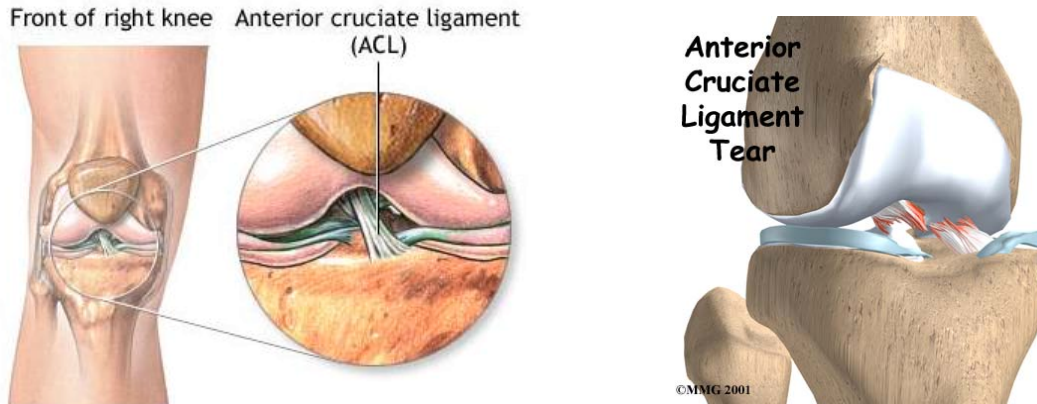


KNEEFIT ACL Injury Prevention Program



The Bad News

Anterior Cruciate Ligament (ACL) injuries have become extremely common in athletics. From golfer Tiger Woods to Tom Brady of the New England Patriots to Michael Owen of Manchester United F.C. and Kara Lang of Canada's Women's Soccer team, ACL injuries are all around us.



In the top Italian Soccer League (Series "A") 10% of the players in 2003 had prior ACL surgeries. Around the same time in the US professional women's soccer league (WUSA), a poll showed 25% of the players had one or more ACL injuries in their career.

KNEE FIT ACL Injury Prevention Program

An estimated 200,000 ACL injuries occur in the United States each year with an estimated \$2 billion spent on surgery and rehabilitation annually. Rehabilitation takes 6-12 months with a success rate of 75% for return to high risk sports. Many never return to their sport. Re-injury rates are said to be 11%. Osteo-Arthritis typically occurs within 5 years of the injury.

At age 24, Kara Lang from our Canadian National Soccer Team retires from soccer 6 months before the World Cup when told after 2 prior ACL reconstructions on the same knee and a year on Anti-Inflammatory medications she could need a knee replacement by age 35.



Over the last 30 years there's been an 80% increase in females participating in competitive athletics. Unfortunately, there has also been a significant increase in serious knee injuries for this group. Injuries to the ACL have been occurring at an alarming level and are tied to sports requiring pivoting, decelerating, and landing from jumping. In particular soccer, basketball, volleyball, skiing, court sports, rugby and football are all high risk for ACL injuries.

Girls are injuring their ACL's 3 to 9 times more often than boys participating in the same sports. This is considered to be at epidemic proportions for females.

KNEE FIT ACL Injury Prevention Program

Why Females?

Females are built differently with wider hips and, subsequently, knees that angle or tend to buckle inward. They are 33% weaker than their male counterpart due to lower muscle mass related to higher testosterone levels in males. Consequently, females activate their muscles differently than males and the biomechanics associated put the ACL at risk. In overall numbers, males still have more ACL injuries than females based on the volume of participants in sports. However, females are still at much greater risk per person and per activity than males.

Research indicates that over 70% of ACL injuries occurring to females occur in non-contact activities. This indicates that the girl positions herself in a manner that puts her ACL at risk. Studies indicate that the way in which a female jumps, lands, and decelerates is the primary factor in determining why females are more often injuring their ACL's. Further studies indicate that a female, when decelerating or landing and jumping, activates her quadriceps primarily and tends to land with a straighter leg than her male counterpart. With EMG analysis, it has been shown that males actually activate their gluteal and hamstring muscles more than the quads and it even shows gluteal activation prior to contacting the ground. This difference in neuromuscular patterns leads to an entirely different biomechanical movement pattern in the lower extremity for females. There is a tendency for the girl's knees to come in together towards each other in a "knock knee" pattern, which is the exact mechanism for tearing an ACL.



CORRECT



INCORRECT

KNEEFIT ACL Injury Prevention Program

The Good News

Consequently, PREVENTION IS THE KEY TO SUCCESS IN DEALING WITH THE ACL.

Prevention (The KNEEFIT Program)

Since we cannot change a female's anatomy, the theory was that we could try to change the biomechanics or pattern of how they land, cut and pivot. Strengthening specific muscles and retraining the biomechanics in females was thought to be important in preventing ACL injuries in females.

Research shows that ACL Injury Prevention programs can decrease ACL injury rates from 46% to 90%. As well, a decrease in overall injury rates by 30% - 40% has been shown in these studies. Interestingly, the incidence of chronic injuries such as tendon pain and low back pain were reduced by more than 60%.

An improvement in in speed, power and agility is another benefit of the program!!

Consequently, it is a coach's responsibility to incorporate an injury prevention program into a team warm-up!

It is a disservice to your athletes, bordering on neglect, not to.

We can make a difference!!!



"I know all too well how painful it can be to be sidelined by ACL injuries. Athletes should take ACL injury prevention seriously as a few minutes a day could be the difference between stepping on the field or watching from the stands."

Kara Lang, Canadian National Women's Soccer Team, regarding the Sherwood Park Sports Physiotherapy KNEEFIT ACL Program. Kara retired at age 24 after 2 ACL surgeries in 3 years.

KNEEFIT ACL Injury Prevention Program

Prevention programs focus on the following factors to reduce injury:

- Avoiding vulnerable positions (proper biomechanics)
- Increasing strength (Lower Extremity and Core)
- Including plyometric exercises in training WITH PROPER TECHNIQUE
- Increasing proprioception (body awareness, balance and control)
- Increasing dynamic flexibility

Therefore, retraining of the neuromuscular system in athletes helps to reduce the stress on the ACL and prevent injury.

At Sherwood Park Sports Physiotherapy we have the KNEEFIT warm up for soccer that is comprised of the following:

Dynamic Warm Up

Core, Strength and Balance

Plyometrics / Neuromuscular Control

Power / Agility / Functional Control





KNEE FIT ACL Injury Prevention Program

Developed by:

Douglas R Gilroy, BScPT, BPE

Physical Therapist

Melissa Prokop, MScPT

Physical Therapist

Please refer to our web site for further information: www.sherwoodparkphysio.com