

Rheumatoid Arthritis

- Objectives:

By the end of this lecture student should be able to:

- Recognize which patient is likely to have RA
- Know the different modes of presentation of RA
- Develop a plan of investigation and management of RA

Rheumatoid Arthritis

Systemic chronic inflammatory disease

Mainly affects synovial joints

- Variable modes of presentation
- Prevalence about 3%
- Worldwide distribution
- Female:male ratio 3:1
- Peak age of onset: 25-50 years

Rheumatoid Arthritis

- Unknown etiology
 - Genetics
 - Environmental
 - Possible infectious component
- Autoimmune disorder

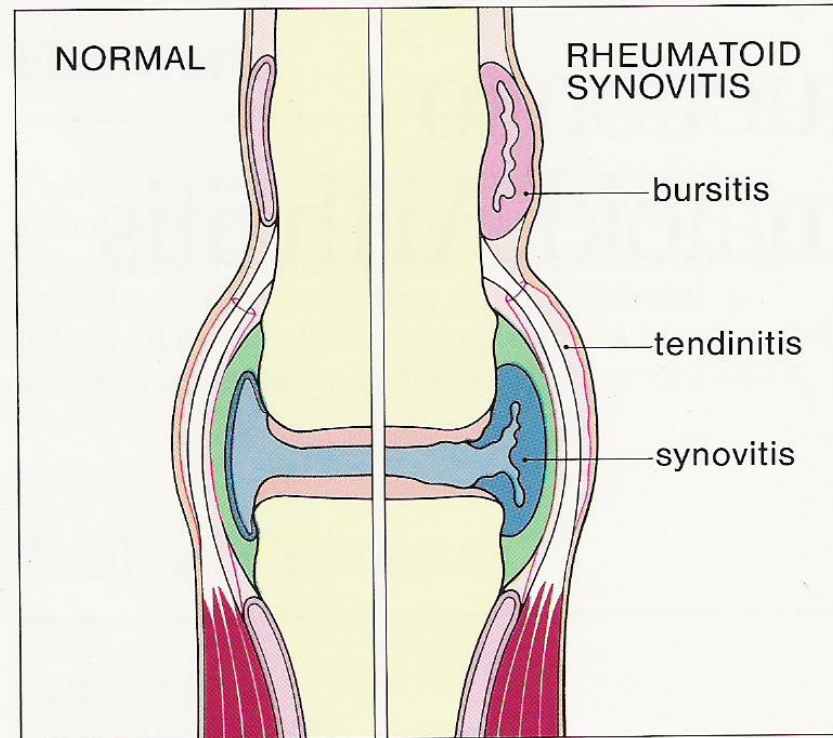
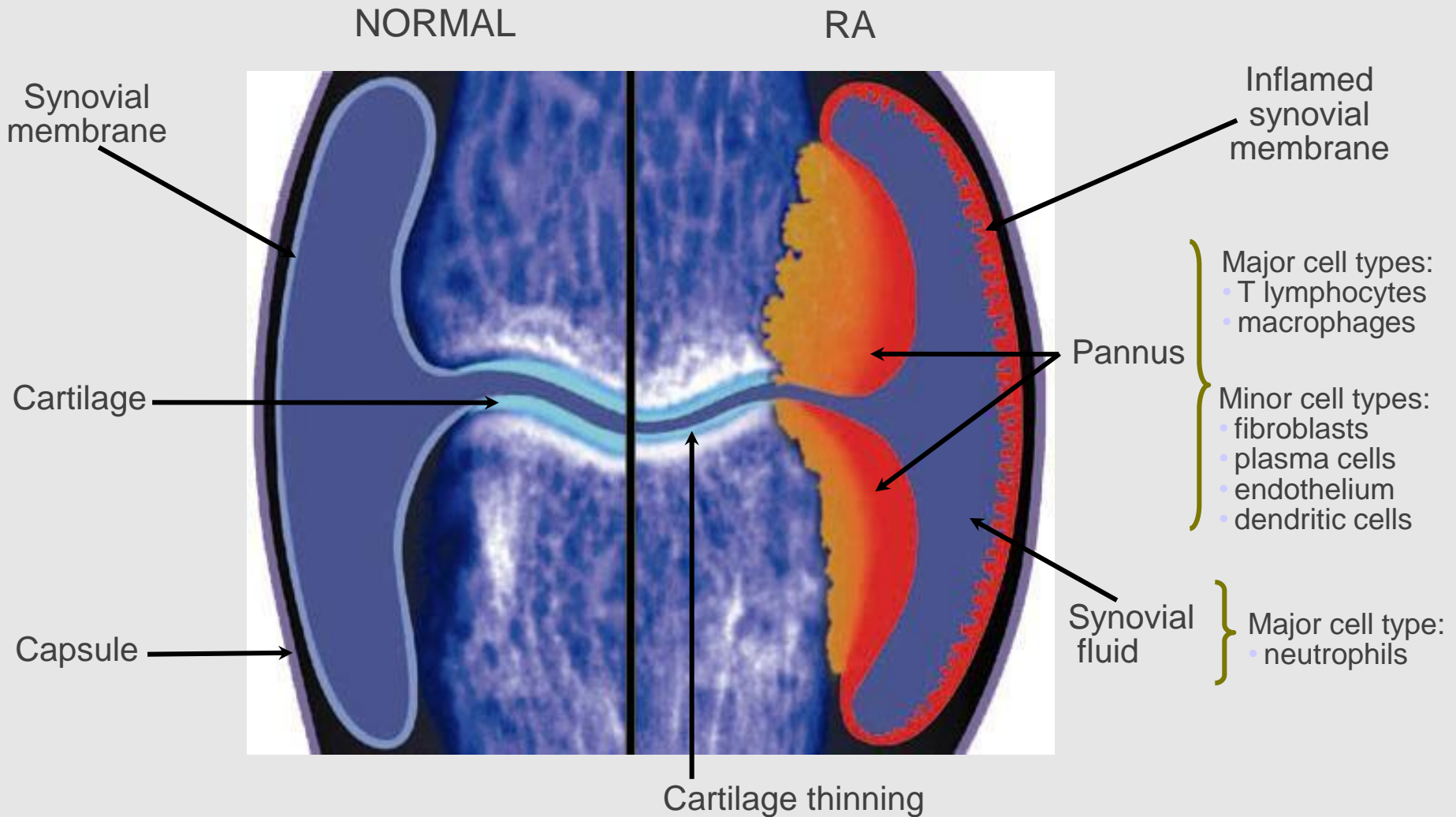


