Strength, conditioning program helps prevent lacrosse injuries

Lacrosse is one of America's oldest sports with roots in Native American culture. Today it is one of America's fastest growing sports played by athletes of all ages. Because lacrosse is a free-flowing, fast paced sport with quick changes of direction this can lead to non contact ligament injuries especially to ankles and knees. Boy's lacrosse is considered a moderate contact sport with full shoulder pads and chest protector, whereas girl's lacrosse is relatively non-contact and the only protective equipment is goggles. The difference between girl's and boy's lacrosse can lead to a slightly different set of injuries, but both are at risk to various contact injuries.

While common contact injuries may be difficult to prevent (contusion, concussion, fracture), proper training and preparation can help reduce non-contact injuries such as muscle strains, ankle and knee sprains. Knee and ankle sprains not only are among the more common lacrosse injuries, they also can result in a longer injury recovery time. The most familiar knee sprain is an anterior cruciate ligament (ACL) tear. It typically requires surgery and minimum four month rehabilitation. Proper training has been proven to reduce the incidence of ACL tears.

Orthopaedic Surgery & Sports Medicine Teaching & Research Foundation

Spring 2016

Incorporating an in-season leg strengthening and conditioning program to help prevent lacrosse injuries

The ability to properly cut, run, jump, land and decelerate in soccer is important to prevent knee injuries, particularly anterior cruciate ligament (ACL) injuries. There are more than 400,000 ACL injuries annually with a disproportionate number occurring in females—as much as 2 to 5 times higher than their male counterparts. ACL injuries are a major concern because of the growing numbers of injuries affecting young athletes; rising treatment costs; lost time from sport for treatment and recovery; the permanence of the injury and surgery, and the associated development of early knee arthritis. In response to the ACL injury epidemic, a great deal of research has been focused on how and why ACL injuries occur and the best methods of prevention.

Most do not realize that ACL injuries occurring with sports are typically a "noncontact" injury—occurring without any external contact to the knee. In fact, the common cause seems to be a cutting, stopping, landing or another decelerating maneuver on a planted, single leg with a slightly bent knee in a "knock-kneed position" and possibly internal rotation of the lower leg. With the knee in this position, it appears the landing forces combined with the athlete's own muscle forces are responsible for damaging the ACLs as they work to stop with the planted foot.

Factors such as the playing surface, shoe surface and weather also can contribute to the likelihood of an injury, with higher rates occurring in conditions with higher friction between the playing surface and the shoe. Other important contributing factors are the athlete's anatomy and patterns of neuromuscular control. Also, athletes with specific anatomical differences in the size and shape of their joint surface, or differences in muscle activation patterns are at a higher risk for an ACL injury. Anatomical factors are not easily correctable, but patterns of movement can be modified with specific ACL prevention exercise programs. Exercises that improve cutting, landing and stopping mechanics at the knee, improve strength and endurance and address core balance and agility have proven helpful. Unfortunately, most of these successful programs are off-season regimens that, like all exercise programs, quickly lose their benefit once they stop leaving the athlete most vulnerable to injury during the season when their exposure is the highest.

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To help prevent these injuries, Dr. Steven Chudik, board certified orthopaedic surgeon and sports medicine physician, along with his health performance team, Larana Stropus and Keith Tesch, developed a research-based in-season strength maintenance program. The program is quick and efficient and should be properly incorporated around games and practice schedules and avoid training too close to a specific competition and negatively impacting performance.

To download this free program and other free sports injury programs from Dr. Chudik and OTRF, visit the OTRF website, *otrfund.org* and click on the sports performance tab. Or, you can email *contactus@chudikmd.com* for a printed version. Make sure to include your mailing address.