Web-based multimedia education for people with patellofemoral pain: preliminary analysis of a randomised controlled trial

Danilo de Oliveira Silva, Marcella Pazzinatto, Kay Crossley, Fábio Azevedo and Christian Barton
Clinicians reported that education is the most important component of effective patellofemoral pain management.
For clinicians, education is considered as the most important component of effective PFP management.

Where is the evidence for education in PFP?
Changes in education targets are reported to be associated with changes in pain and function after treatments.
There is a need to develop and improve education resources for PFP

Need to find the best way to deliver education for patients with PFP

Aim: Investigate the effect of a comprehensive web-based multimedia resource to facilitate self-management of people with PFP
Participants Screening*

Recruitment:
- Social media
- University

Baseline assessment
N = 32

Follow-up assessment (6-weeks)
N = 32

6-weeks of self-directed online education

Phases:
- **Phase 2**

   - Completely-recovered
   - Not Completely-recovered

   - Completely-recovered
     - Physiotherapist-delivered Exercise
       - 12 weeks – 8 sessions

   - Not Completely-recovered
     - Physiotherapist-delivered Education (skype)
       - 12 weeks – 8 sessions

Follow-up assessment (18-weeks)

*Crossley et al. BJSM 2016
Outcomes

- Worst knee pain last week – (0 – 100 mm VAS)
- Self-reported function (Anterior Knee Pain Scale)
- Kinesiophobia – (TAMPA scale)
- Pain catastrophism – (PCS)
- Quality of life – (KOOS -QoL subscale)
This information portal is here to help you manage your knee cap pain, and has been developed with input from patients and researchers from La Trobe University’s Sport and Exercise Medicine Research Centre, and Sao Paulo State University (UNESP).

The information is not intended to replace consultation with a physiotherapist or doctor.
Manage my knee

This information portal is being developed to help manage your knee cap pain, and has been developed with input from patients and the La Trobe University’s Sport and Exercise Medicine Research Centre.

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Diagnosis

Why does it hurt?
How much pain is Ok?
How common is knee cap pain?
When will my pain stop?
Fear of movement
Knee crepitus
Manage your exercise load to manage your pain
Are you a runner?
5 TIPS TO REDUCE KNEE CAP PAIN DURING RUNNING

It is recommended that you keep your knee cap pain at or below 20% during exercises.

How do you do this during running? We have 5 tips for you!

1. INCREASE TRAINING FREQUENCY TO DECREASE EACH SESSION'S DURATION.
   - For example: 5 times a week.
   - Decrease your running speed by approximately 10-20%.

2. TRY USING A RUN-WALK PROGRAM.
   - For example: 1 minute of running, 1 minute of walking.

3. AVOID STAIRS AND DOWNHILL RUNNING.
   - For example: Use an elevator instead of stairs.

4. TRY INCREASING THE NUMBER OF STEPS YOU TAKE PER MINUTE, WITHOUT RUNNING FASTER.
   - For example: 30% more steps per minute.

5. TRY INCREASING THE NUMBER OF STEPS YOU TAKE PER MINUTE, WITHOUT RUNNING FASTER.
   - Decrease your speed by 30% to keep your natural pace.

One leg squats:

Instructions:
- Try and keep knee in line with your feet.
- Don't drop or rotate hips.
- Try and keep trunk/upper straight without leaning or bending.
- Keep even pressure on foot without lifting up heels or toes.
- Complete for both left and right leg.

Phase 3

Free squats

Combining hip and knee strength exercises is more effective than knee exercises alone.

MULTIMEDIA RESOURCES
## Characteristics of the participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (men/women)</td>
<td>6/26</td>
</tr>
<tr>
<td>Age (years)</td>
<td>31.50 (5.56)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>26.21 (7.21)</td>
</tr>
<tr>
<td>Symptoms duration (months)</td>
<td>37.63 (42.13)</td>
</tr>
</tbody>
</table>
Global scale of perceived recovery

- Completely-recovered: 5
- Markedly better: 8
- Moderately better: 14
- Same: 4
- Moderately worse: 1
- Markedly worse: 0
### Patient reported outcome measures

<table>
<thead>
<tr>
<th>Self-reported outcomes</th>
<th>Baseline</th>
<th>Follow up – 6-weeks</th>
<th>Mean difference (95% CI)</th>
<th>ES</th>
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<tbody>
<tr>
<td><strong>Worst knee pain (last week)</strong></td>
<td>57.66 (17.69)</td>
<td>30.63 (25.04)</td>
<td>27.03 (17.41; 36.66)*</td>
<td>1.24</td>
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<tr>
<td><strong>KOOS-QoL</strong></td>
<td>41.02 (19.37)</td>
<td>64.45 (20.60)</td>
<td>-23.44 (-31.29; -15.59)*</td>
<td>1.17</td>
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<td><strong>Anterior Knee Pain Scale (AKPS)</strong></td>
<td>69.22 (13.55)</td>
<td>81.06 (13.53)</td>
<td>-11.84 (-17.18; -6.51)*</td>
<td>0.87</td>
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<td><strong>Pain catastrophizing Scale (PCS)</strong></td>
<td>22.47 (11.33)</td>
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<td>1.15</td>
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<td><strong>Tampa Scale for Kinesiophobia (TSK)</strong></td>
<td>38.63 (6.20)</td>
<td>33.41 (6.64)</td>
<td>5.22 (2.66; 7.78)*</td>
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Clinically important improvement in all PROMs
## Patient reported outcome measures

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*Large to very large effect sizes*
What does it mean?

→ Web-based education is potentially powerful, but need to be tested in high-quality RCTs

→ Identify specific patient-profiles most likely to benefit + those that are not

→ Further develop and optimise patient education for PFP based on research findings and consumer feedback
Take Home Message

→ A comprehensive web-based multimedia information portal may greatly improve access to appropriate and effective education and self-management strategies for people with PFP
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