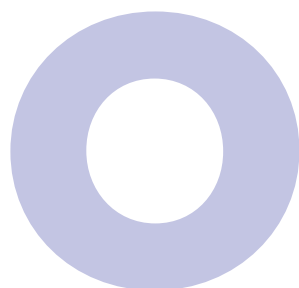




All Inside FOR THE ACL

Advanced Minimally Invasive Knee Surgery Speeds Recovery

BY LUANNE AUSTIN



On a Saturday in January 2015, Kayla Benson's teenage cousin persuaded her to go skiing with him at Wintergreen Resort. At age 27, Benson had not skied since she was a teen. She didn't really want to go on the outing, but since her cousin had nobody else to go with, she agreed to accompany him.

“My grandparents and my dad said I shouldn’t, but I thought, ‘What could happen?’” says Benson, of Stuarts Draft.

What could happen did happen. Coming around a turn on a ski run, Benson’s left leg gave out, sliding under her right leg and causing her to fall. When she stood up and put her booted foot back down on the ski, she felt something tear in her knee.

“It felt like a rubber band snap,” Benson says, “and then it felt like there was nothing holding my knee together.”

As an imaging navigator for Sentara RMH, Benson knew exactly where to go to have her knee evaluated. The following Monday she had an MRI, which showed multiple injuries to and around her knee, the worst of which was a tear in her anterior cruciate ligament (ACL).

The injury to the knee was quite significant, but thanks to an advanced, minimally invasive “all-inside” ACL reconstruction procedure performed by Sentara RMH orthopedic surgeon Chad Muxlow, DO, followed by several months of physical therapy, Benson was out on the road running by June.

What is ACL injury?

The ACL is one of the knee ligaments that join the femur (upper leg bone) to the tibia (shin bone), helping to keep the knee stable. An ACL tear is an injury to this ligament.

“An ACL tear can happen to anyone, but it tends to occur most commonly in people from their teens through mid-40s,” says Dr. Muxlow, who completed his fellowship in arthroscopy and sports medicine at Orthopedic Research of Virginia in Richmond. “Seventy percent of these injuries occur in noncontact sports like basketball, soccer or skiing.”

The ACL can tear when excessive force is put on the knee, especially when pivoting or twisting on a planted knee, Dr. Muxlow explains. Stopping quickly, cutting sharply, and landing and changing direction can also cause a tear.

Active people, particularly females, are more prone to ACL injuries, he notes. In girls and women, a wider pelvis tends to result in an alignment of the legs that is more “knock-kneed,” putting increased stress on the ACL. Hormonal differences, which can lead to increased laxity in knee ligaments, are also thought to play a role in the increased incidence of ACL injuries in females.

“Research has shown that preventive training programs focusing on knee alignment when jumping and cutting during sports make a significant difference in preventing ACL injuries in female athletes,” Dr. Muxlow says.



ACL injuries typically result in knee pain, swelling and weakness. The seriousness of ACL injuries ranges from mild, such as a strain or partial tear, to severe, when the ligament tears completely or when the ligament and part of the bone separate from the rest of the bone. Surgery is often necessary, depending on the severity of the tear, and initial rest and subsequent physical rehabilitation are crucial to preventing a long-lasting knee problem.

Approximately 200,000 ACL reconstruction surgeries are performed annually in the United States. Dr. Muxlow estimates that he does about 80-100 such procedures per year.

The Most Advanced ACL Reconstruction Surgery Available

Benson was able to see Dr. Muxlow five days after her accident, but because of the other injuries from her skiing accident—she had a torn MCL (medial collateral ligament) and lateral meniscus, as well as a tibial plateau fracture—Benson had to wait more than a month for the ACL surgery. All of those injuries had caused her knee to swell, and Dr. Muxlow wanted to wait for the swelling to go down and for her fracture to heal before performing the ACL reconstruction.

In the meantime, Benson was getting around on crutches, and getting through the day was difficult. She was breastfeeding her six-month-old baby at the

time, so she was reluctant to take any pain medication, and her two-year-old frequently wanted to be held.

