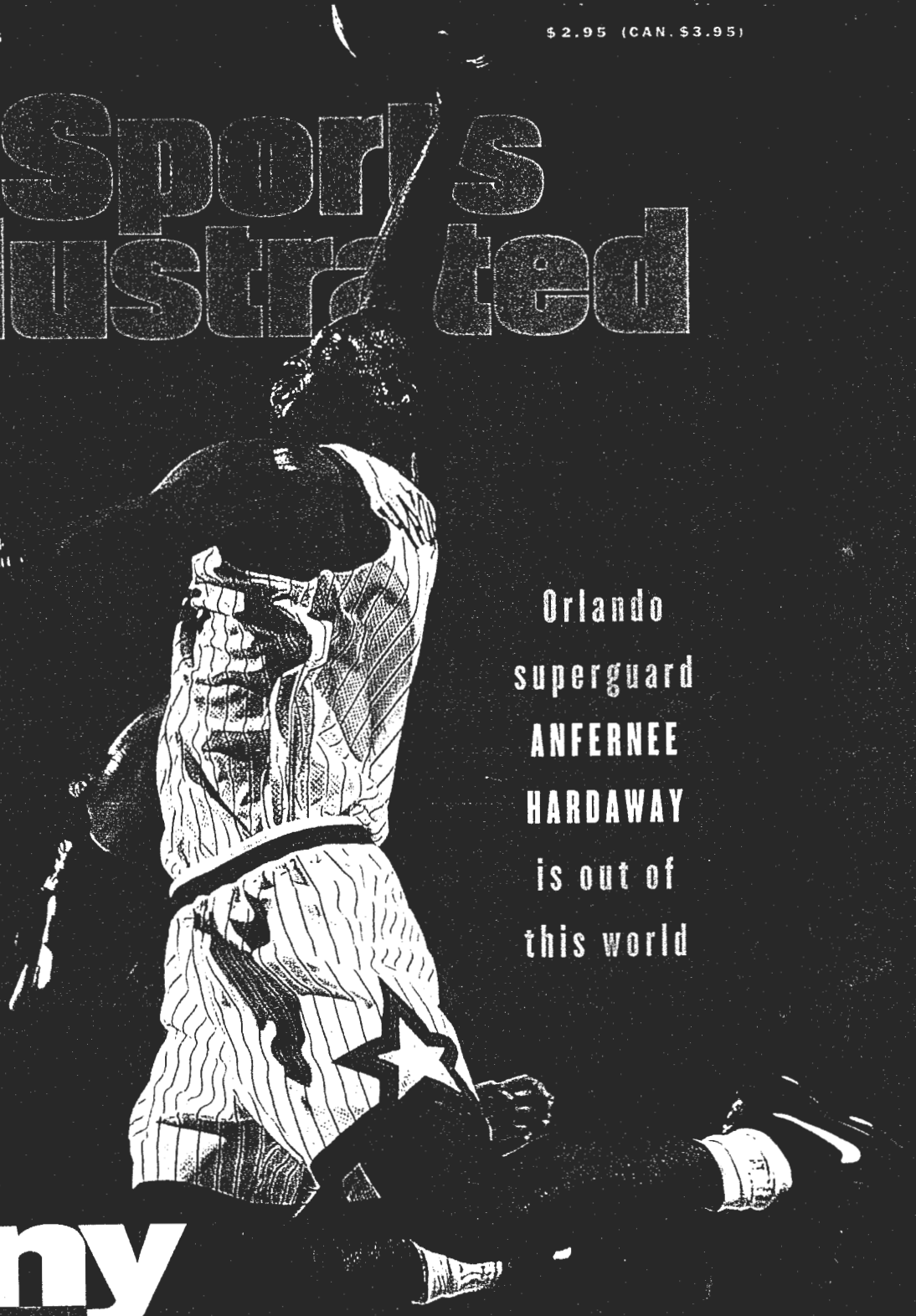


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# Sports Illustrated



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is out of  
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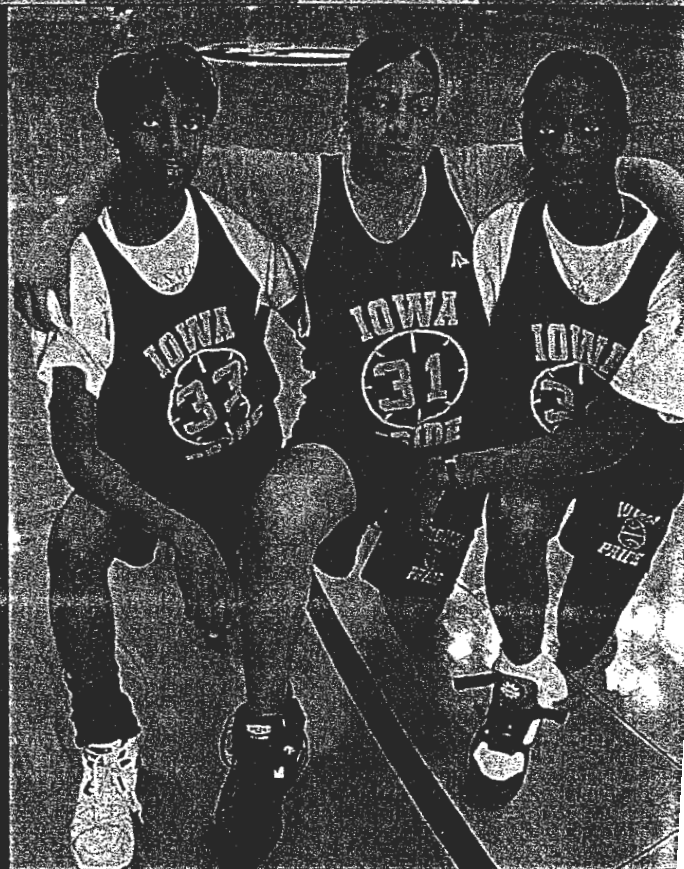
WOMEN'S BASKETBALL

# Out of Joint

Women's basketball is making great strides, but it is suffering an epidemic of torn knee ligaments along the way

by Jack McCallum

Additional reporting by Dana Gelin



*"The female knee is a joint and not an entertainment."*

—PERCY HAMMOND

So wrote the old *Chicago Tribune* critic in an acerbic review of a long-forgotten musical, but his subject could have been a certain contemporary women's sport played with a round ball. As far as women's college basketball goes, the knee has never seemed more like a joint or been less entertaining. Just ask Tiffany Woosley, the outstanding shooting guard at the University of Tennessee. Woosley has spent much of her life engaging in high-risk sports such as water skiing and off-road four-wheeling; one time she walked away unhurt after ramming her four-wheeler into a tree and flipping the vehicle. But on Dec. 31, 1994, before

a national television audience and 13,227 screaming fans at Vanderbilt, she performed a basic basketball maneuver—the jump stop—and heard a rip in her right knee, something like a thick piece of paper being torn. "I knew right away exactly what I did," says Woosley.

What she did has become all too common. Knee injuries of the most serious kind—tears of the anterior cruciate ligament, one of two central ligaments that support the knee—are virtually epidemic in women's college basketball. Men's coaches generally worry about losing players for a few games because of an ankle sprain; women's coaches worry about which of their players will suddenly collapse in a heap, screaming in pain, their basketball future imperiled by an injury that occurs without warning.

WESTERN

...the Lady  
...Woosley  
...went  
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...Lone  
...Year's Eve  
...she had a  
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...revelry that  
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...Iowa's  
...88).  
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THE TENNESSEAN (RIGHT)

The evidence—both data-based and anecdotal—is nothing less than startling. According to a 1994 study done by Randall Dick, assistant director of sports sciences for the NCAA, and Dr. Elizabeth Arendt, the team physician at the University of Minnesota, women basketball players are nearly four times more likely than men to suffer an ACL injury. Another NCAA study put the ratio closer to six to one.

