

## INTRODUCTION

- Musculoskeletal disorders are the commonest cause of disability worldwide.
- Locomotor conditions form 20–25 per cent of a General Practitioner's workload.
- About 30% of people with any physical disability, and 60% of those with a severe disability, have a musculoskeletal disorder as the primary cause of their problems.

|                   | Inflammatory joint              | Mechanical joint                                               | Muscle           | Bone pain (INFECTION/Malignancy) |
|-------------------|---------------------------------|----------------------------------------------------------------|------------------|----------------------------------|
| Pain              | Improves with exercise          | Improves with rest                                             | Rare, calf pain  | Severe, wakes child up at night  |
| Morning stiffness | Prolonged                       | Absent or brief                                                | Absent           | Absent                           |
| Red flags         | Absent                          | Absent                                                         |                  | Present                          |
| Site of pain      | Joints                          | Joints                                                         | Muscle           | Bone                             |
| Swelling          | Persistent                      | Worse with activity                                            | Calf hypertrophy | May be present                   |
| Systemic features | May be present                  | Absent                                                         | Absent           | Present                          |
| Examples          | JIA<br>SLE, JDM<br>Vasculitides | Osteoarthritis<br>Legg-calve-perthes<br>SCFE, Osgood schlatter | Duchenne         | Leukaemia                        |

[www.primonline.org/doctor/approach-to-clinical-assessment/history/inflammatory-vs-mechanical](http://www.primonline.org/doctor/approach-to-clinical-assessment/history/inflammatory-vs-mechanical)

Is it localized or diffuse?

# Diffuse pain syndromes

|                    | Growing pains (Benign nocturnal pain of childhood)                                                                            | Benign hypermobility syndrome      |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Pain               | Night time or late evening.<br>Wakes child from sleep.<br>Responds to soothing, rubbing.<br>Wakes up completely symptom free. | Evening pain; pain after activity. |
| Joints             | Normal                                                                                                                        | Variable degrees of hypermobility  |
| Systemic features  | Absent                                                                                                                        | Absent                             |
| Morning stiffness. | Absent                                                                                                                        | Absent                             |
| Joint swelling     | Absent                                                                                                                        | Absent                             |
| Site of pain       | Usually lower limbs especially shins.<br>**note on APS                                                                        | Joints                             |

## Indications for referral include:

- Suspicion of inherited collagen syndromes (e.g., Marfans').
- Pain and functional limitation.
- Asymmetrical joint involvement.
- Inflammatory joint or muscle disease is suspected.
- Recurrent dislocations.

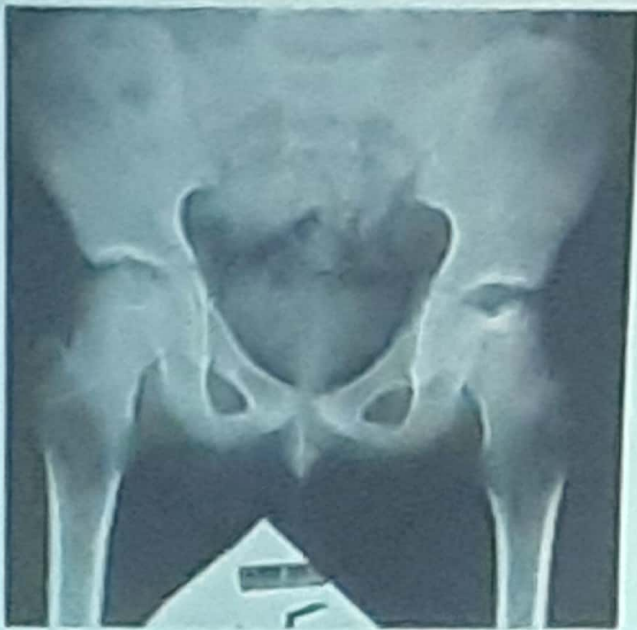
# Localized Hip pain syndromes

|                   | Perthes                              | SIFE                               | Toxic synovitis                    |
|-------------------|--------------------------------------|------------------------------------|------------------------------------|
| Pain              | Hip, worse with activity, movement   | Hip, worse with activity, movement | Hip, worse with activity, movement |
| Systemic features | Absent                               | Absent                             | May be present                     |
| Morning stiffness | Absent                               | Absent                             | Absent                             |
| Joint swelling    | Absent                               | Absent                             | Absent                             |
| Site of pain      | Hip                                  | Hip                                | Hip                                |
| Risk factors      | Male, Low BMI, early 4-10 years age. | Obese adolescents 10-16 years      | Viral infections (URTI etc)        |

\*\*Note on Osgood schlatter; Tallipes; pes planus, pes cavus.

