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ACL injuries a growing problem for high school athletes



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LILLIAN DEDOMENIC | FOR TRIB TOTAL MEDIA

Norwin soccer player Kara Batey practices at Norwin Knights Stadium on July 31, 2014.

Angelina Gambino's potential moment of triumph turned into one of pain instead.

While participating in the floor exercise during her gymnastics club's "parents watch day," which kicked off the 2013 competition season in October, Gambino attempted a trick she'd worked on for a month: a front handspring and front tuck.

She felt her left knee twist as she landed the handspring, but "punched into" the tuck, landing that as well. It marked the first time she landed the trick, but it came at a cost.

"I can't even explain the feeling," said Gambino, 13, a rising eighth-grader at Pleasant Hills Middle School. "I just knew immediately something was wrong, so I collapsed."

"The coach went out and had to carry her off the floor," said Missy Gambino, Angelina's mother. "It was devastating."

Gambino, a 2013 Pennsylvania champion in Level 5 gymnastics, had joined the growing list of young athletes who suffer tears to the anterior cruciate ligament in their knee.

A GROWING PROBLEM

The ACL is composed of the anteromedial and posterolateral bundles, which work together to provide stabilization. Dr. Eddie Fu, chairman of the Department of Orthopedic Surgery at the University of Pittsburgh School of Medicine and University of Pittsburgh Medical Center, said ACL tears occur when the bundles' work is compromised by either an external force or muscular imbalance.

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Often, the injury occurs when a planted leg is placed under extreme stress either through contact — a hit to the knee during a football game — or noncontact — when an athlete changes direction, slows down or lands after jumping. Those forces can counter the ACL's function and cause it to rupture. Athletes typically describe hearing a “pop” when the injury occurs.

Kara Batey, a rising senior soccer player at Norwin High School, tore the ACL in her left knee in eighth grade and again last season under similar circumstances — she planted her leg after running, and it gave out.

“It's definitely a sharp pain,” she said. “My knee swelled immediately. It happened immediately. It's not like you hurt yourself and the next day you wake up and it's swollen, it's bruised. It happens right then and there, and it's painful.”

The ACL tear — which a December 2013 Grantland.com (<http://Grantland.com>) story labeled “The Nastiest Injury in Sports” — is rising in younger athletes. Fu said a New York state study found the rate of ACL reconstruction per 100,000 people between the ages of 3 and 20 rose steadily between 1990 and 2009, from 17.6 to 50.9.

“Before, the ACL injury used to be pretty rare among young athletes, but clinicians such as myself have seen an increase of not only ACL but sports injuries as a whole in general,” Fu said.

Fu said studies noted the increase in ACL injuries among young athletes has risen proportionally with adolescents' participation in sports and one-sport specialization.

“We are starting to see kids do one sport all throughout the calendar year, which was not common in the past,” he said.

The injuries are occurring most often in sports with a heavy reliance on pivoting, shifting and jumping, such as basketball, soccer, skiing and football. Girls are three to eight times more likely to suffer an ACL tear than boys, which Fu said could be because females are “quadriceps dominant” and also have a unique anatomy of the knee.

Many times, athletes who suffer ACL injuries also suffer injuries to their meniscus. Fu also described an “unhappy triad” that includes tears to the ACL, medial collateral ligament and meniscus.

INJURY, SURGERY AND REHABILITATION

Larry Cooper, head athletic trainer at Penn-Trafford High School and chair of the National Athletic Trainers' Association's Secondary School Athletic Trainers Committee, said ACL injuries can often be diagnosed the same night the injury occurs.

“It's almost instantaneous,” Cooper said. “In our situation, we have an advantage over orthopedic surgeons who see them three or four days later. We see them before their body's had a chance to react through swelling. ... (When) we see an injury out on the field and we go out and do tests on the field, we can determine (what it is) before the body has a chance to guard.”

Fu said physicians will perform an X-ray to ensure the athlete didn't suffer a fracture before doing an MRI to evaluate the injury and confirm an ACL tear.

Although Fu said most ACL tears are treated non-operatively, surgeries are encouraged for individuals who perform activities that put the ACL at risk. For that reason, most athletes get surgery.

The rehabilitation process can begin quickly after surgery. Gambino was advised to begin doing small exercises the day after her surgery.

“It was really hard,” she said. “I had this big brace on from my hip to my ankle, and I had to lift that up. I had a bunch of stitches in my leg, and I was in so much pain.”

The early portion of rehabilitation, up to four months post-surgery, focuses on strengthening the quadricep muscle in the injured leg, said Rick Joreitz, a senior physical therapist at UPMC Center for Sports Medicine and team physical therapist for the Pittsburgh Penguins.

When the leg regains 80 percent of its strength, an athlete can resume jogging. As the leg continues to get stronger, rehabilitation begins to include agility drills, pivoting, cutting and jumping. Once an athlete can maintain a leg strength of above 90 percent, he or she can return to the sport.



The entire process is geared to last about eight to 10 months, although shorter and longer rehabilitation periods do occur.

Justin Vickless, a former Brentwood football player who tore his ACL during the 2013 season, said he was able to do most of his football work and was feeling strong.

"About a month after I started heavy squats and jumping, I started jumping as high as I used to," said Vickless, who will play collegiately at Washington & Jefferson. "I knew I was getting better then."

THE COMEBACK

Athletes who come back from an ACL injury sometimes don't return to their normal abilities right away. Minnesota Vikings running back Adrian Peterson, who won the NFL's Most Valuable Player award a season after tearing his ACL, is very much an exception and not the norm, Joreitz said.

Fu said current literature also suggests an ACL tear in one knee predisposes the other knee to potentially suffer the same type of injury because of athletes compensating for the recovered knee.

The mental side of coming back can be just as hard as the physical.

"I've heard from a ton of people that the first year back, they're always hesitant to cut off that knee," Vickless said. "I don't think I'll think too much about it. I know it's better. The doctor fixed it. It's fixed."

Katie Wilson, a former Gateway basketball player, went through reconstructive surgery after tearing her MCL during her sophomore year. She tore her meniscus and ACL and tore a hole in her cartilage last season.

"Since this is my second knee injury, honestly, there's no reason to be timid on the court," she said. "As long as I do all the progressions I'm supposed to do before the season, I know I'll be fine."

Batey said she got stronger after her first ACL tear and is looking forward to her senior season.

"Confidence is definitely a key that is hard to come back with — this is what happened, this is how you got hurt before," she said. "Once you get past your fear, confidence will come back. I definitely think this being my senior year, I'll come back stronger."

Gambino said she is still likely three to four months away from being cleared to compete in gymnastics again, and it will take some time for her to regain her full ability. But she's already picturing her return — and she plans to try her front handspring and front tuck again.

"I will," she promised. "But I'll be more careful and bend my legs in between."

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