

# ACL Reconstruction and Meniscus Repair in the Adolescent Patient



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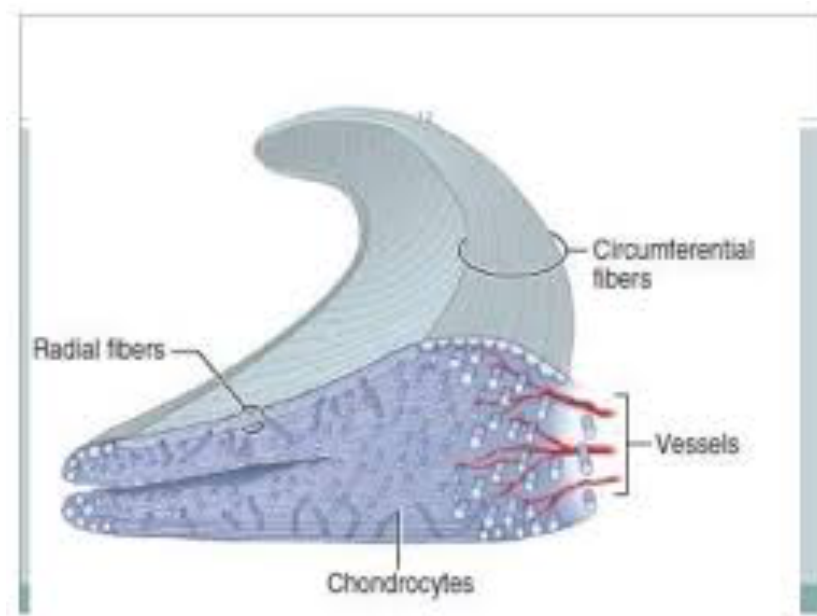
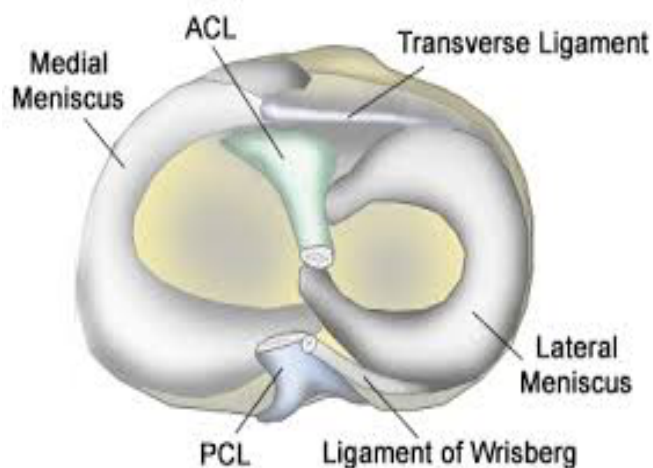
# Anatomy- Anterior Cruciate Ligament (ACL)

- Runs diagonally in the middle of the knee
- Prevents shin bone (tibia) from sliding out in front of the thigh bone (femur)
- Provides rotational stability



