



@physicaltherapyresearch

RAPID RESEARCH

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Inside This Week: All About ACL

✓ ACL Graft Thickness, Which is Best, Thick or Thin?

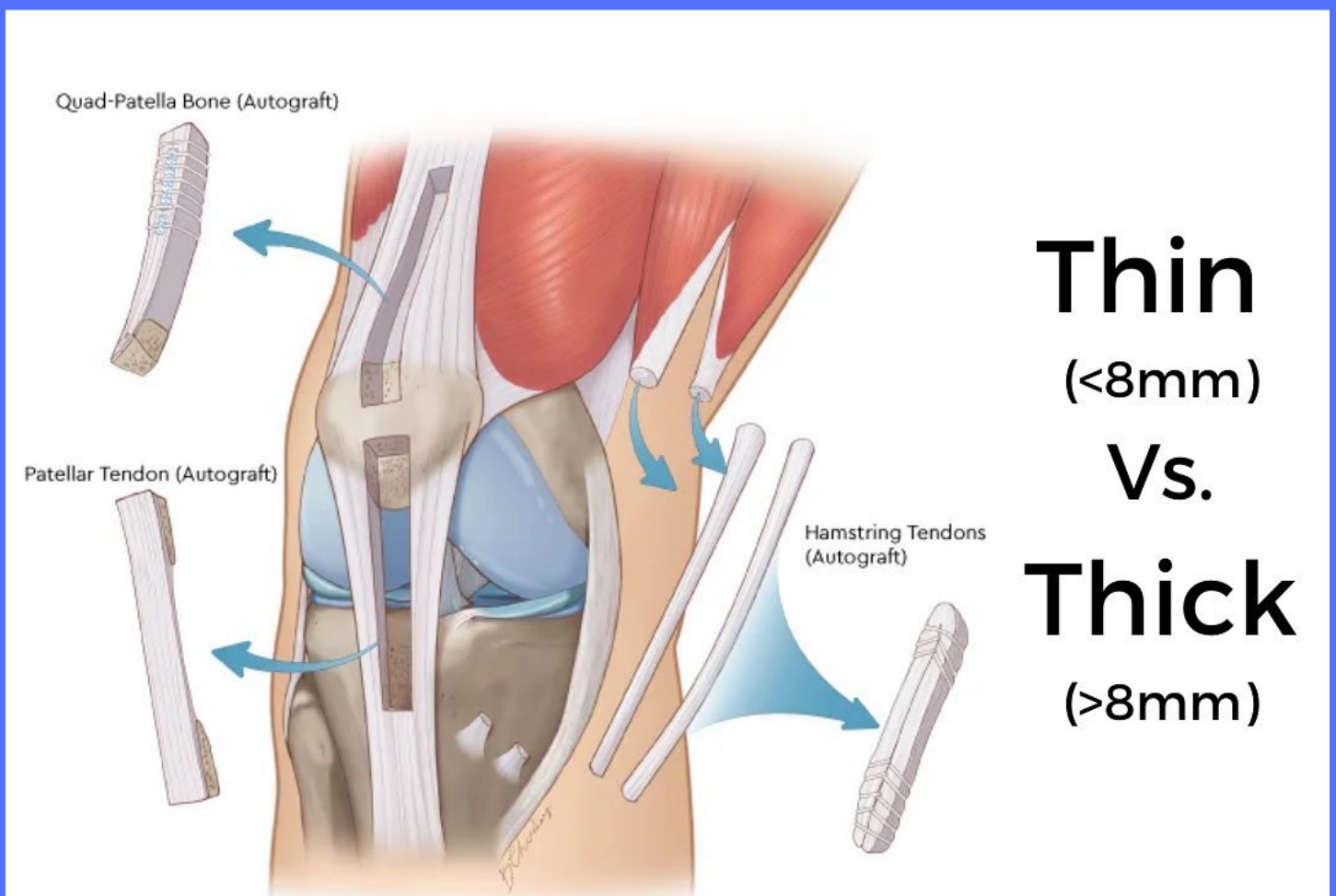
✓ Genetic Risk for ACL tears, A Twin Study.

✓ ACL Reconstruction, Patellar Tendon vs. Hamstring Autograft



ACL GRAFT THICKNESS; WHICH IS BEST, THICK OR THIN?

This research determined the ACLR failure rate in 992 patients, looking at: ACL graft diameter ($>$ or $<$ 8 mm) with a 2-year minimum follow-up,



KEY FINDINGS

At an average follow-up of 38 months:
Overall failure rate: 5.2% (52 ruptures).

Failure rate was not influenced by the graft diameter.
< 8 mm [thin] graft failure rate (6%).
>8mm [thicker] graft failure rate (6.2%).

Lower failure rate in the Bone Patellar Bone (BPB) graft group (3.1%) versus hamstring graft group (6%).

BPB in females had a lower failure rate (0%) vs. all hamstring constructs together (5.1%).

