



# JOHNS HOPKINS GUIDE TO ARTHRITIS PAIN RELIEF

BY THE EDITORS OF JOHNS HOPKINS HEALTH ALERTS

[www.johnshopkinshealthalerts.com](http://www.johnshopkinshealthalerts.com)



**JOHNS HOPKINS GUIDE TO ARTHRITIS PAIN RELIEF  
Table of Contents**

**INTRODUCTION** ..... 2

**OSTEOARTHRITIS** ..... 3

**OSTEOARTHRITIS PAIN RELIEF** ..... 4

        Rest ..... 4

        Exercise ..... 4

        Hot And Cold Treatments..... 4

        Over-The-Counter Pain Relief Options ..... 5

        Topical Treatments ..... 5

        Braces, Splints, And Assistive Devices ..... 5

        Weight Loss: How Much Is Enough To Ease Arthritis Pain? ..... 5

        Alternative and Complementary Medicine ..... 6

            Glucosamine And Chondroitin For Arthritis Pain Relief? ..... 6

        When Osteoarthritis Pain Persists..... 7

            Consult Your Doctor ..... 7

            Prescription Medications ..... 8

            Injections ..... 8

            Surgery ..... 8

**RHEUMATOID ARTHRITIS** ..... 10

**RHEUMATOID ARTHRITIS PAIN RELIEF** ..... 12

        Rest ..... 12

        Exercise ..... 12

        Over The Counter Pain Relief Options ..... 12

        Braces, Splints, and Assistive Devices ..... 12

        Alternative And Complementary Medicine..... 13

            Gamma Linolenic Acid (GLA) And Fish Oil ..... 13

        When Rheumatoid Arthritis Pain Persists..... 13

            Consult Your Doctor ..... 13

            Prescription Medications ..... 13

                COX-2s ..... 13

                Corticosteroids..... 14

                DMARDs ..... 14

                Injections..... 14

                Surgery ..... 14

**CONCLUSION**..... 16

**FURTHER RESOURCES**..... 17

**MEDICAL DISCLAIMER** ..... 18



## **JOHNS HOPKINS GUIDE TO ARTHRITIS PAIN RELIEF**

### **INTRODUCTION**

If you suffer from joint pain and stiffness, you are not alone. By age 50, almost every man and woman has occasionally experienced these symptoms. But if joint pain and stiffness are persistent, it could mean that you have arthritis.

Thanks to new drugs and new surgical procedures, fewer people with arthritis now develop severe joint deformities and permanent disabilities. With proper care from their doctors—and active participation in managing their own treatment plan—most people who have arthritis continue to lead active lives, even in their older years.

One of the key components of self-care for your arthritis is pain relief.

This guide is designed to give you an overview of the latest research and findings from Johns Hopkins' specialists on the dos and don'ts of arthritis pain relief.

We will deal with osteoarthritis (OA) in the first section of the guide, and rheumatoid arthritis (RA) in the second. Some of the material will be similar for both.



## **ARTHRITIS PAIN RELIEF**

### **SECTION ONE:**

#### **OSTEOARTHRITIS**

Osteoarthritis (OA), a disease characterized by degeneration of the cartilage that lines the joints, affects half of adults over age 65—or more than 21 million Americans. By age 40, about 90% of us have at least some signs of osteoarthritis, but symptoms of pain, stiffness and sometimes swelling usually don't start until later in life. Symptoms can be so severe that it is difficult to walk, open a jar, comb hair, or perform a host of other ordinary daily activities.

For the last few decades, therapeutic options for relief of OA pain have been limited to acetaminophen (Tylenol) or aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs).

However, new prescription medications and a better understanding of the restorative effects of exercise have greatly helped in relieving the pain of people with osteoarthritis.

The following pages contain some of the most common treatments for OA pain, and advice and recommendations regarding each.



## OSTEOARTHRITIS PAIN RELIEF

### **Rest**

It is important to rest your joints when you are experiencing significant joint pain. However, studies conducted over the last several years consistently show that exercise is one of the best remedies for OA. Knowing when to rest your joints is as important as knowing when to use them when it comes to OA.

### **Exercise**

Regular exercise is a good way to maintain strength and flexibility, which will help to control pain. Strengthening muscles around an arthritic joint helps stabilize it. Range-of-motion exercises reduce stiffness and increase flexibility, while standard low-impact aerobic activities improve blood flow and reduce joint stress by controlling weight. High-impact aerobic exercise (e.g., jogging), on the other hand, may speed the breakdown of cartilage in people with OA.

