

Brigham and Women's/Mass General Health Care Center

## BWH Orthopedic Surgeon Elizabeth Matzkin, MD, Explains Why Knee Injuries Are More Common in Female Athletes

Dr. Elizabeth Matzkin, a knee and shoulder injury specialist at Brigham and Women's/Mass General Health Care Center in Foxborough and the Surgical Director of the Women's Sports Medicine Program at Brigham and Women's Hospital, sees plenty of women come into her practice with knee injuries. And of those injuries, many are anterior cruciate ligament (ACL) tears. The reasons for this trend, she explains, are largely based on how women are built.

### Gender differences in strength and structure

This rise in knee injuries among females is partly because more young women are playing competitive sports. But the more important factor is that female athletes experience ACL injuries, stress fractures, and knee pain more frequently than their male peers.

Numerous research studies have shown that there are a number of factors that make women more susceptible to bone and joint injuries. These factors include eating disorders, irregular periods, vitamin deficits, and hormone differences. However, for ACL injuries, the keys appear to be differences in body strength and structure.

Overall, a woman's body is designed for flexibility. A man's body is designed for strength. Thus, women tend to have weaker thigh muscles. This puts women at a disadvantage, as these muscles help stabilize the knee and absorb shock when jumping and landing, or sharply cutting, during sports such as basketball or soccer.

A woman's hip structure adds to the problem. After a woman jumps, her wider hips cause her to land in a more knock-kneed position – angled in from hip to knee and angled out from knee to ankle - to maintain balance. (A man's legs tend to be straighter when he lands.) This landing position, combined with the lack of muscle strength, produces great strain on a woman's knees.

### Building stronger muscles and teaching proper techniques

The good news, Dr. Matzkin says, is that we can combat these differences. "We're seeing a significant rise in the number of young fe-

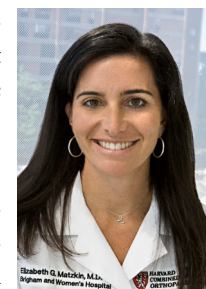
male athlete injuries, but most of them are preventable," she says. "Studies have shown that neuromuscular training programs can decrease the rate of ACL injury in women."

Dr. Matzkin, a team physician for the U.S. Women's Soccer team and a former team physician for the Duke University men's and women's basketball teams, visits high schools and colleges throughout the Boston and Foxborough areas to teach athletes and coaches about the risk of ACL injuries in women. She also can help coaches add neuromuscular training to their practice routines. These programs focus mainly on improving knee stability and training the body to automatically perform proper movements. Using a mix of exercises to improve strength and speed and weight training, the muscles that help support the knee are strengthened. To promote ideal pivoting, jumping, and landing, athletes are taught proper techniques and then coached to repeat these techniques. This repetition eventually trains the athlete to perform these movements unconsciously.

### Getting back in the game

Of course, even with proper training, injuries will still occur. But Dr. Matzkin can help to get athletes of all ages and abilities back in the game – and keep them in the game. She offers surgical and non-surgical treatments for the full range of bone and tissue injuries. This includes sprains, dislocations, strains and tears, stress fractures, and arthritis. Following treatment, Dr. Matzkin's team guides patients' recovery.

Dr. Matzkin provides care at three locations: Brigham and Women's Hospital in Boston, Brigham and Women's/Mass General Health Care Center in Foxborough, and Brigham and Women's Ambulatory Care Center in Chestnut Hill. For more information about the services she offers in Foxborough, please call 1-866-378-9164, and to learn more about the Women's Sports Medicine Program, visit [www.brighamandwomens.org/womenssportsmed](http://www.brighamandwomens.org/womenssportsmed)



Elizabeth Matzkin, MD

### Brigham and Women's/Mass General Health Care Center at Foxborough

The Center at Patriot Place provides a comfortable and convenient location for a wide variety of services, including cardiology, general and colorectal surgery, neurology, orthopedic surgery, pathology, pain management, plastic surgery, advanced imaging and lab services, rehabilitation, and sports medicine. Designed for maximum patient convenience and care by locating many services under one roof, including a day surgery suite, the Center enables both Brigham and Women's and Mass General physicians to provide care to our many patients from the Foxborough area closer to home.



Brigham and Women's/Mass General Health Care Center at Patriot Place is a modern, four-story building adjacent to the entrance of Gillette Stadium.