MAIN TAKEAWAYS

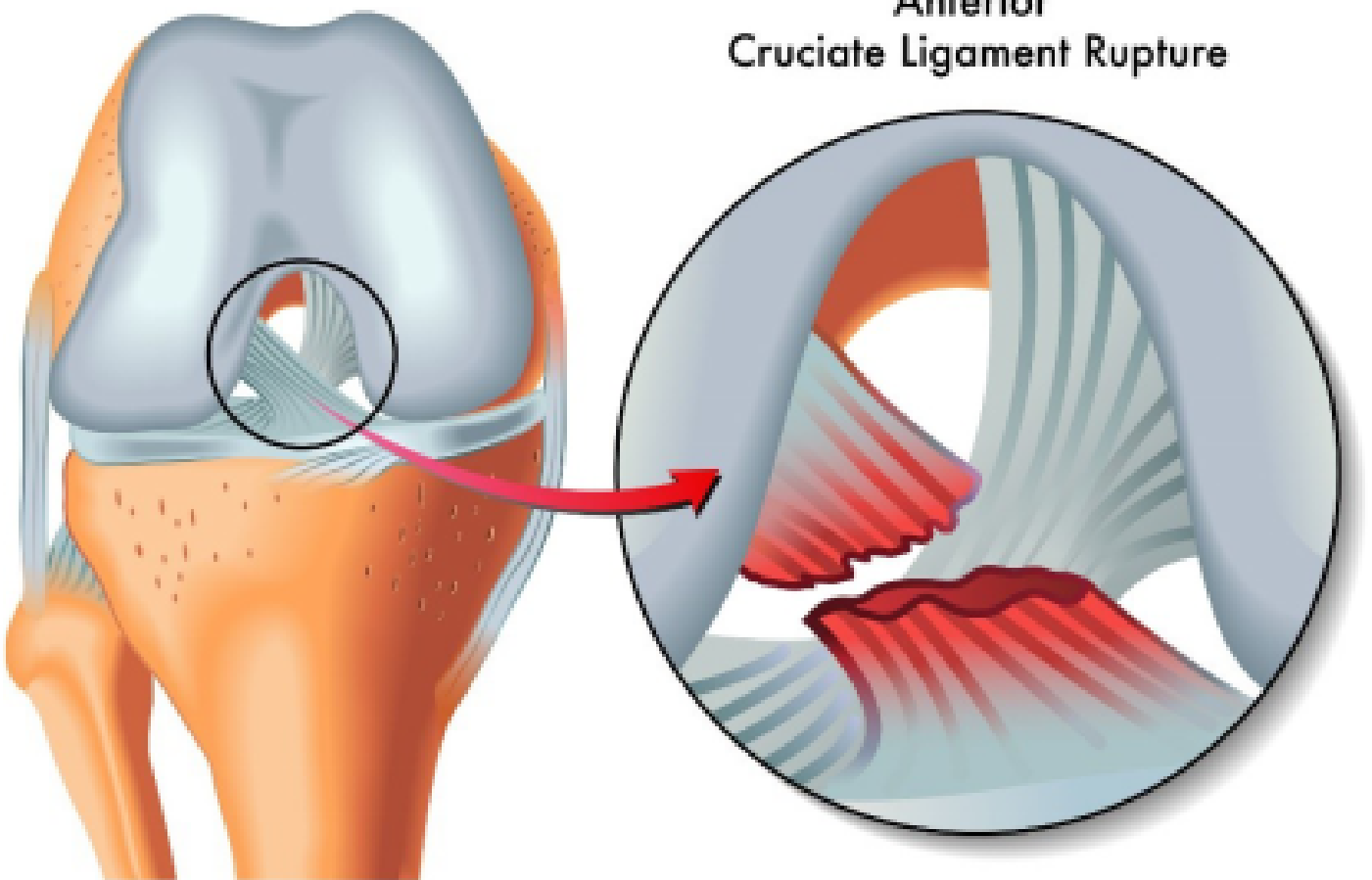
In a young population graft or size (> or < 8 mm), showed no significant difference in the failure rate in the NZ ACL registry.

BPB graft in females had lower failure rate vs. hamstring graft.

GENETIC RISK FOR ACL TEARS: A TWIN STUDY

This research article studied ACL rupture in 88,414 identical and fraternal twin pairs, Aged ≥ 17 years, to determine familial risk and heritability of ACL rupture.

Anterior
Cruciate Ligament Rupture



KEY FINDINGS

Of the 88,414 twins:

33% identical and 67% fraternal twins.

1,395 (1.6%) had an ACL rupture.

90% occurred before age 60.

Average incidence rate was 0.70 per 1000 persons.

Peak occurrence was 18 years (8.4%).

HERITABILITY:

The overall heritability of ACL rupture was 69%, from dominant genetics.

Similar heritability estimates were found for ACE and AE models.

The familial risk for ACL rupture was higher for MZ than DZ twins, especially from age 35 onwards.

