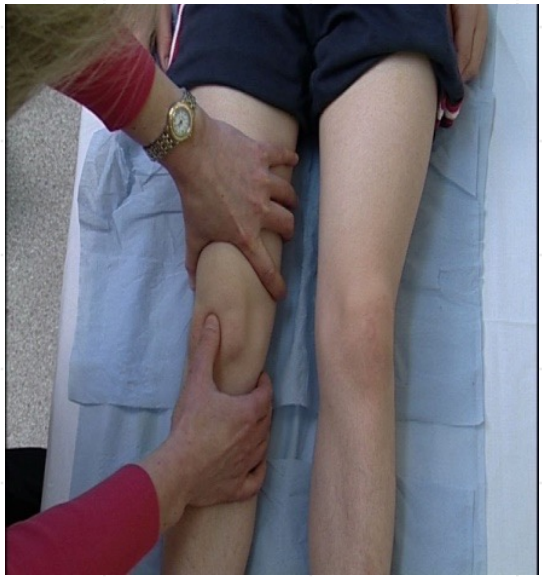


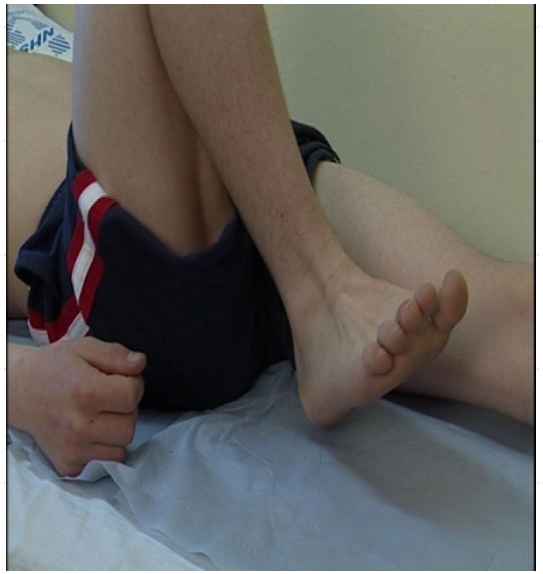


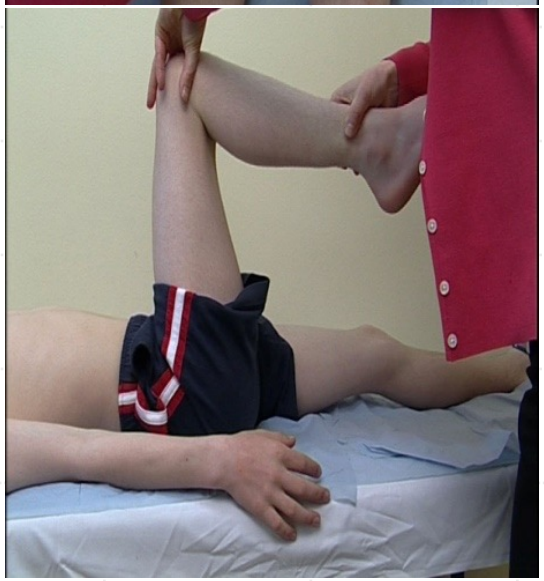
# ARMS

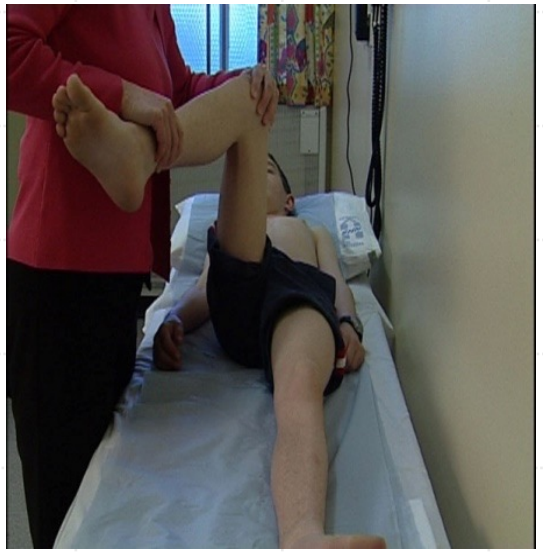









# Legs

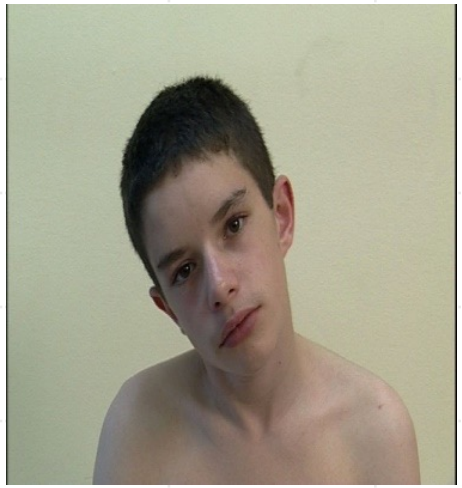


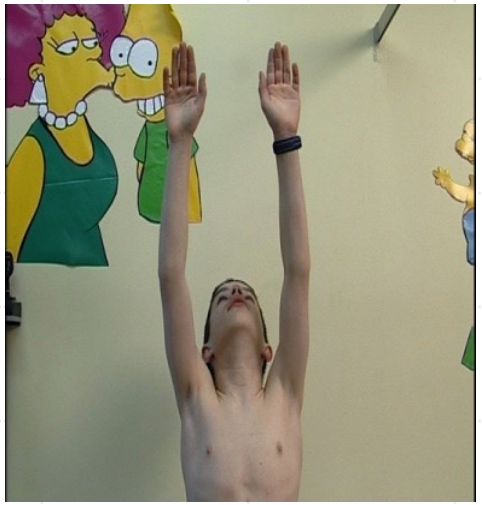


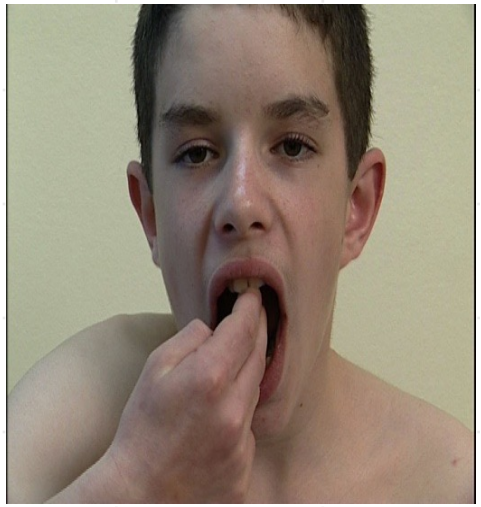


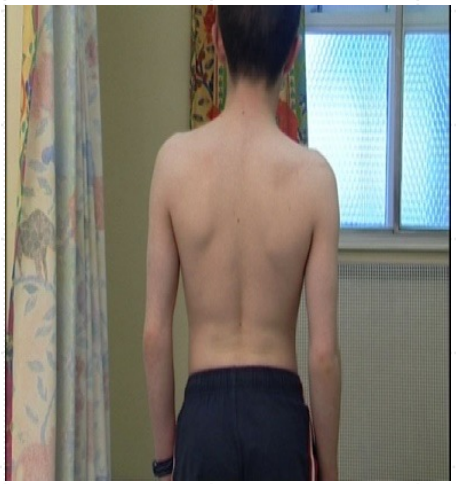


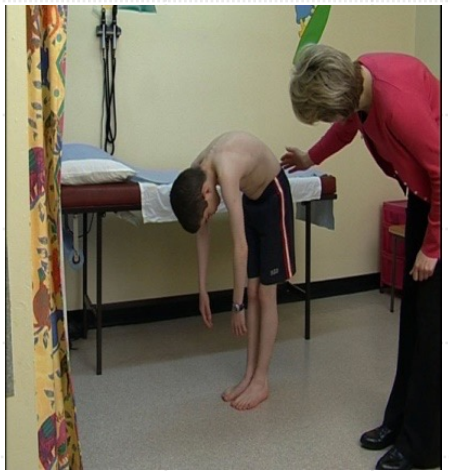
# Spine











| | 0-3 years | 4-10 years | 11-16 years |
|---|---|---|---|
| In all patients consider | Osteomyelitis/septic arthritis<br>Non-accidental injury<br>Testicular torsion/inguinal hernia/appendicitis/UTI<br>Juvenile idiopathic arthritis<br>Metabolic conditions e.g. rickets<br>Haematological disease e.g. Sickle cell<br>Trauma | | |
| Age-specific differentials | Toddler's fracture<br>Developmental dysplasia of the hip<br>Neuroblastoma | Transient synovitis<br>Perthe's disease<br>Acute lymphoblastic leukaemia | Slipped upper femoral epiphysis<br>Bone tumours<br>Osgood-Schlatter disease<br>Sinding-Larsen syndrome |

