What should I know about Osteoarthritis? From Shaklee.com

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

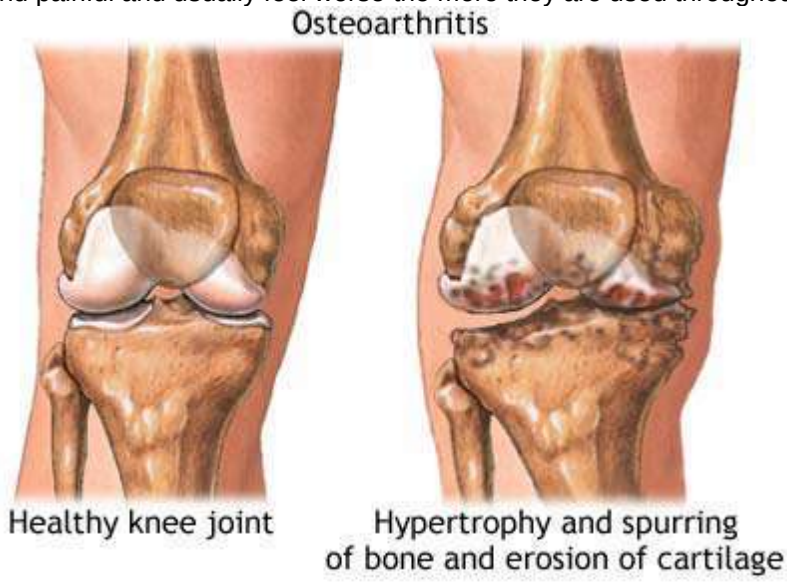
Pain, deep aching
Pain with use (early in disease)
Pain at rest (late in disease)
Stiffness in joints within the first 15 minutes of use, related to weather
Limited joint motion
Instability in weight bearing joints, such as knees and hips
Crackling, as if bones are rubbing together

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.

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.



 Update Date: 9/25/2000 Medline

OSTEOARTHRITIS TESTIMONIES

I not only haves Osteoarthritis but also a calcium deposit on a vertebrae which is closing off half of the opening that the nerves go through. The nerves are pinched leading to my shoulder and down my arm, creating severe pain. I was taking Motrin several times daily to help control the pain whenever I turned her head. The doctor wanted to surgically remove the calcium deposit and said, "take no calcium" I decided to try some Shaklee and started on the whole program with a special emphasis on calcium to try to dissolve my calcium deposits. Just 4 days later I exclaimed, "I don't have any pain in my shoulder or arm -- oh, a little bit maybe if I turn too quickly, but not enough to bother me. In fact, I haven't taken any pain pills recently" to my friend. I work in the pharmacy of the St. James Hospital in Pontiac. Noticing that I was moving better, the pharmacist asked what I was doing. "I'm not going to tell you," I told. Him, "because you are a pharmacist and you're just like my doctor." He persisted in knowing and after promising not to laugh, I told him I was taking Shaklee supplements. When I went back to my doctor for a checkup. He wanted to know what I had been doing for he noticed a big improvement. I told him I was taking Shaklee supplements. He reminded me that he had told me not to take extra calcium. I told him Shaklee's was dicalcium phosphate to which he replied, "Oh, that's O.K. then!" I still take 10 Vita-Cal and 10 Calcium Magnesium (products reformulated into **Cal Mag Plus**) a day and I need 8 **Alfalfa** with each meal and at bed time. I am not even considering surgery any more!.... *Willa V*

I have osteoarthritis and take the **Joint Health Complex** and **Alfalfa**. I recently added essential **Omegaguard** and that really helped. It works best with **B-Complex, Calcium Magnesium** and **Vita E** (per Carol Dalton's tape on arthritis). Funny, I ordered the **Omegaguard** for my skin and it got rid of the rest of my "stickiness" in my knee in the morning and after a long drive. My pain is gone! **Note:** *Dr. Bruce Miller says that the only research about chondroitin that has some credibility is the type that's INJECTED. Taking it orally destroys it in the digestive process, yet that's what most people get at health food stories*

