

**Supplementary file 3** Framework Analysis resulting from expert feedback, and changes in response or concerns regarding suggested changes

Thank you to all participants for some very valuable feedback on the leaflet. We greatly appreciate all the time and thoughtful suggestions related to the creation of this valuable education resource. Below is a tabulation of feedback in the form of themes on various suggestions for change related to the leaflet. All feedback from participants is in black whilst changes we have made or comments related to suggestions from us is in red.

**Theme:** General format

Sub-theme	Feedback suggesting change	Feedback negating change
To reduce information or not	<p>Needs to be streamlined a bit and better organized. (8)</p> <p>In my experience, patients are more likely to read 2 page pamphlets. (10)</p> <p>Reorganizing the layout so it does not look so crowded and overwhelming (13)</p> <p>Maybe a bit too much text. (1)</p> <p>I think it could be more concise as there are too many words on one page. (4)</p> <p>Too much text on page 3. (8)</p> <p>I was surprised it was 4 pages - that seemed long to me. (10)</p> <p>Perhaps a bit wordy. (12)</p> <p>The layout is wordy and crowded. (15)</p>	<p>Seems like it would be a good handout for a patient education since it is inviting and not too lengthy, information is accurate and concise. (5)</p> <p>I really liked. It's clear for the patient, with a lot of important informations! (3)</p> <p>My first impression of the leaflet was a short, objective and clear material. (9)</p> <p>The leaflet covers a good amount of information that should be helpful to individuals with PFP. (14)</p> <p>An excellent tool overall. The information is concise, accurate, and well written. (15)</p> <p>Nice and brief with some useful info (16)</p> <p>There isn't too much information and it avoids being overly technical (17)</p>

<p>General layout</p>	<p>heading needed for biomechanics section (6)</p> <p>I would suggest trying to cut down some of the text and use additional pictures, if possible. (14)</p> <p>Last point: maybe have a small blank square where therapists can put either a business card or stamp of their professional information? Or not :-) (12)</p> <p>The second page needs reformatting (6)</p>	<p>Well structured, easy to interpret information for patients, a nice balance of imagery and text. (18)</p> <p>Good visual layout and colour scheme. (16)</p> <p>Easy. straightforward outside and more information inside (1)</p>
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We have made some text changes to make the leaflet less crowded and wordy, but content has also been added. In general, we do not feel it is appropriate to shorten it or remove any information despite some feedback that this may be a good idea. We feel the leaflet requires all the information presented, and feedback from others (see positive comments) also supports this. Page 3 is now shorter and includes an example exercise picture which we think was a great suggestion to add and also makes the page look much less word heavy.

**Theme:** General considerations

Sub-theme	Feedback suggesting change	Proposed change or concern about making change
Focussing on which health professional	<p>Instead of stating physiotherapist, you may want to use health care provider or better term that could be used internationally. (5)</p> <p>You only mention a discipline other than PT once (podiatrist). I think it would be useful to decide if you want this brochure to focus more on options for PFPS (ie no discipline bias), thus NOT include so much PT-heavy material?</p> <p>OR</p> <p>If you want to focus on how PT specifically can help PFPS, in which case maybe not mention the podiatrist? just a thought, as podiatrist stood out to me as not congruent with the rest of the leaflet? (12)</p>	<p>Reference to 'physiotherapist' has been changed to 'therapist'</p> <p>The term 'podiatrist' has been removed</p>
General information	<p>It might be helpful to talk more about pain, especially when it relates to seeking help as early as possible. Telling them that pain can actually have an effect on the body and slow recovery may be helpful. Also, possibly stat that they should seek help 2 weeks following the onset of consistent pain or some other concrete recommendation like that. I like to tell patients to "run to pain, not through pain" (5)</p> <p>If you think you have patellofemoral pain, you should seek help as early as possible – this will improve your chances of a successful recovery; I agree that early recognition of PFP is necessary to inform patients about the possible causes and advise them to reduce sport or any other type of overuse of the PFP joint, however I am not sure that if you start early with exercise therapy this will improve the chance of successful recovery. I think the first step should be: try to reduce the type of sport that is causing the pain and try to stay active in other types of sports, if</p>	<p>We do not feel we have any solid evidence (from empirical or expert opinion) to make a solid recommendation. We welcome further input on this from all involved – i.e. what time frame or concrete recommendation may be appropriate?</p> <p>We have added the potential need for rest (but not NSAIDs) at the start of the exercise section.</p>

	<p>your knee is very painful a nsaid or acetaminophen can help to reduce the pain. You can seek help from a physiotherapist, so the physiotherapist can discuss the different treatment options with you. (2)</p>	
<p>Need to a good additional online resource for physiotherapists</p>	<p>I disagree that we can be confident in all physiotherapists ability to effectively manage PFP or be a good resource for individuals with PFP. I really think a website or leaflet for physiotherapists could be helpful. (7)</p> <p>I worry that some physiotherapists may not have a good understanding of proper management for patients with PFP, however, the leaflet recommends relying on a physiotherapist for additional recommendations for treatment ..... Would it be possible to also develop a leaflet for physiotherapists that provides more detailed info for the management of PFP or a website that could be a resource for physiotherapists which could be updated on a regular basis? (14)</p> <p>Change the source of additional information (patellofemoral.completesportscare.com.au) to one such as <a href="http://www.arthritisresearchuk.org/arthritis-information/conditions/patellofemoral-pain-syndrome.aspx">http://www.arthritisresearchuk.org/arthritis-information/conditions/patellofemoral-pain-syndrome.aspx</a> Currently it looks like an advert for professionals rather than a patient centred resource that sufferers of PFP are likely to find useful. (14)</p>	<p>This is an interesting point. It is obviously beyond the scope of the current project to address this concern, and we do not feel this should prohibit development of this leaflet or recommendation patients seek further assistance. We are currently working on resources and interventions to address the education of physiotherapists on the management of PFP. If anyone has any contributions to the current. We will be seeking ideas of what patients would like on this resource during the next phase of development of this brochure (i.e. when we ask for their feedback) Patellofemoral Blog, these are also welcomed – get in touch.</p> <p>A specific patient-centred resource section related to PFP is currently being created through this website and will include video demonstrations on taping and exercises and further information. This will be the link provided. We welcome any resources from those participating in this study which we could add to the website. Please get in touch if you can help with this.</p>
<p>Specific changes</p>	<p>Typo on bottom of page 2 (Foot rolls into too much,) (12)</p>	<p>This has been fixed</p>