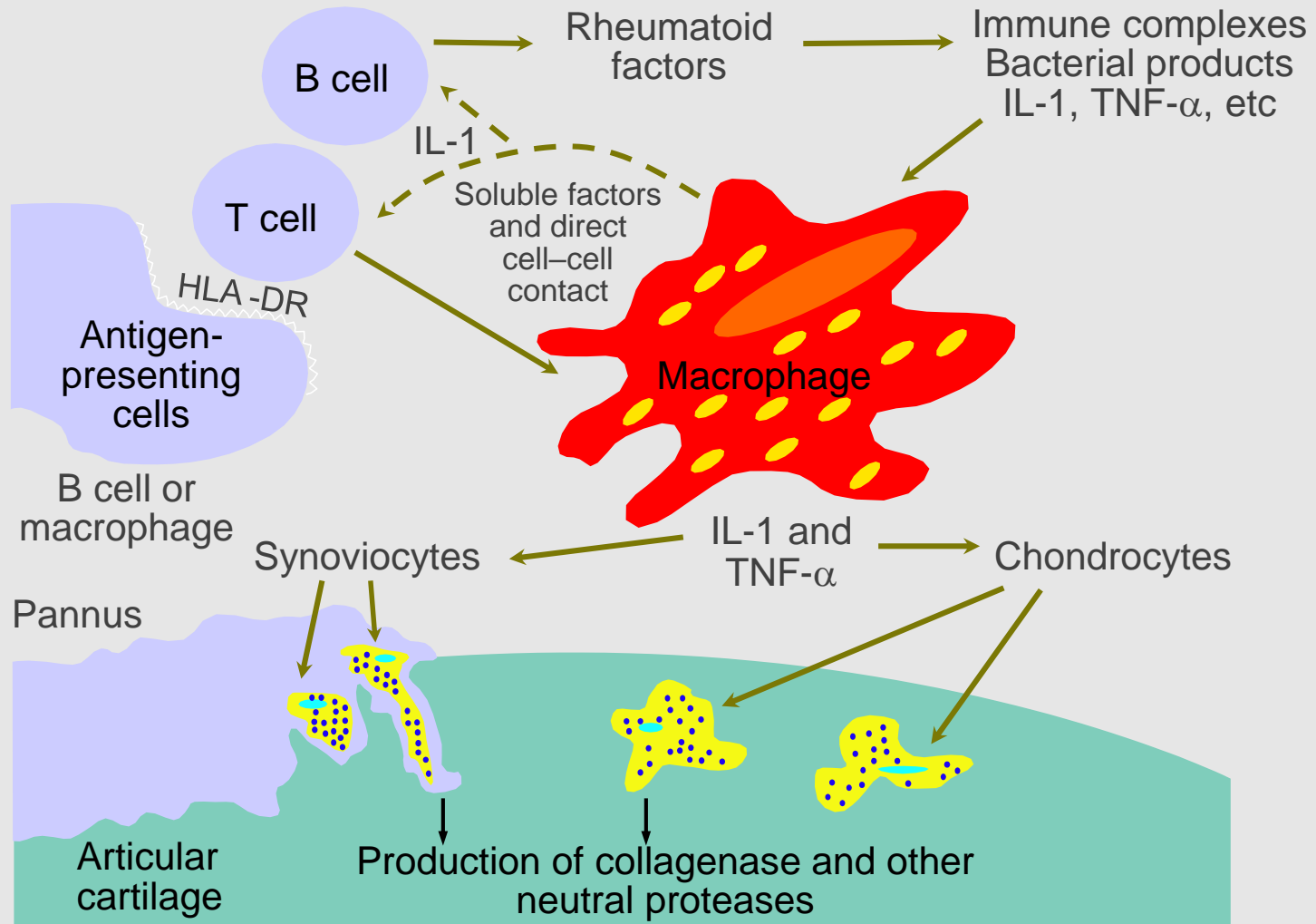
Fig. 3.3 The three major sites of rheumatoid synovitis.

RA Is Characterised by Synovitis and Joint Destruction



Adapted from Feldmann M, et al. *Annu Rev Immunol.* 1996;14:397-440.