Exercise also improves mental outlook, an important aspect of dealing with any chronic disorder. In one study of older people who were mildly disabled by knee OA, exercise regimens that involved muscle strengthening or low-impact aerobics lessened pain and disability for more than a year. The magnitude of the improvement was directly related to how well participants stayed with their programs. Other research shows that using exercise to boost muscle strength, mobility, and coordination reduces the number of times OA sufferers need to visit the doctor.

Make sure you don't try to do too much at once. Overuse can lead to additional injury. In general, it's normal to be slightly sore the day after a workout. Soreness that lingers longer than that is an indication you may be overdoing it.

### **Hot And Cold Treatments**

Hot and cold treatments at home can ease pain and stiffness and may lessen the need for medication. Heat treatments are appropriate when inflammation, (eg., swelling) is not evident. If inflammation is present, ice may be more effective.

Hot applications should not last more than 15 minutes at a time, cold applications no more than 20 minutes at a time. Either should be stopped if the skin becomes overly red. Some people like to alternate hot and cold applications. In any case,



be sure to put a towel between your skin and whatever heat or cold source you are using.

### **Over-The-Counter Pain Relief Options**

Over-the-counter (OTC) analgesics are helpful for occasional mild to moderate aches and pains due to arthritis. Acetaminophen is generally preferred because it is less likely to cause stomach irritation and other gastrointestinal difficulties than NSAIDs (such as aspirin, ibuprofen, ketoprofen, and naproxen). Unlike NSAIDs, however, acetaminophen does not have significant anti-inflammatory properties. Therefore, if swelling is present, or if acetaminophen fails to relieve your pain, NSAIDs may be the better option.

### **Topical Treatments**

Topical creams, rubs, and sprays (such as capsaicin cream or methyl salicylate) can be applied directly to the skin for pain relief. Capsaicin cream can be particularly effective for knee pain. Keep in mind, however, that topical remedies must usually be applied a few times a day in order to obtain pain relief and can have side effects.

### **Braces, Splints, And Assistive Devices**

Braces and splints are over-the-counter or custom-made supports designed to relieve pain and stabilize and protect joints. Splints should be lightweight and easy to remove, allowing for range-of-motion exercises several times daily. Prolonged or improper use of splints can increase stiffness and progressively diminish muscle strength and joint mobility.

Splints are most effective for the hands, wrists, or both. The best “splint” for the hip and knee joints is lying in a face-down position on a firm bed for about 15 minutes several times a day. Long-term use of splints for the elbow and shoulder joints poses the risk of rapid loss of mobility in these joints. As a result, judicious use of local treatments such as injections of inflammation-reducing steroids and appropriate use of physical therapy are preferable.

Assistive devices (such as faucet turners or jar openers) help decrease the difficulty of everyday tasks. Occupational therapists are experts in fitting braces and splints, recommending assistive devices, and instructing patients on their proper use.

### **Weight Loss: How Much Is Enough To Ease OA Pain?**



Weight reduction is generally recommended for the treatment of overweight patients with knee OA, but it hasn't been clear just how much weight people need to lose before they will start to see an improvement in their symptoms. A team of researchers led by Susan Bartlett, Ph.D., Assistant Professor of Rheumatology at Johns Hopkins, sought the answer to this question in a recent study.

The researchers measured the long-term impact of weight reduction on pain, stiffness, and physical function in 24 overweight patients with OA: For 4 months, participants attended weekly weight-loss classes that stressed changes in nutrition and increased physical activity—at least 30 minutes of moderate-intensity exercise such as brisk walking on most days of the week—to achieve permanent weight loss. After 4 months, the participants had lost an average of about 18 pounds and reported significant reductions in pain (40 percent) and stiffness (45 percent) and improvements in physical function (51 percent).

Thus, for overweight patients, relatively small weight losses can produce improvements in pain and physical function comparable to, or even exceeding, those associated with commonly prescribed medications for knee OA.

### **Alternative and Complementary Medicine**

Many people with arthritis rely on complementary medicine, products and techniques used in combination with conventional treatments. For example, they may listen to soothing music or go to an arthritis support group to make living with arthritis easier.

This is very different from alternative medicine, which relies on products and techniques that are used instead of conventional medicine. Examples of alternative therapies are taking an herbal supplement or following a special diet to treat your osteoarthritis, rather than taking the medications your doctor has prescribed. Whether you are using complementary or alternative treatments, it's always important to let your doctor know about them because they may change your OA symptoms, test results, and responses to prescribed treatments.