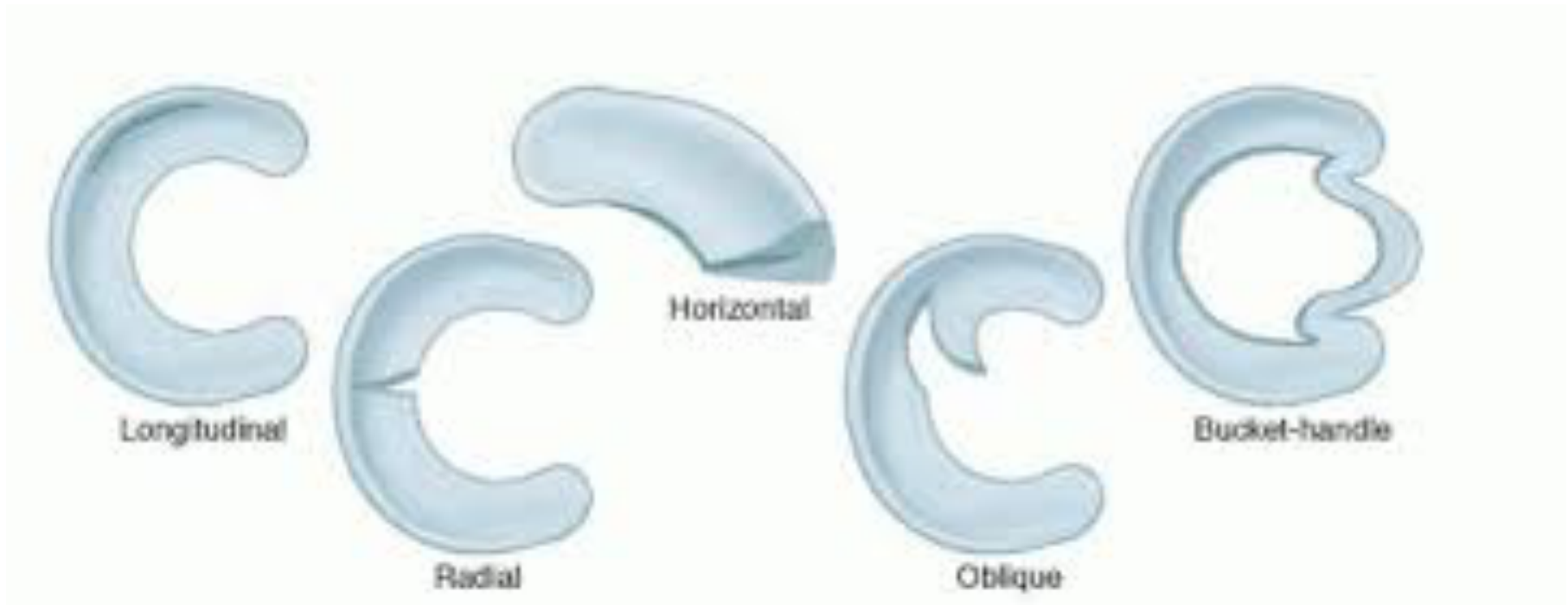
# Anatomy - Meniscus

- Medial (inner) and Lateral (outer)
- Function
  - Stability
  - Shock Absorption
  - Protect cartilage



Outer 1/3 has best blood supply

# Meniscus Tear Patterns



## Without surgery....

- Torn ligament **won't heal**
- Persistent **instability**
- **Poor** long term **function**
- **Increased** **meniscus tears**
- **Increased** **arthritis**
- **Decreased** **return to sport**
- Meniscus might become irreparable



# Main Goals for Surgery

## Restore Stability

Decrease meniscus tears

Decrease arthritis

Improve function

## Repair Meniscus

## Return to Sport



# ACL Reconstruction (Replacement)

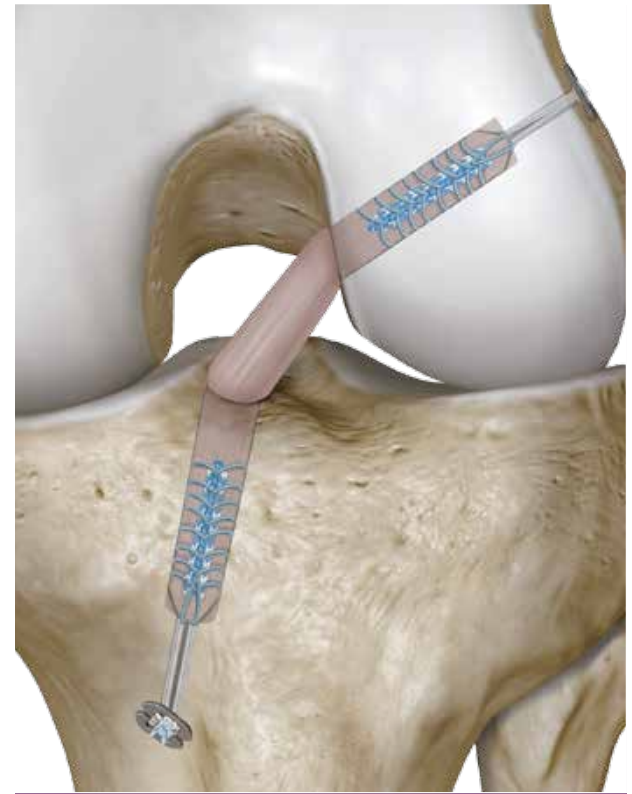
**Outpatient** surgery (go home same day)

