





**Surgical management of patellar tendinopathy**

**Nicola Maffulli**





## Traditional perspective

1. Patellar tendinopathy is self-limiting
2. It is inflammatory ('tendinitis')
3. Imaging can be used to guide management
4. Conservative Rx can be effective
5. A shot of corticosteroids does no harm
5. Surgical Rx ⇒ return to competition in 3/12

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 Rheumatology 2008; 1 of 2 doi:10.1093/rheumatology/ken011

Editorial  
**Conservative management for tendinopathy: is there enough scientific evidence?**

✦ **Maffulli, Longo 2008**



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Editorial  
**How do eccentric exercises work in tendinopathy?**

## Surgical management of patellar tendinopathy

✦ No protocols

<b>Proximal patellar tendinopathy</b>	
1.	Open patellar tenotomy + adjunct procedure (Blazina et al. 1973, Karlsson et al. 1991, 1992, Roels et al. 1978, Orava et al. 1996, Benfield & Maffulli 1997, Verheyden et al. 1997, Khan et al. 1999, Martens et al. 1992, Scriveren Jr & Fattar 1992, Cook et al. 1997, King et al. 1990, Colosimo & Bassett 1990)
2.	Arthroscopic patellar tenotomy (Zim & Coak 1997, Johnson 1998)
3.	Osteotomy inspection of the distal patellar pole (Blazina et al. 1973, Fritschy & Wallensten 1993, Fritschy & de Gaudard 1988, van der Endt & de Baere 1989)
4.	'Adjunct procedures' without tenotomy (Blazina et al. 1973, Ferratti et al. 1983, Smilie 1962)
5.	Ultrasound guided percutaneous longitudinal tenotomy (Tosta et al. 1999)
6.	Quadriceps bone-tendon grafts (Biedert et al. 1997)
<b>Mid-patellar tendinopathy</b>	
1.	Open patellar tenotomy (Maffulli et al. 1999)
2.	Open tenotomy, multiple drilling and tibial tuberosity transposition (Marians et al. 1978)
3.	Open tenotomy, resection of lateral abar ligament and reefing of medial abar ligament (Marians et al. 1978)
4.	Ultrasound guided percutaneous longitudinal tenotomy (Tosta et al. 1999)

## Surgical management of patellar tendinopathy



✦ **Aims:**

- 8 promote repair
- 8 return to pre-injury activity level

## Surgical management of tendinopathies

✦ **Classical orthopaedic operation:**

- 8 I do not know what it does
- 8 ... but I use a bigger scalpel with a heavier hammer!

**K** eep  
**I** t  
**S** imple for the  
**S** imple  
**O** rthopods

### Patellar tendinopathy surgery

1. Patient supine
2. Tourniquet to root of limb 250-300 mmHg
3. Mark area of pain
4. Direct midline incision over patellar tendon (normally, about 3-5 cm)
5. Expose the tendon
6. Excise the paratenon

### Patellar tendinopathy surgery

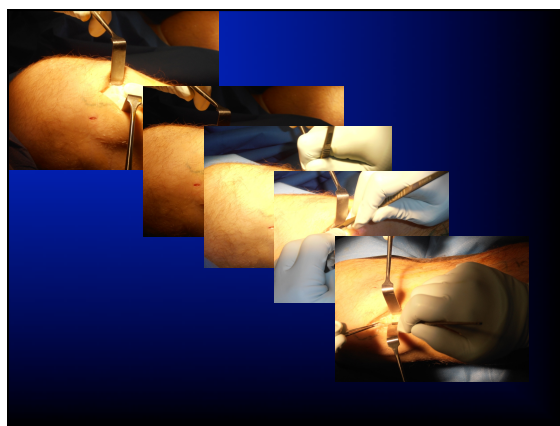
7. Separate the tendon from Hoffa's body
8. Longitudinal tenotomies (normally, three)
9. Palpate to indentify area of tendinopathy
10. Excise area of tendinopathy
11. Send for histology

### Patellar tendinopathy surgery

12. Leave lower pole of patella alone unless very prominent
13. Abundant washout
14. Accurate haemostasis
15. Close subcutaneous fat and skin
16. Bandage
17. Immediate weight bearing
19. Discharge

### Patellar tendinopathy surgery

**Pray!**





**DO NOT ASK FOR PLASTICS OPINION**

**ULTRASOUND-GUIDED PERCUTANEOUS LONGITUDINAL TENOTOMY**

Testa et al, MSSE 1999

**Arthroscopic Management of Chronic Patellar Tendinopathy**

The American Journal of Sports Medicine, Vol. 28, No. 9  
DOI: 10.1177/036354650002800907

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**TABLE 2**  
Average Outcome Scores Before Surgery and at Follow-up at 1, 3, 5, and 10 Years\*

Time From Surgery, y	No. of Cases	Average IKDC Score	Average Lysholm Score	Average VISA-P Score	Average VISA-P Score for Professional Athletes
Preoperation	73	51.6	52.3	35.3	32.4
1	73	86.4	84.7	68.5	71.3
3	73	86.4	85.5	70.7	70.5
5	42	85.7	82.9	70.1	
10	29	84.2	82.3	68.4	

