Research suggests that ACL and other traumatic knee injuries can be reduced by **more than 50%** by using a preventive training program that combines flexibility, balance, strength, plyometric, agility, and technique training into exercise selection. Improvements in lower extremity strength/power and balance are



Examples of free preventive training programs that have been supported through research:

PEP Program

http://smsmf.org/smsf-programs/pep-program

11+ Program

http://f-marc.com/11plus/home/

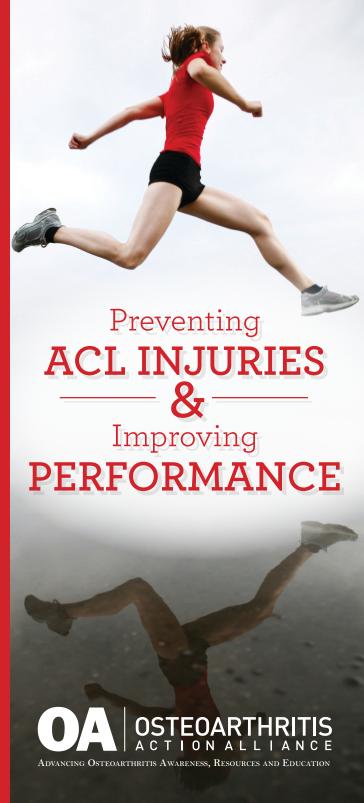
PEAKc Program

http://www.unc.edu/depts/exercise/peak/peak/Home.html

For more information, visit: oaaction.unc.edu

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Joint injuries can sideline your players and have a long lasting impact on their health and well-being. Joint injuries, such as those to the anterior cruciate ligament, are one of the strongest risk factors for developing osteoarthritis – the most common form of arthritis affecting 30.8 million adults. Up to 50% of those with a diagnosed anterior cruciate ligament or meniscus tear will develop osteoarthritis with associated pain and functional impairment 10-15 years after injury.

A preventive training program should include exercises that are done 2-3 times a week over the course of the entire season, take no more than 15 minutes to complete, and can be incorporated by coaches into regular training sessions.





Stretching (3-4 exercises):

 calf, quadriceps, hamstrings, hip adductor, hip flexor



Warm Up (2-3 exercises):

 forward-backward jog, side shuffle, high knee skipping, carioca, butt kickers, arm swings, trunk rotations, leg swings



Balance (2-3 exercises):

 single leg balance (static), single leg balance with perturbation (ball toss, partner perturbation, unstable surface, upper body motion), dynamic jump/hop to balance



Strengthening (2-3 exercises):

- core musculature: curl ups, plank, push up
- hip / thigh musculature: squat, lunge, deadlift, russian hamstring curl, bridge



Plyometrics (5-6 exercises):

 double leg jumps (multi-planar), single leg jumps (multi-planar), single leg bounding, ladder drills, running & cutting



Technique (verbal feedback on movement quality during all exercises):

- bend knees and hips (land softly, light as a feather, act like a shock absorber)
- keep knees over toes (straight as an arrow)
- toes straight ahead

In addition to reducing the rate of ACL injury, preventive training programs have also been shown to **improve measures of performance** such as vertical jump height, hop distance and speed, aerobic fitness and sprint speed.

