Preventing Knee Injuries

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Welcome to Orthopedics Northwest (ONW)

The foundation of ONW was created a half century ago with the pioneer providers of orthopedics and sports medicine for the Yakima Valley.

ONW is the most comprehensive provider of orthopedics and sports medicine in Central Washington.

The mission of ONW is to provide optimal orthopedic and sports medicine care for each and every patient. Something we take very seriously and this is the standard to which we hold ourselves.

Please contact us today if you have any questions or wish to schedule an appointment!

Office Hours: Monday - Friday, 8:00 am - 5:00 pm.

Urgent Care Clinic Monday - Friday, 5 - 8 PM for acute injuries.
approximately 150,000 to 200,000 ACL tears and 70,000 surgical reconstructions in the US each year.

70% - 78% occur as the result of a noncontact mechanism.
Risk of ACL tears in the US

- General population: 1:3000
- Risk after having had one ACL reconstructed: 1:50
Incidence of knee injuries

Knee injuries are the most common injuries in Basketball, Soccer, Football, Rugby, Lacrosse and some other sports.

MCL injuries are the most common knee injuries in many sports. Skiing 2/1000 skier days, Football 0.11/exposure, Soccer 0.10/exposure.
Incidence of ACL Tears

Overall average increase risk for female athletes reported to range from 2.4 to 9.7 X males

Basketball 3.5
Soccer 2.67
Lacrosse 1.18
Alpine Skiing 1.0

Discrepancy is not seen until puberty.
No contact ACL tears

...ore common in high risk sports: basketball, soccer, team handball, football, rugby and volleyball.

ost occur when an individual is stopping rapidly, landing from a jump or decelerating suddenly with a change of direction (cutting).
F:M discrepancy

Not seen until puberty

Many potential contributing factors are not amenable to intervention and others remain unproven.

Currently neuromuscular recruitment and landing patterns are felt to play a role, are amenable to intervention and conditioning programs to address these differences are showing merit in reducing the risk of ACL injuries in female athletes.
L injuries tend to occur with sudden deceleration or when landing in a jump when the knee is in 5 to 20 degrees of flexion and valgus stress (internal rotation of the knee).

Males tend to land in a more erect position than males, with adduction and internal rotation and with more tibial external rotation resulting in increased valgus load placed across the knee.

Hamstring strength is important, not just overall strength but also in comparison to quad strength (women tend to activate their quadriceps more than their hamstrings in comparison to men).
CL PREVENTION PROGRAM

Designed to address the factors which are felt to place female athletes at increased risk

- Muscle strengthening (legs, core and back)
- Landing and deceleration patterns
- Muscle recruitment patterns
- Proprioception
- Symmetries
Three programs have shown a reduction in the incidence of ACL tears in women (men did not experience any reduction of injury incidence): Pre-injury and Enhance Performance (PEP), Sportmetrics, and Knee Injury Prevention Program (KIPP)
Sportmetrics is a program only available from a certified instructor.

KIPP is taught to coaches at a price.

EP is available in a downloadable PDF format for free.
PEP (Santa Monica Sports Medicine Foundation)

A program of warm-up, stretching, strengthening, plyometrics and sport specific agility exercises.

Free

Available in PDF format
Field Set-up

Area #5 Agilities
Shuttle Run / Diagonal Run

Area #2 – Stretching

Area #3 – Strength
Lunges, HS, Toe raise

Area #1 - Warm – Up
Jog, Shuttle run, Backward run

Area #4 – Plyometrics
Side-to-side/Forward and Backward Hops

Note: Set-up one half of the field with cones 10 minutes prior to practice. This will allow for a smooth transition between exercises.
PEP PROGRAM (SMSMF)

This prevention program consists of a warm-up, stretching, strengthening, plyometric, and sport specific agilities to address potential deficits in the strength and coordinating stabilizing muscles around the knee joint. It is important to use proper technique during all of the exercises. The coaches and trainers need to emphasize correct posture, straight up and down jumps without excessive side-to-side movement, and reinforce soft landings. This program should be completed 3 times a week. If you are using this program with athletes that are twelve or under, please perform the plyometrics over a visual line on the field or a flat 2” cone and land each jump with two feet. Do not perform single leg plyometrics with young individuals until they demonstrate substantial control. (see addendum) The field should be set up 10 minutes prior to the warm-up, which will allow for a smooth transition between the activities. A sample field set-up has been included in your packet.

This program should take approximately 15 - 20 minutes to complete. However, when you first begin the program, it may take slightly longer due to the fact that you must become well acquainted with the program and the transitions. Along side each exercise you will notice a box with the approximate amount of time that should be spent on each activity. This will serve as a guideline to you in order to conduct your warm-up in an efficient manner.