

SPORTS

WATERLOO CHRONICLE

Tearing the cover off

*How do knee injuries work?*By ADAM JACKSON
Chronicle Staff

Tre Nicholson had just committed to the Wilfrid Laurier Golden Hawks. The Eastwood Collegiate Institute student was playing with the Twin-City Predators in Burlington in May of 2014.

He was running a regular play as a running back — a straight shot up the middle through his offensive line.

"I made a cut and my foot got stuck in the turf and my

What does the ACL do? Why is it important?

In short, the anterior cruciate ligament prevents the tibia from sliding out in front of the femur (hyperextension) and it provides rotational stability to the knee.

"Your ACL is basically just a ligament that sits inside your knee," said Burns. "What it does it provide stability ... it's basically like a rope that stabilizes your knee. Your ACL in particular provides stability

What causes an ACL injury?

One of the most common causes of an ACL injury is sudden stopping and pivoting, or cutting.

Nicholson's injury lines up perfectly with the typical ACL tear. He tried to run around the safety, but his foot got caught in the turf and caused the extra stress on his

Females are more prone to ACL injuries

According to research, Burns said, there is a much higher incidence rate in female athletes.

"No one has absolutely pinpointed why — they thought maybe it was hormonal, maybe something in terms of the differences between male and female," said Burns.

"But what (Ohio State University's Timothy Hewett)

Surgery is often the only choice

When an ACL is torn, typically the only choice is surgery. Luckily, thanks to arthroscopic technology, it can be done in a non-invasive way.

Tendon grafts are taken from either the patellar tendon, which connects the patella to the tibia, or from the hamstring. In some cases, ligaments can be recov-

Recovery is a lengthy process

Aside from rare situations, ACL tears are almost always season-ending injuries. On average, it takes eight months before the athlete is allowed to resume normal activities.

Nicholson required two surgeries due to complications, but from the second surgery, it took him about eight months to get back to running full speed.

The mental side of a knee injury

Since an ACL injury is severe enough to knock a player out for the season, athletes immediately lose the close connection with the team, which can be tough, said Burns.

"They're not as engaged with the team anymore in that situation," said Burns.

While recovering, Nicholson admittedly lost a little bit of motivation.

"I was getting lazy and put on a bit of weight. It was tough," said Nicholson.

bodyweight transferred and it tore from there," said Nicholson.

Nicholson's story is eerily similar to many athletes who play field sports such as soccer, football or rugby.

He tore his anterior cruciate ligament, or ACL.

But why does it happen? We've enlisted the help of Robert Burns, head athletic therapist at the University of Waterloo, to help understand what exactly causes these injuries.

between the femur and the tibia."

"Most of the time, you don't want to rely on your ligaments to stabilize you. It's sort of like the last line of defence," said Burns.

"The first key is having good neuromuscular control and being able to stiffen the muscles enough to stabilize you."

knee, causing the ACL to tear.

Contact is not usually a factor in an ACL tear and it is most commonly seen in sports like basketball, football and soccer — sports that require sudden changes in direction.

discovered was that it came down to neuromuscular control. What he's found ... is that it's related to how well they can control their body when they jump, land and run."

Hewett's research has shown that female athletes are two to 10 times more likely to suffer a knee ligament injury, like an ACL tear, than men.

ered from a cadaver and used on a patient. In Nicholson's case, the surgeon took the graft from the hamstring.

The graft is then folded and braided and threaded through the heads of the tibia and femur. Its ends are fixed with screws on opposite sides of the two bones.

He had the second surgery in Dec. 2014 and was able to walk at a brisk pace in March 2015. In April, that turned into a slow jog and in May and June he worked with a physiotherapist to strengthen his knee.

It wasn't until the summer that he was able to do dead sprints.

Getting through the rigors of rehabbing a knee injury is tough enough, but trusting the knee after an injury is often what takes the longest.

"You're always kind of afraid of injuring it again, knowing what you went through," said Nicholson. "That just comes with time and building that trust."

Part of the process is the athlete's understanding of the timeline and exactly what is happening in each stage of recovery to ensure they know exactly what to expect.

MEDIAL COLLATERAL LIGAMENT (MCL)

The medial collateral ligament joins the femur to the tibia and resists forces that push the knee medially, or inward. Oftentimes, ACL and MCL injuries happen together, although in most cases, the MCL can heal on its own. On the other side of the knee is the lateral collateral ligament.

FEMUR

PATELLA

TIBIA

ANTERIOR CRUCIATE LIGAMENT (ACL)

The anterior cruciate ligament, known as the ACL, is an integral part of the knee mechanics. It is one of the most commonly injured ligaments of the knee. It runs diagonally in the middle of the knee, preventing the tibia from sliding out in front of the femur, as well as providing rotational stability to the knee.