# Radiographs: Perthe's disease and SUFE

**Perthe's disease**



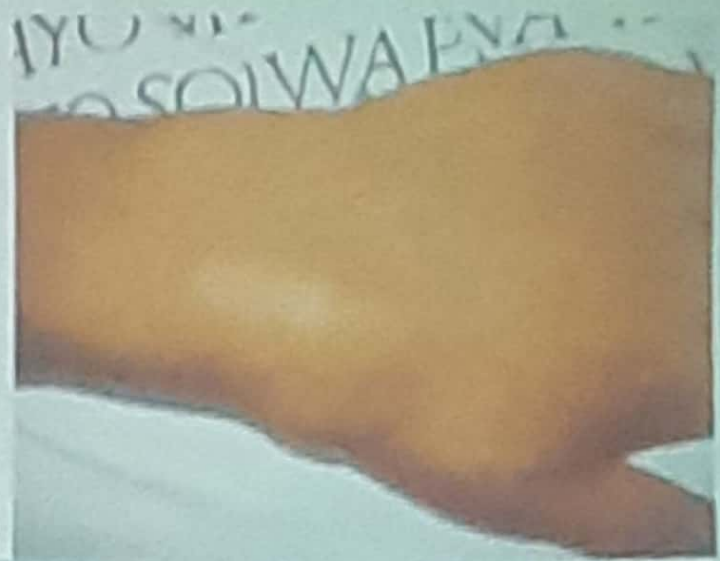
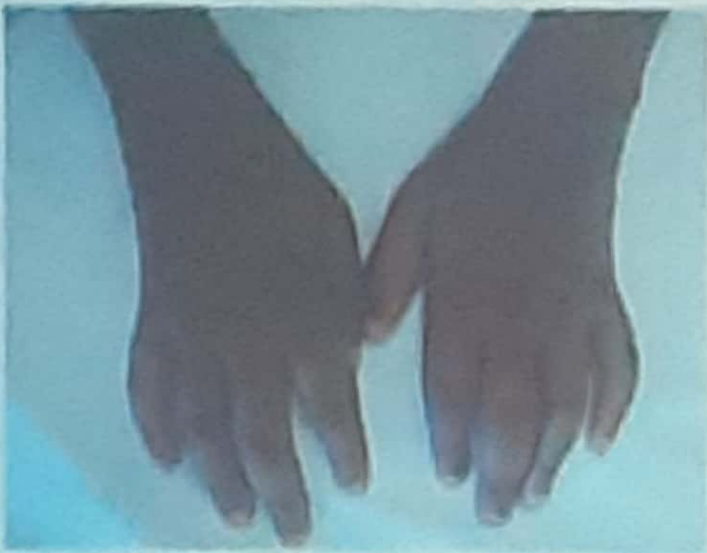
**SUFE**