Physicians and trainers didn't need a study to tell them something was going on, for rare is the women's team that over the past several years hasn't had at least one player tear an ACL. Some would be happy with only one. Six players on the Clemson women's team have torn an ACL at some point in their playing careers, two of them in the past five months. The ACL toll at

Washington is five. Iowa, Miami and Missouri Western, a Division II school, each have four women who have torn an ACL. Michigan, Boise State, Santa Clara and LSU are among the programs that have endured two each within the last year. If Woosley wants a player to commiserate with, she can (and does) talk to Lady Vol teammate Nikki McCray, an All-America forward who tore an ACL in a pickup game during her Prop 48 season, 1990-91. The pain doesn't end there for Tennessee coach Pat Summitt; one of her top signees for next season, Kellie Jolly, a 5' 9" guard at White County High in Sparta, Tenn., tore her ACL early this season. Keep in mind, this is not the whole list—only the beginning of it.

Since 1988 Arendt has performed 11 ACL operations on



## Knee Injuries

women basketball players and not a single one on a man. Dr. Daniel Smith, an orthopedic surgeon at the Bone and Joint Clinic in St. Joseph, Mo., says he has done "at least a dozen" ACL operations on female basketball players (both scholastic and collegiate) over the past year and none on men. Dr. Bill Youmans, an orthopedic consultant to the Tennessee athletic program, averages one ACL surgery per year on Lady Vol athletes, about half of them for basketball. He hasn't done one on a male Volunteer basketball player since 1983. For another point of reference, there are 20 women players in the ACC who have had an ACL injury; there are four men (*chart, page 48*).

Yet compare the national publicity given to, say, Purdue guard Matt Waddell,

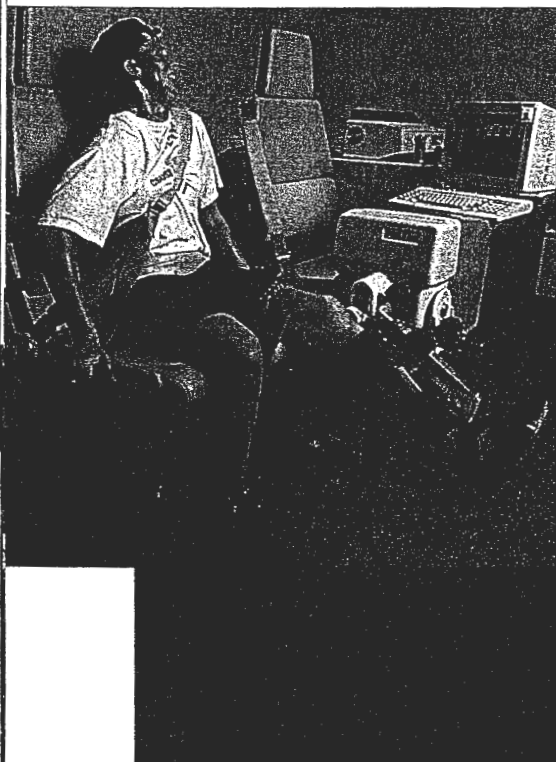
the aid of a knee brace, but the joint remained vulnerable. In January '94 she tore her medial meniscus, the cartilage that acts as a shock absorber in the knee, and it was decided that both the cartilage and the ACL would have to be fixed. But her doctor gave her the option of playing out the season before having surgery, and Johnson averaged 22.4 points per game the rest of the way. She had the operation to reconstruct her knee last March and is now scoring 22.8 per game. When they handed out the genes for toughness, Shannon Johnson was in the front of the line.

There are other stories like Johnson's. The important thing is that a light, even if it is one from a surgeon's arthroscope, is now being shined on a crucial health issue for women athletes. "ACL injuries are akin to the female athlete triad of eating disorders, menstrual irregularities and osteoporosis," says Dr. Gary Wadler, a Long Island, N.Y., physician who serves as a trustee for the Women's Sports Foundation and the American College of Sports Medicine. "Until somebody identified those issues, people didn't have their eyes opened."