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I am a 60-year-old female working in the medical profession, who was injured in an automobile accident in April, 1998. I had severe trauma to both shoulders, pelvis, right hip, and my left broke off the inside door handle of the car door. This was all the result of a 15-year-old boy driving on a permit running a red light. I was in physical therapy for several months, had isosporiasis injections as well as Cortisone injections. This helped minimally with my knee. After eight months I was still limping, sometimes not being able to walk more than a block without pain. Being an active walker and use to going to the gym four times a week, this has really been depressing to me. I get a full body massage every other week and this has helped me tremendously. On one of my visits I saw the Shaklee products and asked for a brochure. On reading about the **Joint Health Complex** and seeing information in my medical journals regarding cartilage rebuilding, I tried a bottle. The first two weeks I could tell no difference, then within the next couple of days I could tell a tremendous difference. The tendons did not feel as tight, there was less pain when I walked and I was actually able to go up and down my stairs with minimal pain. Also, I had been unable to sleep on either shoulder for very long since the accident, and I noticed a decrease in the symptoms there also. The tenderness has diminished around the patella and inside of my knee. The symptoms with the gastrocnemius that felt swollen and tender have diminished almost completely. I feel the **Joint Health Complex** has definitely begun to help the injury there. I take three of the **Joint Health Complex** along with a Shaklee **Iron** tablet and the **Soy Energizing Protein** every morning. I can tell a difference in my energy level and my general condition. I do not want to be without them.

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A man from my church who is in his late 70's has suffered from arthritis for the last 10 years. He's been taking lots of Ibuprofen daily for 10 years. When I heard this last year, I said, "Yikes, your insides must be a mess!" I gave him some information regarding Shaklee alternatives for his pain and stiffness. He read it and said "no thanks"! In the last month, he's no longer able to be a greeter at the door at church. He's not able to stand up when we sing hymns. I started praying for him. "Lord, give him the courage to try something new and different (Shaklee)." I also gave his 42-year old daughter literature and said "Please, talk to your Dad. He doesn't have to be in pain all the time. And his insides are going to eventually give him mega trouble." She talked to him. A week ago he asked me to get him a month's supply. So I put him on **Joint Health Complex** (3 per day/1 per meal) and **Alfalfa** (3 per meal, gradually going up to 5 per meal - some at bedtime if you are stiff in the a.m.).

Yesterday at church, he greeted me at the door. He told me, "I'm pain free! I stopped all my Ibuprofen and other than a little stiffness, I feel great!" .....Marie C

I have had a fantastic experience with Shaklee's **Joint Health Complex** this year. I injured my already messed up left knee this March--didn't get to a doctor until early May--he said I would need knee replacement surgery and didn't understand why I had not had lots of pain prior to this new injury--which I didn't. I did have intermittent swelling of both of my knees, though. I had begun taking 3 **Joint Health Complex** when the product first came out--and it did help--my snow skiing was not followed by the swelling I usually had. This doctor scared me to the point that I got on I Love Dieting (*Now Cinch)* and on 9 **Joint Health Complex** per day!! I have lost 29 pounds so far, for which my knees are truly thankful, and when I finally had my left knee surgery in Denver by the Steadman-Hawkins Clinic there, they saw good cartilage growth--and the doctor said, if I kept up my program I would not need knee replacement surgery—the other knee has also improved dramatically. I do not need the Hyaluronic Acid shots either!!!....*Linda D*

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I have been on **Joint Health Complex** for a year now and I have Osteoarthritis in my toes real bad. **Joint Health Complex** has helped me. I have quit taking my medication for a year now and I feel great. I am now trying to get my Doctor to try it on others. Also, my aunt has been on it since January of this year and she could hardly get off the couch and walk. She is now doing great…...Tony

