

# PPOC

Pediatric Physicians' Organization at Children's

## Preventing ACL Injuries

Natick Soccer Club

March 26, 2015

# Real Injuries?



# The Problem

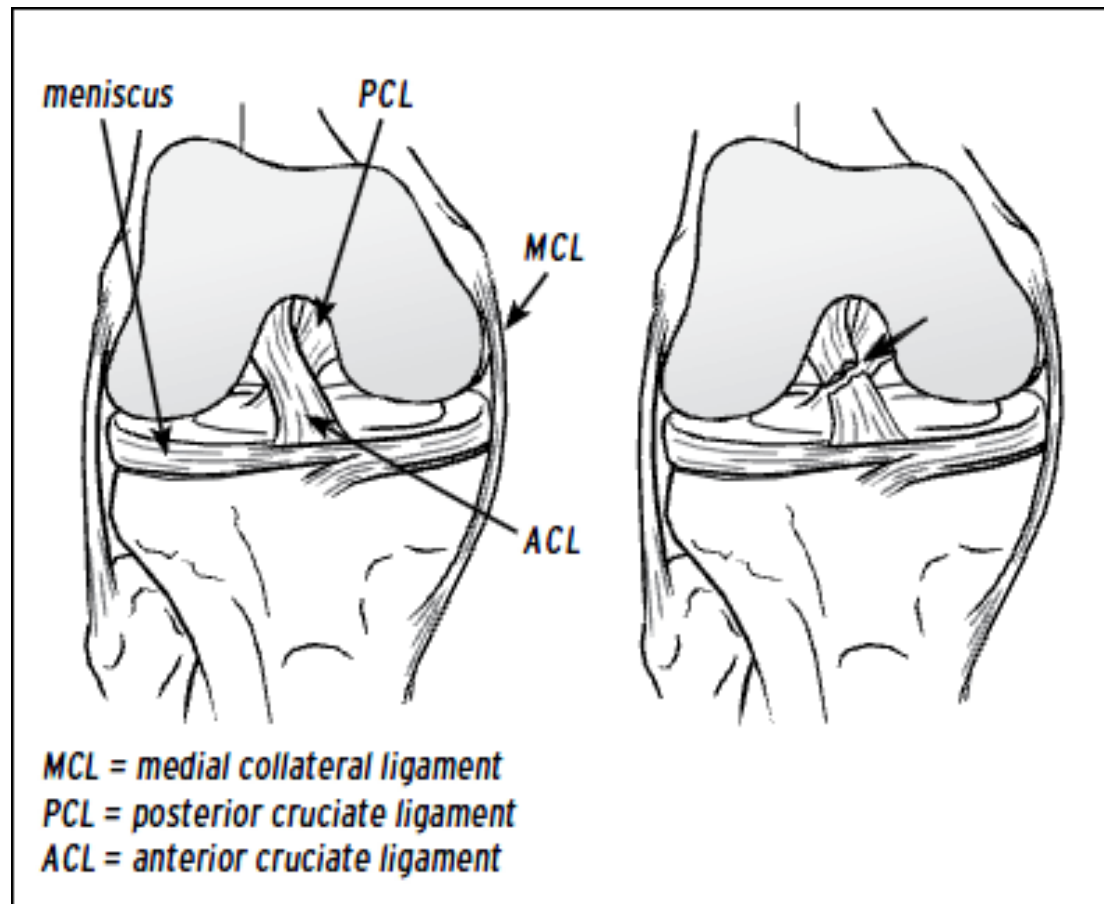
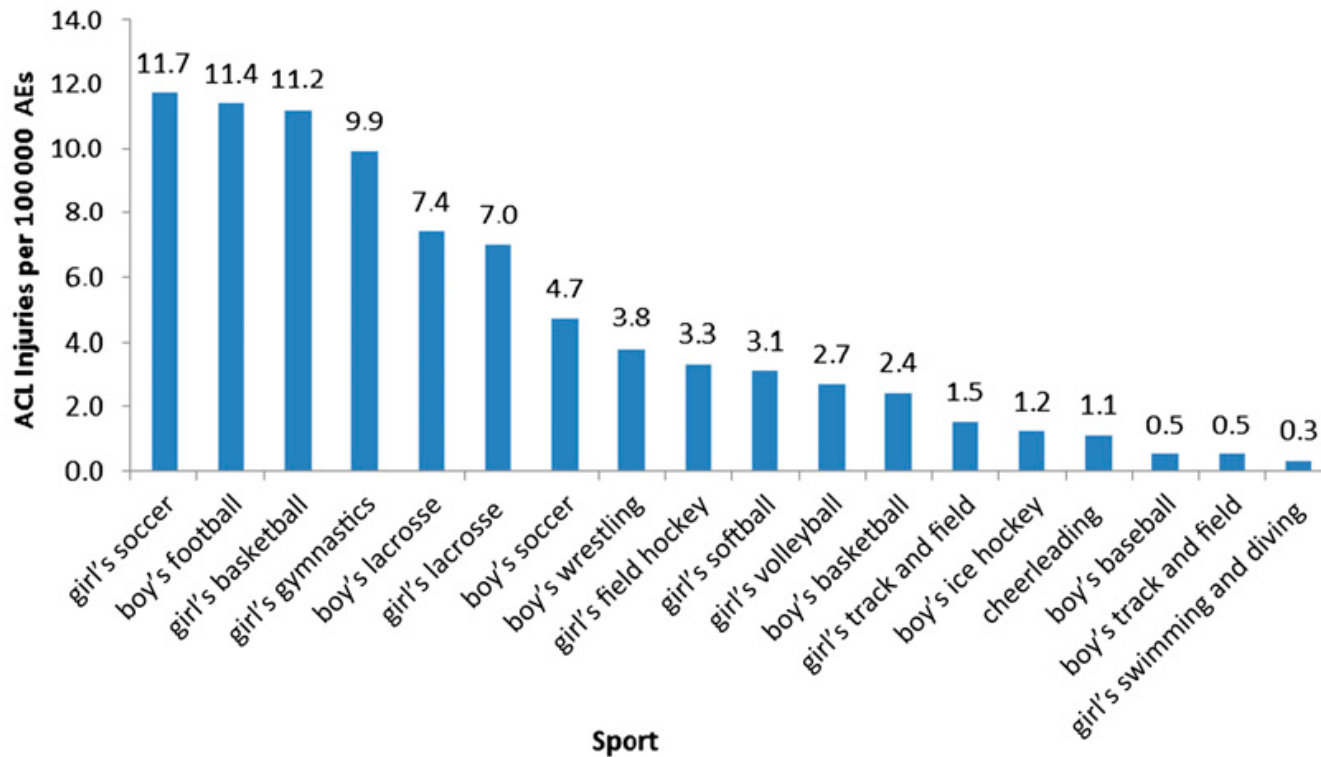


