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ACL Injuries in Young Athletes

Not all injuries require surgery, and neuromuscular training can reduce risk in girls.

During the past 20 years, the number of anterior cruciate ligament (ACL) injuries in young athletes has increased. The American Academy of Pediatrics issued a clinical report on the diagnosis, treatment, and prevention of ACL injuries in youth. Key points are as follows:

Epidemiology

- Sports associated with the highest ACL injury rates in high school athletes are girls' soccer, basketball, and gymnastics and boys' football and lacrosse (7–12/100,000 athlete exposures).
- Risk increases significantly at ages 12 to 13 in girls and ages 14 to 15 in boys.
- Most ($\geq 70\%$) ACL injuries are not from contact and often are associated with an internally rotated hip, a knee close to full extension, planted foot, and decelerating body.

Diagnosis and Treatment

- Athletes typically present with pain, history of hearing a “pop,” knee effusion, reduced knee motion, and difficulty bearing weight. About 65% of athletes with traumatic knee hemarthrosis have an ACL tear.
- The Lachman test is more accurate (85 sensitivity, 94% specificity) than the anterior drawer test for detecting an ACL tear. The pivot shift test is very specific (98%) but lacks sensitivity (24%).
- Pediatric athletes presenting with traumatic knee effusion should undergo plain radiograph to rule out fracture, dislocation, or osteochondral or physeal injury.
- Magnetic resonance imaging is not necessary to diagnose an ACL tear in someone with a positive Lachman test, unless pain limits the exam or concern exists for other injuries.
- ACL tear is not a surgical emergency and surgery is not necessary in all athletes. General indications for surgery are: patients' inability to play their sport; knee instability affecting activities of daily living; associated meniscal tear that can be repaired; and multiple torn ligaments.
- Recent data support early ACL repair in athletes with an ACL-deficient knee and multiple episodes of knee instability.

Prevention

- Prophylactic bracing is unlikely to reduce risk.
- Functional bracing after surgery does not change outcomes. Data are insufficient to determine if it reduces risk for ACL injury or reinjury.
- Neuromuscular training has been shown to reduce risk for injury (by ~72%) in adolescent girls. Prevention training (including plyometric and strengthening exercises) with feedback on proper technique is most effective.

COMMENT

Pediatric clinicians are increasingly likely to see athletes with ACL injuries. This clinical report provides useful information to guide the evaluation of young athletes with knee injuries and help them and their parents understand treatment options.

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