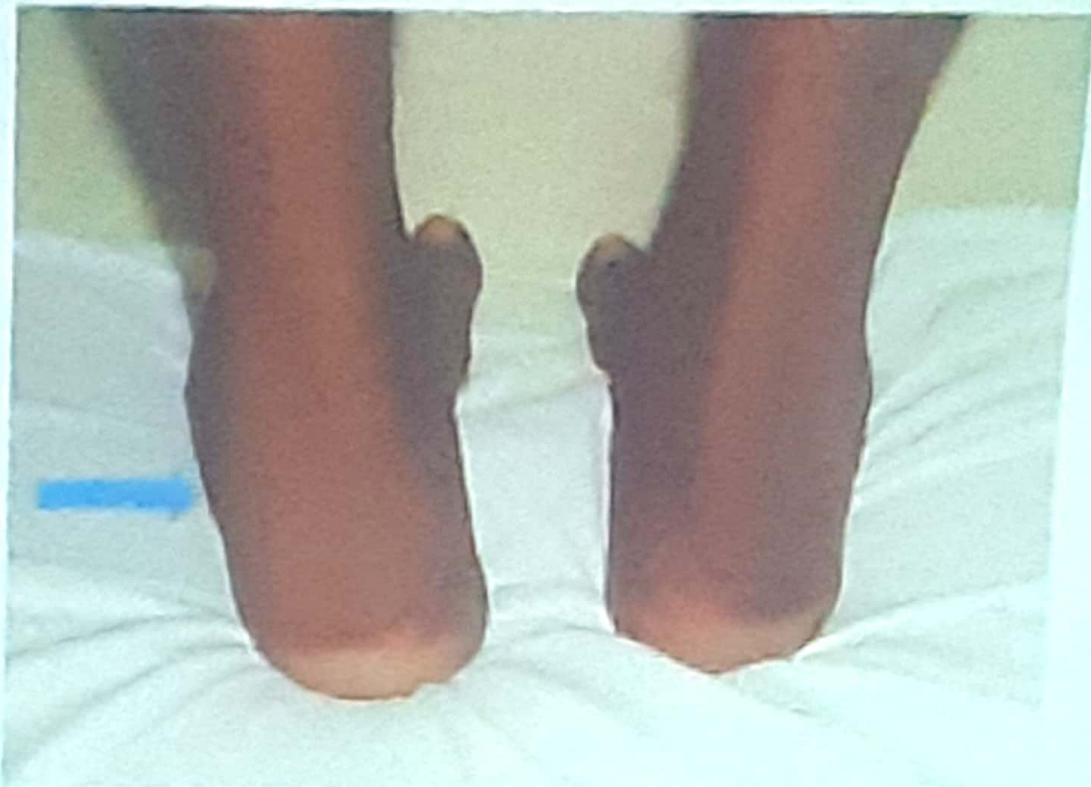
# Musculoskeletal Examination

- Principles of clinical examination apply.
  - Observe: Gait, swelling, redness, deformity.
  - Palpate (**Feel**): tenderness, warmth
  - Percuss (**move the joint**).... **Rarely used.**
  - Auscultate (**Assess function**).... (Move the joints).
- Paediatric Gait, Arms, Legs and Spine (**pGALS**) can be used to guide the examination and record findings.