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I'm now 44 and have had very painful spinal osteoarthritis since my early 30's. I refused medicines for years, until someone told me they hurt just watching me move! The doctor put me on high dose aspirin. This lead to really weird and fluctuating deafness, but because of major stress and other health problems, I never associated it with the aspirin until 1 1/2 years later. However my hearing returned 24 hrs after stopping the aspirin (spring 1993). Then I began rounds of various NSAIDs: ibuprofen, ketophren, voltarin, and many others. Some were completely ineffective, others worked for a few months, but none completely relieved the pain. The other health problems (chronic fatigue syndrome) led me to Shaklee, and I tried high doses of Shaklee's **Alfalfa** and **Omegaguard** but didn't notice any improvement in the arthritic pain although I definitely improved in overall health. I finally decided to just forget the meds because they weren't helping that much. My doctor then told me that he would no longer need to monitor my liver enzymes! I hadn't realized that the meds put my liver at risk! The following year Shaklee came out with the **Joint Health Complex**. Exactly 3 weeks after I started taking **Joint Health Complex**, I was able to get out of bed without taking at least 5 minutes due to severe pain. I have some bad spinal problems that means I will probably never be pain free, but **Joint Health Complex** has helped so much! (I take a bunch of other supplements as well, but I was already taking them and know that the difference in my arthritis came from the **Joint Health Complex.** I also have osteoarthritis in my wrists and hips. Rainy days used to make me ache all over, but now I don't even think about arthritis on rainy days. My mother really likes **Joint Health Complex**, too, and feels like it works better for her when she also takes 10 **Alfalfa**/per day.
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Vitamin K vs Osteoarthritis

New research indicates that a deficiency of one vitamin may increase the severity of osteoarthritis. Low levels of vitamin K may trigger abnormalities in bone and cartilage, says ***Boston University School of Medicine*** researcher Tuhina Neogi in an interview that appeared in ***Bostonia*** (the BU alumni quarterly). Neogi noted this as the impetus behind her examination of vitamin K and osteoarthritis. Neogi and her team examined data collected from more than 670 subjects who participated in the Framingham Offspring Study. Blood samples revealed levels of phylloquinone (also known as vitamin K1), and x-rays were used to assess joint space narrowing and the presence of osteophytes, the bony growths that sometimes form in the joints of osteoarthritis patients.

The study produced two key results: 1) Low vitamin K1 levels were associated with a greater severity of osteoarthritis, and 2) Subjects with lower K1 levels had a greater number of osteophytes than subjects with high levels of the vitamin. Based on the outcome of this study (published in the current issue of ***Arthritis and Rheumatism***), the BU team has already received Arthritis Foundation funding for a clinical trial in which osteoarthritis patients will receive either a vitamin K supplement or a placebo.

Neogi told ***Bostonia***: "We don't know how much vitamin K is necessary for these bone and cartilage proteins to function optimally. Our preliminary observational results suggest that we probably need more vitamin K than the recommended daily allowance." The current recommended daily allowance for vitamin K is 65 micrograms for women over the age of 25, and 80 micrograms for men in the same age group. But in his ***Nutrition and Healing*** newsletter, Jonathan V. Wright, M.D., recommends 5 to 15 MILLIGRAMS per day.

Source: Health Sciences Institute, April 25, 2006
"Low Vitamin K Status is Associated with Osteoarthritis in the Hand and Knee" Arthritis and Rheumatism, Vol. 54, No. 4, April 2006, interscience.wiley.com
"Is There a Link Between Vitamin K and Osteoarthritis?" Cynthia K. Buccini, Bostonia, Fall 2005, bu.edu

The following SHAKLEE products provide vitamin K:

Alfalfa - 50 mcg per serving
Vita-Lea - 80 mcg per serving
Vita-Lea Gold with vitamin K - 80 mcg per serving
OsteoMatrix - 40 mcg per serving.

Pain and Osteoarthritis

Introduction

Pain is the body's natural response alerting you to the presence of a physiological problem. In itself it is an important symptom and may signal the presence of disease, injury, or more persistent adverse medical conditions. Pain is the most common symptom for which patients seek medical attention from their health care providers.

