

THE ANTERIOR CRUCIATE LIGAMENT

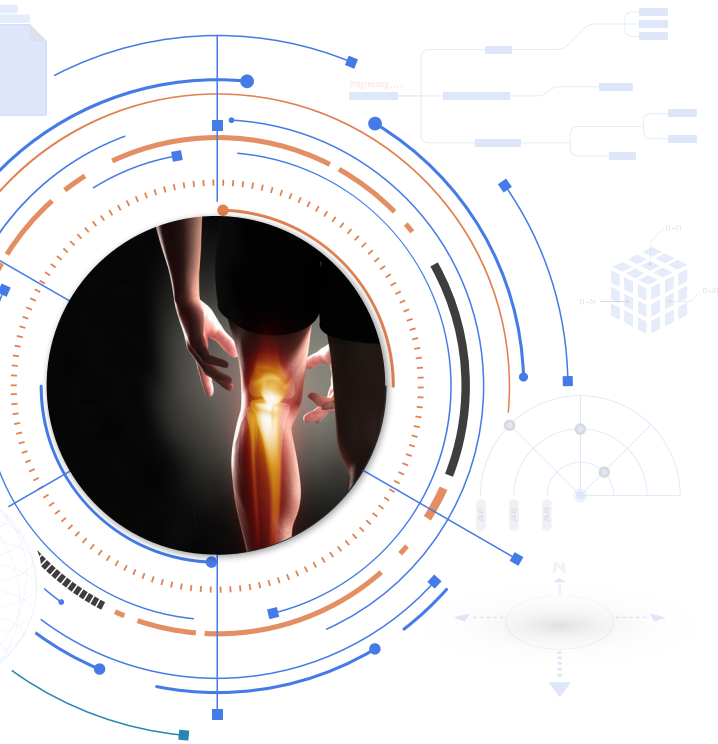


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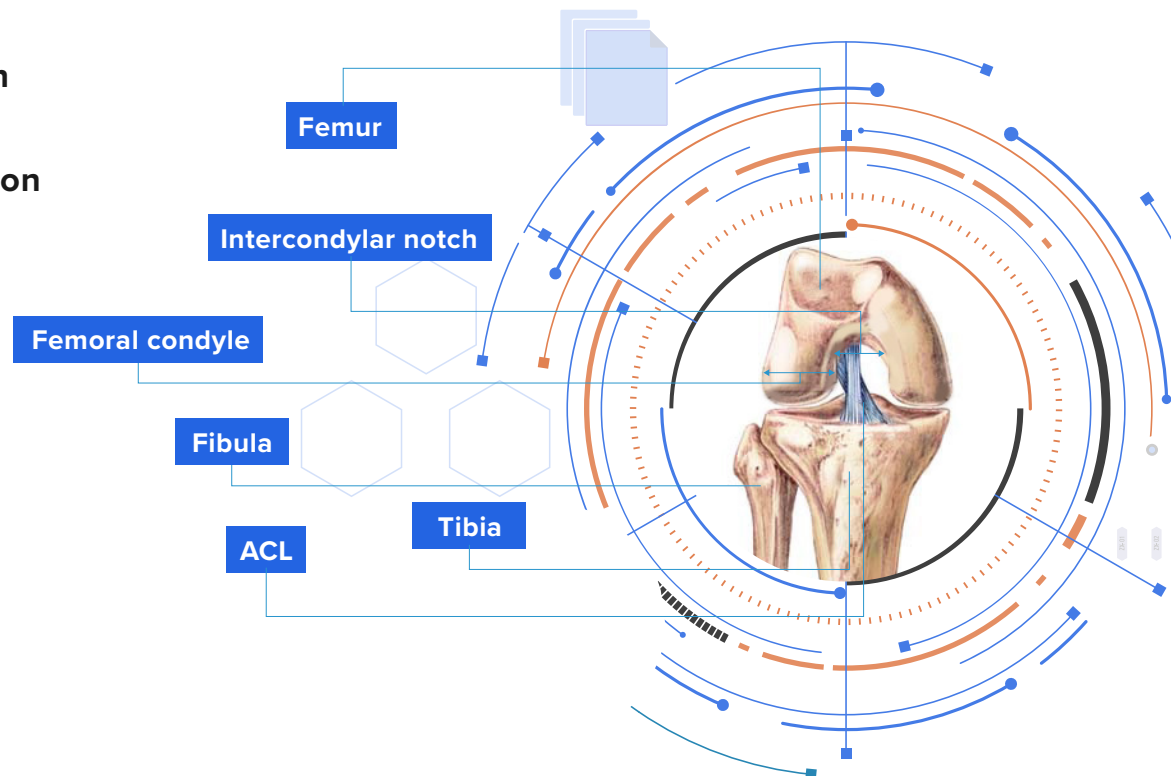
ANATOMY OF THE ACL

Anteromedial bundle

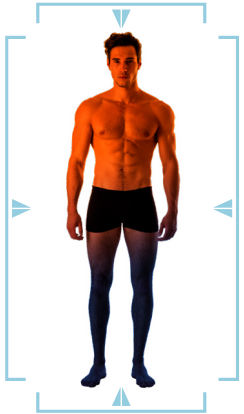
Smaller, tight in flexion

Posterolateral bundle

Larger, tight in extension



INCIDENCE OF ACL TEARS



Incidence
is higher in men
than women

In certain sports the
incident rate is **higher in**
women than men

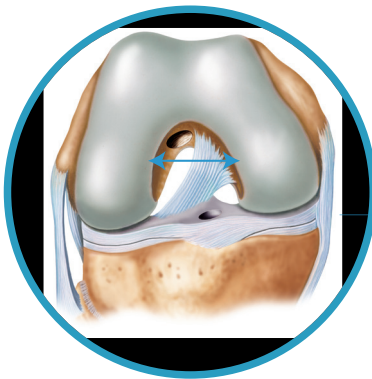
RATE
1.5-4.6
Times higher
for females
than males



MALES VS FEMALES

1. Intercondylar notch size

The size and shape of the notch tends to be smaller in women.