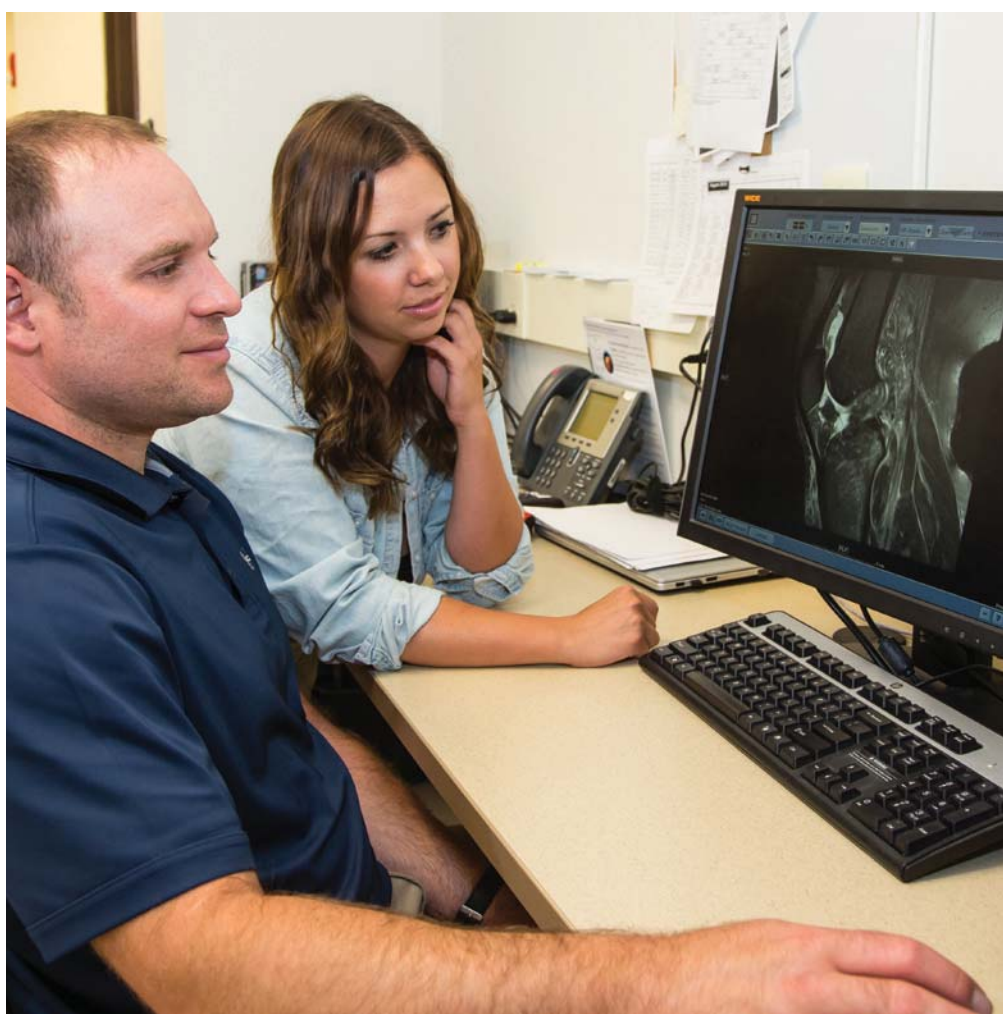
“But I was on crutches, so I couldn’t pick him up,” she recalls. “It was terrible.”

Finally, the day for her surgery arrived. The procedure went well—she went in at 7 a.m. and left the hospital at noon the same day.

For the past two years, Dr. Muxlow has used a newer, more advanced “all-inside” surgical technique to perform ACL reconstruction. The all-inside procedure can be performed on pretty much any primary, or first-time, ACL reconstruction, he states. He is the only orthopedic surgeon in the area who offers the procedure.

“Not many orthopedic surgeons perform this technique yet,” he says. “All-inside ACL reconstruction is the most advanced minimally invasive arthroscopic technique for ACL reconstruction. It allows for the most anatomically correct recreation of the native ACL with the least amount of disruption to the knee’s normal anatomy.”

In general, a torn ACL is not “repaired,” Dr. Muxlow explains. Instead, the surgeon reconstructs the ACL by placing a new ligament or tendon graft in its place. All ACL



Benson and orthopedic surgeon Dr. Chad Muxlow discussing her knee injuries.

reconstruction surgery, whether using older techniques or the all-inside procedure, uses a graft to replace the torn ligament. The most common grafts are autografts, which are taken from a patient’s own body—generally the tendon of the kneecap or one of the hamstring tendons.

Prior to the development of the all-inside procedure, the standard technique was arthroscopic-assisted surgery that made use of larger incisions. This older technique requires drilling a tunnel through the tibia and making a socket in the femur. The surgeon places the ACL graft through the tunnel and into the socket, and then fastens the graft by inserting a pin, screw or staple into the bone. The body then heals around the graft and the screw or staple, resulting in a reconstructed ACL.

By contrast, the arthroscopic all-inside method requires only several small incisions, through which the surgeon works, to be made around the

knee. No tunnels through the bone are necessary.