Sports physicians and athletic trainers

have had their eyes open for a while, and they have begun discussing possible reasons why women have so many more ACL tears, reasons that range from frame to footwear. But if past is prologue, nothing that happens to female athletes—outside of one of them wearing a clinging body suit or dunking during a game—is likely to cause a major ripple in the sports world. "There's nowhere near enough research done on female athletes," says Jim Foster, the women's basketball coach at Vanderbilt. "Most of the research has been, 'How can we get the \$3 million man back playing quickly?' The urgency for women isn't there."

Then, too, even some people with a compelling interest in the subject are fearful of acting too quickly lest the wrong message be sent. "The reason you go on with these studies is, you don't want anybody to get the message that women shouldn't be playing," says Dr. Mary Lloyd Ireland, an orthopedic surgeon in Lexington, Ky., who is a leader in women's ACL research and a consultant with the Kentucky and Eastern Kentucky programs. Ireland thinks the crucial thing is to make advances in prevention, rather than move the game backward.



who is back playing well after surgery on a torn ACL in September, with that of Boilermaker guard Jennifer Jacoby, who has suffered through two ACL tears in her right knee. It's impossible, because Jacoby's injury got almost no ink.

And unless you live in Columbia, S.C., you probably haven't heard word one about the courageous ACL saga of Shannon Johnson, a junior guard for the Lady Gamecocks. Johnson injured her right ACL in high school but never had it surgically repaired. She was able to play with



is an indisputable fact, however, that women's basketball has undergone vast stylistic changes in the past two decades. The game has become decidedly more up-tempo (women play with the 30-second clock used in international rules, men with a 35-second clock). It's also more physical, with more quick cuts and slashes than standstill shots. In short, it is more of a men's style. So it is entirely reasonable to wonder whether the game has, in some respects, surpassed the physical ability of women to withstand it.

"I attribute the increase in ACL tears to the increased speed and aggressiveness of play by the women having gone beyond the capacity of the ligaments to withstand the stress," says Smith. That kind of statement might make some women nervous. But even one of the leading advocates for the women's game, veteran Iowa coach Vivian Stringer, has begun to wonder if women are pursuing an on-court style that may be deleterious to their health. "Clearly there are differences be-

## Is Anatomy Destiny?

No one knows precisely why women suffer ACL injuries at a higher rate than men, but medical researchers suspect that the basic anatomical differences depicted here may provide some clues.



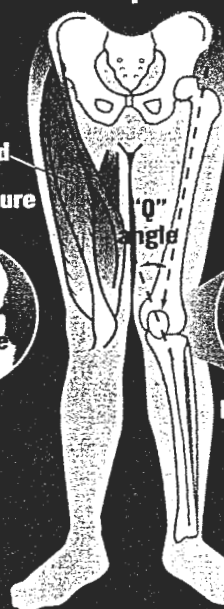
DIAGRAM BY PARAGRAPHS

### Narrower pelvis



Male

### Wider pelvis



Female

More developed thigh musculature

Less developed thigh musculature

Reverse "U"

Wider notch

"A" shaped

Narrower notch

tween men's and women's bodies," says Stringer. "And clearly we need to study the ramifications of those as they relate to basketball."

If there is a common thread to the injuries, it's that the women can't believe how often they occurred under circumstances that seemed innocuous. Woosley was executing the jump stop. North Carolina State sophomore center Peace Shepard was shooting a wide-open layup in a pickup game. Consider the different situations that claimed the ACLs of three Iowa players. Freshman center Malika Willis tore hers going for a rebound against Michigan on Dec. 30; senior center Simone Edwards was catching an entry pass and turning to the basket in a preseason practice on Oct. 31; and senior forward Tia Jackson was making a pass on a fast break against James Madison on Dec. 21, 1993. "That'll teach me to give it up," says Jackson, smiling. "Next time I'll just shoot." (A fourth Hawkeye, freshman Tiffany Gooden, has suffered two ACL tears to her left knee, both during her high school career.) Understandably, Iowa's ACL victims have no theories about a common root cause of the injuries. Well, maybe they have a few.

