

# The Most Common and Worst Way to Treat Arthritis

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Steroids can be administered either orally, topically through a cream or ointment, or by injection. Steroids work by inhibiting the production of inflammatory chemicals, thereby reducing symptoms associated with inflammation
- › Three of the most common side effects, even from short term use, are osteoporosis (reduced bone density), cataracts and an increased risk of diabetes. However, more serious effects such as life-threatening sepsis have also been reported
- › In one 2019 study, 8% of patients with osteoarthritis of the hip or knees who received one to three steroid injections ended up worse. Adverse effects were observed in 10% of those with OA in the hip and in 4% of those with OA in the knees
- › In another study, intra-articular corticosteroid injections more than doubled the cartilage volume loss compared to placebo (-0.21 millimeters versus -0.10 mm), while having no impact on knee pain at their two-year follow-up
- › When using steroids for an extended period of time, abruptly stopping the drug can trigger adverse and potentially even lethal effects, depending on how long you've been taking the medication

**This article was previously published November 6, 2019, and has been updated with new information.**

If you have arthritis, chances are you've been offered steroid injections. Unfortunately, mounting research suggests this treatment may actually do far more harm than good —

even in the short term.

The first recorded use of steroids can be traced to 1930, when an extract of animal adrenocortical tissue was used to counteract human adrenal failure.<sup>1</sup> After more than a decade of testing and research, the first patient with rheumatoid arthritis was treated with steroids.

The results were impressive, and it wasn't long before the drug was prescribed to other patients with arthritis. In 1950, the first oral and intra-articular (joint) formulations were used. Today, steroids can be administered either topically through a cream or ointment, orally or by injection.<sup>2</sup>

While delivery systems may differ, steroids work by inhibiting the production of inflammatory chemicals, thereby reducing symptoms associated with inflammation, be it systemic or in a precise area such as a joint.

By the 1960s, many toxic side effects and withdrawal symptoms were becoming well-known, and withdrawal protocols had already been formulated.<sup>3</sup> To this day, scientists continue to discover harmful effects.

Three of the most common side effects, even from short term use, are osteoporosis (reduced bone density), cataracts and an increased risk of diabetes. However, more serious effects such as life-threatening sepsis (blood poisoning) have also been reported.

## **Single Steroid Injection Results in Massive Bone Loss**

In an October 2019 article<sup>4</sup> in The Atlantic, Dr. James Hamblin recounts the disturbing case of a young woman who, after giving birth, complained of pain in her hip. A steroid injection was administered to help with the pain after an X-ray revealed a small amount of fluid in the joint, which can be a sign of inflammation.

Six months later, the woman, now unable to walk, came back to the hospital. Imaging revealed the entire head of her femur was now gone, necessitating a total hip

replacement.

While her doctor, Dr. Ali Guermazi at the Boston Medical Center, didn't know exactly how it happened, he suspected the bone loss might be related to the steroid injection. As noted by Hamblin:<sup>5</sup>

*"This is not a typical suspicion. Doctors have long considered a single injection of steroids – the type that come from the adrenal glands and modulate the body's stress response – to be a pretty harmless way to temporarily relieve pain in a joint.*

*The worst-case scenario was that the shot didn't help the pain ... As a specialist in joint pain, Guermazi has done thousands of steroid injections over decades of work. He has trained other doctors as he was trained: to believe that the injections are safe as long as they aren't overused.*

*But now he has come to believe that the procedure is more dangerous than he knew. And he and a group of his Boston University colleagues are raising a warning flag for doctors and patients alike."*

## **Steroid Shots Can Make Joints Worse**

Guermazi and colleagues recently published the results of a study<sup>6,7,8</sup> in which the outcomes of 459 patients with osteoarthritis (OA) of the hip or knee who were treated with steroids were evaluated. Patients received between one and three intra-articular corticosteroid (IACS) injections (median 1.4 injections) for their OA.

In 8% of these cases, the injection ended up causing complications that made the joint worse.<sup>9</sup> Hips appear to be far more prone to damage from the injections than knees, as adverse effects were observed in 10% of those with OA in the hip compared to 4% of those with OA in the knees.<sup>10</sup> According to the authors:<sup>11</sup>

*"Four main adverse joint findings have been structurally observed in patients after IACS injections: accelerated OA progression, subchondral insufficiency*

*fracture, complications of osteonecrosis, and rapid joint destruction, including bone loss."*

Of these, accelerated OA progression was the most common, accounting for 6% of adverse effects; 0.9% experienced subchondral insufficiency fracture, 0.7% experienced osteonecrosis and 0.7% had rapid joint destruction and bone loss.