What alternative remedies work for osteoarthritis? Despite increasing research in the field, neither the Arthritis Foundation nor the American College of Rheumatology officially recommends any nutritional or herbal supplements for the treatment of OA.



## **Glucosamine And Chondroitin For Arthritis Pain Relief?**

Two seemingly promising supplements for OA are glucosamine and chondroitin, which are often sold together. Glucosamine is a compound derived from the shells of crustaceans; chondroitin is a component of connective tissue extracted from cow tracheas. They have been used by veterinarians for many years in animals with OA. Both are being investigated for humans in large-scale multicenter trials supported by the National Institutes of Health (NIH).

As we have reported in *The Johns Hopkins Arthritis Bulletin*, *Arthritis White Paper*, and *Health after 50* newsletter, some of the results are starting to come in. For example, in 2006, a large government-sponsored study called the Glucosamine/Chondroitin Arthritis Intervention Trial (GAIT) found that, overall, glucosamine and chondroitin, either alone or in combination, were no more effective than a placebo in easing symptoms of knee osteoarthritis. However, a subgroup of people with moderate-to-severe pain did experience significant pain relief with the glucosamine-chondroitin combination.

The GAIT study, which is continuing, will address other aspects of glucosamine and chondroitin treatment, including its potential to prevent progression of joint damage.

## **When Osteoarthritis Pain Persists**

### **Consult Your Doctor**

It's important for anyone with arthritis to consult a doctor on a regular basis, but especially before starting an exercise program or purchasing a protective device. A doctor can establish a safe level of exercise tailored to individual health needs and provide a referral to a physical therapist, who can explain what exercises may be most beneficial and how to perform them correctly to avoid further pain or injury.

It's also important to consult a doctor if you are taking OTC analgesics so frequently that you risk surpassing the dosage guidelines for the product. You should never take any over-the-counter medication more often than recommended on the product label, in order to avoid the possibility of stomach, kidney, or liver damage. In addition, you should be careful of "hidden" pain relief medications in over-the-counter cold and flu products, which may also cause you to accidentally overdose.





## Prescription Medications

Doctors can also prescribe more powerful pain relievers. Although higher dosages and frequent use of these medications can cause gastrointestinal and kidney problems, they can be used safely with careful monitoring.

Monitoring is especially important in people over age 60, who are four times more likely than younger adults to experience gastrointestinal bleeding or ulceration when taking NSAIDs. Adding a proton pump inhibitor—such as lansoprazole (Prevacid) or omeprazole (Prilosec), which are ordinarily prescribed for heartburn—can minimize the likelihood of gastrointestinal problems.

NSAIDs can also interact with many common medications, including anticoagulants, corticosteroids, diuretics, and angiotensin converting enzyme (ACE) inhibitors.

Opioids, such as tramadol (Ultram) or codeine, may be an option for those who do not respond to NSAIDs. However, opioids are associated with side effects such as constipation, nausea, and drowsiness, as well as the possibility of dependence. Using the lowest effective dose and frequent monitoring can reduce the risk of these problems. Tramadol is less likely to cause dependency or side effects than codeine. Combining opioid therapy with acetaminophen or NSAIDs may be more effective than taking either type of medication alone.

## Injections

If you do not gain sufficient pain relief from the methods mentioned above, you have a number of other options available. Injections of a glucocorticoid (a type of steroid) or hyaluronic acid (a natural component of joints) can be particularly beneficial for OA-associated knee pain.

Glucocorticoid injections relieve pain for up to three months and can be given once every three to four months.

The relief from hyaluronic acid injections can last up to a year. The procedure is appropriate for people who don't obtain adequate relief from exercise, physical therapy, or analgesics.

## Surgery



When other therapies for OA have been exhausted, surgery may be an option for those with persistent pain and limited movement. There are several options: two include arthroscopy (joint repair using endoscopic techniques) and arthroplasty (total joint replacement).

Performed on an outpatient basis, arthroscopy involves making two or three small incisions around the joint and removing bits of bone and damaged cartilage floating within the joint.

Arthroplasty is a major operation that requires one or more larger incisions and a longer recovery period. It is reserved for patients with severe pain, deformity, or instability.



## **SECTION TWO:**

### **RHEUMATOID ARTHRITIS**

Rheumatoid arthritis (RA) affects approximately 2.1 million Americans, and three times as many women as men. Osteoarthritis usually begins late in life; RA often begins between ages 30 and 50, though it can develop at any age. The major characteristics of RA are that it is chronic, systemic (affecting the whole body), inflammatory, and autoimmune.

