

Joint Injection: Pros and Cons

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[Introduction:](#)

Use of cortisone injections in the treatment of muscle and joint inflammatory reactions is becoming increasingly popular. Muscle injections are a remarkably effective adjunct to pharmacologic and physical therapies and are safe and easy to perform. Joint injections, while technically more difficult to perform, also can be of great benefit in the patient's recovery. The purpose of this article is to introduce the basic principles of muscle and joint injections.

[Mechanism of Inflammation:](#)

Inflammation is one of the body's first reactions to injury. Release of damaged cells and tissue debris occurs upon injury. These expelled particles act as foreign bodies (antigens) which is able to stimulate the immune system instigating a local response. Local blood flow increases to transport the White cells (leukocytes: macrophages), and plasma proteins to the injured area. A redistribution of blood flow produces stasis and lack of oxygen (hypoxia) at the injury site. The resulting infiltration of tissues by the white cells, plasma proteins, and fluid causes the redness, swelling, and pain that are characteristic of inflammation.

Inflammatory muscle and joint injuries are associated with many causes, including the following:

- Muscle strains
- Arthritis
- Connective tissue disease
- Degenerative joint disease (if caused joint inflammation)

- Tendinitis: e.g. tennis elbow, Golfer's elbow, Rotator cuff tendinosis.
- Bursitis: e.g. Greater Trochanteric bursitis
- Miscellaneous systemic diseases: e.g. Thyroid disorders, Renal and Liver diseases.
- Carpal Tunnel Syndrome.

Initially, the inflammatory reaction serves several important purposes. The influx of white cells (leukocytes) facilitates the process of the removal of damaged cells and other particulate matter (phagocytosis). Pain and tenderness remind the patient to protect the injured area; however, the inflammatory reaction eventually becomes counterproductive. The extravascular pressure exerted by the edema may retard blood flow into the area and delay healing. Sometimes, the debris coagulates and forms hard masses, scarring, and/or trigger points in the muscle or joint, preventing normal function from returning.

Sometimes other substances may be injected into the joint e.g. Hyaluronic acid in Osteoarthritis patients.

[The Uses of a local Joint Injection:](#)

- A corticosteroid intra- articular injection is given to suppress inflammation and therefore decrease pain.
- A corticosteroid joint injection is usually given with a local anesthetic.
- Steroid injection can be given into soft tissues, or into joints. Injections into a joint are known as intra-articular injections.
- Hyaluronic acid is given for Osteoarthritis joints.

[Carpal Tunnel Syndrome](#)

It is critical to begin treating early phases of carpal tunnel syndrome before the damage progresses. A conservative approach to CTS, which may include corticosteroid injections and splinting, is the first step in treating this disorder. The conservative approach is most successful in patients with mild or mild to moderate carpal tunnel syndrome. Studies showed that up to 2 injections can be injected for each hand presenting with carpal tunnel syndrome, with swift improvement of the symptoms (usually days) and a success rate that is comparable to surgical decompression after 1 year of follow up.

On the other hand, studies suggest that surgery is a better option for severe CTS. Surgery is also more likely to be necessary for patients with underlying conditions such as diabetes or thyroid disorders. Even among patients with mild CTS, there is a high risk of relapse, though local injections can be tried in such "mild" cases if the patients prefers to try the conservative approach first. For patients who are suffering from tenosynovitis of the flexor muscles of the hand, better results are achieved when specific exercises for carpal tunnel syndrome are added to the program of treatments.

Limiting Movement. If possible, the patient should avoid activities at work or home that may aggravate the symptoms. The affected hand and wrist should be rested for 2 - 6 weeks. This allows the swollen, inflamed tissues to shrink and relieves pressure on the median nerve. If the injury is work related, the worker should ask to see if other gadgets can be used or other jobs are available that will not involve the same hand or wrist actions. Few studies have been conducted on ergonomically designed furniture or equipment, or on frequent rest breaks. However, it is reasonable to ask for these if other work is not available.

Conservative Treatment Approach: The following conservative approaches have been shown to provide symptom relief:

Wrist splints:

Wrist splints can keep the wrist from bending. They are not as beneficial as surgery for patients with moderate-to-severe CTS, but they appear to be helpful in specific patients, such as those suffering from inflammation of the flexor tendons of the hands with mild-to-moderate nighttime symptoms of less than a year's duration. In selected patients, up to 80% reported fewer symptoms, usually within days of wearing the splint.

