

DIFFERENTIAL DIAGNOSIS OF JOINT PAIN

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Pain in the joint area

- **Pain in the joint area** is a common finding with a wide differential diagnosis
- It can be an initial symptom of a number of joint diseases or soft tissue rheumatic pain syndromes



Pain in the joint area

✓ articular or extra-articular

✓ inflammatory or non-inflammatory

✓ duration of symptoms

✓ number and location of affected joints

✓ age distribution

Articular or extra-articular

■ **Articular disease**

- ✓ deep and diffuse pain that worsens during active and also passive movement
- ✓ we often observe a change of the joint shape (deformation), a change of the joint axis (deformity), swelling, eventually the presence of exudate in the joint, crepitation, reducing of joint mobility, increase of skin temperature or skin color changes

Articular or extra-articular

■ **Extra-articular (soft tissue) diseases**

- ✓ localized pain/soreness (tender points) and pain worsening during active movement, not worsening during passive movement
- ✓ passive movement of the joint is not limited
- ✓ tendons (tendinopathy/tendonitis/tendinitis), tendon sheaths (tenosynovitis/tenovaginitis), insertions of tendons and ligaments (enthesopathy/enthesitis), synovial bursae (bursitis), fascias (fascitis), muscles (myosis and myogellosis), subcutaneous and adipose tissue (fibrositis and panniculitis)

Articular or extra-articular

■ **Extra-articular (soft tissue) diseases**

- ✓ the source of pain may also be transmitted pain within the head zones (deep somatic or visceral pain)
- ✓ transmitted pain is not affected by local movement
- ✓ pain is usually accompanied by vegetative manifestations

Sources of pain

articular structures	Extra-articular structures	other sources
synovial membrane	tendons and tendon sheaths	transmitted deep somatic and visceral pain from other organs
	attachment of tendons and ligaments (enthesis)	
intraarticular ligaments	bursae	pseudoradicular pain
articular capsule	muscles	
	bones	
juxtaarticular bone	skin, subcutaneous and adipose tissue	
	nerves	

inflammatory or non-inflammatory

inflammatory or non-inflammatory		
symptom	Inflammatory disease (e.g. rheumatoid arthritis)	non-inflammatory disease (e.g. osteoarthritis)
Morning stiffness	significant, long-term > 60 min	localized, short-term <30 min
General symptoms	present	absent
Local signs of inflammation	present	absent
worst trouble	after rest (morning)	after exercise (evening)
symmetry	common	occasional

inflammatory or non-inflammatory

- **Inflammatory disease** (arthritis) is characterized by:
 - ✓ presence of systemic symptoms (fever, stiffness, weight loss, fatigue, etc.)
 - ✓ presence of local signs of inflammation (pain, swelling, erythema, increase of skin temperature and reduction of joint mobility)
 - ✓ articular stiffness typically after rest (morning stiffness) and improves after exercise
 - ✓ morning stiffness > 60 min is characteristic for inflammatory diseases (e.g. rheumatoid arthritis)
 - ✓ lab signs of inflammation (increase ESR, CRP, hypoalbuminemia, normocytic, normochromic anemia, thrombocytosis)
- inflammatory diseases may be autoimmune (RA, SLE), reactive (ReA), infectious (septic arthritis) or crystal induced (gout)

inflammatory or non-inflammatory

- **Synovitis** (inflammation of the synovial membrane) is characterized by:
 - ✓ soft, painful swelling in the joint area
 - ✓ change of the joint shape (rounded joint edges)
 - ✓ local increase of skin temperature
 - ✓ possible local skin erythema
 - ✓ lost of joint mobility
- Joint synovitis is best seen in:
 - ✓ RC, MCP and IP joints of hands, knees and joints of legs and feet.
- It is recommended to use the USG or MRI imaging technique to distinguish between synovial membrane hyperplasia and joint effusion

inflammatory or non-inflammatory

- **Non-inflammatory disease** (arthralgias) is characterized by:
 - ✓ absence of systemic symptoms
 - ✓ Joint pain without local signs of inflammation
 - ✓ mostly normal lab tests