There are two main categories of pain—acute and chronic. Acute pain is generally the result of a specific injury and can be clearly explained in terms of where we feel it in the body. The other type of pain is called chronic because it can continue for months or years and even trigger additional health problems such as depression and lead to lifestyle changes in attempts to remedy the situation.

Osteoarthritis as an example of chronic pain

Of the many types of chronic pain, arthritis or "joint inflammation" is one of them. Arthritis is a general term that describes more than 100 different conditions, the most common of which is osteoarthritis.

Affecting more than 20 million Americans [1], osteoarthritis (OA) is a major public health problem for which there are few effective medical remedies.[2] This painful condition is one of the most frequent causes of physical disability among adults. Considering the costs of diagnosis, non-drug, drug and surgical interventions, side effects of medications, and lost productivity, arthritis is one of the most expensive and debilitating diseases in the US. [3]

OA is a condition that appears most often in older individuals: more than 80% of people older than 75 have clinical OA, and more than 80% of those over the age of 50 have measurable (radiologic) evidence of OA. [4] With increasing life expectancy, the number of people living long enough to suffer degenerative joint disease continues to grow. OA can also occur in younger people, usually following injury or repetitive stress. Dancers and athletes, for example, often develop OA at an early age following injuries and the constant wear and tear on their joints.

Osteoarthritis differs from rheumatoid arthritis (RA) in that the latter is an autoimmune condition characterized by progressive inflammatory destruction of the large and small joints. The body's immune system attacks cartilage, bone, and the synovium (the inner layers of a synovial joint composed of loose connective tissue). Usually different and stronger medications are used to treat RA than are used to treat OA.

Normal joints: frictionless movement

Our joints consist of bone, cartilage, and connective tissue. Under normal circumstances, to facilitate free joint movement, cartilage covers the bone ends, forming a protective cushion of tough, slippery material.

Ligaments connect the bones to each other, and tendons (longer bands of tissues) attach muscles to the

bones. A synovial membrane, a sac containing synovial fluid that acts as a lubricant, lines each joint, enabling the joint surfaces to function in a smooth, friction-free way. In healthy joints, this fluid is viscous and nearly colorless, and provides nourishment for the cartilage. A combination of structures function as shock absorbers and cushioning material for the joint, including articular cartilage, the bone beneath the cartilage, and the soft tissue structures (joint capsule and ligaments. Arthritis can attack all of these structures, causing them to break down and become inflamed. Historically, OA was not considered an inflammatory process, but more recently a link has been established between OA and local, low-grade inflammation. [5]

Pain: What it is and how it starts

Pain has been defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage". [6] Pain involves sensitivity to chemical changes in tissues, then interpreting those changes as harmful. Pain—which is always subjective—can be classified by intensity, location, duration (acute versus chronic), the physiologic mechanism involved, and by its impact on daily function. Pain originating in the peripheral nerves, from trauma to the nerves for example, is called "neurogenic pain". "Central pain" arises from dysfunction of the central nervous system. However, pain of musculoskeletal origin—such as osteoarthritis, tendonitis (inflammation of the tendon), bursitis (inflammation of the fluid-filled sacs between tendons and bones), low back pain (commonly due to strain of the muscles or ligaments and tendons connected to the back bone)—largely results from overstimulation of nerve endings. The nerve endings may be stimulated by inflammatory substances that are produced by damaged cells and released from the surrounding capillary network. The resulting "sensitization" contributes to a lower pain threshold so that even a mild stimulus like pressure and joint motion are interpreted as pain. [7, 8]

Pain messages subsequently travel to the brain's higher structures that process sensory input. This relay system involves the interaction of neurons in the reticular formation of the brain (which brings the sensation of injury to awareness), the hypothalamus (which initiates neuro-endocrine responses to pain, such as sweating or increased heart rate), the thalamus (which helps determine the location and intensity of the pain), the limbic system (which is responsible for the emotional

response to pain) and, finally, the somosensory cortex (which allows the individual to make sense of the pain through memory and complex thought patterns).