Please note that most of the wrist splints available in the market are designed for the wrist joint and not for carpal tunnel syndrome. Extending or flexing the wrist will increase the pressure on the median nerve and may increase your symptoms. Please speak to your treating doctor or occupational therapist to check how to amend the splint to suit the carpal tunnel treatment purpose.

Typically the splint is worn at night or during sports. The splint is used for several weeks or months, depending on the severity of the problem, and may be combined with hand and finger exercises. Benefits may last even after the patient stops wearing the splint.

Corticosteroids (steroids):

Corticosteroids (also called steroids) reduce inflammation. If restriction of activities and the use of painkillers are unsuccessful, the doctor may inject a corticosteroid into the carpal tunnel. Some experts recommend them for patients with CTS whose symptoms are intermittent, and there is no evidence of a permanent injury. Recent studies showed that steroid injections are the best treatment option in patients suffering from inflammation of their flexor tendons of the hands. Those patients usually present with tingling and numbness of the hands that is worse at night and usually wakes the patient up from sleep. The night symptoms usually improve on shaking the patient's hand or raising it up (as this pump the circulation and help resolving some of the congestion and edema in the inflamed synovial sheath). On the other hand local steroid injections into the carpal tunnel is not a good option in patients suffering from wasting of their hand muscles or sensory loss. In CTS, steroid injections (such as cortisone or prednisolone) shrink the swollen tissues and relieve pressure on the nerve. Evidence strongly suggests that they offer short-term relief in a majority of CTS patients. It should be noted that the pain may increase for a day or two after the injection, and skin color may change. In a third group of patients such as those suffering from inflammation of their wrist joints (such as patients suffering from

rheumatoid arthritis) giving a local steroid injection into the wrist joint, rather than carpal tunnel, would be the best therapeutic option.

Low-Dose Oral Corticosteroids: Oral corticosteroids are medicines taken by mouth. Short-term (1 - 2 weeks), low-dose use of corticosteroids may provide short-term relief (symptoms appear shortly after stopping the steroid therapy), but long-term use can cause serious side effects, including high blood pressure and high blood sugar levels. People with diabetes should be very cautious about oral corticosteroids.

A major analysis of other conservative approaches found that patients had no significant relief from nonsteroidal anti-inflammatory drugs (NSAIDs). NSAIDs include common pain relievers such as aspirin and ibuprofen. The same report also found no benefits from magnet therapy, laser acupuncture, vitamin B6, or chiropractic care. Other approaches being investigated include omega-3 fatty acid supplements. Diuretics has shown a successful outcome in patients suffering from or taking medications causing (e.g. HRT) salt and water retention.

Underlying Conditions: It is important to treat any underlying medical condition that might be causing carpal tunnel syndrome. For example, reducing inflammation in rheumatoid arthritis or other forms of inflammatory disorders that directly cause CTS is very helpful. Hypothyroidism and diabetes are diseases associated with an increased risk of CTS. The treatments for such diseases may offer some relief for CTS symptoms.

Yoga and Other Exercise Programs

Yoga. Very limited evidence suggests that yoga practice may provide some benefit for patients with carpal tunnel syndrome. Yoga postures are designed to stretch, strengthen, and balance upper body joints.

General Exercise Program. Some experts have reported that people who are physically fit, including athletes, joggers, and swimmers, have a lower risk for cumulative trauma disorders. On the other hand, obese and overweight patients are prone to suffer from carpal tunnel syndrome symptoms. Although there is no evidence that exercise can directly improve CTS, a regular exercise regimen using a combination of aerobic and resistance training techniques strengthens the muscles in the shoulders, arms, and back, helps reduce weight, and improves overall health and well-being.

For the patients suffering from inflammation of the flexor muscles of the hands, stretching exercises are the best thing to do to help relieving the symptoms and preventing recurrence of the condition, please refer to our article about management of carpal tunnel syndrome to view types of these exercises and ways to do them.

