

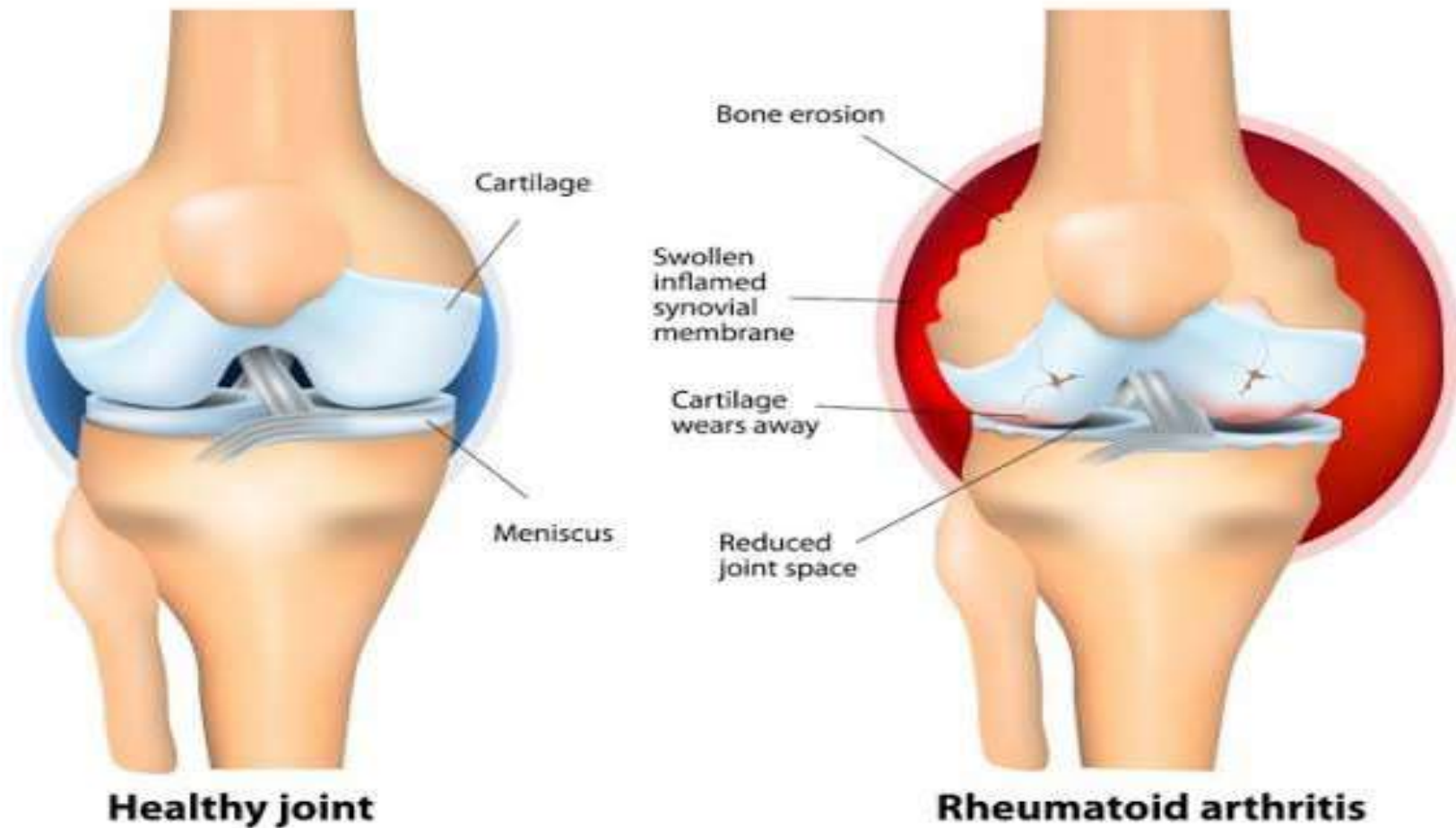


SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

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RHEUMATOID ARTHRITIS



DEFINITION

- Rheumatoid arthritis is a long-term autoimmune disorder that primarily affects joints.
- It typically results in warm, swollen, and painful joints.
- Pain and stiffness often worsen following rest.
- Most commonly, the wrist and hands are involved, with the same joints typically involved on both sides of the body.



