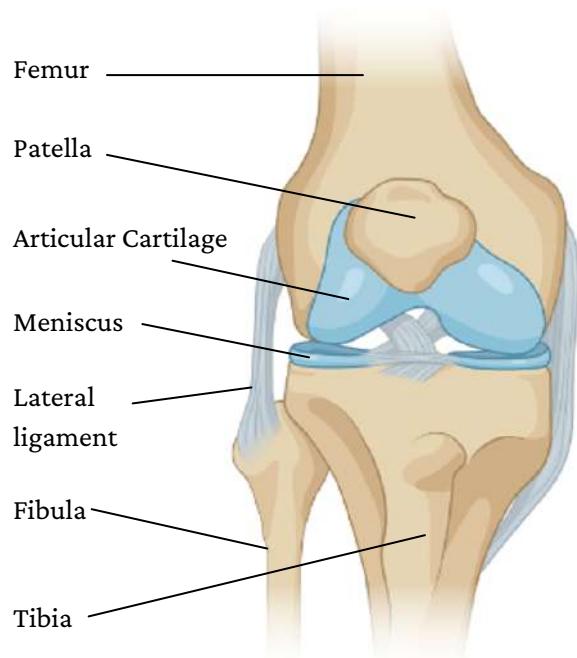


Understanding Arthritis



What is Arthritis?

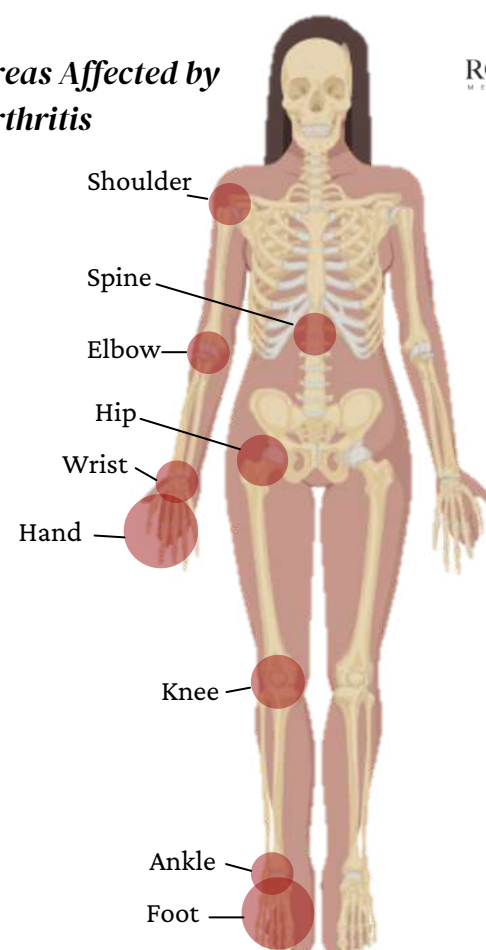
Arthritis means inflammation or swelling of one or more joints. There are more than 100 types of arthritis that affect the joints, tissues around the joint, and other connective tissues. The three most common types of arthritis are **rheumatoid arthritis**, **osteoarthritis**, and **gout**.

A Healthy Joint

A joint is where two or more bones are joined together. Joints can be rigid or movable. Many joints have cartilage on the ends of the bones where they come together. Healthy cartilage helps you move by allowing bones to glide over one another. It also protects bones by preventing them from rubbing against each other.

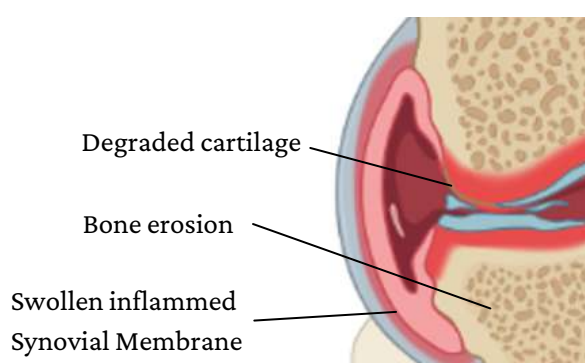
- Articular cartilage:** needs to maintain the joint's resilience and relative softness
- Synovial membrane:** provides nutrients and lubrication to the joint tissues
- Chondrocytes** (cells for cartilage formation): to maintain the extracellular matrix

Areas Affected by Arthritis



What is Rheumatoid Arthritis (RA)

Rheumatoid arthritis, or RA, is an autoimmune and inflammatory disease, which means that your immune system attacks healthy cells in your body by mistake, causing inflammation (painful swelling) in the affected parts of the body.