**General anesthesia** (asleep the whole surgery and won't feel anything)

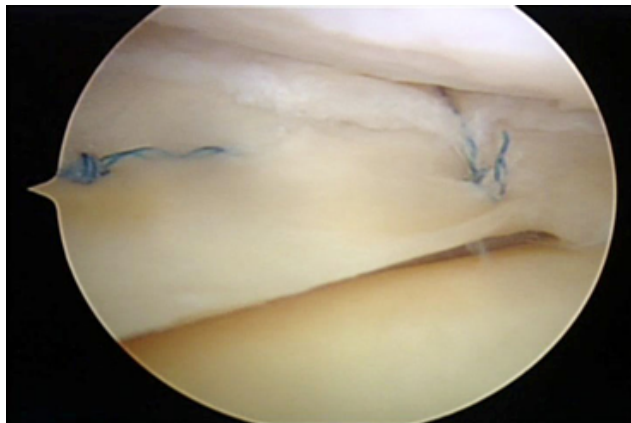
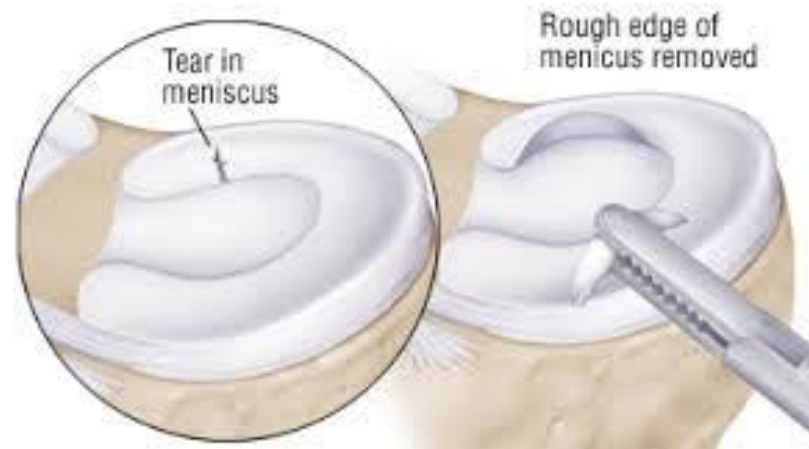
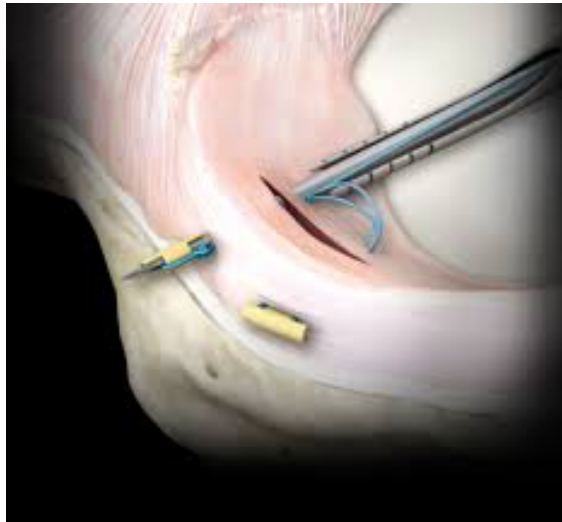
**Arthroscopic** surgery with small incisions

Torn ligament is removed and replaced with a tissue **graft**

- Many graft options (age dependent)
  - **Autograft** (patient's own tissue)
  - Allograft (cadaver)



# Meniscus Repair vs. Partial Meniscectomy (Trim)





# Complications and Considerations

**Anesthesia**

**Bleeding**

**Nerve injury**

**Infection (<1%)**

- Rare joint infection can require hospitalization, IV antibiotics, multiple surgeries, removal of the graft.

