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June 2007

THE FEMALE ATHLETE AND ACL PREVENTION

The incidence of ACL injuries in the female athlete has been widely documented and continues to increase as participation of women in athletics rapidly grows. In fact, female athletes have a two to eight



times higher ACL injury rate than their male counterparts participating in the same sport with an estimated 38,000 injuries per year. Published studies strongly support these injuries as being non-contact injuries associated with multi-planar deceleration activities such as jump landing and cutting. The following recent studies support

the theory that this gender disparity is due to kinematic differences especially at the hip and knee. This raises the concept of specific rehabilitation and/or prevention for the female athlete specific to neuromuscular education in tri-plane or three dimensional functional movements.

Differences in normal and perturbed walking kinematics between male and female athletes: Randomized limb kinematics were compared between level I and II male and female athletes during platform translation. The authors discovered that excursions at the hip and knee were greater for females in the frontal and transverse plane as well as an increased rate of these excursions.

Hurd et al. Differences in normal and perturbed walking kinematics between male and female athletes. *Clinical Biomechanics* 2004 Jun;19(5):465-72.

Biomechanical measures of neuromuscular control and valgus loading of the knee predict anterior cruciate ligament injury risk in female athletes; a prospective study: Authors confirmed their hypothesis that female athletes suffering from an ACL injury would demonstrate decreased neuromuscular control and increased valgus joint loading in comparison to those athletes not injured. 205 female athletes in high-risk sports (soccer, basketball, volleyball) were screened prior to the season for joint angles/loads during a jump-landing. Of the nine confirmed ACL ruptures, all demonstrated significantly higher knee valgus posture and abduction loading.

Hewett et al. Biomechanical measures of neuromuscular control and valgus loading of the knee predict anterior cruciate ligament injury risk in female athletes: a prospective study. *American Journal of Sports Medicine*. 2005 Apr;33(4):492-501

Neuromuscular training versus strength training during first 6 months after anterior cruciate ligament reconstruction: A randomized controlled clinical trial: This study compared a traditional strength rehab protocol status-post ACL surgery to a neuromuscular training program. Seventy four subjects participated in rehab over 6 months with those in the neuromuscular training group demonstrating significantly improved Cincinnati Knee scores and VAS scores. Such measurements were subjective pain, activity level, run/jump, and twisting activities.

Risberg et al. Neuromuscular training versus strength training during first 6 months after anterior cruciate ligament reconstruction: A randomized controlled clinical trial. *Physical Therapy* 2007 June;87(6):737-50.



Congratulations

To the Portage women's basketball and softball teams for another successful season. New Life Physical Therapy & Sports Medicine was thrilled to work with these tremendous athletes in introducing a new program this year. Coaches Fritz Hammer and Dave Mills were extremely supportive of New Life Physical Therapy & Sports Medicine staff as we incorporated neuromuscular training and tri-plane loading specific to the female athlete into their existing practices. We look forward to continuing to maximize the pain free and injury free function of our female athletes.