They also cite other research<sup>12</sup> showing intra-articular corticosteroid injections more than doubled the cartilage volume loss compared to placebo (-0.21 millimeters versus -0.10 mm), while having no impact on knee pain at two-year follow-up.

## **Evidence to Support Steroid Use Is Lacking**

A 2015 meta-analysis<sup>13</sup> that looked at 27 trials for arthritis of the knee also concluded that the quality of the evidence in support of steroids was low and, overall, inconclusive. According to the authors, "A single trial included in this review described adequate measures to minimize biases and did not find any benefit of intra-articular corticosteroids."

What's more, the evidence suggests the effects of steroids decrease over time, and this particular analysis found "no evidence that an effect remains six months after a corticosteroid injection." As Guermazi told Hamblin:<sup>14</sup>

*"The unfortunate thing is that there is no pharmaceutical treatment for osteoarthritis. All the guidelines tell you to lose weight, exercise, and improve lifestyle. Those are the treatments."*

Hamblin continues:<sup>15</sup>

*"[Guermazi] and his colleagues emphasized that two groups in particular should be cautious: young patients and anyone with pain that seems dramatically worse than might be expected (based on the history, imaging, and physical exam).*

*Such disproportionate pain suggests a subtle problem that, perhaps, is being overlooked. Adding steroids to the mix could only make things worse, or delay an important finding. This may well have been the case for the young mother Guermazi treated.*

*A tiny stress fracture could have been invisible in the X-ray. It would have required treatment by keeping weight off the leg. Instead, with steroids or a placebo creating some sense of relief, the woman felt able to walk on the hip, precipitating the collapse of the bone."*

The fact of the matter is that steroid injections have been suspected of triggering bone loss for quite some time now. In 2006, animal research<sup>16</sup> revealed a strong link between steroid use and osteoporosis.

The conclusion of the study revealed that although the steroid cortisone appears to inhibit the ability of osteoclasts to dismantle old bones in genetically normal mice, the inability of the skeletal structure to renew itself may cause bones to weaken dramatically. Senior author Dr. Steven L. Teitelbaum, Messing professor of pathology and immunology commented:<sup>17</sup>

*"High-dose cortisone is the second most common cause of osteoporosis, and we currently have no real treatment for this serious side effect. Given how frequently these drugs are used to treat many different conditions, that's a major clinical problem."*

## **Knee Steroid Shots Are No More Effective Than Placebo**

Similarly, a 2017 study<sup>18</sup> published in JAMA presented convincing evidence that use of corticosteroid injections for osteoarthritis of the knee causes a gradual loss of knee cartilage over time and appears to be no more effective than placebo in terms of relieving knee pain.

In this study, a group of 140 men and women over the age of 45 who suffered from painful knee OA were randomly assigned injections of either a corticosteroid or a saline

placebo. Those receiving a corticosteroid were injected with 40 milligrams (mg) of triamcinolone acetate.

The intra-articular injections were administered every three months for two years. The effects of the shots were tracked via pain questionnaires and physical ability tests, as well as annual bone and joint magnetic resonance imaging. Neither the study participants nor the staff administering the shots knew which patients were receiving placebos.

At the conclusion of the study, there was no noticeable difference between the two groups in terms of joint pain and stiffness. Both groups performed equally well in terms of standing from a seated position and walking. As reported by the authors:<sup>19</sup>

*"Among patients with symptomatic knee OA, two years of intra-articular triamcinolone, compared with intra-articular saline, resulted in significantly greater cartilage volume loss and no significant difference in knee pain. These findings do not support [steroid shots] for patients with symptomatic knee OA."*

## **Significant Risks Found With Short-Term Steroid Use**

Aside from the possibility of serious bone loss, other significant health risks have also been found. For example, a study<sup>20,21,22</sup> published in The BMJ in 2017, which evaluated data from more than 1.5 million people enrolled in nationwide health care insurance revealed disconcerting effects.

One in 5 patient reports indicated they had filled a short-term prescription for steroids during the three-year study period. Nearly half of those who used steroids were prescribed a "dosepak" where the drugs are prepackaged and labeled for daily use. These "dosepaks," also called "burstpaks," are designed to deliver the highest dose on the first day and taper the dose over the following five days.

In addition to a higher risk of suffering a broken bone, patients who took a short "burst" of steroids also had a higher risk of a blood clot or life-threatening sepsis. This increased risk lasted for up to 90 days after the steroid use had stopped.