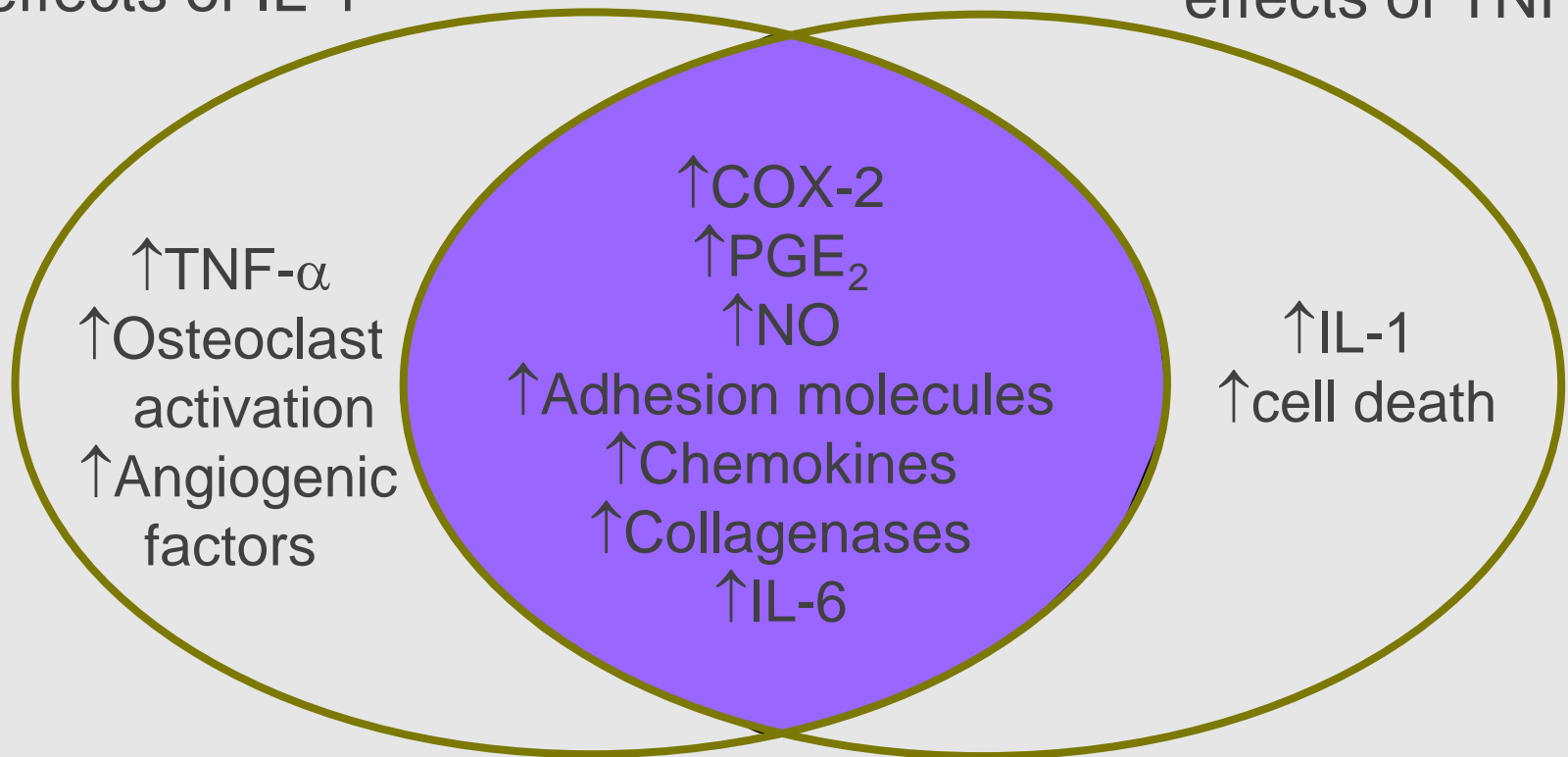
Numerous Cellular Interactions Drive the RA Process



IL-1 and TNF- α Have a Number of Overlapping Proinflammatory Effects

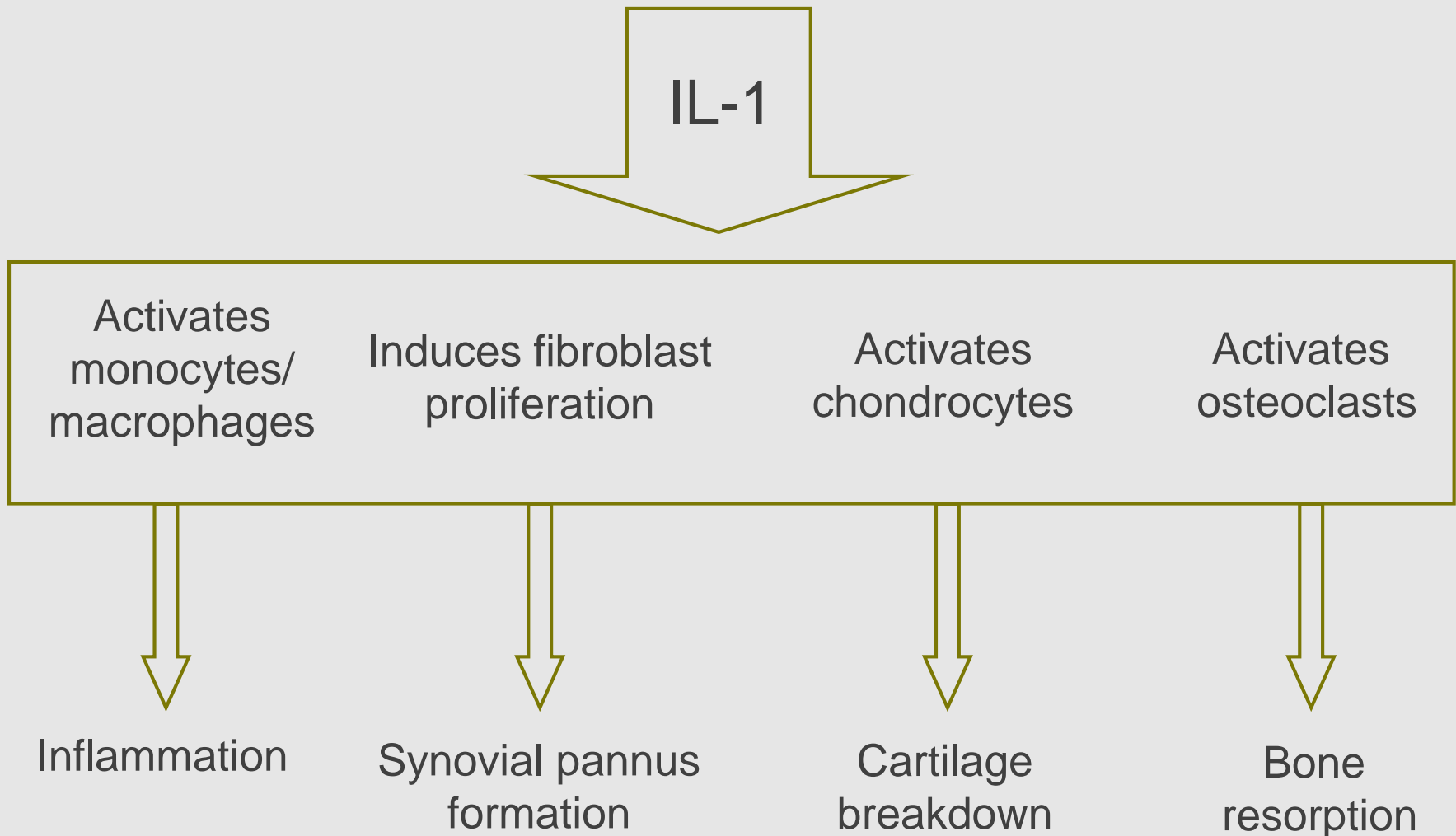
Proinflammatory effects of IL-1

Proinflammatory effects of TNF- α



COX-2 = cyclo-oxygenase type 2; PGE₂ = prostaglandin-E₂; NO = nitric oxide

IL-1 Plays a Pivotal Role in the Inflammatory and Destructive Processes of RA



Signs and Symptoms

- Joint inflammation
 - Tender, warm swollen joints
 - Symmetrical pattern
- Pain and stiffness
- Symptoms in other parts of the body
 - Nodules
 - Anemia
- Fatigue, occasional fever, malaise