Duration of symptoms

- Acute joint syndrome < 6 weeks
- Chronic joint syndrome > 6 weeks

- the time factor helps to distinguish between:
 - ✓ acute joint syndrome (sudden onset of symptoms) (e.g. injury, acute gout, septic arthritis)
 - ✓ chronic joint syndrome (gradual development of symptoms) (e.g. RA, SLE, peripheral SpA)

Number of affected joints

- Monoarticular syndrome - involvement of one joint
- Oligoarticular syndrome - involvement of 2-4 joints
- Polyarticular syndrome - involvement ≥ 5 joints

- It is always necessary to investigate the contralateral joint and compare the finding in the case of monoarticular syndrome

Number of affected joints

- **most common causes of monoarticular sy / monoarthritis:**
 - ✓ injury with intra-articular or extra-articular fracture
 - ✓ hemarthros (haemophilia)
 - ✓ osteoarthritis with or without synovitis
 - ✓ osteonecrosis (hip joint)
 - ✓ crystal-induced arthritis (gout, pseudo-gout)
 - ✓ infection and septic arthritis (often present with fever, general alteration)
 - ✓ reactive arthritis (aseptic arthritis), develops weeks after the infection, mainly in the urogenital or gastrointestinal tract (*Chlamydia trachomatis*, *Ureoplasma ureolyticum*, *Campylobacter jejuni*, *Shigella*, *Salmonella*, *Yersinia*)
 - ✓ monoarthritis as an initial symptom of systemic autoimmune diseases (RA, SLE, JIA, peripheral SpA)
 - ✓ neuropathic arthropathy (Charcot joint) in DM

Gout

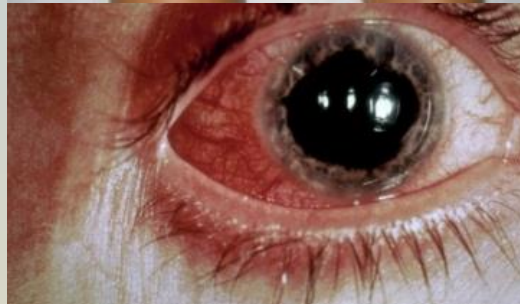


Number of affected joints

■ most common causes of oligoarthritis:

- ✓ ankylosing spondylitis - chronic inflammatory disease affecting the spine (sacroiliitis, spondylitis), peripheral joints and entheses, frequent extraskeletal manifestations (include acute anterior uveitis), genetic testing often reveals the presence of HLA-B27
- ✓ psoriatic arthritis
- ✓ reactive arthritis
- ✓ juvenile idiopathic arthritis
- ✓ early stages of rheumatoid arthritis
- ✓ systemic lupus erythematosus
- ✓ other acute oligoarthritis (viral arthritis, septic arthritis, crystals induced arthritis, rheumatic fever, sarcoidosis or Lyme disease)

Ankylosing spondylitis



Number of affected joints

- **most common causes of polyarthritis:**

- ✓ rheumatoid arthritis
- ✓ psoriatic arthritis
- ✓ systemic lupus erythematosus
- ✓ Sjögren's syndrome
- ✓ juvenile idiopathic arthritis
- ✓ gouty arthritis
- ✓ osteoarthritis