Possible Side Effects of a Joint Injection and what shall you do:

Corticosteroid soft tissue/ joint injections is the most common procedure carried out in the outpatient rheumatology clinic. When done by a trained practitioner, they are generally very safe. However like all medication there are some potential side effects which must be considered before deciding to go ahead with an injection. These side effects include:

- **Pain:** Some people find the injection itself painful. The injection is often given with some local anesthetic, once the anesthetic has worn off there may be some post injection pain, which usually lasts no more than 48 hours. The steroid can take 3 - 5 days to take effect. If you sustained pain after a local steroid injection, do not panic, you can use ice packs and pain killers to ease the pain. The symptoms will improve within few days.
- **Bleeding and bruising** - clearly the injection involves introducing a needle through the skin, sometimes this may cause bleeding, and if bleeding does occur bruising may follow.
- **Infection** - this is one of the more serious of the potential side effects. The occurrence of infection after injection is infrequent and in most of the cases, carried out following the approved protocols, is Unlikely. However, injecting a joint does provide a potential route into the joint for bugs and if infection does occur this require urgent treatment with antibiotics. A good medical practitioner will do everything possible to reduce any risk of infection including washing their hands first, using sterile single use needles and cleaning the skin before introducing the injection. If infection occurs, though very unlikely, antibiotic therapy is highly recommended after consulting the treating doctor.
- **Worsening of tingling and numbness** in Local steroid injections into the carpal tunnel. Though not every patient may have these symptoms, it may occur in about 20% of the patients. The symptoms appear 5-6 hours after the injection. Usually, it is self-limiting and resolves within 2-5 days. To help with the symptoms, the patient is advised to put on their wrist support (after modification for carpal tunnel syndrome), apply cold ice packs and take pain killers. All the symptoms will resolve in few days once the steroid effect starts to kick in.
- **Facial flushing-** The face can become red and flushed, this can occur in up to 5% of people after a steroid injection and when it does occur it lasts from 24 - 48 hours.
- **Post-injection reaction:** Post-injection reaction, may occur after local injections in the case the person is allergic to any compound of the drug or the preservative used that is injected. In other cases, the cortisone may crystallize and cause excruciating pain in the area or the crystals carrying the medicine molecules irritate the synovial membrane in the joint/ around the nearby ligaments and tendons. Post-injection reactions may look like joint infection. , however, all good practitioners who do injections will have appropriate skills and equipment to recognize and treat

any occurrence. Post-injection reactions are usually treated, provided there is no infection, conservatively. Resting the joint, cold ice packs and pain killers will help to ease the symptoms. The reaction symptoms and pain tend to resolve in 1-2 days.

- **Control of insulin in people who are diabetic.** Steroid affects insulin control. Usually the amount of steroid put into a joint is small, and is absorbed from the joint into the system so slowly that diabetic control isn't affected. However diabetics who have a steroid injection should monitor their blood sugar levels more closely for 48 hours after the injection.
- **Subcutaneous atrophy/ skin depigmentation.** This is more of a problem when the injection is into soft tissue, like a tennis elbow, rather than a joint, but it can occur in some of the joints which are close to the surface, like the thumb joint. The skin in the surrounding area can lose some of its pigment, meaning it loses color, this is more noticeable on people who have a darker skin color. Additionally the fat around the injection site can be reabsorbed which is known as subcutaneous atrophy. However, this usually resolves within 6-9 months and the fat will accumulate again at the same area in a normal pattern.
- **Insomnia:** The adrenal glands are responsible for regulating the fight or flight response in the body. As too much stress can keep the body awake by exhausting the adrenal glands, so too can an injection of cortisone. This side effect keeps the body awake and the mind stimulated. The byproduct associated insomnia typically only lasts 48 hours.

[Who Can't Have a Corticosteroid Injection?](#)

Generally steroid injections are very safe, but there are certain occasions that they should not be used:

- Artificial Joint - If the joint has previously been replaced and there is an artificial joint in place then the risk of infection is higher and it is generally considered unwise to introduce an injection into the joint. The exception to this is when the surgeon who replaced the joint feels that the injection is justified.
- Previous allergic reaction to the medication. If someone has had a previous allergic reaction to any of the medications to be used, then that injection should be avoided for fear of an anaphylactic reaction.
- Infection in the joint - any joint which is suspected to have an infection in it should not be injected.
- Immediately after injury- A corticosteroid injection should not be used in the very early stages after an injury because it could induce further bleeding and worsen the injury
- Systemic Infection- a corticosteroid joint injection should not be done when the person is suffering from a generalized infection as this increases the risk of the joint becoming infected.

There are certain situations where a corticosteroid joint injection can be given, but does carry some increased risk and therefore the benefit expected from the injection should be weighed up against the risk.