"Somebody cursed the floor," Willis says.

"I guess I hadn't been eating enough Jamaican food," says Edwards, a native of Kingston.

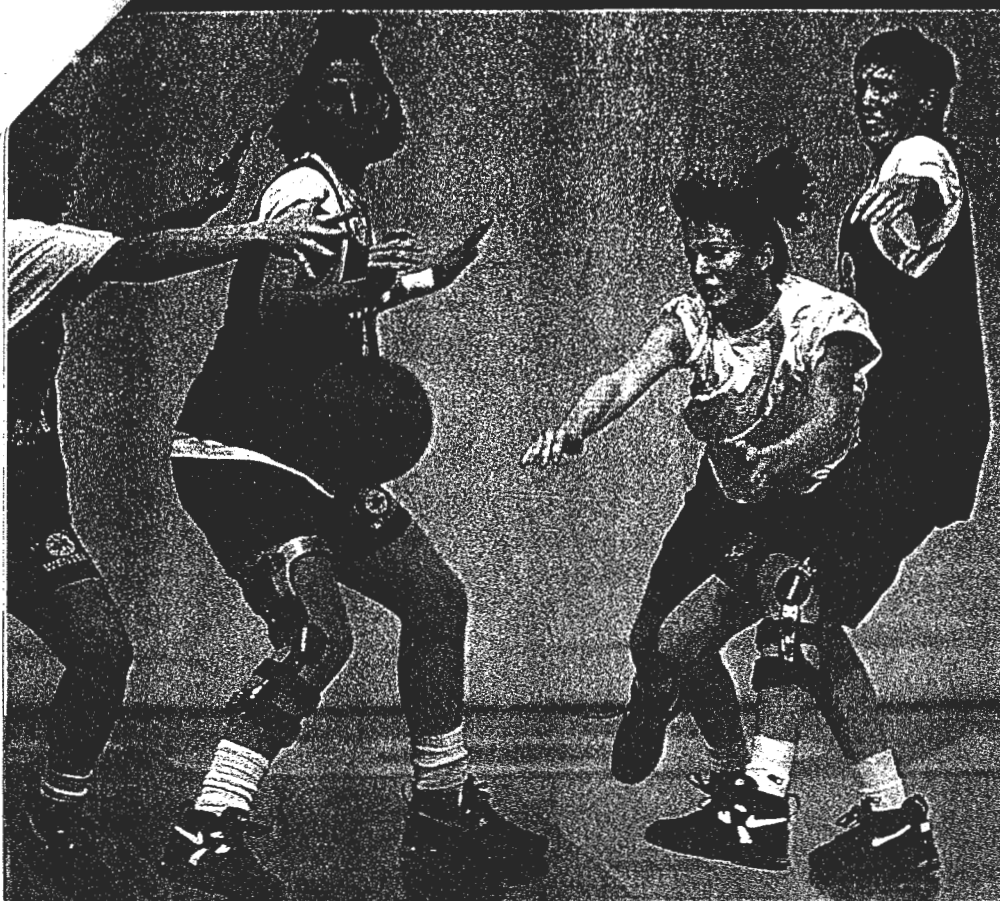
"It's in the air," says Jackson. "Somebody's just blowing bad dust at us."

Woosley does not dwell on the possible

reasons for her injury. She does not care, for example, about the femoral notch, the space at the bottom of the femur through which the ACL runs (illustration, above). Women tend to have a narrower notch than men, or, more specifically, a notch that tends to be "A" shaped instead of the shape of a reverse "U," leading some researchers to believe that the ACL of the female athlete is often "sheared" by the femur. (A standard procedure in ACL reconstruction is a widening of the notch by shaving away part of the femur.)