SYMPTOMS

- Symmetrical Pain
- Swelling
- Nodules
- In hand: Distal interphalangeal joints
- Proximal interphalangeal joints
- Metacarpophalangeal joints
- Wrist.

CLINICAL MANIFESTATIONS

On progression of the disease leads to:

- Swan neck
- Boutonniere or Button hole deformity
- Z-deformity of thumb

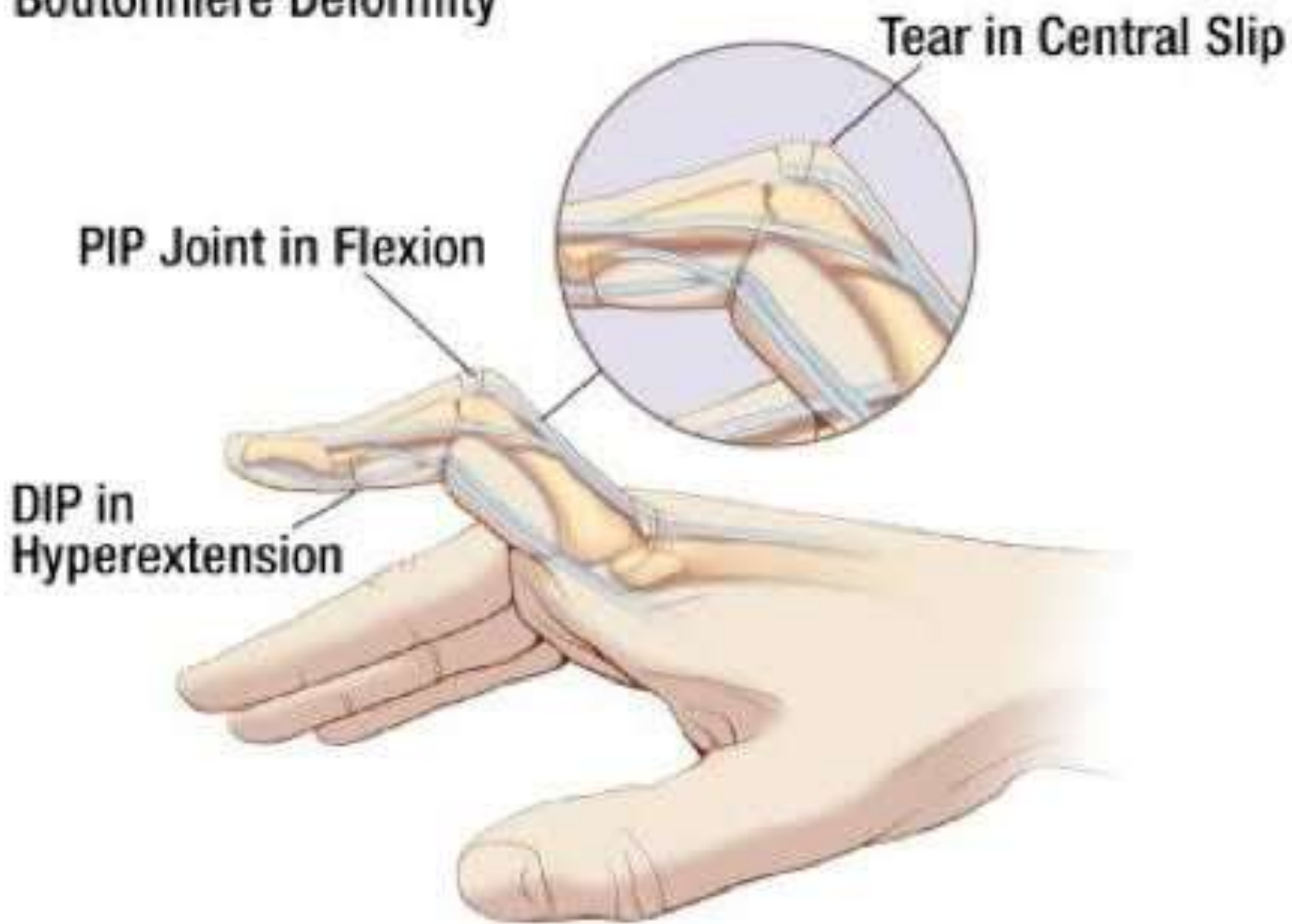
Swan Neck Deformity

DIP Flexion (Bent)

