

Why Does a Torn ACL Take so Long to Heal?



By Alex Berezow — September 19, 2018



Credit: Jamie Smed/Wikipedia ^[1]

It's every sports fan's worst nightmare: Your favorite player suffered a torn ACL and is out for the season.

Torn ACLs have affected the careers of several athletes, from NFL quarterback Tom Brady to U.S. Women's soccer star Alex Morgan. Due to [sex differences in biomechanics](#) ^[2] (e.g., the fact that women's knees point more inward than those of men), women are more prone to ACL injuries.

What Exactly Is an ACL?

The ACL stands for anterior cruciate ligament. Ligaments are a type of connective tissue that connect bones. In this case, the ACL is located in the knee joint where it connects the femur (the big bone in the thigh) with the tibia (the larger of two bones in the lower leg).

Its role in the body is to prevent hyperextension of the knee. If you are sitting down with your feet flat on the floor, your knee is in a "flexed" position. If you lift your lower leg up so that it is straight, your knee is in an extended position. Notice that you can't keep lifting your lower leg at this point. The reason is because the ACL prevents hyperextension of the knee; i.e., you can't keep lifting your lower leg so that it bends the other way at the knee joint.

Because they can carry (several times) our body weight, knees are pretty strong -- unless they suffer a sideways blow, like what might happen in football or soccer. In that case, the ACL can be torn, and the athlete is likely out for the entire season. Why?

Why Does a Torn ACL Take so Long to Heal?

Like all ligaments, the ACL takes a very long time to heal. The reason is because ligaments are poorly vascularized. In other words, there aren't many blood vessels to provide nutrients for the

ligaments, and without nutrients, tissue repair is not possible. Oftentimes, ACL tears require a surgical graft.

Bones, on the other hand, are highly vascularized, and tissue repair is much quicker. That's why an athlete who suffers a [broken bone might have a quicker recovery period](#) [3].

COPYRIGHT © 1978-2016 BY THE AMERICAN COUNCIL ON SCIENCE AND HEALTH

Source URL: <https://www.acsh.org/news/2018/09/19/why-does-torn-acl-take-so-long-heal-13423>

Links

[1] [https://en.wikipedia.org/wiki/Alex_Morgan#/media/File:Alex_and_Tobin_\(36822026703\)_\(cropped\).jpg](https://en.wikipedia.org/wiki/Alex_Morgan#/media/File:Alex_and_Tobin_(36822026703)_(cropped).jpg)

[2] <https://orthonc.com/your-health/preventing-acl-tears-why-are-acl-tears-more-common-in-female-athletes>

[3] <https://www.reuters.com/article/us-soccer-players-fractures/soccer-players-often-recover-from-fractures-study-idUSBRE85618P20120607>