

What should I know about Osteoarthritis?

When Ben Franklin said that death and taxes are life's only certainties, he might well have added osteoarthritis to the short list. Osteoarthritis is the complete medical name for the condition generally referred to as "arthritis." When your grandmother complained that her arthritis was bothering her, she was actually suffering from osteoarthritis.

The most common joint disease in humans and all vertebrate animals, osteoarthritis is a universal affliction: virtually everyone who lives past age 75 has it to some degree. Nearly 50 percent of the population suffers from osteoarthritis by age 65.(1)

Known to doctors by the simple acronym "OA," osteoarthritis hits hard on the hardest working joints: the knees, the hips, the hands, and fingers. The weight-bearing joints and the spine are especially vulnerable. It is a fundamental fact of life that as we age, our joints lose their youthful flexibility and range of motion. Movement eventually becomes difficult and painful as we slowly, year by year, become less supple and more stiff.

Sometimes described as "degenerative joint disease" (DJD), osteoarthritis was once thought to result mainly from wear and tear on joints. This traditional theory has been largely abandoned with advances in knowledge of joint physiology. Current thinking is that osteoarthritis is not just a single disorder, but a complex pattern of changes in the repair mechanisms that keep joints functioning normally.(2) A number of different factors can impinge upon the health of joint tissue, including biomechanical forces, changes in body biochemistry, inflammatory processes, and altered immune function.

Osteoarthritis can be classified into two major categories: Primary OA and Secondary OA. Primary OA lacks a specific cause such as trauma or disease. Secondary OA is caused by trauma or some known abnormality such as an infectious disease or endocrine disorder. Primary OA, which reflects the majority of cases, is subdivided into local, general, and erosive OA. Local OA usually affects just one or two joints. In generalized OA, three or more joints are involved. Erosive OA damages the bone around a joint. To arrive at a specific diagnosis, rheumatologists look at factors such as joint pain, visible signs of joint deformity, and changes seen on x-rays and in biochemical tests that detect inflammation.(3)

Cartilage is a metabolically active tissue that is continually being reformed and remodeled. Joint cartilage contains a lot of water—75 to 80 percent by weight—and this water content allows the joint to function as a shock absorber between two adjacent bones. The remaining 20 to 25 percent consists of cells called "chondrocytes" which produce the building material for cartilage, and various structural components.

Collagen, a tough protein fiber, provides the structural backbone for cartilage, somewhat like a reinforcing bar in concrete. Collagen gives cartilage its shape, toughness, and amazing tensile strength. This collagen matrix is filled in with large molecules called "proteoglycans" that have a strong attraction for water. Thanks to proteoglycans and the water they hold, cartilage can bear a tremendous amount of weight. Proteoglycans in turn are made out of long, chain-like molecules called "glycosaminoglycans." Chondroitin sulfate, now popular as a supplement for rebuilding joints, is one of the most important glycosaminoglycans in joint cartilage.

Osteoarthritis is characterized by progressive, degenerative changes in cartilage structure. The proteoglycans break down, losing their ability to form tight clusters. The water content of cartilage increases. Chondroitin sulfate shortens in length. Cartilage loses the ability to repair itself and develops clefts and crevices that eventually extend down to the underlying bone. The end result is weak, stiff, and deformed joints.

Statistics

National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, 2000.

- More than 20 million people in the United States probably have the disease.
- Some younger people get osteoarthritis from a joint injury, but osteoarthritis most often occurs in older people.
- By age 65, more than half of the population has x-ray evidence of osteoarthritis in at least one joint.
- Since the number of older Americans is increasing, so is the number of people with osteoarthritis.
- Both men and women have the disease.
- Before age 45, more men have it, while after age 45 osteoarthritis is more common in women.

Signs and Symptoms

- Pain, deep aching
- Pain on motion
- Early in disease: pain with use
- Late in disease: pain at rest
- Stiffness: rarely exceeds 15 minutes; related to weather, localized to involved joints, limited joint motion, loss of flexibility
- Instability of weight bearing joints
- “Cracking” of joints with movement

The severity of symptoms depends upon the duration of the disease and the particular joints involved. Primary OA typically strikes the fingers, the knees, the hip joints, the cervical spine (neck), and lumbar spine (low back.) People with OA often suffer from a feeling of weakness or instability. Flexibility and range of motion are lost. Movement becomes progressively more difficult and painful.

The following list does not insure the presence of this health condition. Please see the text and your healthcare professional for more information.

General

Pain, deep aching
Pain with use (early in disease)
Pain at rest (late in disease)
Stiffness in joints within the first 15 minutes of use, related to weather
Limited joint motion
Instability in weight bearing joints, such as knees and hips
Crackling, as if bones are rubbing together

Footnotes

¹ Fife RS. Epidemiology, pathology, and pathogenesis. In: Klippel JH, ed. Primer on Rheumatic Diseases, 11th ed. Atlanta, Arthritis Foundation. 1997:216-217.

² DiPiro JT, et al. Pharmacotherapy, A Pathophysiologic Approach, fourth edition. Stamford, Connecticut: Appleton and Lange; 1999:1441-1457.

³ Mazzuca S. Plain radiography in the evaluation of knee osteoarthritis. Curr Opin Rheumatol. 1997;9:263-267.

This information is not intended to replace medical care; to diagnose, to treat or to cure.

Osteoarthritis

Osteoarthritis is a chronic disease of the joint cartilage and bone, often thought to result from "wear and tear" on a joint, although there are other causes such as congenital defects, trauma and metabolic disorders. Joints appear larger, are stiff and painful and usually feel worse the more they are used throughout the day.

Osteoarthritis



Healthy knee joint

Hypertrophy and spurring
of bone and erosion of cartilage