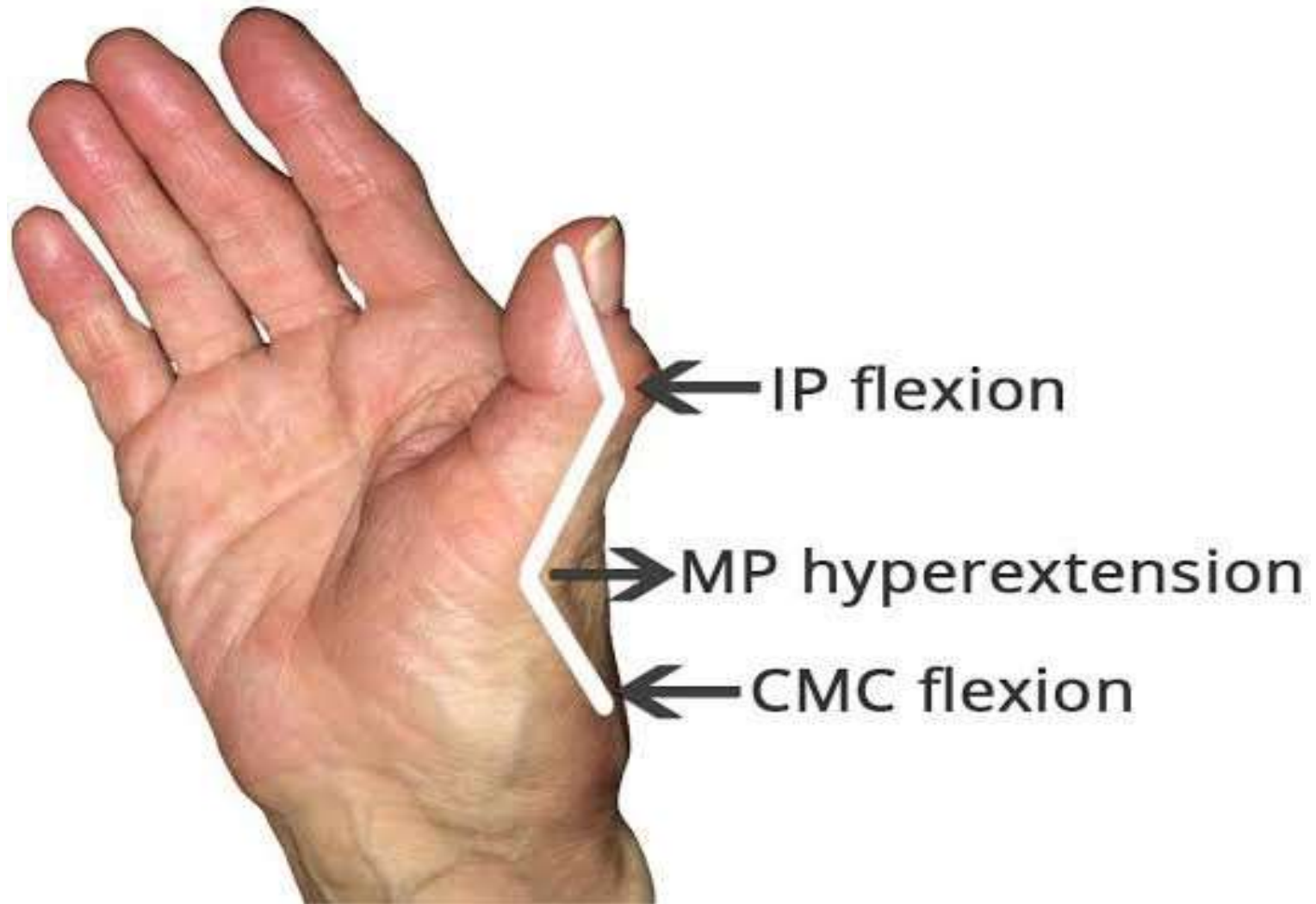
PIP in
Hyperextension



Boutonniere Deformity

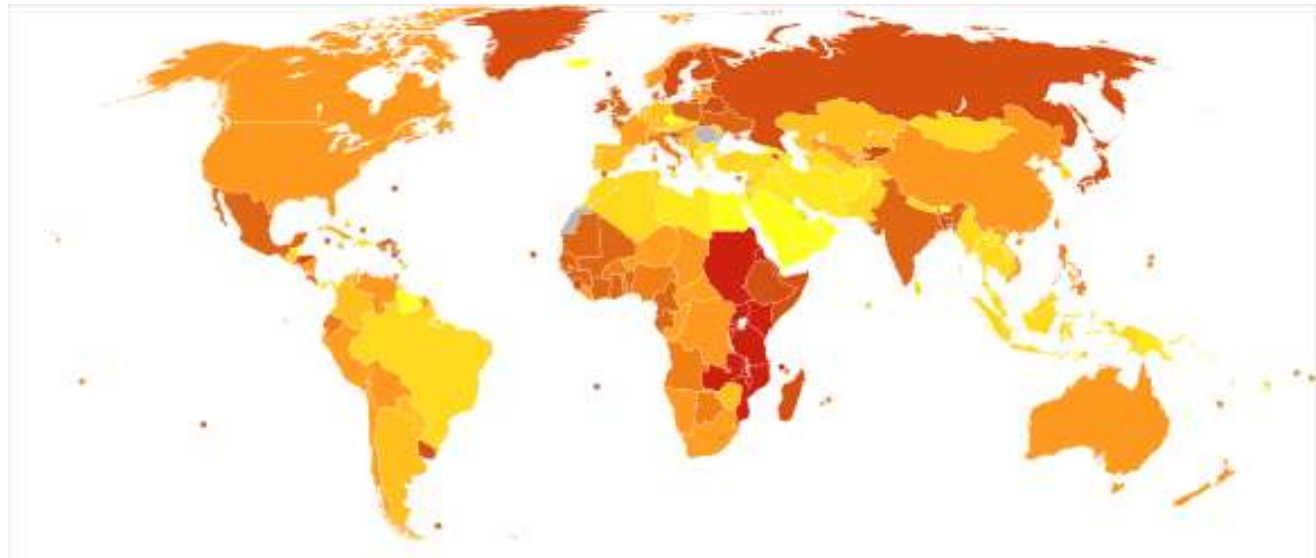


Z-thumb deformity



EPIDEMIOLOGY

- RA affects between 0.5 and 1% of adults in the developed world with between 5 and 50 per 100,000 people newly developing the condition each year.
- In 2010 it resulted in about 49,000 deaths globally.
- Onset is uncommon under the age of 15 and from then on the incidence rises with age until the age of 80
- Women are affected three to five times as often as men.

