Patellofemoral Pain

Pain & psychological impairments

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Patellofemoral Pain

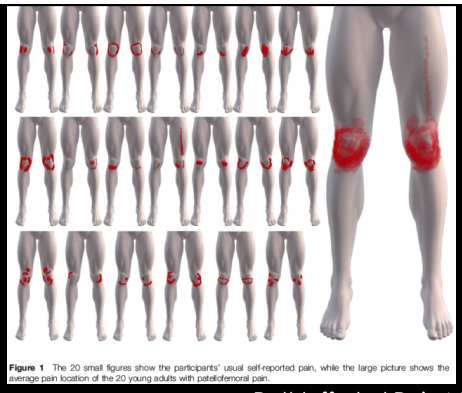


Figure 1 The 20 small figures show the participants' usual self-reported pain, while the large picture shows the average pain location of the 20 young adults with patellofemoral pain.

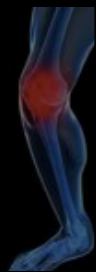
Rathleff et al Pain Med 2015

Patellofemoral Pain

Local:
- local/peripheral sensitization

Central:
- mechanisms / sensitzation

Referral:



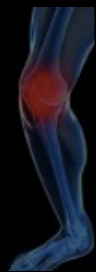
Patellofemoral Pain

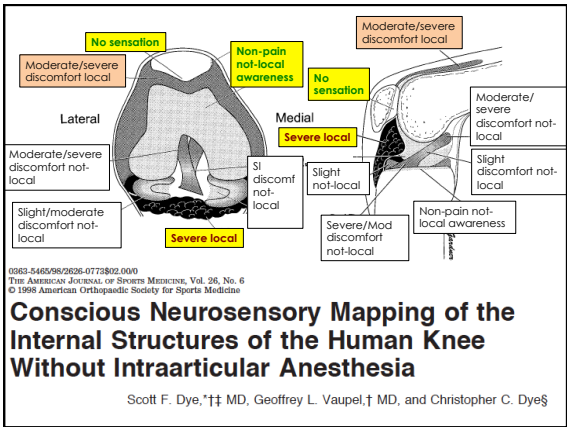
Local:
- local/peripheral sensitization

Central:
- mechanisms / sensitzation

Referral:

Local/peripheral sensitization





Local/peripheral sensitization

Mechanical hyperalgesia:

Mechanical algometry

Rathleff MS et al (2013)

Local/peripheral sensitization

Mechanical hyperalgesia:

Local PPT lower (Rathleff et al 2015, Pazzinatto et al 2016, Noehren et al 2016)

Local/peripheral sensitization

Mechanical hyperalgesia:

Local PPT lower (Rathleff et al 2015, Pazzinatto et al 2016, Noehren et al 2016)

Local PPT not different (Rathleff et al In prep)

Local/peripheral sensitization

Mechanical hyperalgesia:

Local PPT lower: Only females & young ~20yrs (Rathleff et al 2015, Pazzinatto et al 2016, Noehren et al 2016)

Local PPT not different: Males & females (23/33; 70%) & ~28yrs (Rathleff et al In prep)

Local/peripheral sensitization

Mechanical hyperalgesia:

Local PPT reduces with loading (1.35 body mass): (Pazzinatto et al 2016)

Local PPT and Pain ratings associated with frontal plane knee angle on step down task (r=0.5 to 0.7) (Noehren et al 2016)

Local/peripheral sensitization

Patellofemoral Pain

Local:
local/peripheral sensitization

Central:
mechanisms / sensitzation

Referral:

Central mechanisms/sensitization

Mechanical hyperalgesia:

Remote PPT lower: (Pazzinatto et al 2016, Noehren et al 2016)

Remote PPT not different: (Rathleff et al, 2015 & In prep)

Central mechanisms/sensitization

Dynamic QST:

Conditioned Pain Modulation:
(Rathleff et al 2015 but not in Rathleff et al In prep.)

Central mechanisms/sensitization

Conditioned Pain Modulation*:

(Rathleff et al 2015 <19-21yr old females, 72 month duration, 7/10 pain NRS>

but not in Rathleff et al In prep. <28yr old, females (70%/33), 24 month duration, 5/10 pain NRS>)

* different CPM paradigms used

Central mechanisms/sensitization

Dynamic QST:

Conditioned Pain Modulation:
(Rathleff et al 2015 but not in Rathleff et al In prep.)

No temporal summation: (Rathleff et al 2015)

Central mechanisms/sensitization

Sensory detection:

Light touch detection threshold elevated (Jensen 2007, Noehren et al 2016)

Central mechanisms/sensitization

Sensory detection:

Light touch detection threshold elevated (Jensen 2007, Noehren et al 2016)

Light touch & warmth* detection threshold elevated bilaterally
(Jensen 2007)

**cold unilaterally*

Central mechanisms/sensitization

Exclusion of other pains:
- *Rathleff et al (2015 & in prep); & unlcear but probably in Pozzinatto et al (2016)*

Not exclude other pains:
- *Jensen et al 2007; & Noehren et al 2016*

Central mechanisms/sensitization

Cold hyperalgesia:

Not present in Jensen et al (2007) cohort (but remember they had detection issues!)

