

Knee Osteoarthritis: An Overview

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Abstract

Knee Osteoarthritis (OA) is a common form of arthritis that affects knee. It affects the bones, the cartilage (slippery tissue which provides a smooth surface for the motion of a joint and acts as a cushion between the bones), and the synovium (is soft, and it lines the joints, It produces synovial fluid, which helps in lubrication, also supplies nutrients & oxygen to the cartilage) in the knee joint.

Knee Osteoarthritis is also known as Degenerative Arthritis of the Knee. It is defined by degeneration of the knee's articular cartilage, it develops when the cartilage of the knee wears off which leads to an overgrowth of the bone underneath. The cartilage becomes rough and breaks down, mainly resulting in swelling, difficulty in moving knee joint, and pain. Generally, OA can develop at any age but it is most frequently found to develop in 50+ age group people. Women are more likely to have osteoarthritis than men.

Keywords: Osteoarthritis; Knee joint; Pain; Walking; Movement

Stages of Knee Osteoarthritis

There are mainly 5 stages of Knee Osteoarthritis. Each of them is explained below:

Stage 0

This stage is the “normal” knee health and there occurs no pain or signs of osteoarthritis

Stage 1

This is a “minor” stage of the condition. It shows very minor bone spur growth or in other words, small lumps of bone may grow in knee area called osteophytes. Usually, a person may not experience any pain or discomfort.

Stage 2

This is a “mild” stage of the condition; it shows more bone spur growth. The cartilage remains at a healthy size. At this stage, a person starts to experience the symptoms for the first time. An individual will have pain after a long day of walking and senses stiffness in the joint

Stage 3

This is a “moderate” stage of the condition. The Cartilage between the bones shows the signs of damage, and the joint space between the bones becomes smaller. At this stage individual experience, frequent pain in movement of joint, more joint stiffness is sensed, especially after sitting for long hours and in the morning.

Stage 4

This is a “severe” stage of the condition. The cartilage will be almost completely gone, the joint space between the bones will reduce dramatically, and also the synovial fluid will be decreased. At this stage, a person experiences high levels of pain and discomfort during walking or movement of the joint.

Causes of Knee Osteoarthritis

Several factors which may lead to Knee Osteoarthritis which includes increasing age, heredity, joint trauma or previous joint injury, overuse of the joint, weak thigh muscles, in some people due to obesity as well. People who have certain metabolic disorders, such as iron overload or excess growth hormone may have a higher risk of

developing knee osteoarthritis. Also, a person who has rheumatoid arthritis is most likely to develop Knee Osteoarthritis as well.

Symptoms of Knee Osteoarthritis

- Pain that increases when a person is active but gets quite better while resting
- Swelling of knee
- Redness of knee
- Feeling of warmth in the knee joint
- Knee stiffness, especially after waking up in the morning or when sitting for a while
- Decreased mobility of knee, which makes it difficult to get in and out of chairs or cars, using the stairs, or while walking
- Sounds of creaking, crackly, is heard when the knee moves

Diagnosis of Knee Osteoarthritis

It begins by physical examination of the area or joint, Physician notes the symptoms; it also involves X-rays, MRI.

Prevention of Knee Osteoarthritis

- Maintaining Healthy Weight: Excess weight puts pressure on knees leading to the wearing of the cartilage.
- Controlling Blood Sugar: High glucose level may affect the structure and functioning of cartilage
- Regular Exercise: exercise can make joints stay flexible; and also strengthen the muscles that support the knees.

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- Reduce Risk of Injuries: One should reduce the risk of tripping at home; protective gear should be used during sports.
- Undergo Posture and Bone Alignment Tests: Gait analysis and some other tests help doctors to analyze the posture and bone alignment.
- Avoid overuse: One must reduce the activities or sports which involve repetitive motions of the knee joint, such as kneeling or squatting. One must avoid weight lifting.
- A healthy diet, enough sleep, stress management and staying active can contribute to better health and decreased risk of health issues, including OA.

Treatment of Knee Osteoarthritis

Medications along with physiotherapy should be the first-line treatment for the patients have Knee Osteoarthritis

- For Stage 1: Acetaminophen or over-the-counter medications,

supplements such as chondroitin can be taken for pain relief. Doing certain exercises can help build strength and mobility.

- For Stage 2: Medication of pain relievers. Non-pharmacologic therapy such as exercises, aerobics which can help strengthen the muscles around joints, increases stability, flexibility and decreases the likelihood of additional joint damage. Avoid exertion of joints mainly by avoiding kneeling, squatting, or jumping. Wear knee brace designed for relieving pressure on the joints' surfaces. Wear shoe inserts to relieve stress on the knee, and realign one's leg.
- For Stage 3: Taking OTC pain relievers, such as acetaminophen. Take prescription pain relievers, such as oxycodone or codeine. Injections of corticosteroids are given.
- For Stage 4: As the Cartilage at this stage either significantly diminished or disappears completely. Bone realignment surgery or osteotomy is advised. For some people total knee replacement or arthroplasty is advisable.