Early rheumatoid arthritis

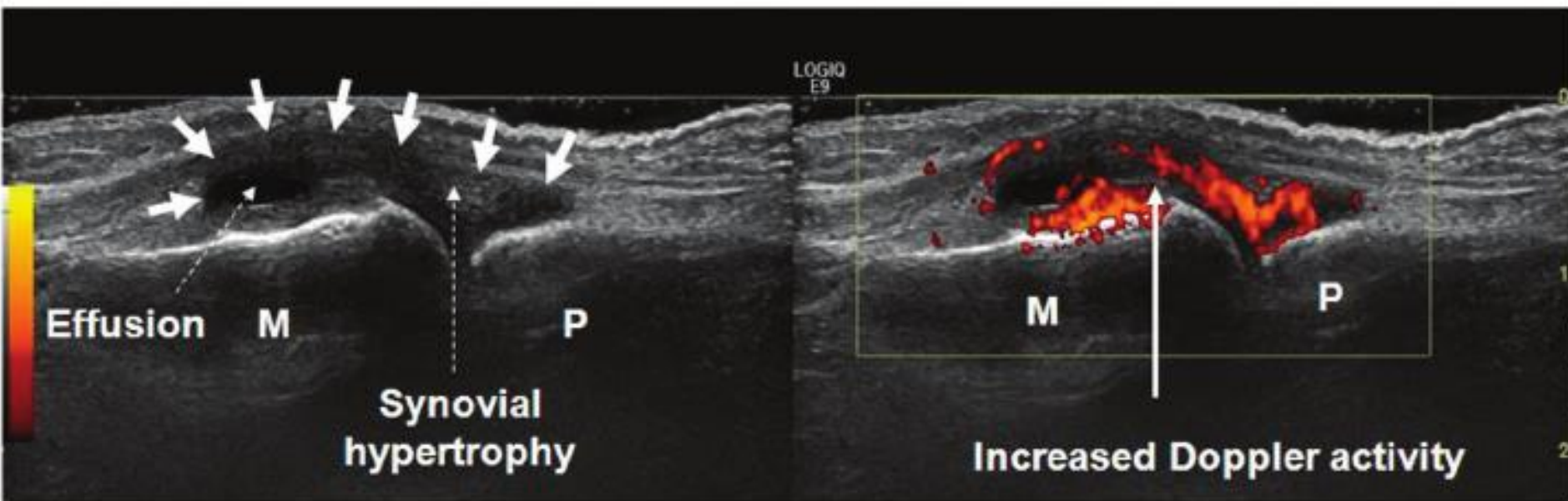


Established rheumatoid arthritis



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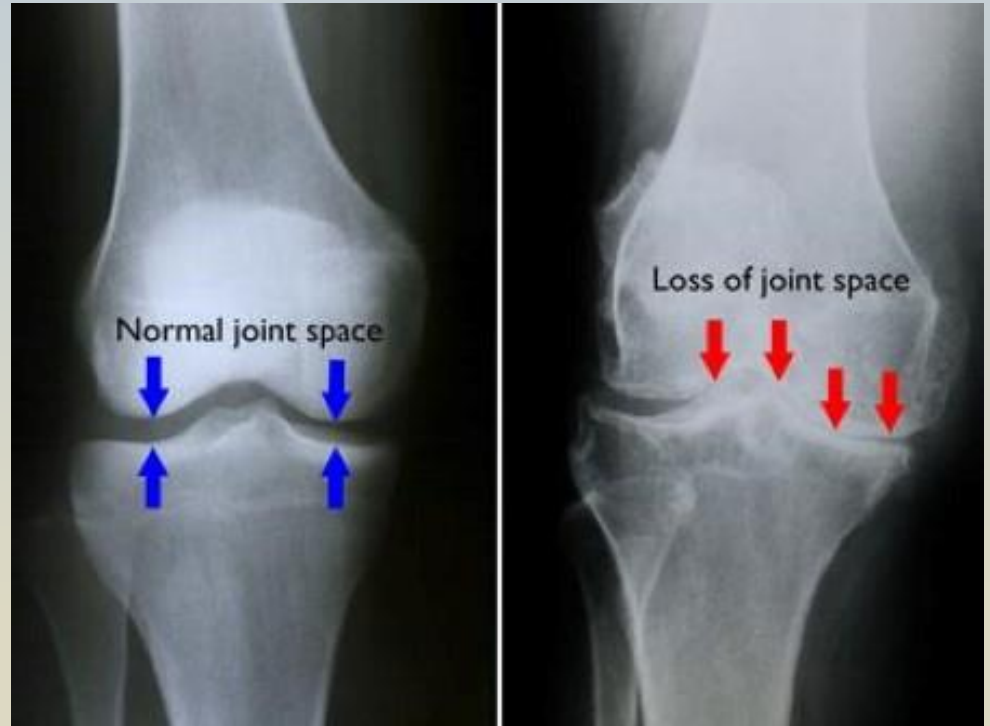
Psoriatic arthritis