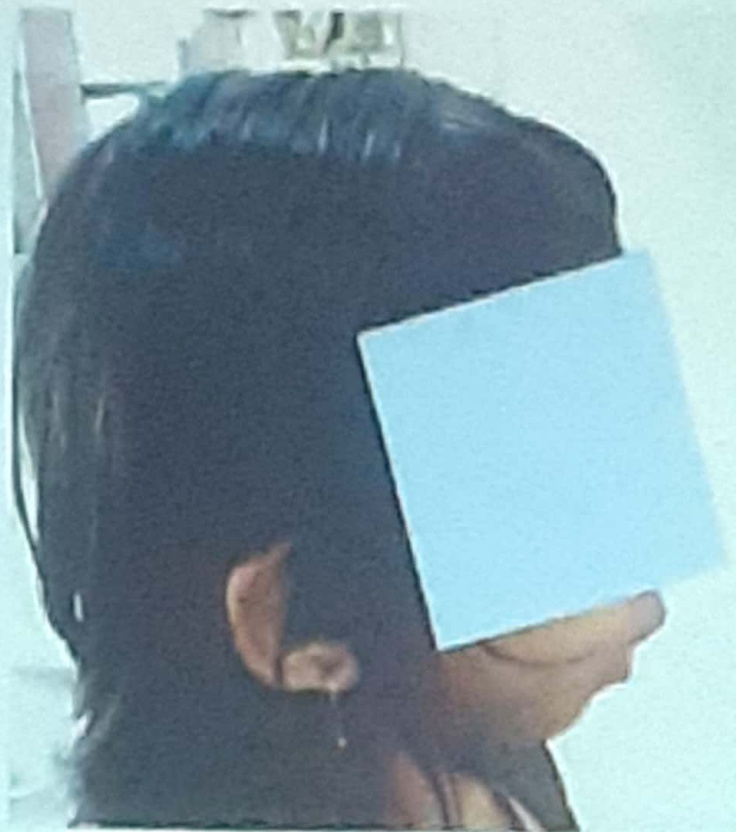
## Joint swelling



**abnormal left hindfoot with swelling due to  
tenosynovitis**

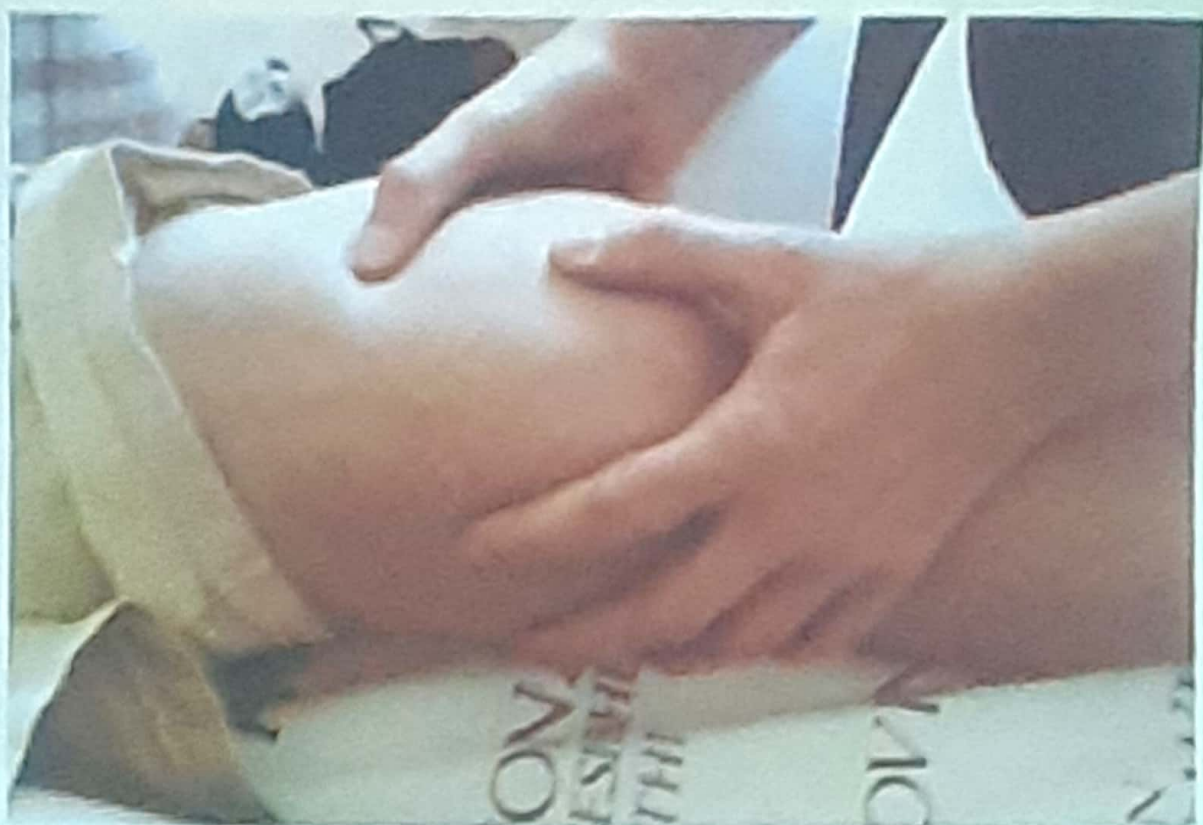


**Micrognathia (abnormally small mandible) in untreated systemic onset Juvenile Idiopathic Arthritis with arthritis in the jaw**



**'sausage toe' due to dactylitis (swelling of a digit beyond the margins of a joint, as seen in psoriatic arthritis).**





## Recording of pGALS Findings

|       | Appearance                       | Movement                         | Paediatric |
|-------|----------------------------------|----------------------------------|------------|
| Gait  | Normal                           | Normal,<br>Antalgic,<br>Waddling | Gait       |
| Arms  | Normal, deformed,<br>swollen etc | Normal ROM,<br>reduced ROM.      | Arms       |
| Legs  | "                                | "                                | Legs       |
| Spine | Normal, Kyphosis,<br>Scoliosis   | "                                | Spine      |

ROM=Range of Motion



Passive movement of hip  
(knee flexed to 90°, and  
internal rotation of hip)

- Hip flexion and internal rotation



'Bend forwards and touch  
your toes.'

