Rehabilitation following patellar tendon repair

Christian Fink, Christian Hoser

Patella tendon rupture: 2 groups

• Athlete population
  - acute traumatic rupture
  - rupture following - glucocorticoid injection
  - anabolic steroids
  (>risk for re- rupture)

Patella tendon rupture: 2 groups

• Patients with systemic diseases (SLE, rheumatoid arthritis)
  - risk for re- rupture
  (augmented repair!)

Dilemma of rehabilitation

• Not loading – leads to scar tissues (less resistant to tensile forces predisposing to rerupture)
• Tendon lengthening – when repaired tendon is exposed to distraction forces during inflammatory phase

Unloading the repaired tendon

• Wire cerclage, Non resorbable suture (eg. FibreWire)
• Resorbable suture material (eg. PDS, Vicryl)
• Hamstring tendon (augmented repair)

• Prolonged reinforcement inhibits the healing process
• Loading to early - risk of failure or permanently lengthen the tendon
**4th post op week – remodelling phase**

(mechanical loading of the callus leads to elastic deformation which influences the healing process)

Production of type I collagen takes over (type III collagen is resorbed and cross-linking increases)


Vicryl loses 75% of tensile strength – advantage of resorbable cerclage??


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**Repair of fresh patellar tendon rupture:**

tension regulation at the suture line


Resorbable suture #2 Vicryl
Cast for 4 weeks in 15° flexion
(isometric quad exercises, full weightbearing)

2 weeks partial weightbearing, flexion exercises
Straight leg raises with weights

Full weightbearing at 6 weeks post op

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**Goal of surgery**

- Sufficient fixation allowing for early motion
  - passive ROM to 60° of knee flexion
  - gradually increased to 90°

Partial weightbearing for 4-6 weeks

Full weightbearing in extension

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**Patellar Tendon Ruptures in National Football League Players**

Martin Boublik, et al.

24 Players
All braced 4-12 weeks (av 7.4)

13 placed in full extension
4 0-30
1 0-45,
2 10-60
Motion increased 10-15° per week

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**Post op**

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**6 weeks post op**
6 months post op
Rehabilitation phase I (1-3 weeks)
- Soft tissue mobilization
- Cold application and electrotherapy

Rehabilitation phase II (4-6 weeks)
- Aquatics

Rehabilitation phase III (7-12 weeks)
- Single leg stabilization

Rehabilitation phase I
- Proprioceptive Training

Rehabilitation phase II
- Squats (>70°)

Rehabilitation phase III (7-12 weeks)
- Walking/jogging on treadmill and soft surface
Rehabilitation phase IV (13-16 weeks)

- Strength training

Rehabilitation phase IV

- Open and closed chain

Rehabilitation phase IV

- Sportspecific training

Summary

- Sufficient fixation allowing for early motion
  - passive ROM to 60° of knee flexion
  - gradually increased to 90°

Partial weightbearing for 4-6 weeks

Full weightbearing in extension

THANK YOU!