Central mechanisms/sensitization

Cold hyperalgesia:

Not present in Jensen et al (2007) cohort (but remember they had detection issues!)

Cold knees:

Self et al...

Selfe J, Harper L, Pedersen I, Breen-Turner J, Waring J, Stevens D. Cold legs: a potential indicator of negative outcome in the rehabilitation of patients with patellofemoral pain syndrome. Knee. 2003 10(2):139–43.

'Do your legs feel cold even in warm surroundings?'
14/77 (18%) of PFP patients referred to a UK hospital:

- Reported higher pain levels and less tolerance to physical activity
- Less improvement to a standardized rehabilitation program

Selfe J, Sutton C, Hardaker NJ, Greenhalgh S, Karki A, Dey P. Anterior knee pain and cold knees: a possible association in women. Knee. 2010 17(5):319–23.

Sample*, Questions#	Cold (14)	Not Cold (25)	= -1.2^ (-2, -0.4)°C
Cold weather affects your knee	11/12 (92%)	3/10 (30%)	P 0.006
Prefer ice pack rather than hot water bottle	0/9 (0%)	5/8 (63%)	P 0.009

** Female only as male number too small for this analysis(N=58, M=19)*
 # no differences for: Do you get night pain? & Do you wear extra tight/long johns in winter? Not all participants asked all questions.
^ baseline without correction for ambient temperature

Cold knees/sensitivity:

Useful clinically & in research for identifying those who might be more severely afflicted & difficult to manage?

Patellofemoral Pain

Local:
local/peripheral sensitization

Central:
mechanisms / sensitzation

Referral: *…later*

Patellofemoral Pain

Psychosocial:

mental health, cognitive, behavioural & other factors

Liam Maclachlan

Non-physical features of patellofemoral pain: a systematic review

Study 1: systematic review

INTRODUCTION | METHODS | RESULTS | DISCUSSION

PAIN | **PSYCHOLOGICAL FACTORS** | DISABILITY

LIMIT IMPROVEMENT WITH REHABILITATION

SIGNIFICANT BARRIERS TO RECOVERY

Study 1: systematic review

INTRODUCTION | METHODS | RESULTS | DISCUSSION

SEARCH STRATEGY
- **Patellofemoral pain**

OR
- **Patellofemoral pain syndrome**

OR
- **Anterior knee pain**

OR
- **Chondromalacia patellae**

ELIGIBILITY CRITERIA

Inclusion
- **Patellofemoral pain**
- **Patient-reported psych measure**

Exclusion
- **Case-studies**
- **Abstracts**
- **Non-published**
- **Non-primary**

DATA EXTRACTION
- **Patient characteristics**
- **PFP characteristics**
- **Psychological results**

QUALITY APPRAISAL
- **2 independent reviewers**
- **Epidemiological Appraisal Instrument**

Study 1: systematic review

INTRODUCTION | METHODS | RESULTS | DISCUSSION

STUDY SELECTION
10617 > 6772 title &abs > 54 full text >
25 ELIGIBLE & INCLUDED

Study 1: systematic review

INTRODUCTION | METHODS | RESULTS | DISCUSSION

PARTICIPANT CHARACTERISTICS

PFP: 1357 (891 female: 66%),age range 14.1 to 46.6
Sourced from clinical sites, athletics clubs, exercise programs and population-based cohorts

HEALTHY CONTROLS: 349 (168 female: 48%).
Matched to corresponding PFP groups
Sourced from student cohorts and local community

Study 1: systematic review

INTRODUCTION | METHODS | RESULTS | DISCUSSION

PFP CHARACTERISTICS

DIAGNOSIS
Criteria and diagnosing health professional = 14
Criteria only = 5
Health professional only = 6

PAIN
Duration: 1 month to 8 yrs
Severity: mild to severe
Measures: VAS, NPRS, WOMAC, KOOS

PHYSICAL FUNCTION
Kujala patellofemoral score
Lysholm knee scale
ADLS-KOS
MFIQ
KOOS

Study 1: systematic review

INTRODUCTION | METHODS | RESULTS | DISCUSSION

PSYCHOLOGICAL FACTORS

18 DIFFERENT MEASURES
CONSTRUCT GROUPINGS:
Mental health, cognitive, behavioural, other factors

5 x studies with pain-free comparators

9 x studies exploring the relationships

Non-physical features of patellofemoral pain: a systematic review.

Liam Maclachlan

General mental health and cognitive differences between those with and without PFP

A range of psychological factors are associated with PFP and physical function

Results from a limited number of studies with small samples

Take home message…

Heterogeneity

Some will have central sensitization and psychosocial factors (might influence outcome)

Some indicators might be:

- widespread pain
- young female
- chronic PFP
- catastrophization
- poor mental health
- stress

The University Of Queensland

SIRPH Sports Injury Rehabilitation & Prevention for Health research unit

ccre spine centre of clinical research excellence

Australian Government National Health and Medical Research Council

Thank you

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