- Pregnancy or Breast Feeding.
- Diabetes- corticosteroid can affect the insulin control. Diabetics should keep a check on their blood sugars for 48 hours after an injection.
- If a joint replacement is planned many orthopedic surgeons do not like there to have been an injection in the months before a joint replacement is done, this is because the risk of infection in the replacement may be increased.
- Immunosuppressed- If the immune system isn't working effectively, such as during a course of chemotherapy, or if there are other diseases such as AIDS, the risk of infection to the joint increases.
- Bleeding Disorder/ Taking Drugs to Thin the Blood bleeding and bruising is more likely after the injection.

Injection into a weight bearing tendon: many practitioners do not inject steroid into or around weight bearing tendons such as the achilles tendon as there is an increased risk of the tendon becoming weakened and rupturing later. US guided injections are advised in such cases.

[Are joint injections painful?](#)

Some patients say cortisone injections are painful. Most doctors say they shouldn't be. However, let me tell you what you should really expect when getting cortisone injections:

It's sort of subjective. If you think a cortisone injection is painful, it is. But in reality, doctors take steps to ensure that cortisone injections are not painful. The patient usually feels the pain when the needle goes through the skin and if the needle touched a bone or inflamed tissue (more likely to occur in deformed joints). In describing how I (Dr. El Miedany) would minimize the pain when giving cortisone injections "I freeze the skin with ethyl chloride, puncture the skin swiftly whilst I am chatting to my patients and take my time to finish the procedure." In addition to the topical anesthetics used to freeze the skin before giving injection, other numbing medications -- such as lidocaine -- can be injected with the cortisone. Also, using a small (thin) needle instead of a larger (thicker) one alleviates discomfort too. However, if your doctor wants to remove fluid from the affected joint in addition to injecting cortisone, he will likely opt for the larger needle. My (Dr. El Miedany) advice to all my patients going for a local injection is to relax "Tensing up will work against you".

[Will a Steroid Joint Injection Cure the Problem?](#)

In conditions where inflammation is the prime cause of the pain a corticosteroid injection may entirely abolish the problem. In long standing conditions where there are underlying changes, such as for instance in arthritis, a corticosteroid injection does not provide a cure. The purpose of using an injection in such circumstances is to provide temporary pain relief; this may be useful to enable someone to have better enjoyment of an occasion such as a holiday, or a family wedding. The period of pain relief can also be used to provide a window to do exercise to strengthen muscles and mobilize the joint and thus decrease ongoing problems.

As with all things in medicine the relief from pain following steroid injection is variable from person to person. Unfortunately some people don't get any benefit, whereas others will get many months of relief.

[Ultrasound guided injections:](#)

More recently, Ultrasound booked its place in modern rheumatology. US help identifying the cause of joint inflammation, aspiration of any fluid present in the joint and assure the location of the needle inside the joint. Several studies proved the advantage of US guided joint injection over the traditional injection techniques. However, by itself, US needs thorough training and skill.

[When can I go back to my normal activities after receiving local injection/joint injection?](#)

You can resume your normal activities immediately after leaving the hospital. However, it is always advisable to rest, especially that injected joint, for at least 24 hours. Please do not forget that injection is part of your management, you should follow up with your treating doctor for further treatment options.

[Are these the same steroids that athletes take?](#)

No. The steroids used in the hip injection are corticosteroids, which lessen swelling and irritation.

What is a "Steroid"?

According to the National Institute of General Medical Sciences, the term "steroid" is a chemical name for any substance that has a characteristic chemical structure consisting of multiple chemical rings of connected atoms. Some common examples of steroids are:

Vitamin D
cholesterol
estrogen
cortisone

Steroids are critical for keeping the body running smoothly. Various steroids have important roles in the body's reproductive system and both the structure and function of membranes.

What are Anabolic Steroids?

According to the National Institute on Drug Abuse, anabolic steroids are synthetic substances related to the male sex hormones (androgens). They promote growth of skeletal muscle (anabolic effect) and the development of male sexual characteristics (androgenic effects).

The proper term for these compounds actually is "anabolic / androgenic" steroids:

"anabolic" refers to muscle-building

"androgenic" refers to increased masculine characteristics

“steroids” refers to the class of drugs

Anabolic steroids are available legally only by prescription, to treat conditions that occur when the body produces abnormally low amounts of testosterone, such as delayed puberty and some types of impotence. They are also prescribed to treat body wasting in patients with AIDS and other diseases that result in loss of lean muscle mass.

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