

## Painful prognosis: Girls up to 10 times as likely to tear ACL than boys

Aaron Brenner | The Quad-City Times | Posted: Friday, February 4, 2011 4:00 pm



Davenport Assumption's Sam Johannsen, cries out after making a layup and hitting the floor against Pleasant Valley, Fri. Dec. 17, 2010. An MRI the next morning confirmed she had torn her ACL. (John Schultz / Quad-City Times)

The 42nd start of Sam Johannsen's high school basketball career brought massive implications. Davenport Assumption played at Pleasant Valley in a December showdown with the winner taking great strides toward a conference championship. Johannsen's Knights prevailed by five.

Six weeks later, Jan. 28, Johannsen was working her hardest, as usual. Not on a court, but at Plaza Physical Therapy in Davenport with trained professionals monitoring her closed-chain balancing exercises and passive range of motion.

She had to get going soon. Assumption was hosting Clinton, with a 6 p.m. tipoff.

Gametime.

But not for Johannsen, no longer starting power forward, relegated to season-long observer.

Behold the worst part of the six-month, grueling process becoming drastically, dreadfully common for young female basketball players.

### Growing problem

The office door of Dr. Matt Lindaman of ORA Orthopedics in northwest Bettendorf is decorated with 2010 North Scott softball and volleyball team posters. Smiling in both pictures is Hannah Lindaman, a sophomore second baseman and setter for the Lancers.

Hannah is lucky. She has been to ORA to see her dad, but never for surgery on a torn anterior cruciate ligament.

Approximately 200,000 ACL injuries are suffered each year, with about half requiring reconstructive surgery and subsequent rehabilitation, according to the American Academy of Orthopedic Surgeons. Numerous studies and reports reveal females to be four to 10 times more likely than males to tear their ACLs.

Athletics provide just about every imaginable cause of the devastating knee injury. Men typically rupture the ligament because of some external force in football or skiing, while women tend to suffer injuries in lesser-contact activities, primarily basketball, soccer and volleyball.

Even in a light month, Lindaman will repair one or two ACLs. Busier times in the fall or around the holidays bring between three to six painful procedures.

Lindaman, who played linebacker at North Scott and Cornell College, optimistically reported fewer ACL tears than five to 10 years ago because of increased awareness and preparation among high school athletes.

"The sports-enhancement programs developed by physical therapists or orthopedic groups really help," Lindaman said. "In as short as six to eight weeks, a female athlete can really do a lot to prevent injury."

Whereas such programs for males focus solely on performance improvement, females integrate a dual program and work toward injury prevention along with enhancing talent.

However, prevention is a strong word. It's one thing to limit risk, but the ACL tear will never be an extinct foe.

"It's always going to be there. Unfortunately," Lindaman said. "We call it the curse of the female athlete."

### **Bodies of work**

Reasons range widely for female athletes' propensity to ACL tears. Recurring analysis since the 1980s has arrived at one basic conclusion: blame anatomy.

The female shape resembles that of an hourglass. With a wider pelvis and hips than male counterparts, a female athlete's core structure lends itself to increased pressure on the lower body.

"The relationship of the angle from the hips back into the knee is much bigger (in women). We call that the Q-angle," said physical therapist Kevin Swanson, who in 25 years has overseen more than 1,500 rehabs from ACL reconstructive surgery. "It leads to a (greater) chance for valgus rotational injury."

Valgus indicates a knock-kneed stance, which is far more common in women, while men are naturally bow-legged.

"As (women) run, and they get tired, their knees begin to fall in together as they land," Lindaman said. "That increased stress as they're landing, the knees are more at an inclined angle."

The ACL crosses the posterior cruciate ligament through the tunnel-shaped intercondylar notch, which is narrower inside a female, and therefore more susceptible to "guillotine" the ACL, according to Swanson. Even menstrual cycles can wreak havoc, making ligaments more pliable and thus easier to tear.

Moreover, girls get taller at an earlier age than boys, adding to the wear and tear of physical sports on young bodies.

"Most females are skeletally mature," he said, "whereas guys are still growing (in high school.)"

Beyond the subtle differences between male and female bodies, increased opportunities in women's athletics play a role.

"These girls are competing at a very high level at a very young age," Lindaman said. "Their muscles don't have a chance to develop. As a result of that, we're subjecting them to more risk."

The majority of tears happen in competitive environments rather than practice, with Swanson adding more players are at greater risks in the second half of a basketball game - when fatigue sets in.

### **Season cut short**

On Dec. 17, Johannsen leaped for a layup against PV. She made the shot, but upon landing, she immediately knew.

"From hearing other people talking about it, I knew it wasn't good," said Johannsen, one of the Knights' two senior captains. "It was instant. It felt like my knee burst into a million pieces. It's like a pop, and then just rushing fluid to the area. That's how I would describe it."

Her MRI confirmed the next morning she had a completely torn ACL and weakened medial collateral ligament.

Done for the season, Johannsen - who is on track to return to the court in June and play basketball for Augustana in the fall - did what she has done so many times before for different reasons.

She called friend and former Assumption teammate Jordan Verdi, who could tell Johannsen everything she'd care to learn about ACL surgery and rehab. Verdi had three ACL surgeries between eighth grade and the seventh game of her senior year.

"I just told her that now it was her job as a senior leader to focus on ways to help the team instead of thinking about herself," Verdi said. "Because otherwise, it would really weigh on her."

Verdi is a sophomore at Iowa, who wishes she could play intermurals but refrains for fear of reinjuring her knees. However, she is studying physical therapy in college and job shadowed her physical therapist, Jill Kliver at Rock Valley Physical Therapy, over Christmas break.

Assumption has lost a player to ACL tears in six out of the past seven seasons.

North Scott senior Tor Hawley and Pleasant Valley junior Morgan Kennedy also have suffered torn ACLs this season. Johannsen, Hawley and Kennedy share Swanson as their physical therapist.

Last year's Clinton Prince of Peace squad made the Class 1A state tournament despite monstrous adversity. Starting guard Megan Lehmkuhl tore her ACL and broke her leg in 2009, returning halfway through her senior year. Two other rotation players tore their ACLs in 2010, missing their last high school seasons.

### **Coming back**

When Johannsen's 14 teammates received the inevitable Saturday morning text message that their captain's high school career was finished, most sent back their sympathies simply, not quite knowing what to say.

That wasn't enough for Grace Fennelly. As Johannsen put it, the Knights junior guard's text response took "four pages" to come through in total.

Like Verdi, Fennelly knew exactly the arduous journey Johannsen was about to embark upon. She has done it twice - for her right knee in eighth grade, and for her left after tearing it last February in the middle of a promising sophomore campaign.

Fennelly has played all 17 games this year, clearly a different player.

"I noticed I'm a lot slower," Fennelly said. "In practice, last year, if we were doing sprints, I would usually be one of the first ones down the court. Now I'm kind of in the middle. So I'm not as quick or fast on defense."

Most athletes will not find themselves at full strength until their second season returning from an ACL tear, for physical and mental reasons.

"They're still getting stronger and getting more confident to come back as a complete package," Lindaman said. "You want to be careful in that first year that we're not reinjuring it, a concern of the athlete as well as the physician."

Research's scariest revelation? While surgery has come a long way, Lindaman said knees with a previously torn ACL are more than 50 percent likely to become arthritic in two to three decades.

"From a medical perspective, we're trying to lessen that risk," Lindaman said. "Because getting back and playing is important, but they need a good functioning knee in the long term."