**Stiffness (<5%)**

**Growth disturbance (<2%)**

**Normal for knee to feel “not normal”, “loose”, “different”**

**Re-operation**

# Complications and Considerations\*

## Graft rupture (13%)

- 50% decrease for every month after 6 months
- 7x more likely to tear before 9 months
- Passing Return-to-sport test significantly reduces risk
- After 2 years, risk returns to normal

## Other side (*Contralateral*) ACL injury (14%)

- ? Due to compensation

## Meniscus Repair Failure (15%)

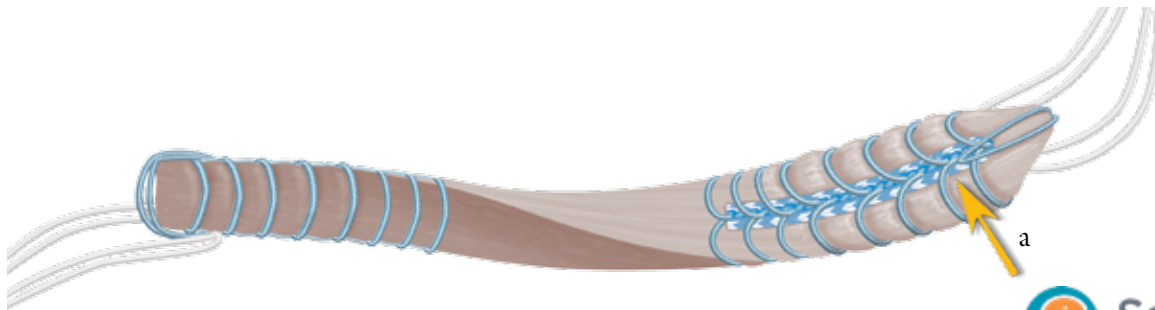
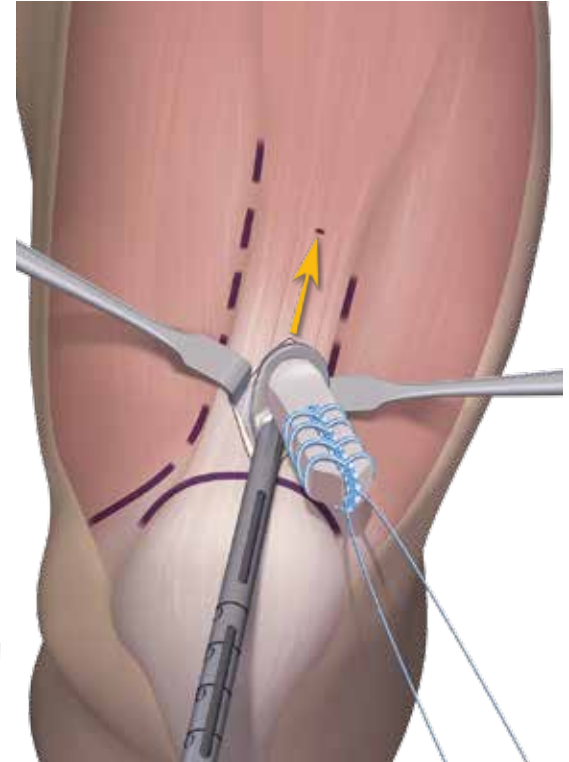
## Return to pre-injury level of sport (80%)

