OSTEOARTHRITIS
Causes, Symptoms and Treatments

THE CONDITIONS SERIES
arthritisc.a
# Contents

What is Osteoarthritis? ............................................ 1
Early Signs of OA.................................................. 3
How is OA Diagnosed?........................................... 4
Why is Treatment for OA so Important? .................. 4
Risk Factors......................................................... 5

Managing Osteoarthritis ........................................... 6
Physical Activity..................................................... 6
Heat and Cold Therapy........................................... 8
Protecting Your Joints............................................ 8
Relaxation and Coping Skills................................. 9
Healthy Eating and Weight Control....................... 9

Treatments for Osteoarthrits ...................................... 11
What Medications Are Used for OA?....................... 11
Complementary Therapy....................................... 15
Surgery.......................................................... 16
Osteoarthritis (OA) is the most common type of arthritis, affecting more than three million Canadians — that’s one in 10! Though once referred to as the “wear-and-tear” arthritis, the Osteoarthritis Research Society International (OARSI) recently re-defined this condition. It describes OA as the result of the body’s failed attempt to repair damaged joint tissues. However, OA isn’t always developed due to abnormal stresses or injury; it may also occur as part of the aging process. This condition leads to the breakdown of cartilage (the tough elastic material that covers and protects the ends of bones) and the underlying bone, resulting in pain, stiffness, swelling and bone-on-bone reduction in range of movement in the affected joint.

The joints most commonly affected by OA are the knees, hips and those in the hands and spine. When it comes to symptoms of pain, deformity and dysfunction, OA affects everyone differently.

There is currently no cure for OA. However, there are options that can help reduce risk, relieve pain and improve function. They include a combination of joint protection (e.g., avoiding repetitive stress on the joint — ballet dancers, professional musicians, elite athletes and construction workers are at particular risk), self management, exercise and physical therapy, weight management, medications and, sometimes for severe OA, total joint replacement.
What is Arthritis?

The word *arthritis* means inflammation of the joint (“artho” meaning joint and “itis” meaning inflammation). Inflammation is a medical term describing pain, stiffness, redness and swelling. Arthritis is a disease that can involve any of the joints in the body, often occurring in the hip, knee, spine or other weight-bearing joints, but can also affect the fingers and other non-weight-bearing joints. Symptoms of arthritis include joint pain, swelling, stiffness and fatigue. Untreated inflammation can eventually lead to joint damage, destruction and disability. Some forms of arthritis can also affect the body's internal organs.

Facts on Osteoarthritis

- Osteoarthritis (OA) is the most common type of arthritis; it affects one in 10 Canadian adults.

- OA is more prevalent in women than men across all ages.

- People of any age can get OA, but it is more common as we age.

- There is currently no cure for OA. However, there are options can help reduce risk, relieve pain and improve function.
Early Signs of OA

OA usually progresses slowly over a period of months to years. Warning signs include:

- **Joint stiffness**: Aching, pain and/or stiffness in a joint on most days in the previous month. The joint may be stiff after not moving it, such as when you wake in the morning. This stiffness is usually short-lived, lasting 30 minutes or less.

- **Joint swelling**: You may notice some swelling in the joints and a reduction in the joint’s range of motion. The joints may have a “creaking” sound when you move them.

- **Joint crepitus**: The joint may grind, grate or experience a crackling sensation, commonly accompanied by a cracking sound.

- **Pain**: This pain is usually worse after you use the joint and improves as you rest it. The pain can be with you (to some degree) most of the day, even causing discomfort while you try to sleep at night.
  
  - Early on, the pain may be triggered by high-impact activities only.
  - As the disease progresses the pain may be triggered by ordinary activities, relieved by rest and may be associated with symptoms, such as locking of the joint.
How is OA Diagnosed?

There is no single test for OA. If you have signs and symptoms of OA, your doctor will likely discuss your symptoms, examine your joints and may prescribe X-rays to help with the diagnosis.

Why is Treatment for OA so Important?

OA is a progressive disease that tends to get worse over time so it’s best to treat it as soon as possible. Although there is no cure, with the right treatment you can take control of your disease, delay future damage and keep your joints as healthy as possible for as long as possible. The two main goals of treatment are to: control your pain and improve your ability to function.

Joints Most Commonly Affected by Osteoarthritis:

- Knees
- Hips
- Hands
- Neck
- Back
- Big toes
Risk Factors

**Age:** Though arthritis can strike at any age, the likelihood of a person having OA does increase with age. In some cases, OA can start at a young age, but symptoms could go undetected for many years. However, this doesn’t mean the disease is an inevitable part of aging. Many people age without having OA symptoms.