JOINT INVOLVEMENT ON PRESENTATION OF RA

Polyarticular **75%**

Small joints
of hands and feet 60%

Large joints 30%

Large and
Small joints 10%

Monoarticular **25%**

Knee 50%

Shoulder }

Wrist }

Hip } 50%

Ankle }

Elbow }

Articular features seen in the Rheumatoid Hand

WRIST:

- Synovitis
- Prominent ulnar styloid
- Subluxation and collapse of carpus
- Radial deviation

MCPs:

- Synovitis
- Ulnar deviation
- Subluxation

PIPs:

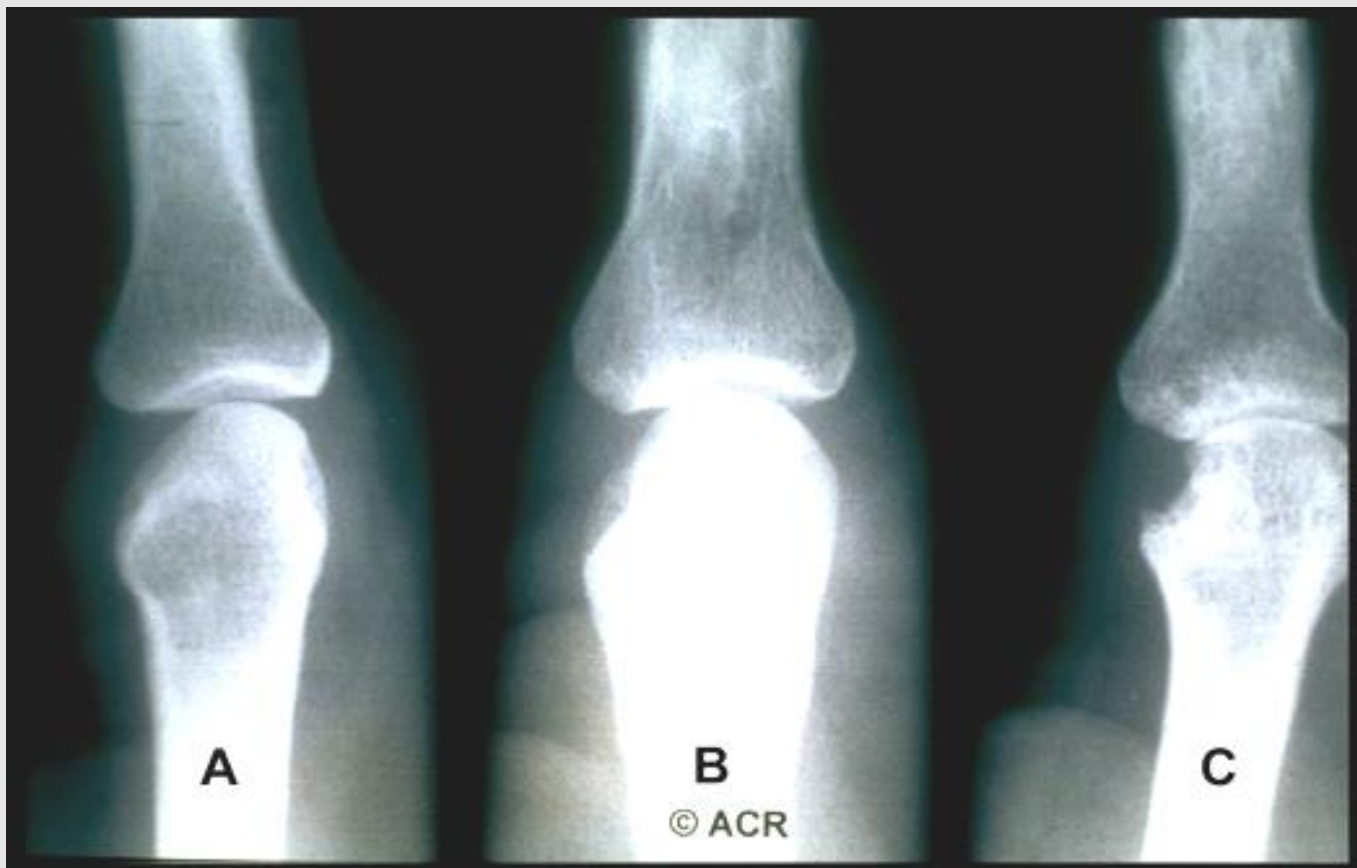
- Synovitis
- Fixed flexion or extension deformities
(Swan neck or boutonniere deformity)

THUMBS:

- Synovitis
- 'Z' deformity







Joint Destruction



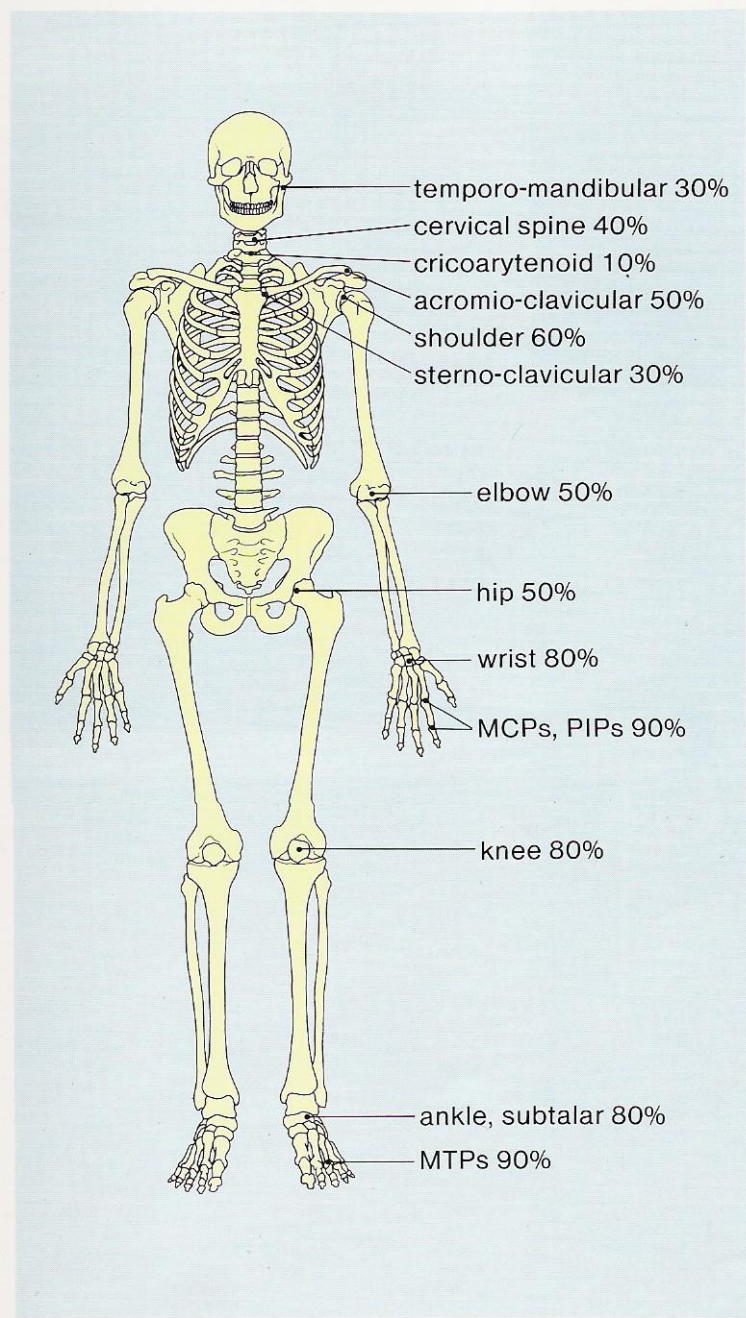


Fig. 3.6 Frequency of involvement of different joint sites in established RA.

Extra-articular manifestations

- General
 - fever, lymphadenopathy, weight loss, fatigue
- Dermatologic
 - palmar erythema, nodules, vasculitis
- Ocular
 - episcleritis/scleritis, scleromalacia perforans, choroid and retinal nodules

Extra-articular manifestations

- Cardiac
 - pericarditis, myocarditis, coronary vasculitis, nodules on valves
- Neuromuscular
 - entrapment neuropathy, peripheral neuropathy, mononeuritis multiplex
- Hematologic
 - Felty's syndrome, large granular lymphocyte syndrome, lymphomas

Extra-articular manifestations

- Pulmonary
 - pleuritis, nodules, interstitial lung disease, bronchiolitis obliterans, arteritis, effusions
- Others
 - Sjogren's syndrome, amyloidosis



