Hamstring Injury: When to Consider Surgical Treatment

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Johannes Tol
‘Typical hamstring injury’ or candidate for surgery?

Official: Ousmane Dembele out for four months and will undergo surgery
When to consider surgery?
Free tendon

Intramuscular tendon
Mechanism

- Typically forced hip flexion + knee extension
  - Alternatively: with hip abduction (sideways split)

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<th>P&lt;0.05</th>
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<td>Satisfaction (%)</td>
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<td>Strength (% of other leg)</td>
<td>85 (n=376)</td>
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Quality assessment indicated low methodological quality of included studies

Opinion based indications’ for surgery

Top 3 ‘decision modifiers’:

1. Extent of retraction
   Median 2 cm (IQR: 2-3 cm)

2. Function
   Inability to perform activities of daily life / participate in sports

3. Involved tendons
   Combined conjoint & semimembranosus tendon rupture

Expert opinion survey (accepted ISAKOS)
Ischial tuberosity

3. Vertical ridge
Divides upper region into:

4. Lateral facet
   → Semimembranosus (SM)

5. Medial facet
   → Biceps Femoris (BF)
   → Semitendinosus (ST)

Minimal retraction / ‘free’ sciatic nerve
Retraction / ‘trapped’ sciatic nerve
Identification & mobilisation of tendon stump(s)

- Release of adhesions to obtain adequate length
- Reapproximate in knee flexion
Preparation of ischial tuberosity

- Debridement of ischial tuberosity
- Drilling & suture anchor placement
Fixation of tendon stump(s)

- Sutures are secured thoroughly to the tendon stump(s)
- Tendon stump(s) are tightened to the ischial tuberosity
Fixation of tendon stump(s)

- Assessment of tension on repair
- Post-operative bracing/casting
Adolescent athlete
# Pelvic avulsion fractures

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- N=596. Mean follow-up: 12.4±11.7 months
- 90% treated nonoperatively

### Pelvic avulsion fractures

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<td>&gt;15mm displacement</td>
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<tr>
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<td>84%</td>
<td>50%</td>
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Intramuscular tendon injuries
Serious thigh muscle strains: beware the intramuscular tendon which plays an important role in difficult hamstring and quadriceps muscle strains.
Do these injuries require surgery?

Following a rehabilitation program only:

1. Is intramuscular tendon injury associated with delayed RTP?

2. Does intramuscular tendon injury confer an increased re-injury rate?
Intramuscular tendon disruption

Absent

<50% or 50-99%

100%
And with surgery?

- 8 athletes with intramuscular tendon injury
  - 2 acute, 6 recurrent

- Excision of scar tissue and suturing of ruptured tendon
  - Additional suture anchor used for very proximal lesions

- RTP: 2.5-4.5 months

When to consider surgery?

- **Acute injuries:**
  - Full-thickness free tendon avulsion/rupture (retracted 3-hamstring avulsions)
  - Displaced apophyseal avulsion/avulsion fracture

- **Chronic/recurrent injuries:**
  - Chronic full-thickness free tendon avulsion
  - Chronic avulsion fracture (i.e. non-union)
  - Persistent/recurrent intramuscular tendon injury (?)