MAIN TAKEAWAYS

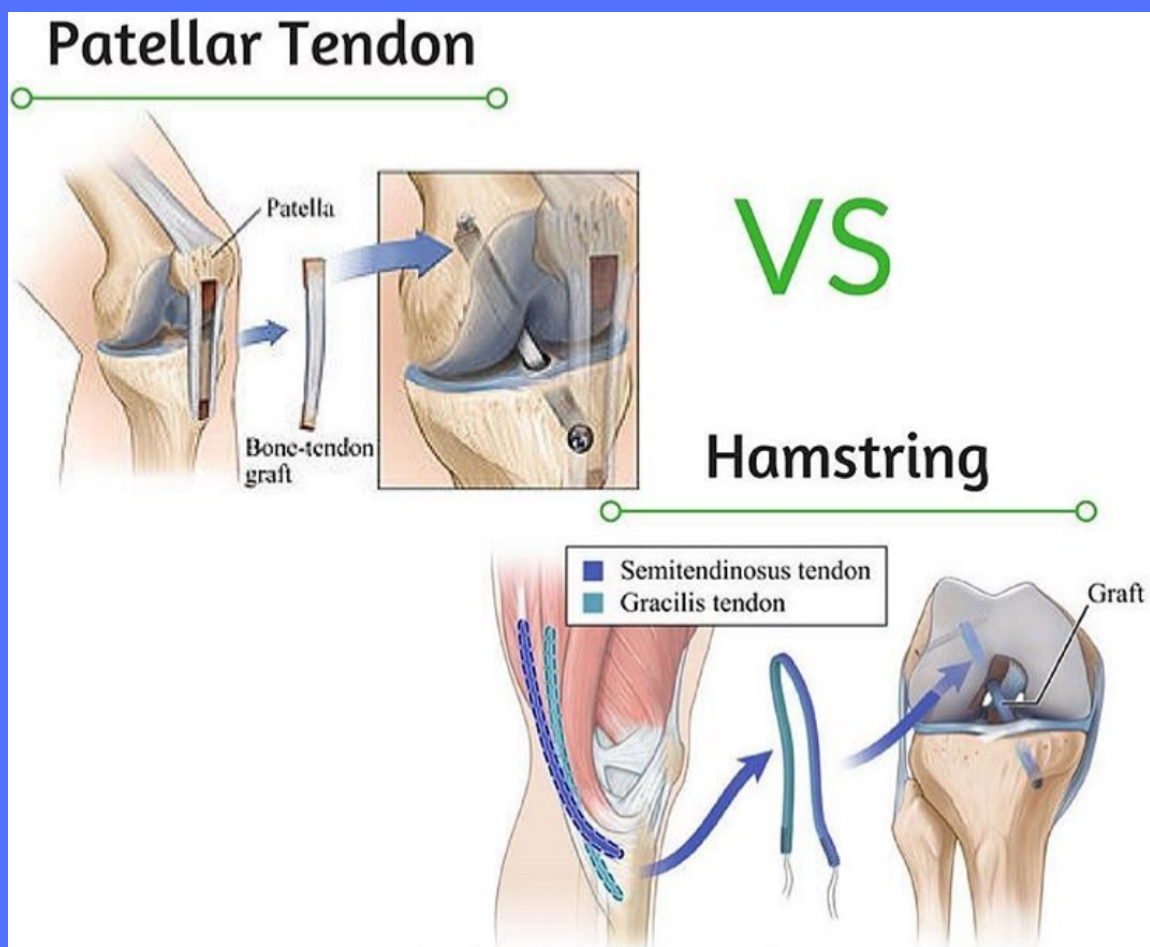
ACL rupture, with up to 30 years of follow-up of more than 88,000 twins, a remarkably high overall genetic contribution of nearly 70% was found.

In comparison, the overall heritability of cancer is reported to be around 33% and the heritability of eye color is 98%.

The risk for having an ACL rupture increases by ~20% to ~140%, if a sibling has an ACL rupture.

ACL RECONSTRUCTION, PATELLAR TENDON VS. HAMSTRING AUTOGRAFT

This research compared BPTB and HS autografts with a minimum of 5-year follow-up and compared long-term outcomes for Knee stability or graft failure, Complications, Functional outcome, and Radiographic evidenced osteoarthritis



KEY FINDINGS

1. No differences in graft failure or manual or instrumented laxity were seen in any studies.
2. Lower clinical outcomes scores and greater motion loss were seen in BPTB patients in 1 and 2 studies, respectively.
3. 2/4 reported on anterior knee pain, and 3/7 recorded on kneeling pain; found more frequently among BPTB patients.
4. 1 study reported a significant increase in contralateral ACL tears in BPTB patients.
5. 3/5 studies reporting on radiographic evidence of osteoarthritis noted significantly increased rates in BPTB patients.

MAIN TAKEAWAYS

No significant differences in manual/instrumented laxity and graft failures between graft types.

An increase in long-term anterior knee pain, kneeling pain, and higher rates of osteoarthritis were noted with BPTB graft use.

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ACL:
INJURY
PREVENTION
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ACL Drills

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