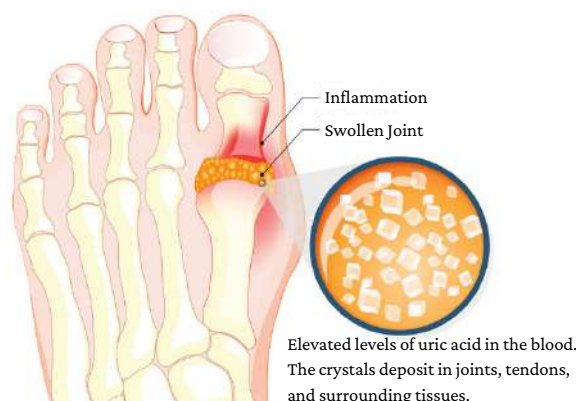


Rheumatoid Arthritis

1. Inflamed synovial membrane
2. Bone erosion
3. Cartilage exposed
4. Joint swelling and tenderness
5. Reduced joint space and bone fused when RA is worsening
6. Joint deformity

What is Gout?

Gout is a form of arthritis that is caused by a buildup of uric acid crystals in the joints, most commonly in the big toe. There are times when symptoms get worse, known as flares, and times when there are no symptoms, known as remission. Repeated bouts of gout can lead to gouty arthritis, a worsening form of arthritis.



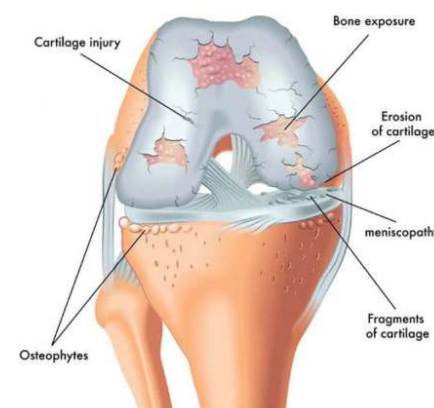
Gout

1. Deposition of monosodium urate (MSU) crystals: **tophus**
2. Bone erosion
3. Cartilage erosion
4. Inflamed synovial membrane



What is Osteoarthritis (OA)?

Osteoarthritis (OA) is the most common form of arthritis, also known as degenerative joint disease or “wear and tear” arthritis. It occurs most frequently in the hands, hips, and knees. Inflammation occurs as cytokines and metalloproteinases are released into the joint. These agents are involved in the excessive matrix degradation that characterizes cartilage degradation in OA.



Osteoarthritis

1. Loss of joint space
2. Osteophytes
3. Subchondral cysts: formation of fluid-filled sacs inside the joints
4. Subchondral sclerosis: a thickening of bone that happening in joint
5. Inactivity stiffness: occurs when the patient gets up and bears weight after prolonged immobility
6. Joint deformity in the knees
7. Feel for crepitus (abnormal popping or crackling sound) throughout the range of movement

Warning Signs of Arthritis

Arthritis is the most common movement disorder that affects people's daily life. According to *the Lancet* report in 2020, Osteoarthritis affects 7% of the global population, more than 500 million people worldwide. Certain joint symptoms you should be aware of, not to tell you have arthritis, but give you a warning sign that should prompt you to talk to a health care provider.



Pain

Pain from arthritis can be constant or it may come and go. It may occur when at rest or while moving. Pain may be in one part of the body or in many different parts.



Stiffness

This is a classic arthritis symptom, especially when waking up in the morning or after sitting at a desk or riding in a car for a long time. Morning stiffness that lasts longer than an hour is good reason to suspect arthritis.



Swelling

Some types of arthritis cause the skin over the affected joint to become red and swollen, feeling warm to the touch. Swelling that lasts for three days or longer or occurs more than three times a month should be careful.



Difficulty moving a joint

It shouldn't be that hard or painful to get up from your favorite chair.

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2. Centers for Disease Control and Prevention. (2019). Arthritis types. Retrieved on 10th September, 2021, from <https://www.cdc.gov/arthritis/basics/types.html>.
3. Arthritis Foundation. (n.d.). Recognizing the symptoms of arthritis. Retrieved on 10th September, 2021, from <https://www.arthritis.org/health-wellness/about-arthritis/understanding-arthritis/recognizing-the-symptoms-of-arthritis>

Understanding Osteoarthritis (OA)

More than **500 million** people worldwide suffer from osteoarthritis

2 in 3 people with osteoarthritis are **female**

Osteoarthritis is the **leading cause of pain and disability** among the elderly

Excess Weight Gain is the most important modifiable risk factor

UP TO 70% osteoarthritis is preventable

WHAT IS OSTEOARTHRITIS?

Osteoarthritis is the most common form of arthritis, occurring most frequently in the hands, hips, and knees. The cartilage within the joint begins to break down, and the underlying bone begins to change. These changes typically develop slowly, worsen over time, and cause pain, stiffness, and swelling.