# Common scenarios

# Transient synovitis vs septic arthritis

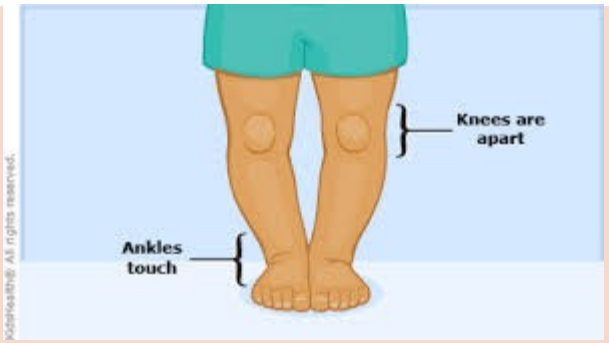
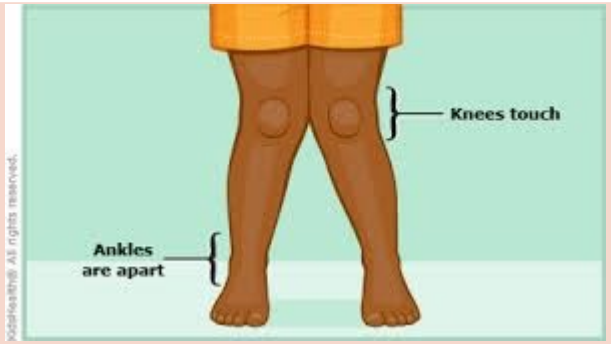
| Transient synovitis | Septic joint |
|---|---|
| Fever mild or absent | High temperature |
| +/-Preceeding illness | Acute onset |
| Child looks well | Child looks unwell |
| Limping | Hot swollen joint |
| Partially weight bearing | Not weight bearing at all |
| Partially moves joint | Limb held in fixed position |
| Usually resolves within 2 weeks | Persistent |

# Normal variation in children

- **Flat feet** – normal up to 5 years
  - Structural vs flexible
  - Reassure, orthotics, foot clinic, insoles

- **In-toeing or out-toeing** – normal up to age 10yrs
  - Avoid ‘W’ sitting
  - Refer to physio/paeds if clumsiness
  - Refer orthopaedics if painful or asymmetrical

# Normal variants in children

| Genu Varum (bow-legs) | Genu valgum (knock knees) |
| --- | --- |
|  |  |
| Onset 10-24 months of age | Onset 3-5yrs of age |
| Intercondylar distance >6cm | Associated with obesity, hypermobility and flat feet |
| Usually resolves by 3yrs | Intermalleolar distance >8cm |
| Check vitamin D | Resolves by age 8yrs |
| Refer to orthopaedics if painful, persistent or asymmetrical | |

# Normal variants in children

- **Clicky joints**
  - If in a baby, check Barlow's and Ortlani's – if positive refer to orthopaedics +/- USS
  - If painless with no restriction – reassure
  - Association with hypermobility
  - Not dangerous and no long term issues
  - Very common and with no associated features not a reason to refer

# Tendon apophysitis

- Inflammation/injury of tendon insertions in growing bones usually due to overuse
  - Osgood Schlatter Disease
  - Sinding-Larsen syndrome
  - Sever's disease
- Associated with tight muscle and tendon units
- X-ray to rule out injuries
- NSAIDs, rest, refer to physio, modified activities

# Biomechanical back pain

- Examine, rule out red flag features e.g. neurological signs
- Consider imaging – X-ray whole spine and lateral views
- If doing bloods and significant restriction or stiffness – do HLAB27
- Advice on posture, exercises
- Consider physio referral, ortho if scoliosis
- https://www.versusarthritis.org/media/3090/back-pain-exercise-sheet.pdf