



# How an Injury Can Lead to Osteoarthritis

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## Osteoarthritis and Injury

Osteoarthritis (OA) is commonly thought of as a disease of the elderly, and for good reason! Your risk and likelihood of developing osteoarthritis does increase as you get older; however, young individuals can also develop it after experiencing an injury to a specific joint.

Developing osteoarthritis after an injury is a topic near and dear to me because I truly believe that overuse and sports injuries led to me developing facet-joint arthritis in several levels of my spine.

So what is known regarding osteoarthritis and injury? There is an established connection that when a person injures a joint they are at an increased risk of developing osteoarthritis in that same joint in the future.

I want to further investigate the connection between injuries and osteoarthritis, how to possibly prevent injuries, and how healing factors into the development of osteoarthritis.

## How an Injury Can Lead to OA

We know injuries can cause a person to develop osteoarthritis. In fact, arthritis caused by an injury is specifically called “traumatic arthritis.”

According to the Cleveland Clinic, post-traumatic arthritis can be caused by an injury from “sports, a vehicle accident, a fall, a military injury, or any other source of physical trauma.”

The mechanism behind what causes traumatic arthritis is not completely understood and is an active area of research. What research has shown us thus far is that an injury leads to this series of events in and surrounding the injured joint:

- An injury causes the injured joint to become unstable.
- This newfound instability from the joint increases the sliding between the joint surfaces and reduces the efficiency of the muscles surrounding the joint — these changes affect the natural mechanics of that joint, including the forces exerted on it.
- The change in distribution of forces in the cartilage and underlying bone causes wear and increasing tear, which eventually leads to the degeneration of the cells of the cartilage.
- The injury also creates an inflammatory response that could be responsible for the beginning of the degeneration of the joint; the inflammatory degeneration continues even during healing.

It is believed that the mix of inflammation and the change in distribution of forces on the joint work together and cause the progression of further joint damage, and turn an acute injury of the joint into one that has osteoarthritis.

## Injury Prevention

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## **Stretching**

The effective prevention of injuries is the golden question of sport and exercise medicine. Although it is a very important question, there is no simple answer on how to properly prevent injuries.

For the longest time, it was thought that stretching before exercise or activities that required increased exertion would effectively prevent injuries. The logic behind the theory is that stretching leads to increased flexibility of the stretched muscle group, and in turn the increased flexibility helps to prevent the number of injuries.

For this reason, stretching routines are regularly included in warm-up and cooling-down during exercise regimens. However, according to the research done on this phenomenon, the results have been mixed at best.

Although I have not conducted extensive research on this matter, I still believe stretching after my warm-ups prevents injuries when I exercise.

## **Rest Properly**

Avoiding overuse is a proven strategy to prevent injuries. In this day and age of “no pain, no gain” and similar gym mottos, it can be difficult to understand that consistently pushing your body to its limits is not always a good thing.

According to recent research, the mechanism behind overuse injuries is based on the idea that the tissues of our body have the incredible ability to adapt to the stresses placed on them over time. However, mechanical fatigue within these soft tissues can lead to injury unless they have appropriate time to heal.

Simply put, overuse injuries occur because our rate of adaptation and healing in the soft tissues gets overwhelmed by the rate of injury.

Resting your body as a whole is equally as important as maintaining proper conditioning when trying to prevent injuries from occurring. That is why even prolific athletes like LeBron James rest at times during the season.

The idea is that rest will give their bodies ample to recuperate and potentially avoid any overuse injuries.

## **“Healing” Osteoarthritis**

Why is preventing injuries so important? Once a person develops osteoarthritis, it's game over.

Unfortunately there is no clearly proven or consensus method in the medical community to reverse osteoarthritis. Once you develop osteoarthritis, the goal is often symptomatic treatment of the pain and stiffness or reconstruction of the joint by surgery in extreme cases.

Newer therapies are coming out in the area of regenerative medicine that have the potential to reverse osteoarthritis. These include therapies such as prolotherapy, PRP, and Regenokine.

Each of these therapies is slightly different in what they are composed of, but all have the same goal of reversing osteoarthritis and degenerated soft-tissue. The idea behind these procedures is a substance is injected and it stimulates the body's natural healing processes to repair injured and painful joints.

It is based on the theory previously mentioned in this article that injured soft-tissue causes the local joint they surround to destabilize and develop osteoarthritis. Sounds like a wonderful solution right? Not exactly.

These therapies are so new that they are rarely covered by insurance, making them expensive. The limited research done on these therapies also shows that they have potential to treat dysfunction in peripheral joints, such as tennis elbow, but that otherwise the jury is still out on them.

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I received three rounds of prolotherapy on my back a few years ago but did not have any success in relieving the pain caused by my osteoarthritis. Although I didn't get any relief with the therapy, there is potential there and others have had success with the various therapies.