Diagram of ACL before and after a complete tear.

# Highest Risk Sports

High School ACL injury rates per 100 000 athlete exposures (AEs) by sport



# How It Happens in Soccer

- 70% - no contact involved
  - Hip internally rotated
  - Knees nearly extended
  - Foot planted
  - Body decelerating

# Risk Factors

- Females (4 – 6x male injury rate)
- Growth spurt (peak age 12 – 19 yrs.)
- Higher BMI
- Lax joints / knees that hyperextend

# Why Girls?

- Quadriceps relatively stronger than hamstrings
- Stronger dominance of one leg
- Rely more on ligaments than muscles to stabilize knees
- Weaker coordination between trunk and legs

# Consequences of ACL Tear

- Pain of surgery and rehab over 6 – 12 months
- Lost time from school and sports
  - Lower GPAs that semester
  - Miss one or two soccer seasons; some never return
- Total cost \$20,000+
- > 50% will have arthritis 10 -20 years after repair



# ACL Injuries are Preventable!

- Neuromuscular training reduces injuries by 70-80%
  - Hamstring strengthening (butt kickers, etc.)
  - Plyometrics (line jumps, ice skaters, scissors jumps)
  - Active stretching (walking lunges, mountain climbers, leg swings)
- Can be incorporated into regular training and pre-game warm-ups

# How to Get Started

- Online resources through [www.aap.org](http://www.aap.org)
  - Written materials
  - Videos
- Physical therapists available for coach, individual and team training in person
- Training is more effective if begun pre-season
- Better to do some exercises than none at all!