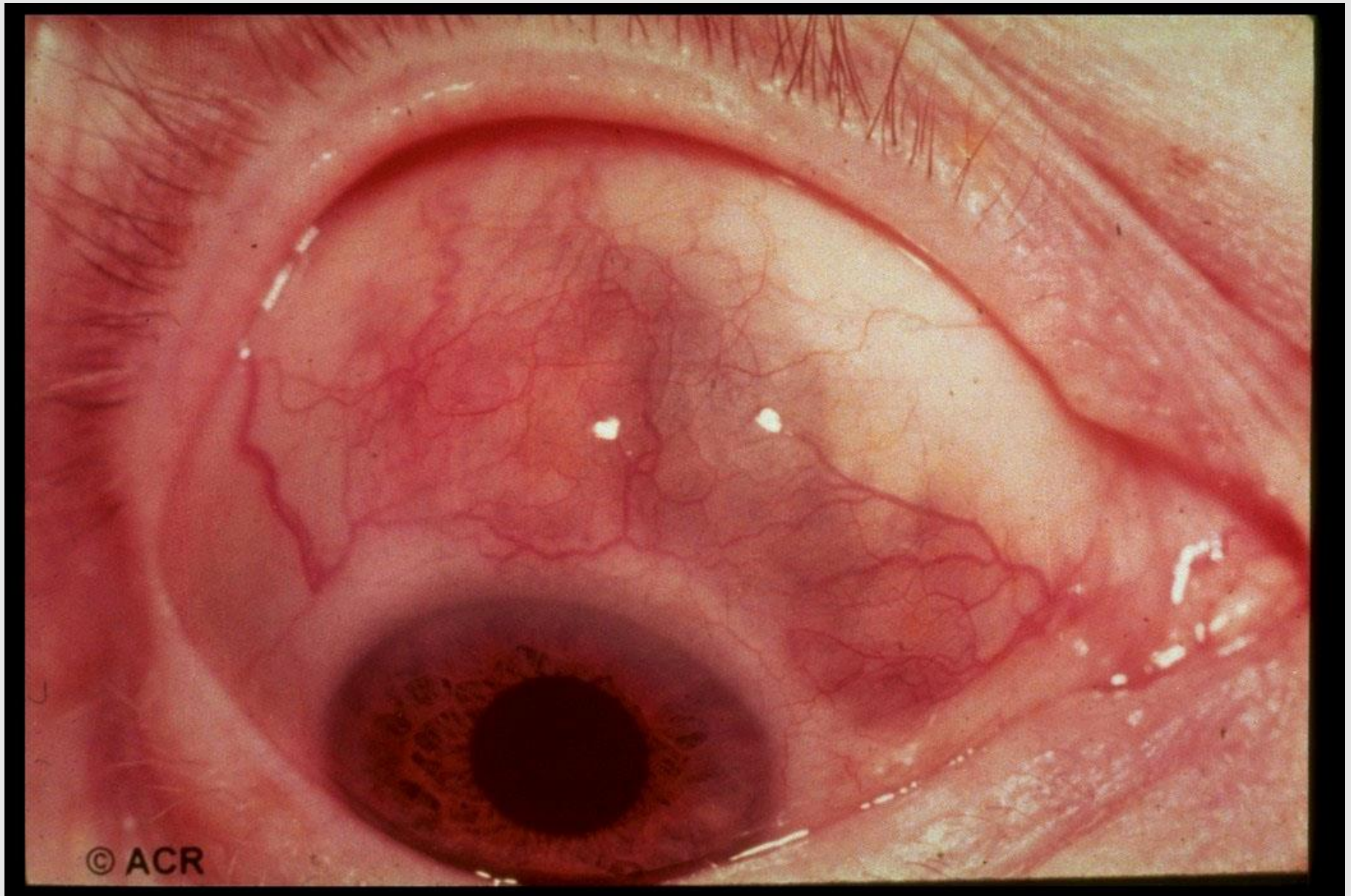
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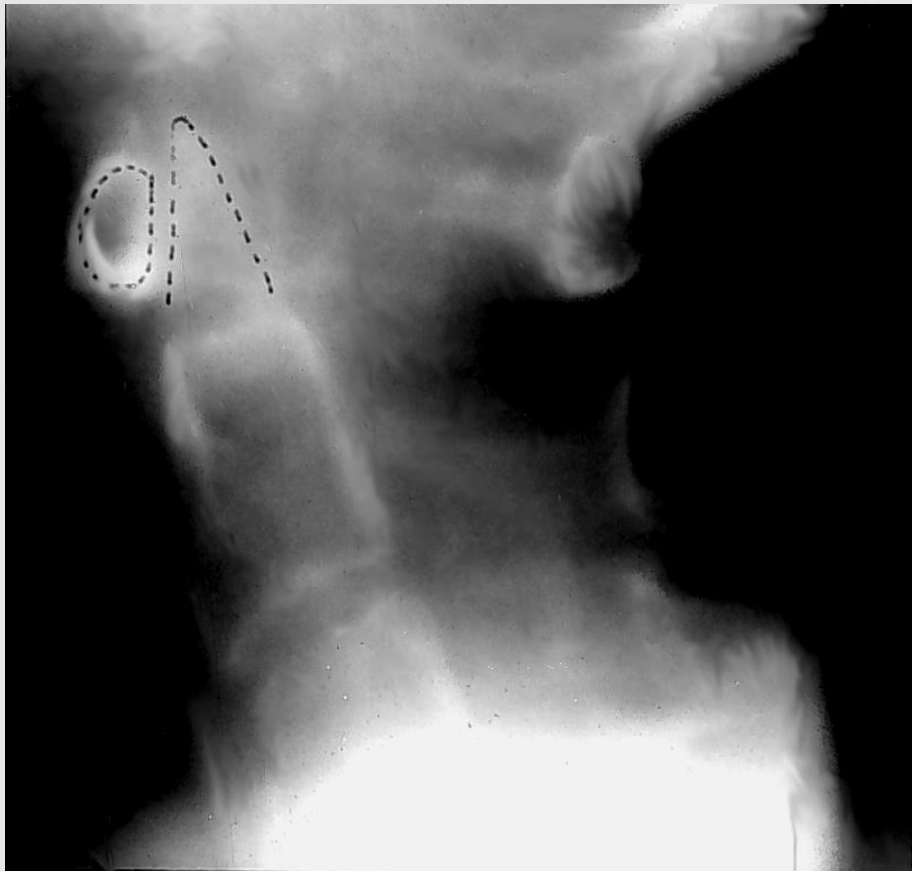
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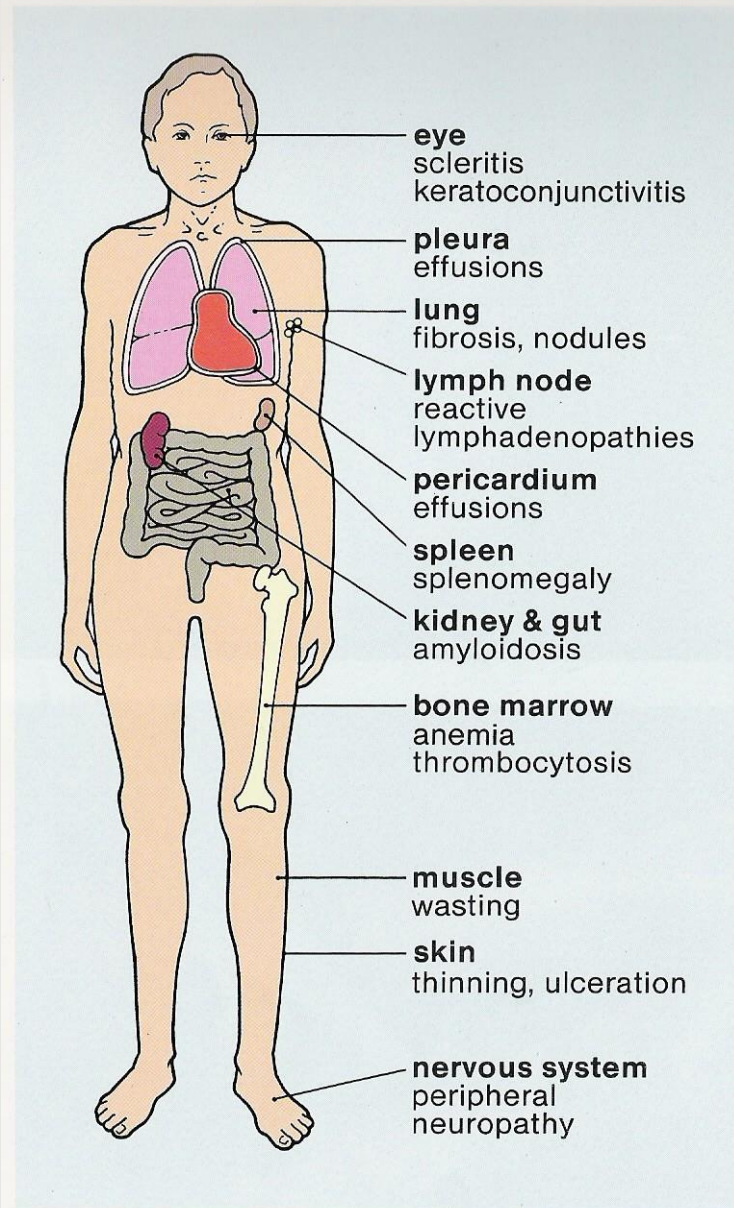


