

# SportsMedUpdate

## QUADRICEPS WEAKNESS AND ITS RELATIONSHIP TO TIBIOFEMORAL AND PATELLOFEMORAL KNEE OSTEOARTHRITIS IN CHINESE

Baker KR, Xu L, Zhang Y, et al. *Arthritis & Rheumatism* 2004;50:1815–21

### Background:

Muscle weakness has been associated with tibiofemoral knee osteoarthritis (OA) and may cause OA due to reduced shock absorption during impulse loading at heel strike, when the patellofemoral joint is not engaged.

### Research question/s:

Is muscle weakness associated with compartment-specific knee OA, are there gender differences, and are symptoms associated with weakness?

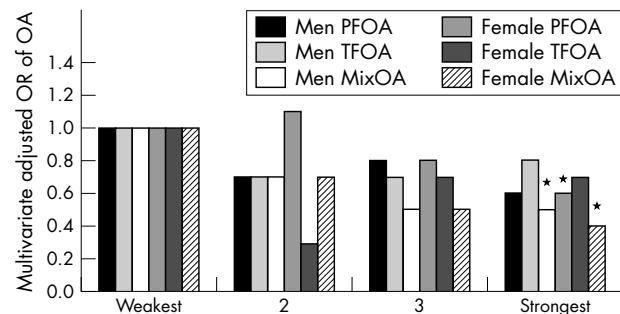
### Methodology:

**Subjects:** 2472 subjects (female = 1475, male = 997) (>60 yrs).

**Experimental procedure:** All subjects underwent radiography to defined subjects with (1) tibiofemoral (TF) OA when the Kellgren/Lawrence (K/L) grade >2 on AP/PA view; (2) patellofemoral (PF) OA (skyline view with osteophyte score >2 or when the JSN score was >2 and the osteophyte score was >1); and (3) mixed (MX) OA when the knee had both patellofemoral and tibiofemoral radiographic OA. Muscle strength was measured isometrically for each leg separately, and knee pain was evaluated.

**Measures of outcome:** Weakness related to presence of OA.

### Main finding/s:



- Females: Quadriceps weakness was associated with tibiofemoral OA and mixed OA (OR 0.4, 95% CI 0.3 to 0.6)
- Males: Quadriceps weakness was associated with mixed OA (isolated tibiofemoral disease was not associated with weakness but sample size in this group was small)
- Once subjects with knee symptoms were excluded, the relationship of quadriceps weakness of OA was attenuated, with only the relationship between muscle weakness and mixed OA remaining significant

### Conclusion/s:

Quadriceps muscle weakness is associated with knee OA in all compartments, with the strongest association in mixed (patellofemoral and tibiofemoral) disease, and pain contributes to the weakness.

**Evidence based rating:** 7/10 **Clinical interest rating:** 8/10

**Type of study:** Cross-sectional study

**Methodological considerations:** No cause-effect can be established

**Keyword:** Knee osteoarthritis, patellofemoral, tibiofemoral, quadriceps, muscle weakness

## CLINICAL EXAMINATION OF ATHLETES WITH GROIN PAIN: AN INTRA-OBSERVER AND INTER-OBSERVER RELIABILITY STUDY

Holmich P, Holmich LR, Bjerg AM. *Br J Sports Med* 2004;38:446–51

### Background:

Clinical examination techniques that are used to diagnose and evaluate the degree of groin pain in athletes have not been well evaluated.

### Research question/s:

What is the intraobserver and interobserver reliability of clinical examination techniques that are used for groin pain in athletes?

### Methodology:

**Subjects:** 18 athletes (9 with sports related groin pain, 9 without groin pain).  
**Experimental procedure:** Two doctors and two physiotherapists (blinded to the symptoms and identity of the subjects, and trained in the examination techniques before the study) examined all the subjects twice and in random order. Thirteen examinations were done: (1) adductor functional pain (AFP); (2) adductor palpation pain (APP); (3) adductor stretching pain (ASP); (4) symphysis palpation pain (SPP); (5) rectus abdominis palpation pain (RAPP); (6) abdominal functional pain (ABFP); (7) abdominal oblique functional pain (AOFPP); (8) psoas palpation pain (PPP); (9) psoas functional pain (PFP); (10) psoas stretching pain (PSP); (11) adductor strength (AS); (12) abdominal strength (ABS); (13) psoas strength (PS); (14) psoas flexibility (PF).

**Measures of outcome:** Kappa statistic (Agreement – moderate (0.41–0.60), good (0.61–0.80), very good (0.81–1.0), and percentage of agreement (%)) were used to determine intraobserver and interobserver reliability for tests.

### Main finding/s:

Intra-observer agreement (%) and kappa values for clinical tests

	AFP	APP	ASP	SPP	RAPP	ABFP	AOFPP
Kappa	0.91	0.89	0.67	0.84	0.81	0.63	0.51
%	96.5	95.1	93.8	93.1	92.4	93.1	91.0
	PPP	PFP	PSP	AS	ABS	PS	PF
Kappa	0.84	0.32	0.81	0.65	–.03	0.61	0.74
%	93.8	90.3	95.8	93.1	94.4	85.4	92.4

Inter-observer agreement (%) and kappa values for clinical tests

	AFP	APP	ASP	SPP	RAPP	ABFP	AOFPP
Kappa	0.92	0.94	0.74	0.70	0.83	0.57	0.41
%	95.7	96.8	95.9	86.1	93.8	90.3	87.0
	PPP	PFP	PSP	AS	ABS	PS	PF
Kappa	0.81	0.64	0.85	0.19	0.05	0.04	0.23
%	90.8	94.9	97.5	83.1	92.6	49.4	86.4

- The Kappa values for the intra-observer agreement were above 0.60 (good or very good) in 11/14 tests, and those for the inter-observer agreement of the pain tests were above 0.60 in 8/10 tests
- The strength test for iliopsoas muscle did not have an acceptable inter-observer reliability

### Conclusion/s:

• In general, the common clinical tests that are used to assess athletes with groin pain have good or very good intra-observer and inter-observer agreement.