“Autoimmune” means that the body launches an immune-system attack upon itself. In RA, the chief target of this attack is the synovial membrane, the lining of the joints that connect parts of the skeleton.

When the white blood cells of the immune system attack the synovial membrane, they begin to release the same poisonous substances that kill bacteria and viruses during an infection. The result is a series of chemical changes that produce the same local symptoms that occur with an infection: the combination of heat, swelling, pain, and redness known as inflammation.

As time goes on, continued inflammation causes the synovial membrane to thicken. An area of inflammatory cells (called a pannus) often starts to form at the point where the synovial membrane joins the cartilage. Continued release of enzymes and growth factors by the white blood cells, along with growth of the pannus, can erode cartilage, tendons, ligaments, and even bones within the joint capsule.

As RA progresses, the ever-growing pannus can further limit joint motion. Inflammation of tissues surrounding the joint may eventually cause permanent joint damage and deformities.

Unfortunately, the effects of RA are not limited to joints. They can have consequences throughout the entire body. As a result, people who have the disease are frequently fatigued, often lose their appetite, and tend to run a low fever and feel generally unwell, as if they have the flu. Without proper treatment, this serious systemic illness can lead to significant disability and premature death.



With OA, joints ache and feel tender, but there's little or no swelling. In RA, affected joints become inflamed (red, warm, swollen, and painful).

The goals of treatment for RA are to relieve pain, reduce inflammation, maintain function, and prevent joint damage and systemic illness. Unfortunately, there is no cure for RA, but self-care, pain relief, and disease-modifying anti-rheumatic drugs (DMARDs) can help produce long-term remission of the disease. Using the right medications and starting them as early as possible are the keys to achieving treatment goals.

The following pages contain some of the most common treatments for RA, and advice and recommendations regarding each.



## RHEUMATOID ARTHRITIS PAIN RELIEF

### **Rest**

Fatigue can be the most incapacitating aspect of RA. Taking frequent rest breaks when your joints are inflamed can help. In the short term, complete bed rest may be necessary when severe inflammation occurs in multiple joints. Learning to pace yourself and planning ahead are also keys to helping you get through the day without getting exhausted.

### **Exercise**

When your joints are not inflamed, you should engage in moderate aerobic exercise to increase your endurance and keep your joints flexible. Even vigorous activity is fine if you feel up to it.

Aquatic exercises can also be beneficial for people with RA, as well as soothing if done in a heated pool.

### **Over-The-Counter Pain Relief Options**

In the past, people newly diagnosed with RA were treated first with an over-the-counter pain reliever, such as acetaminophen or one of the over-the-counter NSAIDs such as aspirin or ibuprofen.

But now experts recommend prescription DMARDS (see page 14 below) as the best first medication for people with RA. NSAIDs are still recommended in combination for additional pain relief. Side effects associated with NSAIDs, particularly gastrointestinal bleeding means taking the lowest dose possible as infrequently as possible.

### **Braces, Splints, and Assistive Devices**

Braces and splints help to relieve pain and stabilize and protect joints during periods of inflammation. At these times, your joints (especially those in the hands and wrists) are more prone to injury. Even when your arthritis isn't acting up, you will probably want to use assistive devices, such as faucet turners, jar openers, and easygrip kitchen tools, to make everyday tasks easier. You may also need a cane or crutches to make walking easier.



Consult with your doctor as to how to use these devices most effectively, and also how to not overuse them and cause more damage. Also consider a physical therapist as part of your arthritis support team,

### **Alternative And Complementary Medicine**

#### **Gamma Linolenic Acid And Fish Oil**

A few small studies suggest that gamma linolenic acid (GLA) and fish oil may be helpful for rheumatoid arthritis. GLA is found in borage oil, evening primrose oil, and black currant oil. But there is no way to regulate the potency of the supplements.

No alternative or complementary treatments are officially recommended by the Arthritis Foundation nor the American College of Rheumatology at this time.

#### **When RA Pain Persists**

Thanks to major advances in medications, a great deal has changed in the past few years regarding how doctors approach rheumatoid arthritis. Rest, exercise, and over-the-counter pain relief options are useful adjuncts to the number of other, more aggressive treatments available.

#### **Consult Your Doctor**

As mentioned above you should stay in close contact with your doctor about all aspects of your arthritis and medications. Your doctor will advise you on the various medications and other treatment options available.

#### **Prescription Medications**

Your treatment will probably require a combination of therapies, and medications, including: COX-2s, corticosteroids, and DMARDs.

