

Understanding osteoarthritis of the spine

Arthritis and osteoarthritis introduction

“Arthritis” is a general term that describes many different diseases causing tenderness, pain, swelling, and stiffness of joints as well as abnormalities of various soft tissues of the body. Various forms of arthritis affect nearly 50 million Americans and contribute to the majority of all physical disabilities. Although arthritis is ultimately associated with a wearing out of joints, nearly a half million children are also affected.

Of the several varieties of arthritis, the most common, the most frequently disabling, and often the most painful is osteo- (meaning bone) arthritis, mostly affecting the weight bearing joints (hips and knees) plus the hands, feet and spine. Normal joints are hinges at the ends of bones usually covered by cartilage and lubricated inside a closed sack by synovial fluid. Normally, joints have remarkably little friction and move easily. With degeneration of the joint, the cartilage becomes rough and worn out, causing the joint halves to rub against each other, creating inflammation with pain and the formation of bone spurs. The fluid lubricant may become thin and the joint lining swollen and inflamed.

Osteoarthritis is also known as degenerative joint disease and affects up to 30 million Americans, mostly women and usually those over 45 or 50 years of age. All races in the U.S. appear to be equally affected. This article focuses on osteoarthritis of the spine, particularly on facet joint arthritis.

Osteoarthritis of the spine

Spinal arthritis is one of the common causes of back pain. Spinal arthritis is the mechanical breakdown of the cartilage between the aligning facet joints in the back portion (posterior) of the spine that quite often leads to mechanically induced pain. The facet joints (also called vertebral joints or zygapophyseal joints) become inflamed and progressive joint degeneration creates more frictional pain. Back motion and flexibility decrease in proportion to the progression of back pain induced while standing, sitting and even walking. Over time, bone spurs (small irregular growths on the bone also called osteophytes) typically form on the facet joints and even around the spinal vertebrae. These bone spurs are a response to joint instability and are nature’s attempt to help return stability to the joint. The enlargement of the normal bony structure indicates degeneration of the spine. Bone spurs are also seen as a normal part of aging and do not directly cause pain, but may become so large as to cause irritation or entrapment of nerves passing through spinal structures, and may result in diminished room for the nerves to pass (spinal stenosis).

Osteoarthritis in the spine is anatomically divided into:

- Lower back (lumbar spine) osteoarthritis, sometimes called lumbosacral arthritis, which produces stiffness and pain in the lower spine and sacroiliac joint (between the spine and pelvis).

- Neck (cervical spine) osteoarthritis, sometimes called cervical spondylosis (spondy- implies the spine, and –osis is an abnormal condition), which can cause stiffness and pain in the upper spine, neck, shoulders, arms and head.

Causes of osteoarthritis and spinal arthritis

There are a number of reasons why some people are particularly disposed to osteoarthritis. However, as with nearly all abnormal conditions affecting the body, it is likely that a combination of risk factors work together to cause osteoarthritis. As indicated above, repetitive trauma to the spine from repetitive strains caused by accidents, surgery, sports injuries, poor posture, or work-related activities are common causes of spinal arthritis. Therefore, athletes and people with jobs that require repetitive, and particularly heavy, motion have been found to be at greater risk. Other known risk factors for developing spinal arthritis include:

- Aging: steady and advanced aging of spinal structures, beginning in the 30's, often work-related
- Gender: osteoarthritis being more common in post-menopausal women (although below age 45, it is more common in males)
- Excess weight: causing more stress on weight-bearing joints and the spine, particularly during the middle age years
- Genetics: having a family history of osteoarthritis or congenital defects of joints, spine, or leg abnormalities
- Associated diseases: the presence of other associated diseases, infections, diabetes, and various other forms of circulating arthritis, such as rheumatoid arthritis or gout

When a specific cause of the osteoarthritis is unknown, as it is in most cases, it is referred to as primary osteoarthritis, which appears to be mostly due to aging. Aging leads to changes in cartilage and synovial fluid - the tissue water content increases as the protein content decreases. Long term repetitive joint use has been shown to lead to joint inflammation with associated joint pain and swelling, eventually leading to the loss of cartilage.

When the cause of the osteoarthritis is known, it is referred to as secondary osteoarthritis, caused by a particular disease or condition, such as obesity, trauma or surgery to the joints, or abnormal joints at birth.

Patients with osteoarthritis who take an active role in their own treatment can prevent additional joint damage and usually will be able to continue with most of their normal activities. The key to managing the condition is to get an accurate diagnosis and start early, proactive treatment. Most osteoarthritis treatments are focused on reducing the pain and inflammation associated with osteoarthritis and maintaining the joint mobility and flexibility needed to continue with necessary and desired activities. It is clear that a combination of proper exercise, joint mobility, weight control, nutrition and use of appropriate range of osteoarthritis symptoms

Osteoarthritis is characterized primarily by stiffness and pain in the joints, although not everyone with osteoarthritis actually experiences pain and disability. The stiffness and pain tend to be worse in the morning (particularly for about 30 minutes after waking up) and again in the evening, often called “first movement pain” with improvement during the day as the person carries on his or her daily activities. Pain that awakens one during the night is often an indicator.

Other symptoms can include:

- Swelling and warmth in one or more joints, particularly during weather changes (which may be related to barometric pressure changes and cooling of the air)
- Localized tenderness when the joint or affected area of the spine is pressed
- Steady or intermittent pain in a joint, which is often described as an aching type of pain. The pain may be aggravated by motion
- Loss of flexibility of a joint, such as inability to bend and pick something off the floor
- A crunching feeling or sound of bone rubbing on bone when the joint is moved (called crepitus), particularly notable in the neck
- An abnormal curve in the spine which may be due to unbalanced muscle spasm
- A sensation of pinching, tingling or numbness in a nerve or the spinal cord, which can occur when bone spurs form at the edge of the joints of the spine and irritate the nerves

Osteoarthritis usually develops over time. Early on, a person may only experience joint aches after physical work or exercise, which fades and then returns as the affected joint is used or overused. As the cartilage between the bones gradually thins, the pain often becomes steadier, making it difficult to walk or climb stairs. Joint pain and stiffness can begin to occur after long periods of inactivity, such as while sitting for long journeys or watching a two-hour movie. With advanced osteoarthritis and increased rasping friction between bones, the pain often becomes substantial even at rest or with very little movement.

With progressive osteoarthritis, a single joint may at first be affected, but with time and further activities, many joints of the body may be affected—in the base of the neck, or in the knees, hips, hands and/or feet. Although less common, some patients may experience severe deformities of certain joints over time. Osteoarthritis differs from systemic forms of arthritis because it only affects joints (although it may lead to an entrapment of a nerve at any level in the spine or the spinal cord in the neck) and does not affect organs or soft tissue areas of the body.