**Family history:** Genetics can contribute to the development of OA. Although, just because your family member has OA doesn’t mean you will get it.

**Excess weight:** Being overweight or obese can contribute to your chance of getting OA. Excess weight puts extra stress on feet, knees and hips, but newer evidence suggests that metabolism is a contributing factor. The good news is that, if you are overweight, losing even just 10 pounds (4.5 kilograms) can help reduce strain on your knees and reduce pain. In fact, losing weight may not only make you feel better, but could also delay or prevent the need for surgery in the future.

**Joint injury:** OA can occur in joints that have been “damaged” by a previous injury. The initial injury may have damaged the tissues of the joint or affected the way the joint moves. People who repeatedly put abnormal stress on a joint, such as elite athletes, heavy machinery operators and construction workers, may be at greater risk of developing OA. Improperly treated sports injuries, especially in younger people, may also contribute to the development of OA.
Managing Osteoarthritis

Once a diagnosis is confirmed, there are many options that can help manage pain, increase movement and protect your joint. Weight management, exercise and self-management are recommended for all forms of OA. Before engaging in a new exercise routine, you may want to ask for guidance from a health-care professional, such as your doctor or physiotherapist.

Physical Activity

A common misconception is that a painful joint requires rest. On the contrary, not enough exercise can cause muscle weakness and worsening joint pain and stiffness. (However, when you are experiencing a flare and/or your joint(s) is swollen and hot, you should rest the joint(s) and only perform light range of motion exercise). Physical activity protects joints by strengthening the muscles around them. Strong muscles and tissues support those joints that have been weakened and damaged by arthritis. A properly designed program of physical activity (with advice from a health-care provider, such as a physician or a physiotherapist/occupational therapist) reduces pain and fatigue, improves mobility and overall fitness and alleviates depression. Physical activity allows someone with arthritis to lead a more productive and enjoyable life.

There are different types of exercises you can do to lessen your pain and stiffness:

- **Range of motion (also called stretching or flexibility exercises):** Exercises that reduce pain and stiffness and keep your joints moving. To achieve the most benefit, these exercises should be done daily. Also, visit arthritis.ca/videos to view our “Simple Stretches” video.
• **Strengthening**: Exercises that maintain or increase muscle tone and protect your joints. These exercises include weight training movements done with a set of “free” weights, your own body weight or weight machines.

• **Endurance**: Exercises that strengthen your heart, give you energy, control your weight and help improve your overall health. These exercises include walking, swimming and cycling. It is best to avoid high-impact exercises like step aerobics, jogging or kickboxing.

There are many low-impact exercise options that can benefit people living with arthritis. Consult your healthcare provider to find an exercise(s) that is suitable to you and your particular condition. Examples include:

• **Tai Chi**: Tai Chi, an ancient Chinese martial art, is a combination of movements performed in a slow, focused manner. Though it has many variations and styles, Tai Chi is a low-impact exercise and is reminiscent of both yoga and meditation. Tai Chi could improve pain and physical function in some people as well as alleviate depression and contribute to health-related quality of life.

• **Yoga**: Numerous studies have been done on the benefits of yoga for stress and anxiety. The practice of breath control, simple meditation and stretching can improve a person’s state of mind and help him or her better manage pain. Regular yoga under the guidance of a certified instructor can also boost one’s general health and increase energy levels.

NOTE: People living with arthritis should avoid strenuous yoga routines, such as Bikram and power yoga.
Heat and Cold Therapy

**Heat:** Taking a warm shower and using warm packs are great ways to help reduce pain and stiffness. Always use a protective barrier, such as a towel, between the warm pack and the skin. Heat is ideal for:

- relieving pain and stiffness
- relieving muscle spasms and tightness
- enhancing range of motion

**Cold:** Using a commercial cold pack or a homemade one (from crushed ice, ice cubes or a bag of frozen vegetables) can be helpful. Always use a protective barrier, such as a towel, between the cold pack and the skin. Cold is ideal for:

- swelling
- decreasing pain
- constricting blood flow to an inflamed joint

**NOTE:** For further details on using heat and cold to manage your arthritis, speak with your health-care team.

Protecting Your Joints

You should always use your joints in ways that avoid excess stress. Techniques to protect your joints include:

- **Pacing** by alternating heavy or repeated tasks with lighter tasks. Taking a break reduces the stress on painful joints and conserves energy by allowing weakened muscles to rest.