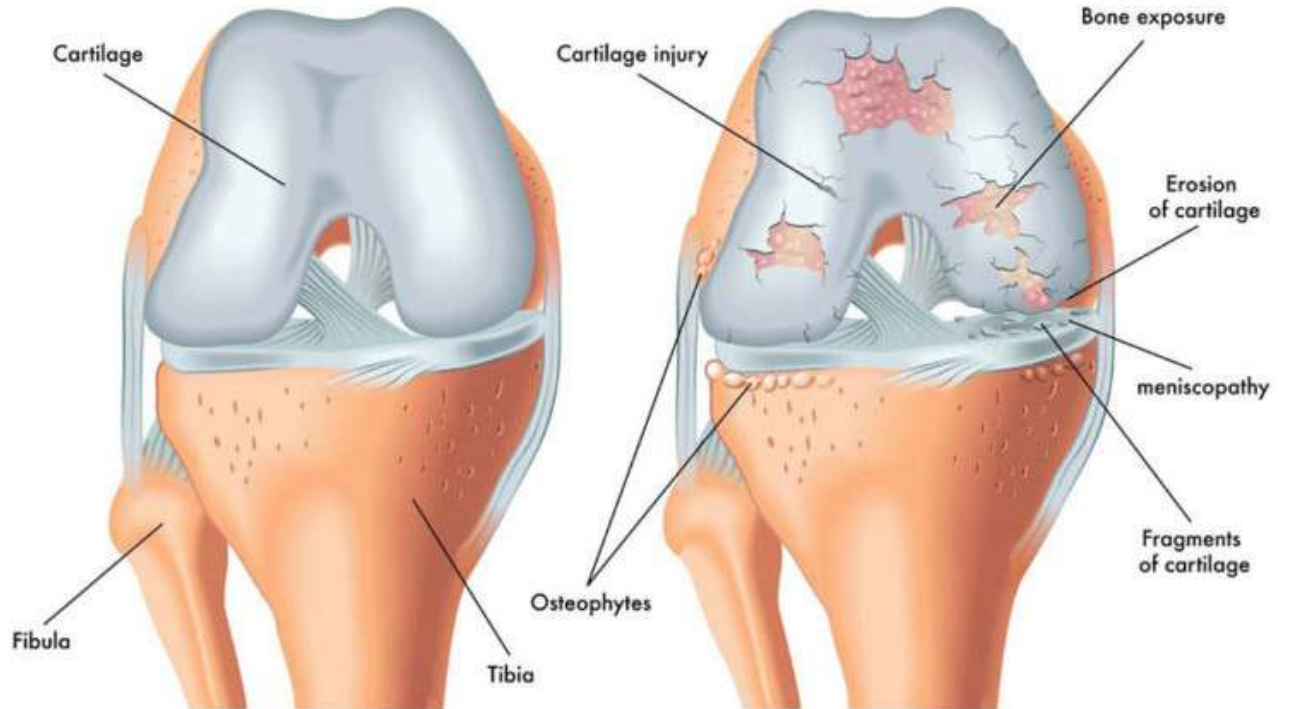


Although OA was previously classified as a non-inflammatory condition caused largely by excessive wear and tear. Increasing evidence has shown that inflammation occurs as cytokines and metalloproteinases are released into the joint. These agents are involved in the excessive matrix degradation that characterizes cartilage degradation in OA.

NORMAL KNEE



OSTEOARTHRITIS



SIGNS AND SYMPTOMS OF OA

- Pain & Tenderness** (Illustration of a person sitting on the floor holding their knee)
- Stiffness** (joint stiffness often worse in the morning or after a period of inactivity) (Illustration of a hand holding a knee)
- Loss of flexibility, limitation of motion** (Illustration of an elderly person sitting on the floor)
- Joint swelling** (with or without associated warmth and loss of function) (Illustration of a person sitting on the floor with a swollen knee)

RISK FACTORS

i) MODIFIABLE

Behaviors and exposures that can raise a person's risk.

- Extra weight**, which puts more stress on joints, particularly weight-bearing joints, such as the hips and knees, may also have metabolic effects that increase the risk of OA. (Icon: person with weight)
- Joint injury or overuse**, such as knee bending and repetitive stress on a joint. (Icon: person sitting on a stool)
- Occupations** that require repetitive knee bending and squatting. (Icon: construction worker)

ii) NON-MODIFIABLE

Risk factors that cannot be changed.

- Gender** (Icon: man and woman)
- Age** (Icon: elderly people)
- Genetics** (Icon: DNA helix)
- Race** (Icon: diverse group of people)

IMAGING



- Joint space narrowing**
- Osteophyte** (bone spur)
- Subchondral sclerosis** (the hardening of the bone just below the cartilage surface)



(Adapted from Kellgren, J. H., & Lawrence, J. (1957). Radiological assessment of osteo-arthritis. Annals of the rheumatic diseases, 16(4), 494.

Grade I
Doubtful

Grade II
Mild

Grade III
Moderate

Grade IV
Severe

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