- Forward flexion of  
thoraco-lumbar spine (and  
check for scoliosis)



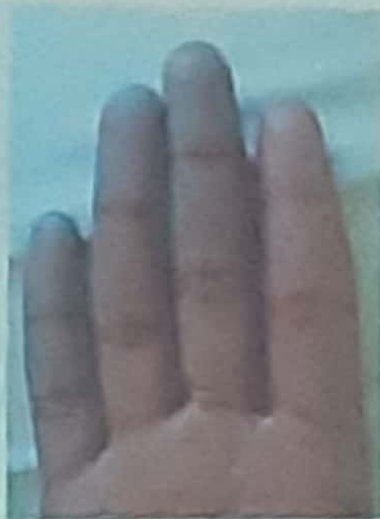
## RED FLAGS

(Raise concern about infection, malignancy or non-accidental injury)

- Fever, malaise, systemic upset (reduced appetite, weight loss, sweats)
- Bone or joint pain with fever
- Refractory or unremitting pain, persistent night-waking
- Incongruence between history and presentation (such as the pattern of the physical findings and a previous history of neglect)

## Other manifestations of diseases of the MSS

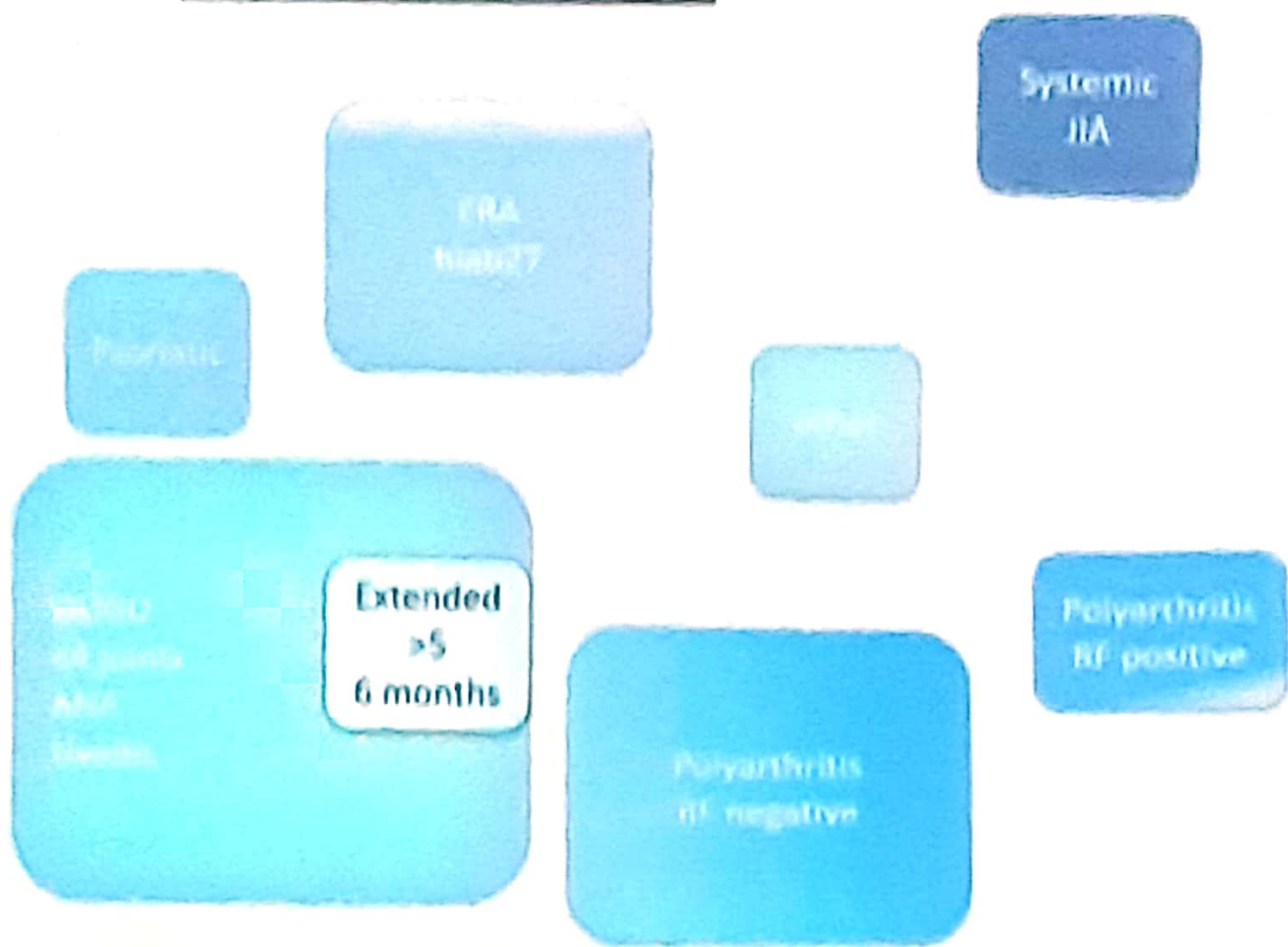
- SLE
- Juvenile dermatomyositis
- Scleroderma
- Mixed Connective Tissue disease