**Open and arthroscopic patellar tenotomy**

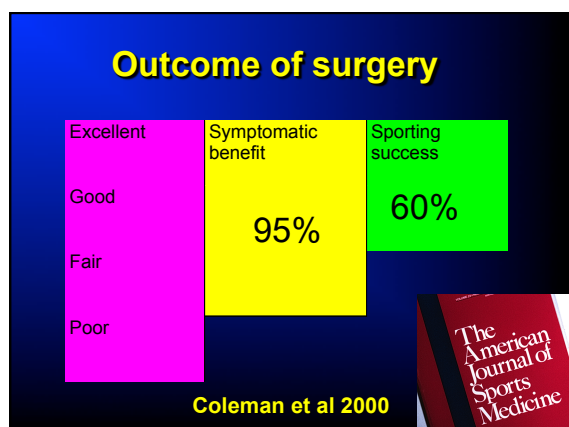
- Four year follow up
- Retrospective study
- Open procedure: 25 patients (29 tendons)
- Arthroscopic procedure: 23 patients (25 tendons)
- Two surgeons
- One performed open surgery
- One performed arthroscopic surgery

Coleman et al AJSM, 2000

**Open and arthroscopic patellar tenotomy**

- Symptomatic benefit: 81% (O) and 96% (A)
- Sporting success: 54% (O) and 46% (A)
- Median time to return to preinjury level of activity: 10/12 (O) and 6/12 (A)
- Median VISA: 88 (O) and 77 (A)
- No difference in outcome between types of surgery

Coleman et al AJSM, 2000



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CONTRIBUTOR TO INTERNATIONAL JOURNAL OF SPORTS MEDICINE & SCIENCE IN SPORTS

Review article  
Studies of surgical outcome after patellar tendinopathy: clinical significance of methodological deficiencies and guidelines for future studies

R. D. Coleman<sup>1,2</sup>, K. M. Khan<sup>2,3</sup>, N. Maffulli<sup>3</sup>, J. L. Cook<sup>4</sup>, J. D. Wark<sup>1</sup>  
for the Victorian Institute of Sport Tendon Study Group

### Manage expectations

1. RTS long
2. Realistic rate of recovery (70% to 85%)

### Difficult to compare surgeries

- ✦ Subtle technical aspects of surgery, or of rehabilitation protocol may significantly change outcome
- ✦ Opening, closing of patellar defect
- ✦ Excision, retention of paratenon
- ✦ Time reduced activities after surgery
- ✦ Rehabilitation protocol
- ✦ Andrea Ferretti; Jon Karlsson; John King; Nicola Maffulli: good stable results

### Manage expectations

- ✦ Average true recovery time after patellar tendinopathy surgery:
  - 9 months**
- ✦ Accelerated rehabilitation (Shelbourne et al 2006) :
  - 8.1 months**

- ✦ Most common cause of failure following surgery

**(Attempt at) Too early return to sports**

### Patellar tendinopathy surgery

- ✦ Eccentric exercise vs surgery
  - RCT
    - ✦ 40 knees
  - No difference between groups
    - ✦ VISA 30-50 (3 months), 58 (6 months), 70 (12 months)
    - ✦ Surgery 5-12-2-1 (no symp, improved, no change, worse)
    - ✦ Eccentric 7-8-5
      - Bahr et al JBJS Am 2006

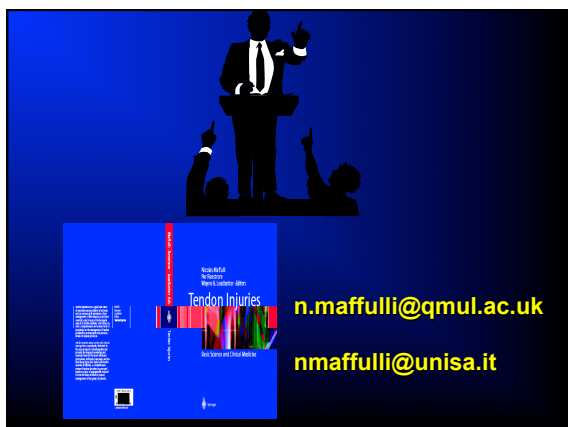
Limited indication to refer  
patellar tendinopathy patients  
for early surgery

If  
you  
wish  
to  
know  
more ...



The image shows the EFOST logo on the left, which includes a stylized figure of a person jumping over a bar. To the right are two posters. The first poster is titled "metabolic diseases and tendinopathies: the missing link" and lists various topics and speakers. The second poster is for the "2nd EFOST EFOSMUI SUMMER COURSE" held from August 25-30, 2014, in a scenic location.

Thank you  
Thank you



The image features silhouettes of a speaker at a podium and an audience. Below this is a book cover titled "Tendon Injuries" by Nicola Maffulli. To the right of the book cover are two email addresses: [n.maffulli@qmul.ac.uk](mailto:n.maffulli@qmul.ac.uk) and [nmaffulli@unisa.it](mailto:nmaffulli@unisa.it).