**Evidence based rating:** 7.5/10 **Clinical interest rating:** 7.5/10

**Type of study:** Reliability of diagnostic tests

**Methodological considerations:** Well-conducted study

**Keyword:** Groin, injury, diagnosis, clinical tests, reliability

## A COMPARISON OF OPEN AND PERCUTANEOUS TECHNIQUES IN THE SURGICAL TREATMENT OF TENNIS ELBOW

Dunkow PD, Jatti M, Muddu BN. *J Bone Joint Surg* 2004;**86**:701–4

### Background:

Surgical treatment of lateral epicondylopathy known as “tennis elbow”; includes an open technique or a percutaneous division of the common extensor origin.

### Research question/s:

Does the percutaneous or the open technique of surgical treatment for lateral epicondylopathy (“tennis elbow”) result in greater improvements after 1 year?

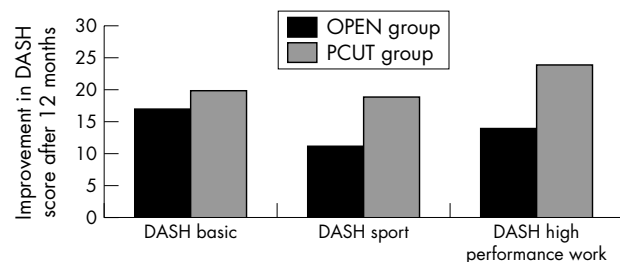
### Methodology:

**Subjects:** 45 patients (47 elbows) with “tennis elbow.”

**Experimental procedure:** All subjects had previously undergone non-operative treatment for 12 months (corticosteroid injections and modification of activity). Subjects were randomised and then underwent either a formal open release (OPEN group=24) or a percutaneous (PCUT group=23) tenotomy. All patients had pre and post-operative assessment using the disability of arm, shoulder and hand (DASH) scoring system (basic score, sport score, high performance work score), and were followed up for a minimum of 12 months.

**Measures of outcome:** DASH scores, patient satisfaction, time to return to work.

### Main finding/s:



There was a significantly greater patient satisfaction ( $p=0.012$ ), and median time to return to work (OPEN=5 wks, PCUT=2 wks) in the PCUT group.

### Conclusion/s:

- Patients with lateral epicondylopathy (“tennis elbow”) undergoing a percutaneous release returned to work on average three weeks earlier and improved significantly more quickly than those undergoing an open surgical procedure
- The percutaneous procedure is also a quicker and simpler procedure to undertake

**Evidence based rating:** 7.5/10 **Clinical interest rating:** 8/10

**Type of study:** Prospective, randomised, controlled trial

**Methodological considerations:** Well-conducted study

**Keyword:** Tennis elbow, surgery, randomised trial, lateral epicondylopathy

## LONG TERM FUNCTIONAL AND ANATOMICAL FOLLOW-UP OF EARLY DETECTED SPONDYLOLYSIS IN YOUNG ATHLETES

Miller SF, Congeni J, Swanson K. *Am J Sports Med* 2004;**32**:928–32

### Background:

The functional outcome and bony union of early spondylolysis (detected by nuclear scintigraphy but not by plain radiographs) is not known.

### Research question/s:

Do spondylolytic defects with a greater degree of healing shortly after treatment proceed to full bony union and better long-term functional outcome?

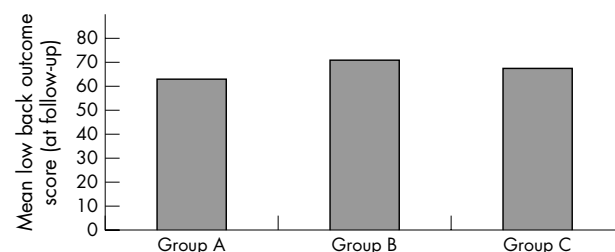
### Methodology:

**Subjects:** 40 young athletes (aged 7 to 11 years) with early detected spondylolysis (radiograph negative, nuclear scintigraphy positive) and underwent a CT scan 8–12 wks after diagnosis.

**Experimental procedure:** Subjects all underwent bracing and rehabilitation (for 8–12 weeks) until returning to sport activities. Subjects were divided into three stages of healing by computed tomography scan (A=no evidence of healing, B=in process of healing, and C=incomplete pars defects). Functional outcome was assessed 7 to 11 years later using the low back outcome score and other factors. Degree of bony healing was assessed in volunteers.

**Measures of outcome:** Low back outcome score (LBOS).

### Main finding/s:



- 80% of the subjects (80%) completed the survey, and 91% had good or excellent low back outcome scores
- None of the seven bilateral defects healed, and three of these progressed to grade 1 spondylolisthesis
- All four unilateral defects healed fully with bone

### Conclusion/s:

Young athletes with early spondylolysis that are treated conservatively (bracing and rehabilitation) maintain good functional outcome up to 11 years later, but those with bilateral defects may undergo further degeneration and slip with time.

**Evidence based rating:** 6/10 **Clinical interest rating:** 7/10

**Type of study:** Case series

**Methodological considerations:** Case series, no control group, small sample size

**Keyword:** Low back pain, spondylolysis, adolescents, functional outcome, computed tomography (CT) scan