Fig. 3.27 Other organs commonly involved in rheumatoid disease.

Investigations:

- Hematology : CBC , ESR
- Biochemistry : LFT , Renal profile
- Serology : RF , Anti-CCP
- Radiography : Joints , Spines , Chest

ACR 1987 Classification Criteria for Rheumatoid Arthritis

Patients Must Have Four of Seven Criteria:

Morning Stiffness Lasting at Least 1 Hour*

Swelling in 3 or More Joints*

Swelling in Hand Joints*

Symmetric Joint Swelling*

Erosions or Decalcification on X-ray of Hand

Rheumatoid Nodules

Abnormal Serum Rheumatoid Factor

* Must Be Present at Least 6 Weeks.

The 2010 ACR / EULAR classification criteria for rheumatoid arthritis

Target population (Who should be tested?): Patients who

- 1) have at least 1 joint with definite clinical synovitis (swelling)
- 2) with the synovitis not better explained by another disease

Add **A–D**; a score of 6/10 is needed to classify patient as having definite RA

A. Joint involvement

- | | |
|---|---|
| 1 large joint. | 0 |
| 2-10 large joints | 1 |
| 1-3 small joints (with or without involvement of large joints) | 2 |
| 4-10 small joints (with or without involvement of large joints) | 3 |
| 3-10 joints (at least 1 small joint) | 5 |

B. Serology (at least 1 test result is needed for classification)

- | | |
|---|---|
| Negative RF <i>and negative ACPA</i> | 0 |
| Low-positive RF <i>or low-positive ACPA</i> | 2 |
| High-positive RF <i>or high-positive ACPA</i> | 3 |

C. Acute-phase reactants (1 test result is needed for classification)

- | | |
|-------------------------------------|---|
| Normal CRP <i>and normal ESR</i> | 0 |
| Abnormal CRP <i>or abnormal ESR</i> | 1 |

D. Duration of symptoms

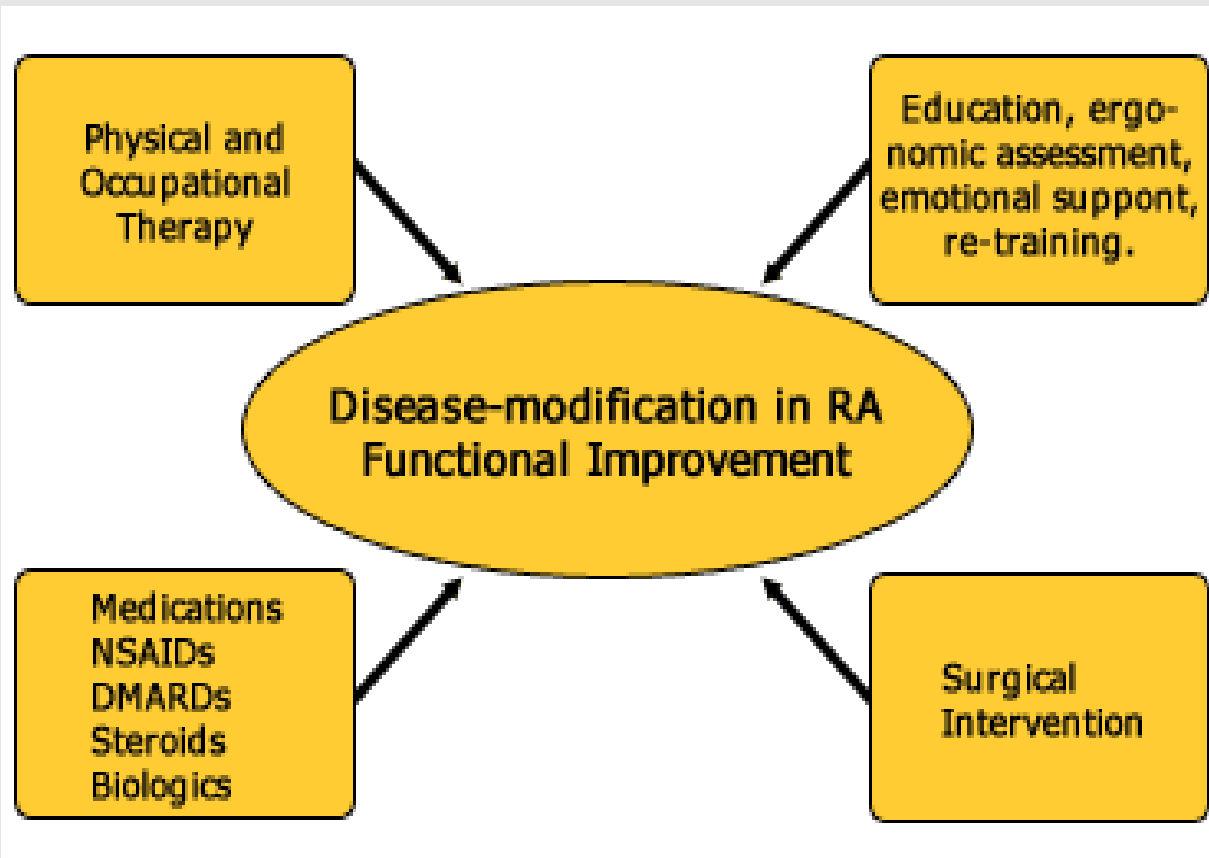
- | | |
|----------|---|
| 6 weeks | 0 |
| >6 weeks | 1 |

Treatment Goals

- Relieve pain
- Reduce inflammation
- Prevent/slow joint damage
- Improve functioning and quality of life

Treatment Approaches

- Lifestyle modifications
- Rest
- Physical and occupational therapy
- Medications
- Surgery



Rationale for the Early Treatment of R.A.