- **Positioning joints wisely** promotes proper alignment and decreases excess stress. For example, squatting and kneeling may put extra stress on your hips or knees. When lifting or carrying heavy items, keep items at waist height and avoid carrying them up and down stairs.
Managing Osteoarthritis

• Using assistive devices conserves energy and makes daily tasks easier. Raise seat levels to decrease stress on hip and knee joints. Use a reacher to pick up items from the ground. Use a cane to decrease stress on hip and knee joints. Enlarge grips on utensils, such as spoons or peelers, to decrease stress on delicate hand joints. Other devices to consider include carts for carrying objects and jar/tap openers.

• Talk to your doctor about seeing an occupational therapist or physiotherapist, who may prescribe splints, braces or orthotics (shoe inserts) to help align and support your joints.

Relaxation and Coping Skills

Developing good relaxation and coping skills can help you maintain balance in your life, giving you a greater feeling of control over your arthritis and a more positive outlook. Relaxing the muscles around a sore joint can help to reduce pain. There are many ways to relax. Try deep breathing exercises. Listen to music or relaxation tapes. Imagine or visualize a pleasant activity, such as lying on a beach. Also, visit The Arthritis Society’s free self-management e-learning tools at arthritis.ca/education.

Healthy Eating and Weight Control

The most important link between your diet and arthritis is your weight. Did you know that 90 per cent of knee replacement and 80 per cent of hip replacement patients are either overweight or obese? Being overweight puts an extra burden on your weight-bearing joints (back, hips, knees, ankles and feet). Carrying excess weight has also been linked to OA of the hand, indicating there is a metabolic link to the disease.
Proper nutrition is vital to controlling body weight and managing arthritis symptoms. Three ways to cut back on excess calories:

1. **Reduce fat intake**: A healthy diet should include a small amount of unsaturated fats and limited amounts of saturated and trans fat. Choosing the right amount and types of fats can lower your risk of developing arthritis, decrease inflammation and help you achieve and maintain a healthy body weight.

2. **Reduce sugar intake**: Sugar contains “empty” calories and has no nutritional value so it should be cut back. This refers to syrup as well as white, brown, cane and raw sugar. Limit or avoid adding sugar to drinks and cereals. Although artificial sweeteners contain fewer calories, it is best to get used to food being less sweet. Use dried fruit like raisins or dates to sweeten cereals since they provide vitamins, minerals and fibre.

3. **Eat more vegetables and fruit**: Vegetables and fruit should make up the largest component of your diet. Try to have at least one vegetable or fruit at every meal and as a snack. Besides being an excellent source of energy, vegetables and fruit boost your fibre intake, which will help with weight management. They are also loaded with antioxidants, which help boost the immune system and may help maintain healthy cartilage.
What Medications Are Used for OA?

Medications for OA are designed to control the pain, stiffness and swelling of your joints with the goal of improving your function. Painkillers (analgesics) and anti-inflammatory medications (non-steroidal anti-inflammatory drugs (NSAIDs), for example) fall into this category. Although they may make you feel better, they do not affect the course of OA and will not prevent the damage to joints that can occur with this disease.

Unfortunately, there is no medication that has been shown to consistently slow down the progression of OA. Please discuss the use of any arthritis medication with your doctor.

Non-Prescription Medications

Acetaminophen

Acetaminophen is a very safe and effective medication for pain relief. However, please note that though this drug is generally well tolerated, long-term use carries a low but dangerous risk of liver damage and possible kidney damage. Also, be sure not to exceed the maximum daily dose of acetaminophen. The typical dose of acetaminophen is 325 mg to 1,000 mg every four to six hours. The maximum daily dose is four grams (4,000 mg). Acetaminophen is found in a number of other over-the-counter medications, such as cough and cold products and prescription medication for pain relief. Carefully look at the ingredients of all the over-the-counter medications and prescription medications you are taking to ensure you are not taking too much acetaminophen. Consult your pharmacist if you have questions about the amount of acetaminophen in over-the-counter products.