- Fear of re-injury is most common reason for not returning

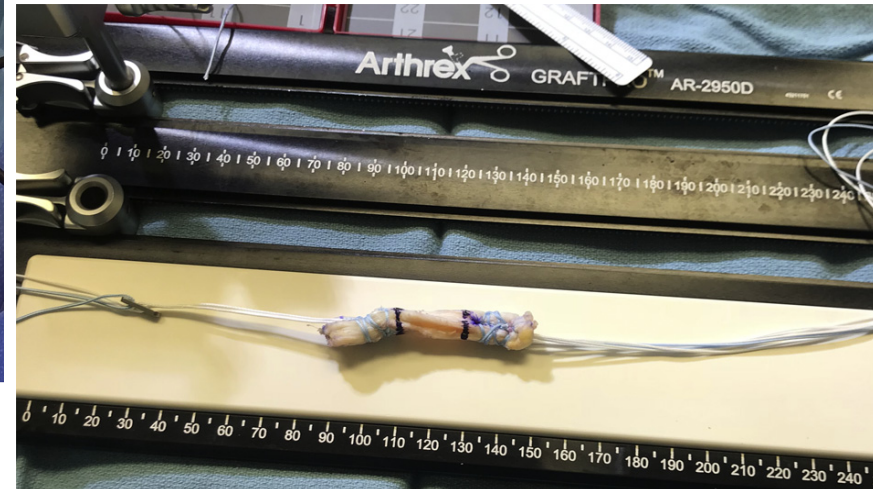
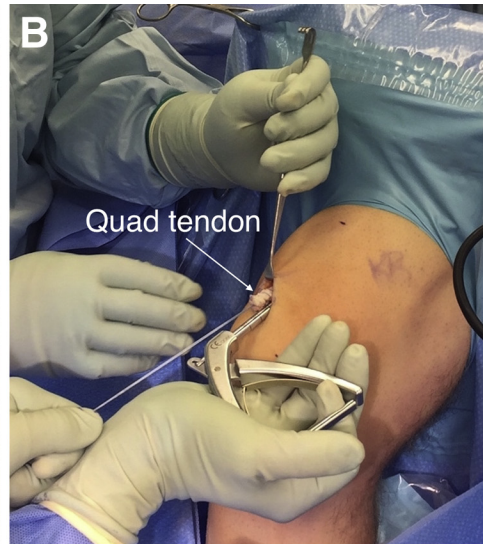
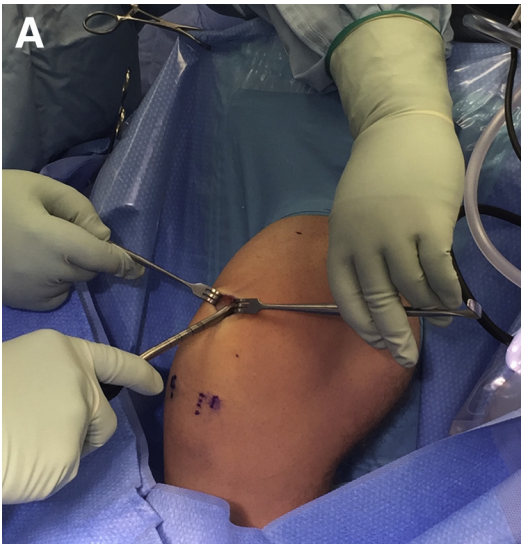
\* Averages in Adolescent Population