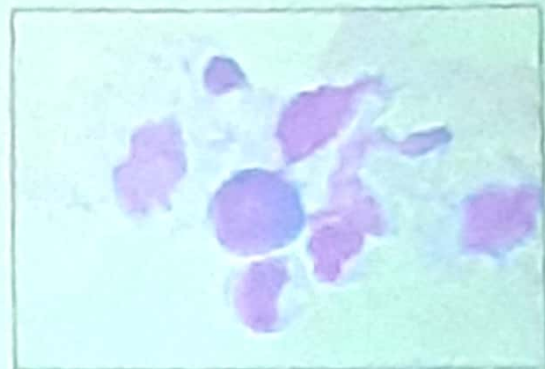
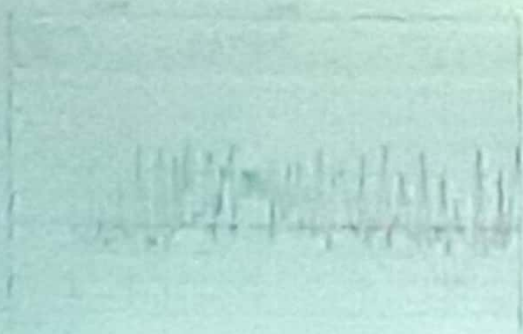
## JIA

- Persistent Arthritis of unknown cause
- More than 6 weeks
- Younger than 16 yrs
- Various subtypes vary greatly in characteristics
- incidence 1-4/1000

# JIA SUBTYPES



## Systemic JIA



Slide from Dr Angelo Ravelli

## Laboratory investigations

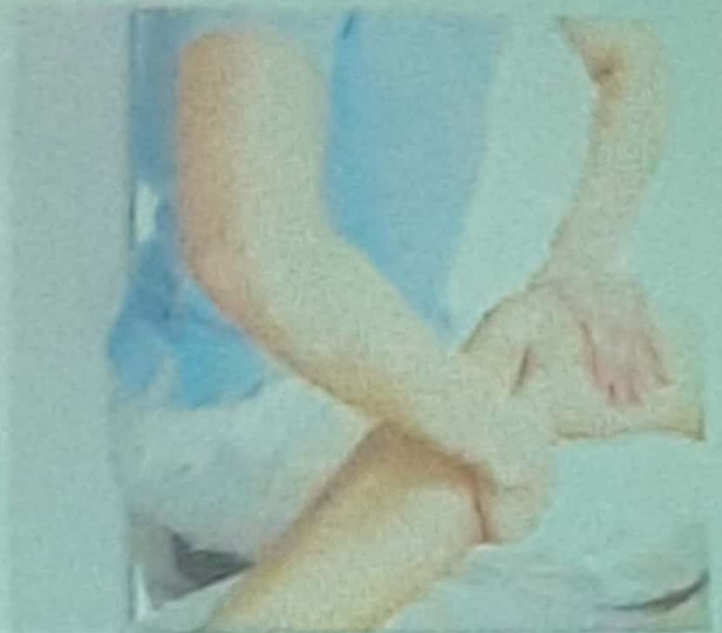
- **RF**.....Classification of Polyarticular disease
- **ACCP**.... Not recommended. Most ACCP positive children are RF positive.
- **ANA**.... For uveitis risk stratification; and rule out differentials.
  - ANA seen in up to 80% of children with JIA
  - ANA seen in up to 10% of children without arthritis.
- **ESR/CRP**: Acute phase reactants for assessing disease activity. ESR most commonly used.
- **Other tests**: as per specific differential.