Topical Medications (non-prescription):

There are a number of over-the-counter creams and rubs available to help with the symptoms of OA. Some of these products contain salicylate as the active ingredient,
whereas others contain capsaicin or menthol. Capsaicin is a reasonable alternative for OA pain not relieved with acetaminophen or for people who cannot tolerate or are reluctant to use oral medications. Capsaicin may be effective in those who have OA in only one or two joints, such as the knee or hand. Topical salicylate, available in Rub A535®, Aspercreme®, BenGay®, Flexall® and Myoflex®, may also help decrease pain and inflammation; however, there is limited evidence to support this.

**Prescription Medications**

**Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)**

Non-steroidal anti-inflammatory drugs (NSAIDs) are a class of medications used to treat the pain and inflammation of arthritis. They do not contain steroids, hence the name “non-steroidal.” NSAIDs are a very large category of medications, some of which you can obtain without a prescription, such as acetylsalicylic acid (ASA) (e.g., Aspirin®, Entrophen®, Novasen®), ibuprofen (e.g., Motrin® or Advil®) and naproxen (Aleve®). The list of NSAIDs is long, with more than 20 currently available.

It is important to remember that these medications work to control symptoms, but do not alter the course of the disease. As such, these medications can be taken on an as-needed basis and do not need to be taken regularly. That being said, some patients may find it helpful to take NSAIDs on a regular basis to control their symptoms. Your doctor will advise you on what is suitable.

Indigestion, heartburn, stomach cramps and nausea are the most common side effects of NSAIDs. NSAIDs can affect the protective lining of the stomach, making you more susceptible to ulcers and bleeding. COX-2 inhibitors (COXIBs) are a class of NSAIDs that have been developed to minimize the risk of stomach ulcers. Although COXIBs are safer on the stomach, they have all of the other
side effects of NSAIDs and may still cause indigestion, nausea, stomach cramps and heartburn. Use of stomach protective medications, such as misoprostol and proton pump inhibitors, can reduce the stomach side effects of NSAIDs and reduce the chance of developing ulcers.

**Topical Medications (NSAIDs)**

Diclofenac is an NSAID that can be applied topically to the skin to help relieve pain. It is a reasonable alternative for OA pain not relieved with acetaminophen or for people who cannot tolerate oral medications. It is sold under the brand name of Pennsaid® (prescription) and Voltaren Emulgel® (available over-the-counter) and can be used to help lessen the pain of arthritis. When applied as directed to the skin over a joint, very little of the medication is absorbed into the body, which significantly reduces the usual side effects associated with NSAIDs. Please speak with your doctor or pharmacist before starting any topical NSAID.

**Corticosteroid Injections**

Corticosteroid injections, commonly referred to as steroids, may be considered if all other OA treatment options have failed to provide relief of pain and swelling. They are injected into the joint using a syringe. They work quickly (usually within a few days) and some patients start to feel better within hours of getting the joint injection.

For the most part, steroid injections are very safe and suitable for most people. As a general rule, a reasonable approach is to limit the frequency of injections to three or four to each joint per year. However, typically steroids do not play a significant role in the long-term management of OA. Anyone who has had a serious allergic reaction to steroids and those with an infection in the joint or surrounding the joints (e.g., skin or soft tissue), should not receive corticosteroid injections.

**Hyaluronan Injections (Viscosupplementation)**

Viscosupplementation is the injection of a clear gel-like substance called hyaluronan into the joint for the treatment of OA. Hyaluronan is an important part of the synovial fluid (thick liquid that lubricates the joint)
and cartilage. Injecting it into the joint is thought to lubricate the joint (much like oil lubricates an engine), reduce pain and allow greater joint movement. There are a number of hyaluronan products available. Some products are given as a one-time single injection, while others are injected once weekly for either three or five weeks. Hyaluronan products can be purchased without a prescription, but it is necessary to see a health-care provider for the injection.

These injections have been shown to have modest benefits in mild to moderate OA of the knee. The onset of relief is slower (several weeks) than with steroid injections, but the effect may last longer. These products are usually reserved for use when other therapies have failed.

**Tramadol**

Tramadol is an alternative treatment option for OA of the knee and hip for people who have failed treatment with acetaminophen and NSAIDs or cannot take these medications. This medication is taken orally in pill form and usually begins to work within an hour. Tramadol can also be used in conjunction with acetaminophen or NSAIDs. Tramadol interacts with a number of other medications. Please speak with your health-care provider about whether any of the other medications you currently take interact with tramadol. Nausea, vomiting, dizziness, constipation, headache and drowsiness are common with tramadol. Approximately 40 per cent of people discontinue use of tramadol because of its adverse effects, which limits its effectiveness in treating OA pain.