Intervening in the pain pathway

There are various opportunities along this pathway—from the initial stimulation of nerve endings to the processing of signals in the brain—to attenuate and manage pain. Drugs, such as COX-2 inhibitors (Celebrex™) for example, modify the metabolic pathways involved in producing pro-inflammatory compounds such as prostaglandins, which can ultimately interfere with the transmission of pain.

What treatments are available?

For osteoarthritis however, there is currently no cure, and little in the way of stopping the underlying disease process, once diagnosed. The American College of Rheumatology recommends a combination of medication, lifestyle changes and physical/occupational therapy. Some interventions & lifestyle changes described below may help reduce pain, and maintain joint movement in OA—or even reduce the risk of developing it.

3

Non-Pharmacologic

Maintain Normal Weight—Studies have shown that losing weight—even a 5-10% loss—can ease stress on joints and help alleviate symptoms. Population-health studies have linked overweight young adults with a greater likelihood of OA later in life, compared to their thinner counterparts. [9, 10, 11]

Patient Education Programs— Basic education programs about joint anatomy and arthritis, pain management, exercise, relaxation, medications, nutrition and self-help principles have led to decreases in physician visits and short-term improvements, although long-term responses may be variable.

Other Complementary Treatments—Examples of other popular treatments for pain reduction in OA include acupuncture [12] for which there is conflicting evidence, and TENS [13] (transcutaneous electrical nerve stimulation) that blocks pain through electrodes applied to skin.

Pharmacologic (medications)

Analgesics—These are drugs used concurrently with nutritional, physical, educational, and cognitive/behavioral interventions. The most well-known medicatioins include Acetaminophen—an analgesic and antipyretic (fever reducer) that relieves mild OA pain, without providing clinically useful anti-inflammatory activity in peripheral tissues. Caution is indicated for individuals who take acetaminophen and drink alcoholic beverages; long-term use may be associated with kidney damage.

Acetaminophen is found in products such as: Anacin™, Excedrin™, Panadol, and Tylenol™.

NSAIDs (non-steroidal anti-inflammatory drugs)

This class of drugs includes both *non-selective* and *selective* NSAIDs. Half of all NSAIDs in use by older Americans are to relieve OA pain. Both selective and non-selective NSAIDs act by limiting the release of inflammatory prostaglandins and, ultimately, interfering with the transmission of pain signals early in the process at the peripheral tissue level.

• Non-Selective NSAIDs are “aspirin-like” medications that reduce inflammation (and hence pain) arising from an injured tissue. They act by inhibiting both the COX-1 and COX-2 enzymes—two forms of the enzyme called cyclooxygenase (COX). The COX-1 form of the enzyme is responsible for regulating physiologic functions such as platelet clumping, vessel constriction, maintenance of the gastric mucosa (stomach lining) and some kidney functions. COX-2 is primarily involved in inflammation. It helps convert fatty acid precursors to inflammatory compounds like prostaglandins. Non-selective NASAIDs inhibit both forms of COX, thus helping to reduce local inflammation and vessel constriction. Side effects can include dyspepsia, nausea, gastro-intestinal ulcers and bleeding, hypersensitivity in asthmatics, and possible alterations in kidney function.

• Selective NSAIDs primarily inhibit just the COX-2 enzyme, involved in inflammatory response and tissue repair. This class appears to have less risk of GI mucosal damage or bleeding but it should be noted that there is no evidence that selective NSAIDS are associated with less risk of kidney changes than found with the non-selective type. These medications must be used with caution for those with asthma, renal disease, fluid retention and prior history of ulcer. Some examples include: celecoxib (Celebrex™), rofecoxib (Vioxx™), and valdecoxib (Bextra™).

4

Conclusion

Quality of life issues must be given top priority when treating chronic pain. This requires that medical practitioners be attentive to all treatment options, be they pharmacologic, exercise and lifestyle, or dietary supplementation where appropriate. As American Pain Society President Michael Ashburn MD comments: "Research shows that the under-treatment of pain in adults and children can have many serious consequences, including physiological complications, such

as muscle breakdown and weakness; psychosocial impairments, including anxiety and depression; and an overall decrease in quality of life." [14]

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