The results prompted the researchers to call for better education for physicians and patients about the potential risks. In a press release, lead author Dr. Akbar Waljee said:<sup>23</sup>

*"Although physicians focus on the long-term consequences of steroids, they don't tend to think about potential risks from short-term use. We see a clear signal of higher rates of these three serious events within 30 days of filling a prescription.*

*We need to understand that steroids do have a real risk and that we may use them more than we really need to. This is so important because of how often these drugs are used."*

## **Other Dangers of Long-Term Steroid Use**

The dangers of long-term steroid use are well documented. Unfortunately, sometimes physicians and patients believe that steroids are the only option available to reduce painful symptoms. However, the long-term effects of the medication may in many cases outweigh the benefits of treatment, depending on the condition.

Of those who were prescribed steroids in The BMJ study described above, nearly half received the drug for diagnoses related to back pain, allergies or respiratory infections.<sup>24</sup> Steroids are also commonly prescribed for other health conditions, including lupus, systemic vasculitis (blood vessel inflammation), myositis (muscle inflammation) and gout.<sup>25</sup>

The underlying commonality in a majority of conditions for which steroids are prescribed is inflammation. Whether from disease, illness or injury, the intent behind the use of steroids is to lower inflammation, thereby reducing symptoms.

But, steroids are not the only option, and may not be your best option, for lowering inflammation. Since adding hormones (steroids) to your body alters the delicate balance of your natural hormones, the addition can cause a long list of reversible and/or irreversible changes, including the following:<sup>26,27,28,29,30,31,32</sup>

Stomach ulcers	Increased facial hair
Increased risk of heart disease	Genital yeast infections and oral thrush
Reduced bone density and osteoporosis	Gastrointestinal bleeding
Thinning skin and stretch marks	Increased appetite and weight gain
Metabolic syndrome	Higher risk of infection
Cognitive deficits and impaired memory	Cataracts
Insomnia	Glaucoma
Puffy "moon face"	Hypomania, hyperactivity, depression or psychosis
Urinary tract infections	Suppressed adrenal gland hormone secretion
Slow-healing wounds	High blood sugar and diabetes
Fluid retention	Acne
Night sweats	Increased blood pressure

## **Steroid Withdrawal**

If you do choose to use steroids for an extended period of time, you also need to know that stopping the drug abruptly may trigger adverse and potentially even lethal effects, depending on how long you've been taking the medication. Symptoms associated with steroid withdrawal include:<sup>33</sup>



Weakness and fatigue	Decreased appetite
Nausea and/or vomiting	Body aches and/or joint pain
Weight loss	Abdominal pain and/or ileus (the temporary arrest of intestinal peristalsis)
Diarrhea	Low blood pressure
Dizziness	Low blood sugar
Fever	Mental changes such as depression, mood swings and suicidal thoughts
Dehydration	Headache
Shaking	Skin rash
Changes in menstrual cycle	Elevated calcium levels and/or electrolyte imbalance

Corticosteroids simulate the natural hormone cortisol, released by your adrenal glands. When you add corticosteroids your body has not produced, it may shut down the production of your own hormone.

These changes in the balance to your natural secretion may be the result of taking doses greater than your natural production.<sup>34</sup> As you discontinue the drug, you can experience withdrawal symptoms.

These symptoms may be managed through a structured and coordinated drug withdrawal program, to help reduce withdrawal symptoms. The severity of your symptoms will be related to how long you took steroids, the dose and the taper schedule used.<sup>35</sup>

## Safer Alternatives

In specific instances, your medical treatment may necessitate the use of steroids. However, I believe steroids are prescribed far too frequently for conditions that may be addressed with other, much safer options.

In many cases, you may prevent the use of steroids by incorporating lifestyle strategies that naturally reduces inflammation in your body. So, before you resort to steroids, consider implementing a few of the following suggestions first, to see if you can achieve relief:

**Curcumin** – Curcumin is one of the ingredients in the spice turmeric and microactive technology helps improve absorption. Curcumin helps to balance excitatory and inhibitory cytokines (substances secreted by your immune system that have an effect on other cells).

Many human trials have demonstrated the effectiveness of curcumin to reduce inflammation.<sup>36</sup> The supplement is also well tolerated, without adverse side effects, even at high dosages.<sup>37</sup>

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**Eliminate foods that promote inflammation** – Foods that significantly contribute to the inflammatory response in your body include virtually all processed foods, sugars, gluten, processed seed (vegetable) oils (trans fats) and alcohol. Lectins can also cause problems if you're sensitive to them. Seed oils are likely the worst offender for most and need to be highest on the priority list for removing.