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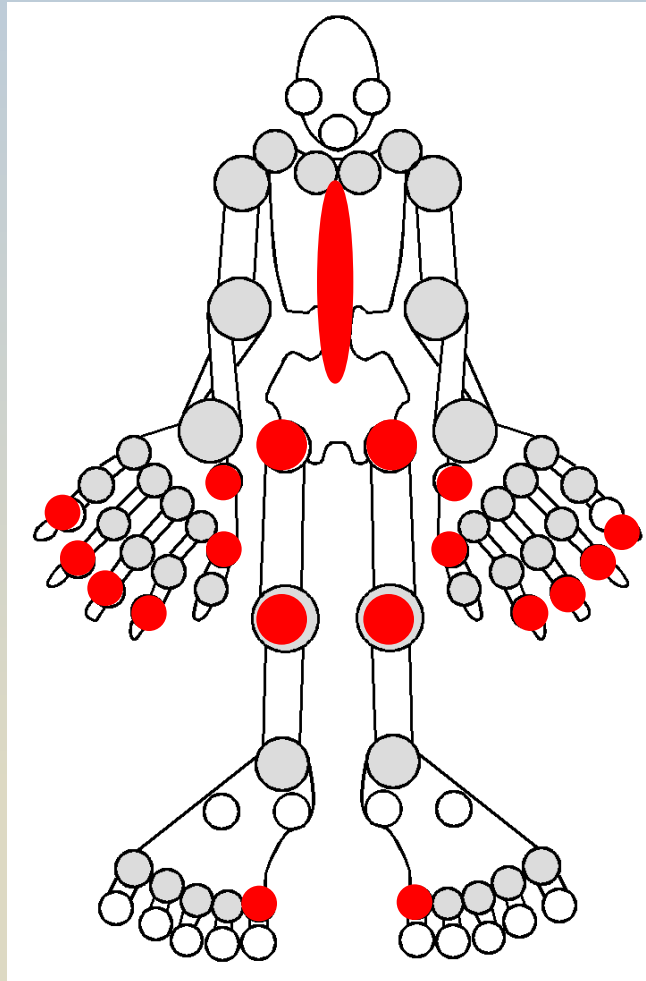