# My Preferred Graft- Quadriceps Tendon Autograft

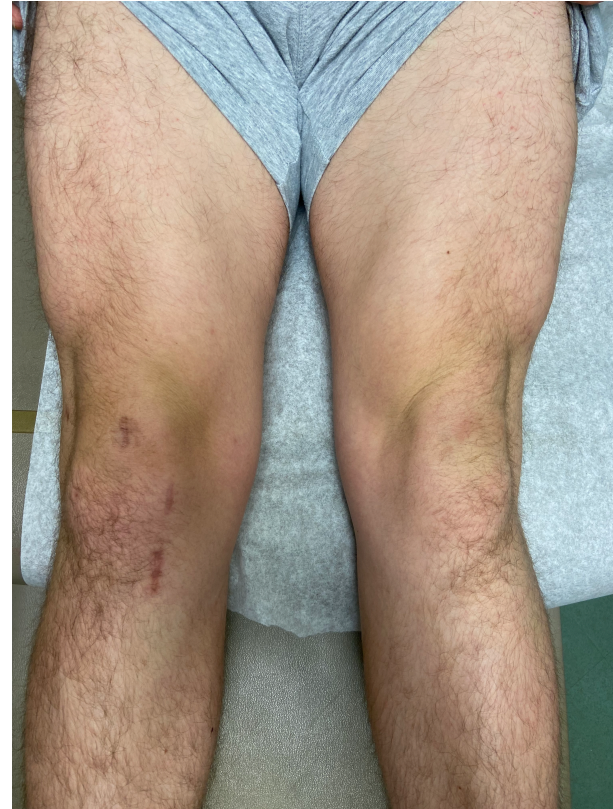
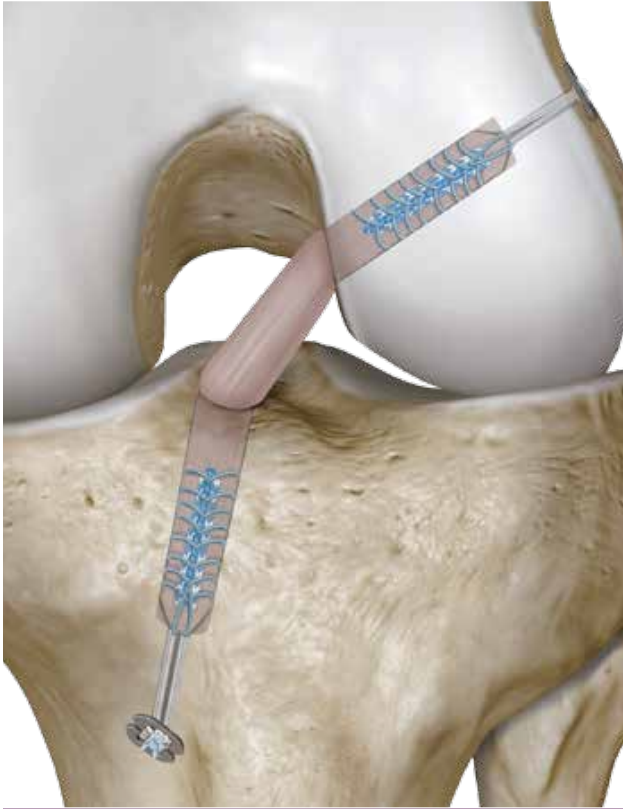
- Minimal acute postoperative pain
- Does NOT affect strength
- Similar stability, patient satisfaction, and patient-reported outcomes to other grafts
- Similar failure rates compared to Patellar Tendon grafts
  - More cosmetic, less pain, no fracture risk
- Lower failure rates compared to Hamstring grafts



# My Preferred Technique



# Quadriceps Tendon Autograft



# Rehabilitation and Return to Sports

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## Typically full weight-bearing right after surgery

- Can change depending on meniscus repair

## Physical therapy starts 3-4 days after surgery

## Knee brace for 2-6 weeks

## Running at 4 months

## Rehab Progress Assessment at 6 months

- Criteria to begin *return to sport phase* of rehab

## Return to sport test at **9 months (minimum)**

- Strict criteria for return to sport *clearance*
- **Decrease risk of re-tear and contralateral ACL injury**

# Expectations

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## Pre-op visit

## Physical therapy and home exercise program

## Post-op visits

- 2 weeks
- 6 weeks
- 12 weeks
- 6 months
- 9 months
- 1 year
- 2 years

## Over 100 primary quad tendon ACLRs since Oct 2017

Nerve injury, deep infection, growth disturbance (0%)

Inadequate graft harvest (1.7%)

Stiffness (1.7%)

Return to OR (stiffness) (1.7%)

**Graft rupture (5.2%)**

**Contralateral ACL injury (1.7%)**

Average time to clearance for Return to Sport (9.5 months)