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**Eat foods that reduce inflammation** – To reduce chronic inflammation, it's important to address your overall diet. Foods that help reduce inflammation are typically high in antioxidants and healthy fats. Examples include green tea, vegetables, bone broth, avocado and coconut oil.

To help you get started, I suggest following my free optimized nutrition plan, which starts at the beginner phase and systematically guides you step-by-step to the

advanced level.

As a general rule, I recommend replacing processed foods with whole, organic foods as much as you can. It is especially important to avoid processed vegetable oils and sugars. If you hope to optimize your health, you must have a regular source of high-quality, unprocessed fats. Check out my book, "[Fat for Fuel](#)" for more tips on how to incorporate more healthy fats into your diet.

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**Stay well-hydrated** – When dehydrated, your cells are not able to function optimally and have a more difficult time eliminating toxins, so be sure to stay well-hydrated. As a general rule, drink to quench your thirst. A helpful guide to gauge your hydration is to look at the color of your urine. Urine that is a light, straw yellow color is typically a sign of being fully hydrated.

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**Exercise and keep active every day** – Exercise helps lower stress and improves the quality of your sleep, both of which will lower your levels of inflammation. Exercise also improves your heart and lung function, flexibility and range of motion.

According to the Mayo Clinic, exercise is especially crucial if you have knee pain.<sup>38</sup> Lack of exercise can make your joints even more painful and stiff. As noted by Dr. Kim Stearns, a board-certified orthopedic surgeon at the Cleveland Clinic:<sup>39</sup>

*"We say motion is lotion – the more you move, the more your body lubricates itself. When you've been sitting or lying around, fluid in the joints doesn't move. The more active you are, the more your joints lubricate themselves."*

Nonexercise movement is also important. Ideally, you'll want to keep moving as much as possible throughout the day. A worthy goal is to limit your sitting to three hours or less.

If you have joint pain, there are a few factors to consider with respect to exercise. Particularly if your pain worsens with movement, you want to take care to not strain

a significantly unstable joint. Pain during movement is one of the most common and debilitating symptoms of OA.

If you've already developed knee OA, you'll most certainly want to incorporate exercises that strengthen the quadriceps muscle at the front of your thigh. Instead of running or other high-impact exercise, you will more likely enjoy and benefit from non-weight-bearing exercises such as bicycling or swimming.

Should you experience pain for more than one hour after exercising, you either need to slow down or choose a different form of exercise. As needed, you may want to work with a physical therapist or qualified personal trainer who can help develop a safe set of activities for you.

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**Optimize your weight** — If you are overweight, consider pairing exercise with a healthy diet to bring some relief to your joints. A 2013 study<sup>40</sup> revealed overweight and obese adults with knee OA who followed an intensive diet and exercise program experienced less pain and better function than those who pursued just diet or exercise alone.

Dr. Aman Dhawan, an orthopedic sports-medicine specialist at Penn State Health Milton S. Hershey Medical Center, suggests any loss of weight will translate into tremendous improvements in your joint pain and function:<sup>41</sup>

*"There is good data to support getting rid of excess weight because it does improve pain in the joints of the lower extremities, as well as decreases your risk of getting arthritis, or of having it progress. The joints carry the weight of our bodies, so the less stress you put on them, the longer they will stay healthy."*

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**Practice stress reduction** — Science demonstrates that stress increases the inflammatory response in your body. Meditation, yoga, exercise and deep breathing are all ways to help reduce stress.

One of my favorite methods is the Emotional Freedom Techniques (EFT), which uses gentle tapping on acupuncture points on your head and upper body to help you clear your mind and accomplish your goals. You can learn more about EFT for stress in this video:

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**Get quality sleep** – Getting eight hours of quality sleep is important to your health for many reasons, not the least of which is that it will help reduce inflammation in your body.

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**Essential oil and aromatherapy** – There are many uses for essential oils, from lifting your mood to helping reduce inflammation.

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**Detoxify in the sauna** – Although there is more than one way to help your body detoxify (which is important for lowering inflammation), using a near-infrared sauna may be among the easiest and most cost effective.

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**Platelet-rich plasma therapy** – Platelet rich plasma (PRP) therapy releases growth factors that can help heal and strengthen areas of the human body, including knee joints.

Research published in the American Journal of Sports Medicine<sup>42</sup> investigated the effects of PRP when applied to patients with OA in both knees. At six weeks and three months, the knees treated with one or two PRP injections saw a reduction in pain and stiffness, and experienced improved function. At the six-month mark, positive results from PRP diminished, but knee pain and function were still better than before treatment.

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