Osteoarthritis

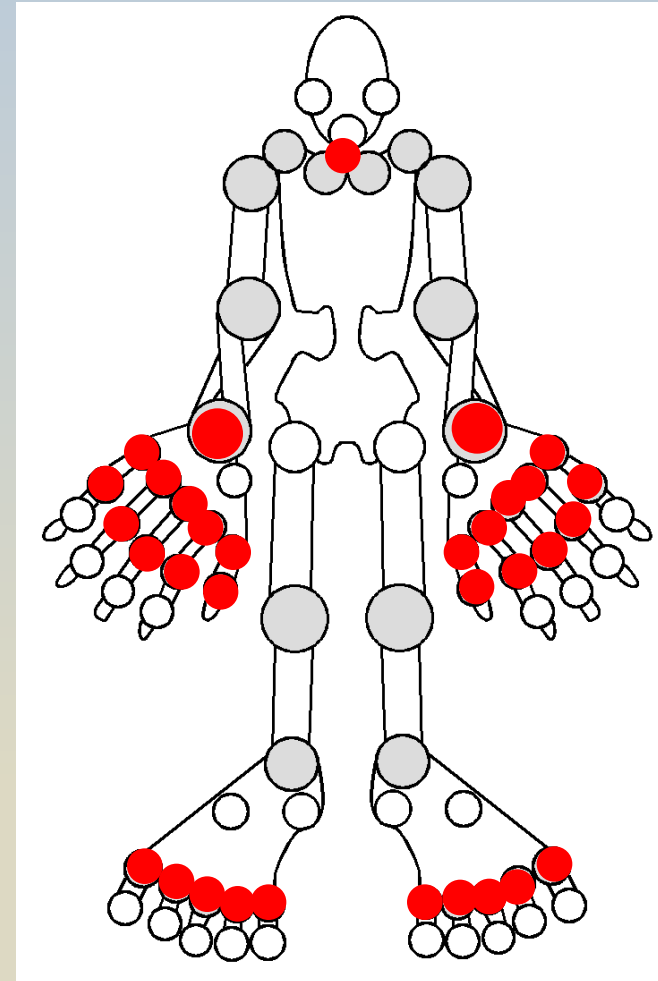


Location of affected joints

osteoarthritis

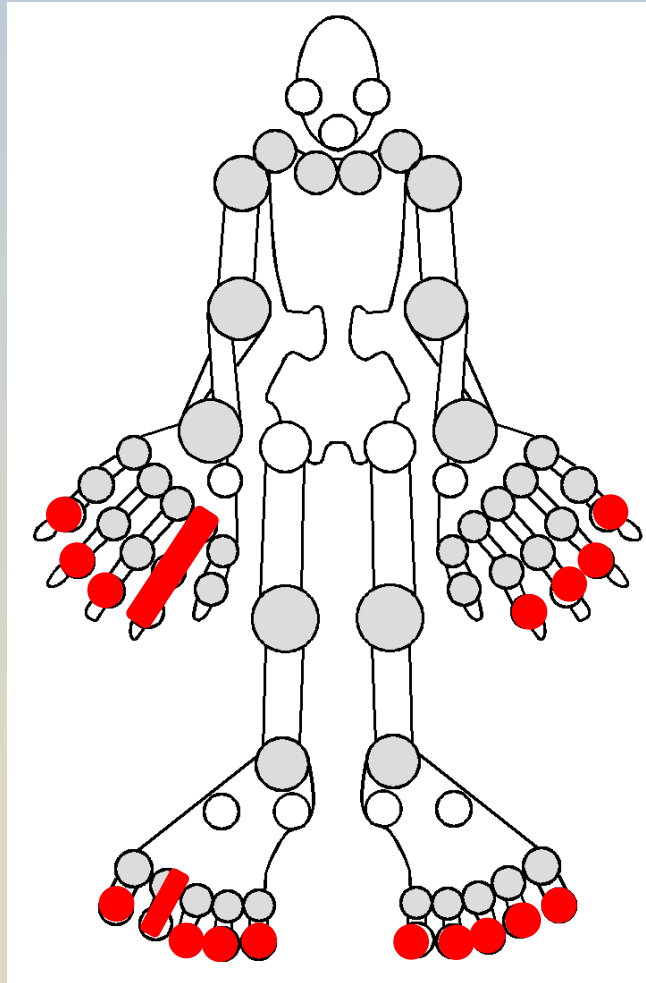


