

ACL injuries can lead to osteoarthritis later in life. Here's what you need to know

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Credit: AI-generated image ([disclaimer](#))

Between [25 and 30 players](#) have missed out on the 2023 Fifa Women's World Cup due to an anterior cruciate ligament (ACL) injury. While ACL injuries are [reasonably common in athletes](#), the rate of this type of injury is [almost twice as high](#) in females than in males.

Yet this problem isn't just restricted to elite athletes. [Amateur and recreational athletes](#) are also at risk. [ACL rupture](#) can also happen in non-sporting situations—such as a fall. Alarming, the number of serious knee injuries in [young people](#) is actually on the rise in many countries, including the [United Kingdom](#), [Australia](#), [Germany](#), and the [U.S.](#)

The ACL is a band of tissue which attaches to the end of the thigh bone and top of the shin bone. It provides stability to the knee by preventing the shin bone from moving in front of the thigh. It also helps provide stability to the knee joint when rotating. Injuries to the ACL can happen through both contact (collision with another person or object) and non-contact (such as slowing down following a fast run or landing awkwardly during a jump).

Aside from the pain of an ACL injury and potential need for reparative or [reconstructive surgery](#), there's also another long-term consequence of serious knee trauma: post-traumatic osteoarthritis.

Post-traumatic osteoarthritis

[Osteoarthritis](#) is a joint condition which consists of both a [disease and illness](#) component. The disease component is where the joint tissues (including the cartilage and bone) deteriorate. The illness component is a range of ongoing physical symptoms—including, pain, stiffness, crunching or clicking of the joint, and a loss of function.

Not everyone with osteoarthritis will experience illness, but it does increase the risk of it. Further, people can experience the illness without signs of the disease.

Knee dislocations and fractures inside the knee can lead to post-traumatic osteoarthritis. Yet it's meniscus and cruciate ligament injuries which hold the [highest risk](#) of developing the disease.

Research reports that [about 12% of people](#) who have undergone surgery to reconstruct their ACL after an injury go on to develop post-traumatic osteoarthritis disease within five years. Another study suggests that [about 50% of people](#) who have had an ACL injury or reconstructive surgery will develop post-traumatic osteoarthritis disease ten to 17 years later.

While not every person who develops post-traumatic osteoarthritis will experience illness, symptoms such as [pain, crunching, clicking, swelling and stiffness](#) are often experienced after an injury. And, in many cases, a person's knee can [feel better](#) in the initial years after recovering from an ACL injury or having surgery—though it's common that the knee is not as good as before the injury, or when compared to those who have not had a [knee injury](#). One study also found that [around 39% of participants](#) who'd had ACL reconstruction experienced symptoms of osteoarthritis illness six years later—including knee pain.

Since most knee injuries happen between the [ages of 18 and 40](#), this means that post-traumatic osteoarthritis could develop early in life for some—and may have a [significant effect](#) on their livelihood and quality of life.

Looking after your knees

Researchers still aren't entirely clear on what risk factors increase a person's risk of developing post-traumatic osteoarthritis. So at the moment the best approach of reducing your risk of this condition is to avoid a serious knee injury.

A key way of preventing injury is by doing the right types of exercise. Research recommends an exercise regime that includes plyometric training (jumping, bounding and hopping), strengthening movements (lunges, squats and heel raises) and agility drills (side-to-side hops). One study found doing these three types of exercises reduced [ACL injury](#)

[rates by 53%](#) in young people who played sports such as football, handball, volleyball and basketball. Further, a [meta-analysis](#) demonstrated that these kinds of exercises also reduced the [risk of non-contact ACL injuries](#) by two-thirds in females.

But while these programs can help reduce risk of knee injuries, many people find it challenging to [stick with them](#) in the long run. This means the protective benefits of the injury prevention program are often missed. It's uncertain why people find it difficult to adhere to these programs, but [time constraints](#) are often a key reason.

Women may also be at greater risk of ACL injury. There's no one main reason for this—it could be down to a number of [sociological factors](#) which, for example, may lead to lower levels of [strength training in women](#). Further, anatomical, and physiological reasons may contribute to the increased risk.

After a joint [injury](#), the only risk factor identified so far which may increase a person's risk of developing post-traumatic osteoarthritis disease, is having a [higher body mass index](#). This can be because a higher body mass index means you may place more force on the knee joint and overload your knee.

Further research is needed to identify other [risk factors](#) that may increase a person's risk of post-traumatic osteoarthritis. But even if you have injured your knee before, it's advised you [keep active](#), look after your joints and avoid [re-injuring](#) your knee.

If you have been diagnosed with post-traumatic [osteoarthritis](#), or are experiencing the symptoms, exercising and managing your weight [are recommended](#). Undertaking [certain exercises](#) (such as squatting on to a chair) may help reduce [knee](#) pain if you experience it.

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