## Imaging in JIA

- Radiograph is still the Gold Standard
- Ultrasonography
  - Increasing use in the clinic
  - An extension of the physical examination
- Magnetic Resonance Imaging
  - Most sensitive imaging modality
  - Can show “sub-clinical” joint inflammation
  - Utility limited by cost and access

# Management

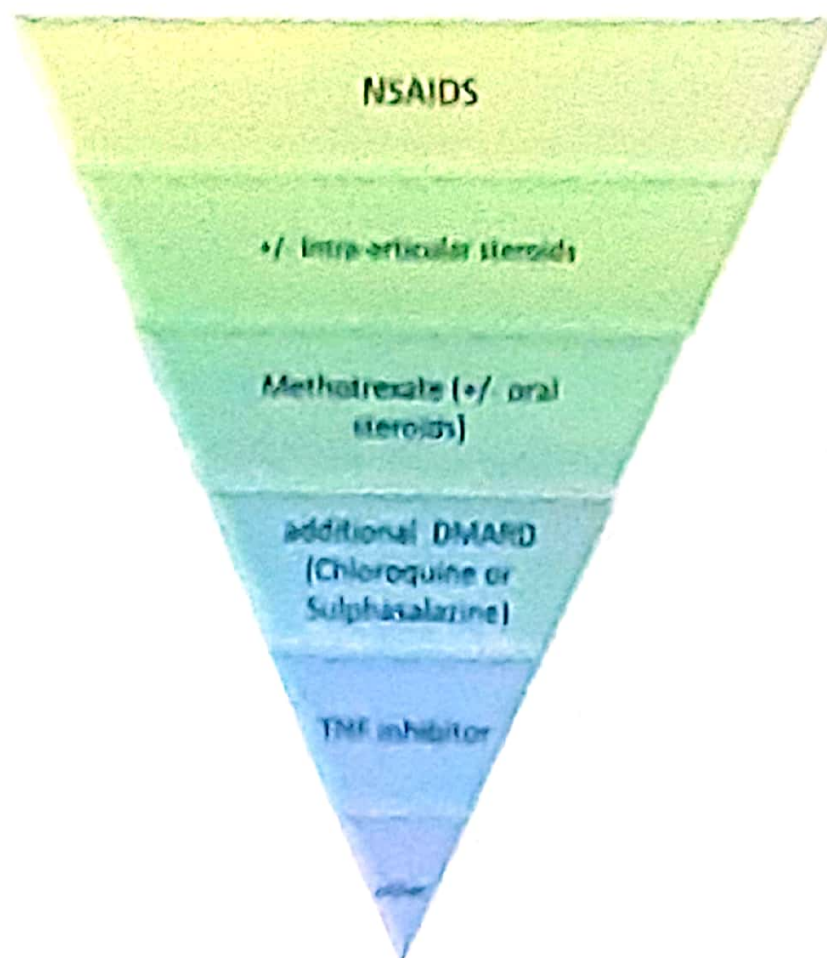
- Non pharmacological management includes
  - physiotherapy
  - occupational therapy
  - social support
  - pain management



# Counseling

- paramount importance
  - shock, disbelief and fear
- prognosis and implications of the diagnosis
  - goals of therapy
  - side effect of medication.
- well considered, scientifically valid sources of information on JIA
  - avoid bewildering/misleading information and alternative therapies
- counseling and advice regarding sporting activities and schooling

# Pharmaceutical Treatment of JIA



# Intra-articular steroids

- Can inject multiple joints at once
- May need anaesthetic



# **CHILDHOOD VASCULITIDES: EXPERIENCE FROM 3 TERTIARY CENTRES IN NAIROBI, KENYA.**

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