rheumatoid arthritis

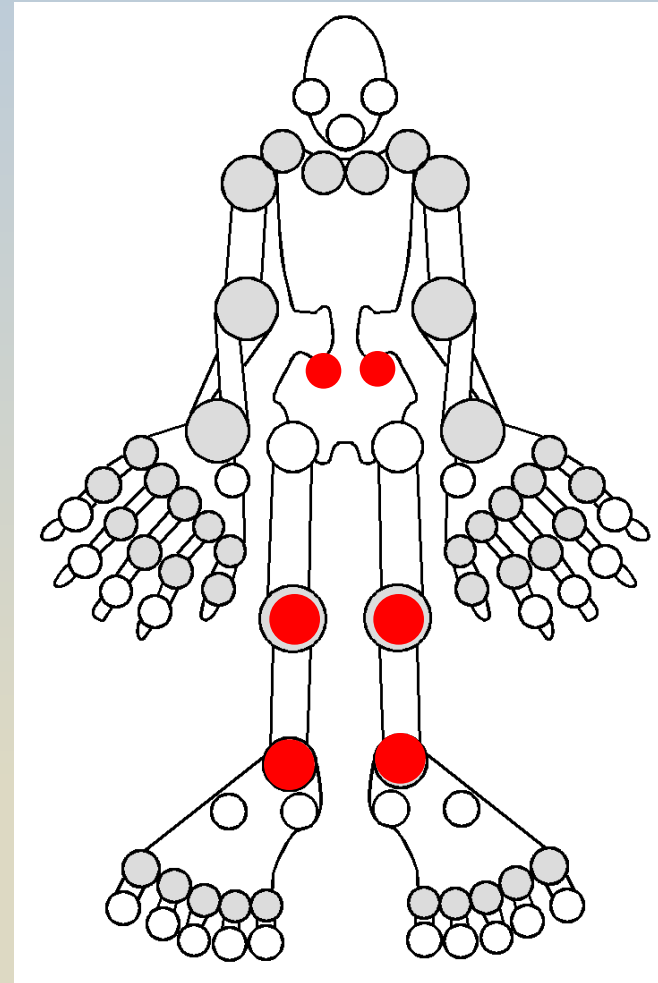


Location of affected joints

psoriatic arthritis

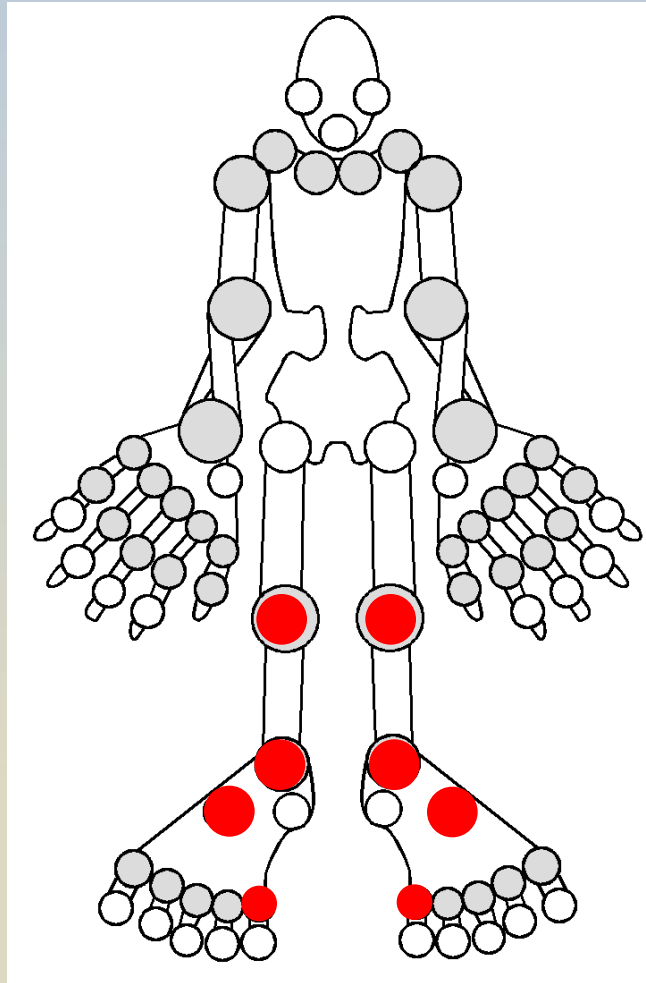