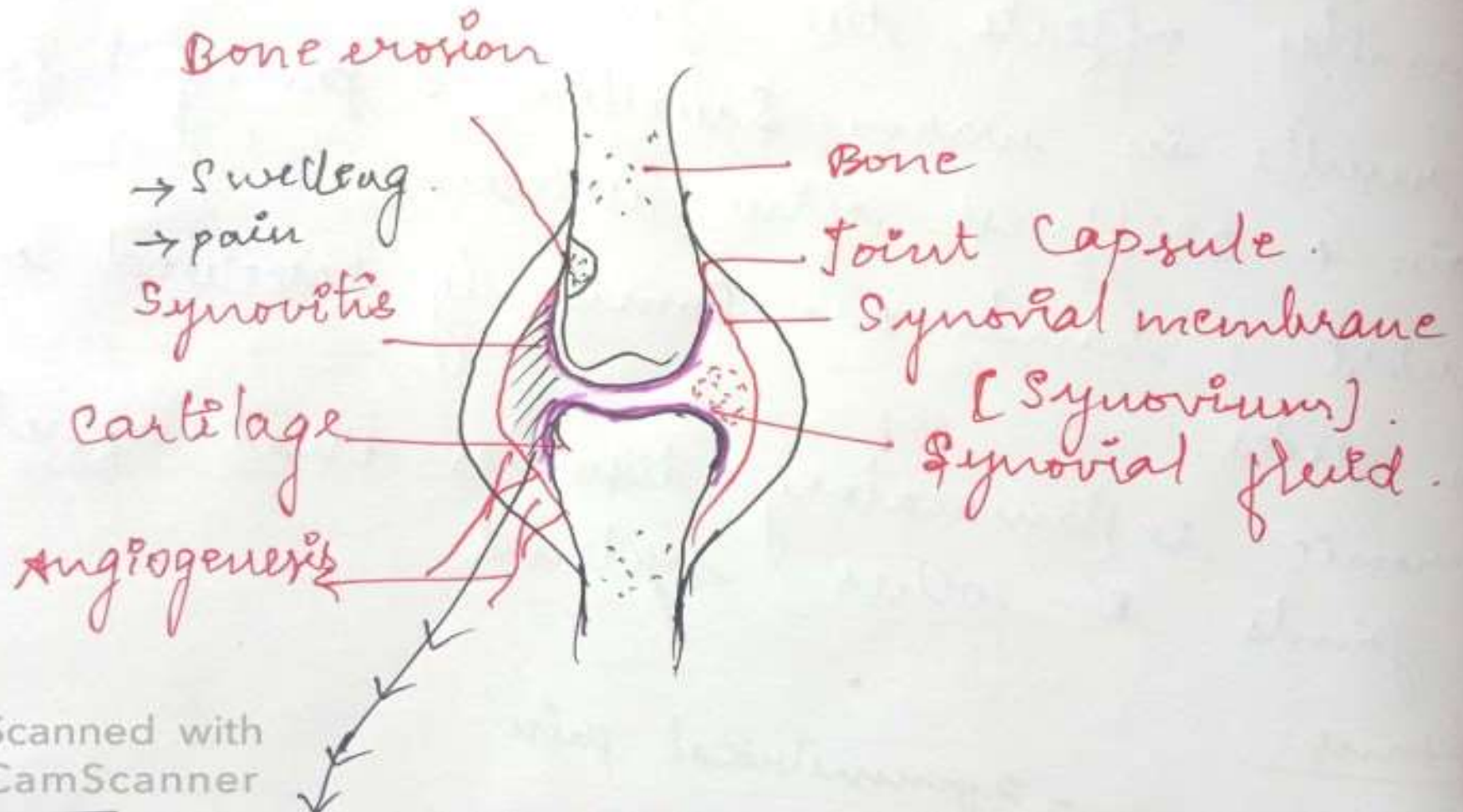


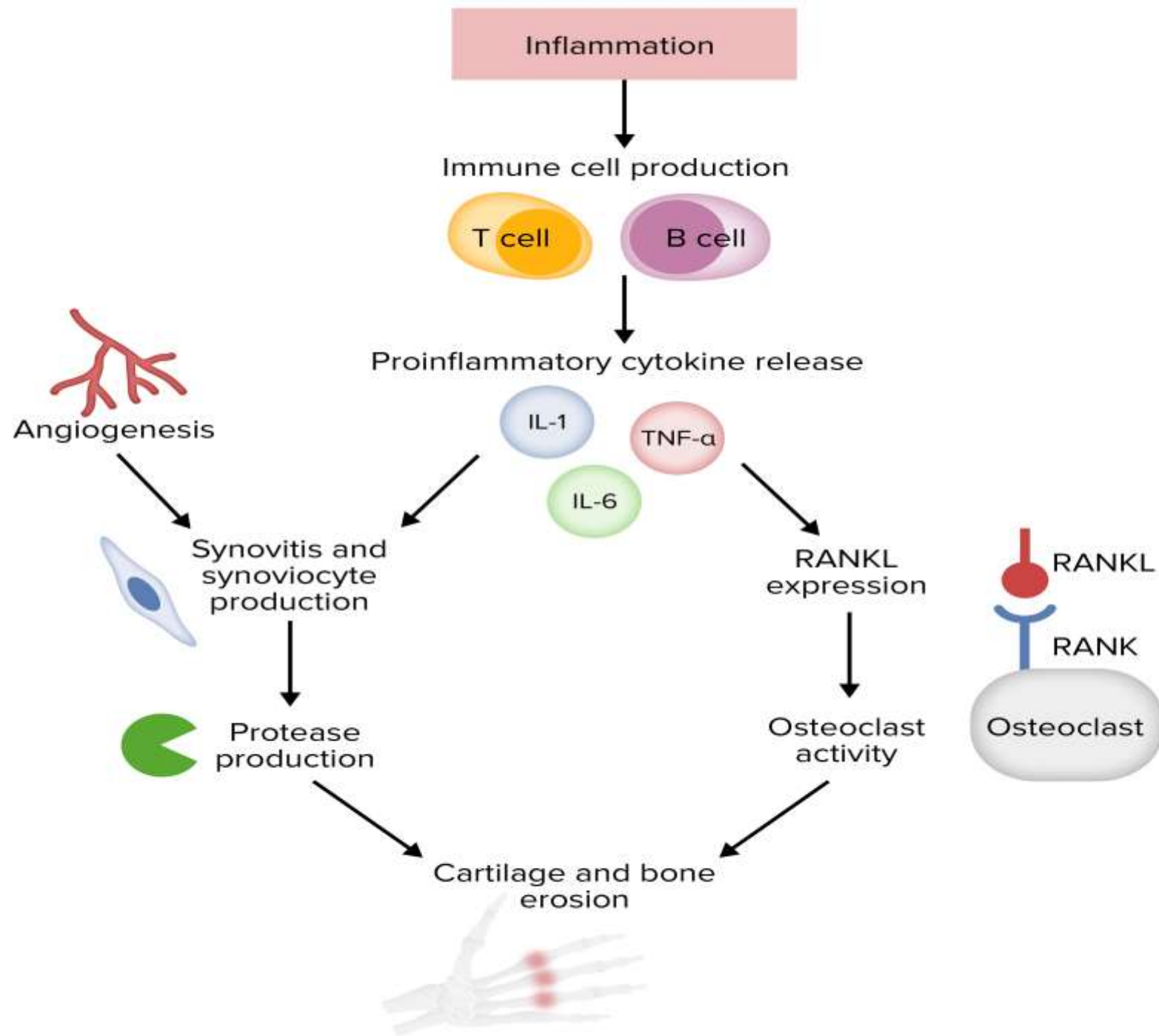
ETIOLOGY

- **Genetics**
- Human leucocyte Antigen; HLA-DR1 & HLA-DR4.
- **Environment**
- Cigarette smoke
- Pathogens like bacteria
- Environmental trigger can produce HLA gene.
- HLA gene can modify our own antigens.
- On modification; T cells, B cells, Plasma cells get activated.
- On activation of these cells, they produce antibodies which act against self antigen.
- Antibody called **anti- citrullinated antibody**

PATHOGENESIS

pathogenesis!





Macrophage activation

Macrophage activation leads to production of cytokine mediators such as **TNF alpha, IL-1 and IL-6.**

- These mediators combinely cause inflammation.
- These mediators activates Fibroblast cells leads to proliferation in the synovium.
- This Fibroblast cell activation and cytokine mediators activate RANKL gene causes Osteoclast and Bone erosion.
- Cytokine mediators also activate Fibroblast cell in synovial fluid and produce protease enzyme which degrade the cartilage in the Bone.

T-cell activation

- T-cell activation produce inflammation.
- Proliferation of Fibroblast cell in the synovium.
- This proliferated cell can migrate from joint to joint and causes pain called as symmetric pain.

Other cells

- **Plasma cells** in the synovium produce inflammation.
- **Neutrophils and immune complex** present in the synovial fluid produce inflammation in the synovium.

COMPLICATIONS

- Nodules in skin
- Anaemia
- Atherosclerotic plaque
- Myocardial infarction
- Stroke
- Fatigue
- Depression
- Osteoporosis
- Insulin resistance
- Muscle weakness
- Thrombocytosis

DIAGNOSIS

- Blood test
- Presence of Rheumatoid factor and Anti citrullinated protein antibodies.
- X-ray



TREATMENT

- NSAIDS
- DMARD'S (Disease Modifying Anti- Rheumatic drugs) such as;
 - Methotrexate
 - Azathioprine
 - Hydroxychloroquine
 - Sulfasalazine
 - Leflunomide
- Corticosteroids
- Biological products such as;
 - Adalimumab
 - Infliximab
 - Anakinra