- Erosions develop early in the disease course
- Destruction is irreversible
- Disease activity is strongly associated with joint destruction later in the disease course
- Early treatment can slow down radiographic progress
- Disease activity must be suppressed maximally in its early stages to prevent destruction and preserve function

Drug Treatments

- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Disease-modifying antirheumatic drugs (DMARDs)
- Biologic response modifiers
- Corticosteroids

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Traditional NSAIDs

- Diclofenac
- Ibuprofen
- Ketoprofen
- Naproxen

COX-2 Inhibitors

- Celecoxib
- Etericoxib

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

- To relieve pain and inflammation
- Use in combination with a DMARD
- Gastrointestinal side effects

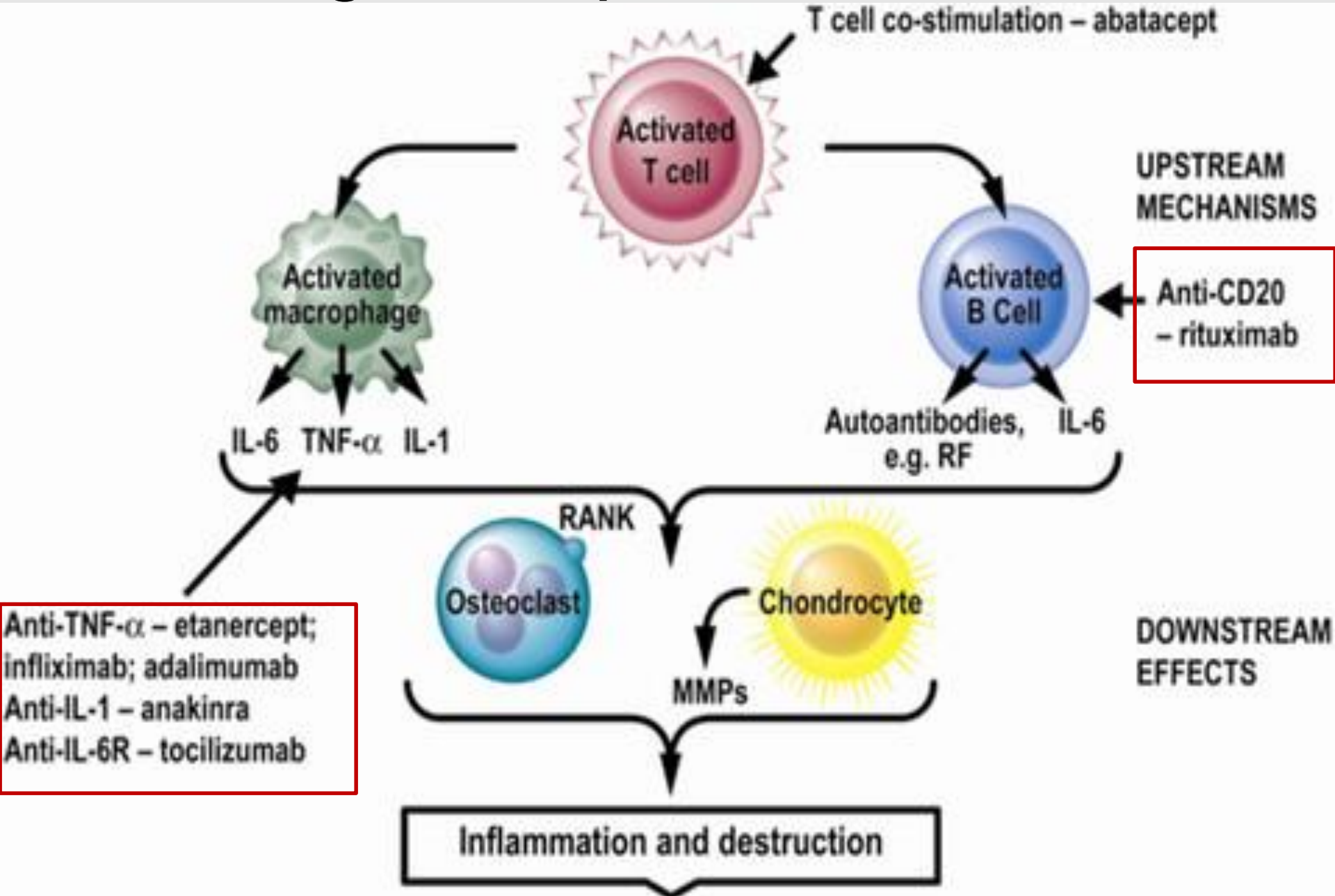
Disease-Modifying Antirheumatic Drugs (DMARDs)

- Hydroxychloroquine (eye exam)
- Sulfasalazine (CBC, LFTs)
- Methotrexate (CBC, LFTs)
- Leflunomide (CBC, LFTs)
- Azathioprine (CBC, LFTs)

Disease-Modifying Antirheumatic Drugs (DMARDs)

- Control symptoms
- No immediate analgesic effects
- Can delay progression of the disease (prevent/slow joint and cartilage damage and destruction)
- Effects generally not seen until a few weeks to months

Biologic Response Modifiers



Biologic Response Modifiers

- **TNF Inhib:**
etanercept,infliximab,Adalimumab
- **IL6 receptor inhib:**
tocilizumab
- **T Cell costimulation modulator:**
abatacept
- **Anti- CD20:** Rituximab

Physiotherapy

- Effective in maintaining the range of motion
- Strengthening of muscles
- Prevent contractures
- Prevent deformities
- Maintain activities of daily living

Occupational Therapy

- Education of patients in the use of daily living activities
- Prevention of joint contractures and deformities



THANK YOU