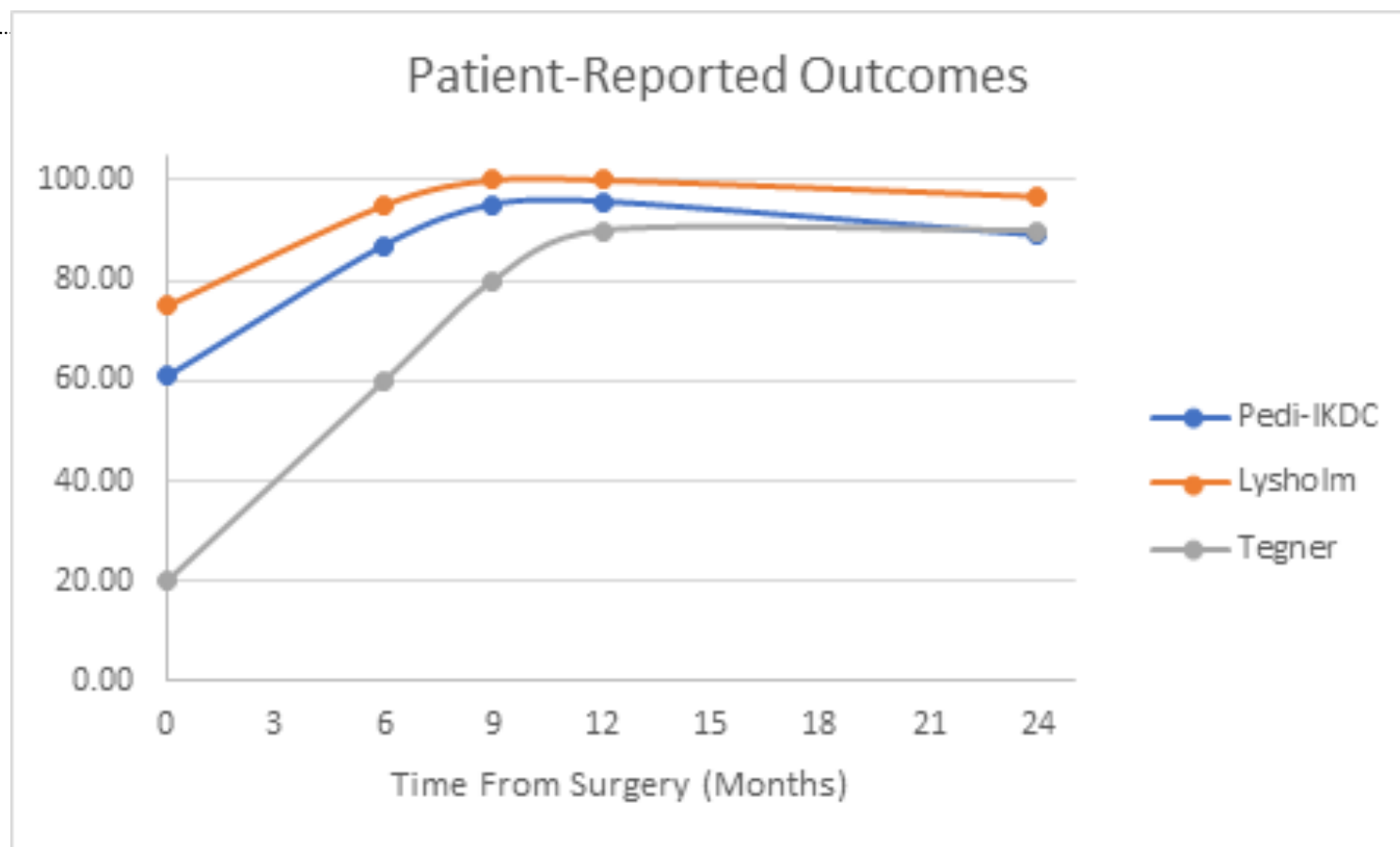
Pass 9-month Return to Sport test (75%)

Average pain score (1<sup>st</sup> 3 days after surgery) (2.6 out of 10)

Average daily narcotic dose (1<sup>st</sup> 3 days after surgery) (1.4 pills)



# Patient-reported outcomes



# Mental Health and Psychological Considerations

Recovery after surgery can be stressful and **emotionally challenging**

How you respond throughout the recovery process can impact your mood, adherence to rehab, and return to play/sport

**Common complaints** (these feelings are **normal**):

- Anxiety and/or Depression
- Frustration
- Fear of pain
- Social isolation
- Low motivation for rehab
- Don't want to return to sports

**Let us know how you're feeling throughout the recovery process.**

**We are here to help!**

# Conclusions

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**Goals = restore stability, return to sports, preserve meniscus (if possible)**

**Meniscus repair depends on type/location of tear and quality of tissue**

- Decision made at time of surgery

**Teens have**

- Higher risk of ACL graft rupture
- Higher risk of other side ACL tear

**Rehabilitation is key!!**

**Return to sport at 9-12 months**

# Thank you for your attention!



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