**Opioids**

Opioids are a second-line prescription medication reserved for moderate to severe knee and hip OA pain that does not respond to other therapies (acetaminophen, NSAIDs, tramadol). Opioids are not routinely used to treat OA pain. The small to moderate beneficial effects of opioids are outweighed by significantly increased risks of adverse events. Opioids are typically taken orally and begin to work within one hour. Common side effects include nausea.
and vomiting, constipation, sedation or drowsiness, confusion, urinary retention, dry mouth, allergic reactions (e.g., rash). Prolonged use of opioids and taking the medication other than how your prescriber has instructed increases the risk of opioid dependence.

**NOTE:** For more information on arthritis medications, check out *Arthritis Medications: A Reference Guide*, available at arthritis.ca/publications.

### Complementary Therapy

Complementary and alternative therapies are treatments that do not fall within the scope of traditional Western medicine. Examples include naturopathic medicine, osteopathy, acupuncture, meditation and many other options.

In some cases, complementary and alternative therapies may be helpful in addressing arthritis pain and fatigue. If you are considering using complementary and/or alternative therapies, inform your primary health-care provider so that he or she can advise you which therapies can be used safely in addition to your current treatment.

### Chiropractic

Chiropractic care, a regulated health profession in Canada, is a hands-on discipline that focuses on the musculoskeletal system. For some people living with arthritis, this approach can help increase range of motion and ease stiffness in joints.

### Acupuncture

Acupuncture, an ancient Chinese therapy, involves pricking the skin or tissues with needles to alleviate pain and treat various physical and mental health conditions. Now commonly practised worldwide, acupuncture has shown modest symptom improvement in studies related to OA.
Dietary Supplements

It is important to consult your doctor if you decide to take dietary supplements as they may interact with medications or may contain ingredients not listed on the label.

Glucosamine and chondroitin are substances found in our bodies that help keep the cartilage in our joints healthy. However, research on the use of glucosamine and chondroitin for OA is limited. A variety of brand name and generic products are available. If you are interested in trying this medication, a three-month trial may be reasonable to see if there is any benefit.

Massage therapy

Massaging of muscles and other soft tissues, by a professional massage therapist, may lead to a decrease in stiffness and pain. Other benefits may include a reduction in stress and anxiety as well as improved mobility and overall function of the joints.

Surgery

When OA becomes severe and other therapies are not working, surgery may be considered. The most common surgical procedures for OA include hip and knee replacements. However, other surgical treatments are available.

Joint replacement surgery can be performed at any age, but is usually reserved for patients with advanced arthritis to maximize the life of the artificial joint. The decision to undergo surgery depends on the amount of pain and disability your arthritis is causing, as well as the risks and benefits of surgery. This should be discussed further with your doctor.

For more information on joint replacement, visit myjointreplacement.ca.
About The Arthritis Society

The Arthritis Society has been setting lives in motion for over 65 years. Dedicated to a vision of living well while creating a future without arthritis, The Society is Canada’s principal health charity providing education, programs and support to the over 4.6 million Canadians living with arthritis. Since its founding in 1948, The Society has been the largest non-government funder of arthritis research in Canada, investing nearly $190 million in projects that have led to breakthroughs in the diagnosis, treatment and care of people with arthritis.

Become a Volunteer

Help others through meaningful work. By volunteering with The Arthritis Society, you can give back to your community, learn new skills, gain work experience and meet new friends. Visit arthritis.ca or call 1.800.321.1433.

Donate Online

Donations to The Arthritis Society support vital research and services that help improve the lives of people with arthritis. There are many ways to give, visit arthritis.ca/donate to make a contribution and learn more.
How We Can Help

The Arthritis Society offers free education, programs and support to Canadians living with arthritis.

- **Programs and services:** Join us for adult and child educational sessions, such as the Chronic Pain Management Workshop ([arthritis.ca/cpmw](http://arthritis.ca/cpmw)) and various public forums.

- **Online self-management courses:** Try e-learning programs like *You and Your Health-Care Provider: A Guide for Effective Conversations* and *Overcome Fatigue* ([arthritis.ca/education](http://arthritis.ca/education)).

- **Publications:** We publish several information booklets to help people living with arthritis understand more about their condition and treatment options as well as tips on how to self-manage. For a list of arthritis conditions and related resource materials, including a digital copy of this information, visit [arthritis.ca/publications](http://arthritis.ca/publications).

Learn more and connect with our online community at arthritis.ca.