2. Pelvis size

Women typically have a wider pelvis



3. Ligament laxity



Women's ligaments can be more lax than men's ligaments.



4. Reflex time



It has been shown that female muscles stabilizing the knee may take a millisecond longer to respond than their male counterparts.

5. Hormones

Changes in estrogen levels during the menstrual cycle may affect the strength of the ACL.

Also, research has shown that women's muscle tissue is more elastic than male muscle tissue causing excessive joint motion combined with increased flexibility. As a woman approaches the end of knee extension, the femur glides forward more than in men.

MECHANISM OF INJURY

50-70%
are noncontact injuries



This also commonly involves imbalances of body weight and malalignment of body position, such as landing with valgus knee and hip adducted and internally rotate

These usually involve planting, cutting and jumping, such as a sudden stop on an extended knee



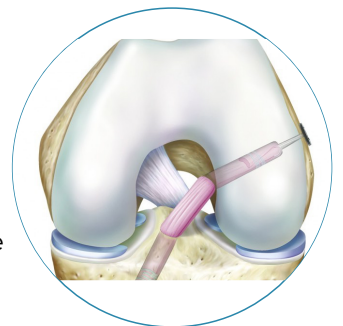
WHY HAMSTRING OVER PATELLAR TENDON GRAFT



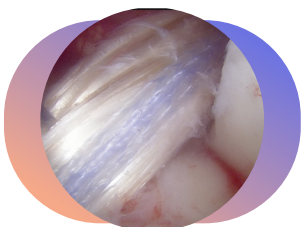
1. less risk of pain with kneeling
2. smaller scar
3. less post-operative pain
4. less risk of osteoarthritis in long term follow up

Hamstring All Inside ACI Reconstruction

1. Tunnels need only to be drilled partially through bone
2. Harvest only one hamstring tendon with greater hamstring strength post operatively



ACL INTERNAL BRACE



It has been shown that the ACL graft can take 12-18 months to fully mature. Using something to protect the graft during this time period would be very advantageous.

The internal brace is a small tape made of braided polyethylene that runs alongside the graft and protects the graft during the healing phase. This has been shown in several different ligament reconstructions and repairs to be non reactive and to have a potential biomechanical improvement to graft healing.

POST OP ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION INSTRUCTIONS



1 The brace needs to be worn at all times including sleeping. The brace needs to be locked straight when walking



2 The knee should be iced 12 hr on and 12 hr off through out the first day and at least 3x/day after the first initial post-operative day.

3 CRYOCUFF

If you have a cryocuff (ice machine), this can be used continuously for the first day until 11pm and then 1/2hr on and off after 11pm if you awaken with pain. After the first day this should be used on 1/2hr on and 1/2 hr off at least 3x/day. Always place a or small towel or the ace wrap between your skin and the cryocuff.



4 Pain medication will be prescribed. If your pain does not require a narcotic pain medication take Tylenol (as long as you do not have a history of Tylenol allergy or medical problem where Tylenol is contraindicated, i.e.: Liver disease)

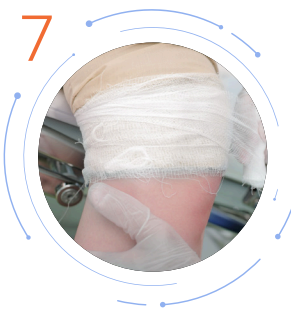


5 Pain medication may be constipating. If you are prone to this you may take an over the counter stool softener such as Senokot.

6 **TWO MONTHS**



Never take NSAID's for the first two months after surgery. This includes Advil, Motrin, Naprosyn, Alleve, Mobic, etc



7 Follow up the day after surgery for a dressing change. Usually you will be able to shower after the first dressing change.



8 Do isometric quadriceps strengthening exercises daily, doing 4 sets of twenty repetitions and make sure your knee goes completely straight while performing these exercises



9 Flexion exercises (knee bending) may be started and performed 3x/day using the other leg for support. Flexion should not exceed 90 degrees if the meniscus was repaired for the first two months.

10 THERAPY

Therapy is usually expected to be started the first week after surgery

POST-OPERATIVE ACL REHABILITATION:

1st Week:

1. Wear the brace locked in extension when walking but try and stop using the crutches

2. Goal of the first week is to have knee go to full extension.

3. Start isometric quadriceps strengthening doing 4 sets of 20 several times/day

2nd Week:

1. Goal at the end of two weeks is to bend the knee to 110 degrees (90 degrees if there was a meniscal repair)

2. 2nd goal is to be able to do a straight leg raise with knee in full extension without the brace. If this is possible at the end of two weeks the brace can be discontinued.

3rd Week:

1. Start stationary bike and progress to closed chain quadriceps strengthening

3rd Month:

1. May start jogging if effusion free.

4 months+

1. If you have been jogging for 1 month and effusion free strength testing may be performed for return to sports.

2. May start plyometric ACL prevention program