ankylosing spondylitis

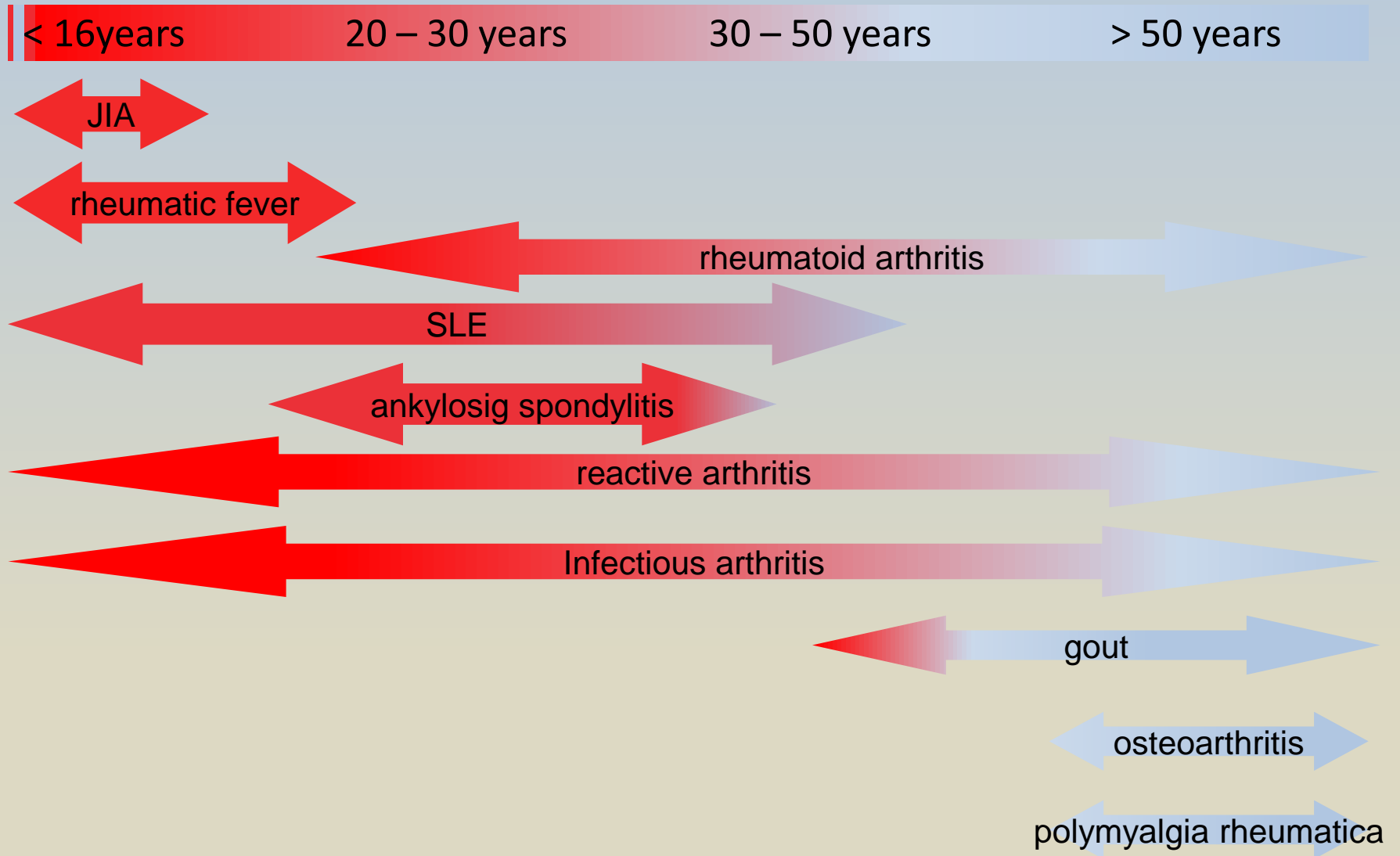


Location of affected joints

gout



Age distribution





**IT'S NOT
LUPUS
EXCEPT
WHEN
IT'S LUPUS**