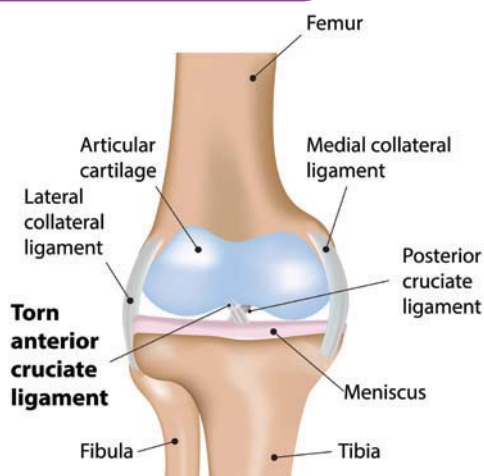
“Instead, I create sockets in both the femur and tibia from the inside of the knee, where the native ACL was attached,” Dr. Muxlow says.

Since there’s no tunnel, the cortex, the outer “shell” of the bone, is spared. “I stop drilling before I get to the cortex,” says Dr. Muxlow. “As a result there’s less trauma to the bone and also less pain, because the cortex is where the nerve fibers that generate pain are located.”

All-inside ACL reconstruction also results in less bleeding and swelling. And rather than using large screws or staples, Dr. Muxlow uses only two small metal buttons outside the bone to keep the graft from loosening or moving. Since there’s no significant “hardware” involved, there’s less for the body to have to accommodate.

“I think this procedure is best for my patients,” Dr. Muxlow says. “People tend to bounce back quickly.”

KNEE WITH TORN ACL



“The body has to reincorporate the tendon,” he says. “It’s strong when I put it in, then it weakens, then it builds strength again.”



The Importance of Therapy

By three or four days after her surgery, Benson’s pain was starting to subside. All ACL reconstruction patients are required to wear a brace for several weeks, but because of Benson’s other injuries, she had to wear a hip-to-ankle immobilizer to keep her knee locked straight when she walked or put weight on her knee.

“That was to protect her meniscus repair,” says Dr. Muxlow. “When she was not putting weight on her knee, she could bend her knee and work on range of motion. I always start range-of-motion exercises for my ACL patients immediately following surgery.”

When Benson began physical therapy, she says it was “like learning to walk again.” Progress was incremental.

“Kayla’s experience during rehab is not typical of most patients who have ACL reconstruction,” Dr. Muxlow explains. “She had a very significant injury to her knee, and multiple procedures were performed during her surgery, making her rehab more difficult.”

The healing process for an ACL graft takes a certain amount of time, Dr. Muxlow adds.

“The body has to reincorporate the tendon,” he says. “It’s strong when I put it in, then it weakens, then it builds strength again.”

Therapy focuses on range of motion, reducing swelling and strengthening the quadriceps muscles, which provide support around the knees so there’s less pressure on the ligament. The patient has to hit certain goals before advancing. At the two-month mark, the tendon and ligament generally start getting strong again.

“My care was amazing,” says Benson. “My physical therapist and Dr. Muxlow were phenomenal about answering all my questions.”

Dr. Muxlow’s goal is to get athletes back to taking part in sports by five months after surgery, once they get most of their muscle strength back. Benson is not an athlete, but she began running in June.

“My patients have had great results with this procedure,” says Dr. Muxlow. “I believe it gives them the strongest, most stable knee, allowing them to return to the activities they love at a high-performing level.”

DESTINY RITCHIE: *Back in the Game*

Last winter, Destiny Ritchie of Singers Glen had an experience similar to Kayla Benson’s. The day after Christmas 2014, Ritchie was performing a basketball drill with her team at Broadway High School when she got hit from behind.

“My knee went sideways,” says Ritchie, now a junior.

Although she had seen a few friends experience ACL injuries, she wasn’t aware that her ACL had been damaged. A few days later she played in a basketball tournament.

“But my knee kept giving out on me,” she recalls.

An MRI at Sentara RMH showed Ritchie had a torn ACL, and all-inside ACL surgery with Dr. Chad Muxlow was scheduled for Jan. 20. Within a week, like Benson, she was walking without crutches.

Ritchie admits it was hard not to be playing basketball with her team. However, a coach suggested she “look at it a different way.” So she sat on the bench watching closely as her teammates played.

“It gave me a whole different perspective on basketball,” she says. “I learned a lot.”

At the end of May, Ritchie finished her therapy and returned to playing basketball and soccer, which she does year-round, she says.

Ritchie wears a brace when she plays sports now, but that doesn’t seem to bother her. She’s happy to be back playing with her team.

“Once patients have recovered, there are no limitations,” says Dr. Muxlow. “They should be back to playing their sport at the same level. That’s the best thing about the all-inside ACL procedure.”

**Destiny
Ritchie**