Woosley also does not care about the fact that women's bodies tend to slope in at the knees because they have wider hips. This might also make them more susceptible to injury. Women also tend to have looser joints, which could help account for the failure of the ACL in stressful situations. And then there is the "Q" angle, which is created by the intersection of the quadriceps tendon and patellar tendon when they meet at the kneecap. Got that? Anyway, that angle is generally greater in a woman, and that is a possible reason for an increased susceptibility to ACL tears.

Woosley doesn't care about all that. All she cares about is how she can come back to play in the NCAA Mideast Regional in Knoxville, Tenn., on March 23, which would be two months and two weeks after her surgery—about half the recovery time most athletes take. "All my energies are being directed toward that," she says. "I don't listen to anyone who says I won't make it. I won't let negative thoughts enter my head. I'm going to do it."



To that end she rehabs four to six hours a day, doing such things as running in a pool and working on a trampoline, and constantly pushes the recovery envelope. She is what Youmans wryly refers to as a "noncomplier." But the doctor also admits that most advances in rehabilitation theory have taken place because of noncompliers, athletes willing to push through the pain and ignore conservative prescriptions for recovery. "It's been kind of fun to see how tough I am," says Woosley. Toughness alone won't get Woosley back before the accepted timetable. But it might help.

If physiological factors do contribute to ACL injuries, what—short of genetic engineering—can be done about them? Almost every expert in the field agrees that testing a large group of young athletes, then tracking them to see which ones later suffer ACL tears,

is the best way to truly understand what causes these injuries. But then what? "Let's say we could in some way, through X-ray or MRI, look at every 12-year-old basketball player and identify which ones had the risk factor," says Youmans. "Would we say, 'You shouldn't play bas-

ketball'? That's a firestorm I don't even want to be close to." As Tennessee trainer Jenny Moshak says, "I don't think you want to scare women players because then they'll play tentatively, and they will get hurt."

In the most extreme scenario there is a danger that those players most at risk will be denied an opportunity for a scholarship. Tennessee, for example, has done much to advance women's athletics, yet the Lady Vols, through their extensive physical screening of recruits, have on at least one occasion denied a high-risk athlete a chance to play. Summitt says she

backed off one recruit because of Moshak's determination that the athlete had a good chance of eventually tearing an ACL. The player did end up at another school and, sure enough, did have ACL surgery. What would happen if every program did the same prescreening?

Whether or not one subscribes to the theory that anatomy is destiny, everyone agrees that better strength training for women is imperative. "What you want to do is give them a good base," says Moshak. "Good flexibility, good strength, an emphasis on being in shape before you play your sport, and listening to your body."

Says Vanderbilt's Foster, "When someone comes up with some data about what types of situations it happens in, then you can start to address it. Until then, hopefully, when you do your weightlifting, you work your quads, work your hamstrings, try to get good strength around the area."

Iowa trainer Alex Kane offers a somewhat more complicated theory about women's ACLs, one that speaks to changes in the women's game, training methods (or a lack thereof) and society's view of women athletes. He feels that girls are not being exposed to motor learning skills at critical periods in their early development, and the consequences of that are manifest in these injuries. "Either because of budgetary constraints or philosophical reasons, that teaching is not going on in the physical-education system," says Kane. "Therefore you have impaired neuromuscular coordination. The foundation is simply not there. Girls aren't taught it, and they aren't encouraged to learn it. Now you combine that lack of early training with the sudden expectation that women will perform at the level of Division I athletics today, and you have a major problem. Something's got to give." That something just might be the anterior cruciate ligament.

In an effort to prove his point, Kane goes to his training room and pulls out videotapes of the incidents in which Willis and Edwards incurred their injuries. The first shows Willis hustling for a rebound and. . . "See, there it is," says Kane. He stops the tape as Willis kicks out her right leg at a peculiar angle just before the knee goes. "That's a result of bad motor train-

## Gender Inequity

To get an idea of how ACL tears are disproportionately affecting women, here is a breakdown, by conference, of the number of currently active players who have been afflicted.

WOMEN	MEN
ACC	
20	4
Big East	
9	4
SEC	
15	5
Big Ten	
15	7
Big Eight	
10	1
Pac-10	
14	5