#### **COX-2s**

COX-2 inhibitors were designed to be more effective than NSAIDs for pain relief, but without their gastrointestinal side effects. However, in light of recent concerns that COX-2 inhibitors can increase the risk of heart attacks and strokes—and the resulting removal of two of these three drugs (Vioxx and Bextra) from the market—your doctor will be cautious and may choose not to prescribe Celebrex, the one COX-2 inhibitor that remains available.



### **Corticosteroids**

Low oral doses of the corticosteroid drug prednisone usually produce a rapid and dramatic improvement in RA symptoms by reducing inflammation and suppressing the immune system.

Recent studies suggest that corticosteroid treatment may also slow the rate of joint damage. However, inflammation and joint damage frequently recur or get worse once a corticosteroid is discontinued. Only short-term corticosteroid use is recommended because these drugs greatly increase a person's risk of osteoporosis.

### **DMARDs**

In recent years, the prognosis for RA patients has improved dramatically, thanks to earlier use of powerful new DMARDs. RA guidelines now specify DMARDs as the first drugs to use in newly diagnosed people. This more aggressive approach makes long-term remission an attainable goal for many more rheumatoid arthritis patients.

However, the newest disease-modifying drugs—called biologic response modifiers (BRMs)—are very expensive. They typically cost more than \$1,000 per month. When you add this cost to the expense of your other arthritis medications, x-rays, blood and urine tests, visits to your doctor, physical therapy, treatment for depression (which is common in rheumatoid arthritis patients), and indirect costs related to disability and missed work, it's obvious that having RA can be a significant financial burden. Work with your doctor to balance monetary concerns with the need to prevent disability.

### **Injections**

Typically, corticosteroid drugs are given in pill form. But as with osteoarthritis, injecting corticosteroids right into the most affected joints is safe and offers highly effective pain relief for rheumatoid arthritis.

Many of the new DMARDs are also given as injections at this time.

### **Surgery**

If you are taking a combination of drugs for your RA but still have severe pain, poor range of motion, and joint damage that make activities of everyday life difficult, it may be time to consider surgery. Many of the procedures used to treat



osteoarthritis also work for rheumatoid arthritis, such as total joint replacement and arthrodesis (joint fusion).

Two additional options for people with rheumatoid arthritis are synovectomy and resection. Studies show that people who have poorer functional ability before surgery usually take longer to regain functional independence after surgery. By not delaying surgery, you can increase your chances of a good recovery.

Synovectomy involves removing the inflamed synovial membrane and can be performed on the elbow, shoulder, hip, or knee.

With resection, all or part of a bone is removed from a joint in the hand, wrist, elbow, toe, or ankle.





## CONCLUSION

### THE FUTURE OF ARTHRITIS PAIN RELIEF

Osteoarthritis and rheumatoid arthritis are the focus of intensive research, and new drugs and treatments are on the horizon. As always, we look forward to reporting to our readers the most promising latest developments on arthritis from the Johns Hopkins Arthritis Center in upcoming issues of the monthly newsletter *Health After 50*, the quarterly **Johns Hopkins Arthritis Bulletin** and the annual **Johns Hopkins White Papers: Arthritis**.



## FURTHER RESOURCES

For the latest articles on arthritis posted to the Johns Hopkins Health Alerts website, please visit the Arthritis Health Alerts Topic Page at:

[http://www.johnshopkinshealthalerts.com/alerts\\_index/arthritis/12-1.html](http://www.johnshopkinshealthalerts.com/alerts_index/arthritis/12-1.html)

For more information on Johns Hopkins White Papers: *Arthritis* 2008 please visit:  
[http://www.johnshopkinshealthalerts.com/white\\_papers/arthritis\\_wp/orderd.html](http://www.johnshopkinshealthalerts.com/white_papers/arthritis_wp/orderd.html)

You can find more information on *The Johns Hopkins Arthritis Bulletin* here:  
[http://www.johnshopkinshealthalerts.com/bulletins/arthritis\\_bulletin/main\\_landing.html](http://www.johnshopkinshealthalerts.com/bulletins/arthritis_bulletin/main_landing.html)



## MEDICAL DISCLAIMER

The information contained in this *Special Report* is not intended as a substitute for the advice of a physician. Readers who suspect they may have specific medical problems should consult a physician about any suggestions made.

Copyright ©2008 Medletter Associates, LLC.  
All rights reserved.

No part of this special report may be reproduced or transmitted in any form or by any means electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

For all subscription information, bulk orders, and permission to reproduce this special report, please write to:

The Permissions Editor  
Medletter Associates, LLC.  
6 Trowbridge Drive  
Bethel, CT 06801