	Recommend adding a description of pain behind the knee cap. I think of under as possibly below. (2)	We have added behind
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**Theme:** Why do I have knee pain?

<b>Sub-theme</b>	<b>Feedback suggesting change</b>	<b>Proposed change or concern about making change</b>
Reducing emphasis of mal-tracking, more on overuse	<p>I think patients can get the impression that it is always the maltracking of the knee that causes the pain. Mainly because of the title on page two, because in your text you state it a bit less direct by saying that it may contribute and on page 1 you state that there are many causes. Of course, the emphasis in this leaflet should be put on this cause and how to handle this, but maybe a different title on page two makes it less bold (for instance: what might cause my knee pain?) and/or a sentence that there are more possible causes but emphasis is put on the maltracking hypothesis and the treatment options available... (1)</p> <p>Page 2, first paragraph: I think this paragraph should be inverted. To me, the main cause of PFP is excessive loading beyond the individual's capacity to adapt to this stress. Then, the second cause could be that the knee cap is thought to move toward the outside of the knee. I believe patients need to be aware of their activity modifications at first, before looking at their movement pattern. To my knowledge, we currently have no prospective study showing that the knee cap moving out IS RESPONSIBLE for the apparition of pain (and the study by Noehren et al. in MSSE, 2013, suggesting that increased HADD during running caused PFP had several pairing flaws and lack of détails on training factors surrounding the apparition of pain). Exactly like muscle strength at the hip (emphasized in your great SR in BJSM 2014), they are all cross-sectional studies showing decreased control. (6)</p> <p>It's not that I disagree I just feel that P2 is too focussed on</p>	<p>We have moved overuse to the top. We have also changed the title as suggested to 'What might cause my knee pain' and suggested potential other causes with the addition of the following sentence:</p> <p>"There are numerous other possible contributors to patellofemoral pain including the structure of your knee, trauma, surgery and systemic disease, which you may wish to speak to your therapist about."</p>

	<p>malalignment/biomechanics and that this may not be helpful to those patients who have other reasons for their pain (8)</p> <p>Not regarding information but it seems that the emphasis is on biomechanical factors first, followed by overuse factors. There are patients who have PFP and don't have poor biomechanics but do have poor training. (3)</p>	
Information on structural influence	<p>predisposition through limb alignment (4)</p> <p>Aspects of structure are not discussed. Whilst I appreciate this needs to be positive, with structural changes being less amenable to conservative management, perhaps an aspect of this deficit needs to be discussed (5)</p>	<p>Structure has now been acknowledged but not explained in depth as we don't feel this should be focussed on since it cannot be changed in the context of conservative management.</p>
Adding information on traumatic causes	<p>Quite a bit of attention to insidious onset PFP, which is probably appropriate. Naturally, not all people develop PFP insidiously. It might be worth mentioning that some experience PFP due to PFJ trauma. (2)</p>	<p>This has now been included</p>

**Theme: Management**

Sub-theme	Feedback suggesting change	Proposed change or concern about making change
Improving descriptions	Under "Pain Reduction" (page 3), the non-clinician will likely not know what "taping" is. (8)	The term "or strapping" has been added to this sentence
Removing acupuncture	Acupuncture. (4)  I'm not sure many PTs are practicing acupuncture (in the States, that is). If it were my pamphlet I'd probably delete that point unless the evidence supporting acupuncture is really strong. NOTE: I'm not familiar with literature regarding acupuncture for PFP! (5)	Acupuncture has now been removed which is consistent with the current treatment guide created for physiotherapists in a separate project.
Adding gait retraining	Under key treatment options (page 4), "gait retraining" should be mentioned. (1)	The following sentence to what exercises should be completed has been added:  "Exercises should be progressed to activities you previously had pain with (squatting, stairs, running, etc.), ensuring good movement patterns during their completion."
More emphasis on activity modification	I do not think there is sufficient reference to the concept of tissue homeostasis within the text although one of the pictures does allude to it. (3)	We feel that this theory fits well with the concept of 'overuse' which is already mentioned in the leaflet. After discussion we feel adding the complexity of tissue homeostasis may be too much complexity for patients.
More information on specific exercise	The leaflet mentions that exercises should be performed standing and with the correct mechanics but there is not information on what is "correct mechanics." Physiotherapists should be able to identify this but if an individuals is using a mirror or video playback, they may not know what to look for. Possibly add pictures that show poor mechanics and	A pictorial of a good form and bad form step down has been added.

	good mechanics when performing an exercise in a standing position (i.e. step down task). (6)	
Information on short term pain management	Short term pain management. (7)	We have added rest at the start of exercise options
Information on pharmacotherapy	Pharmacotherapy options for patellofemoral pain syndrome (1)	Based on both empirical and qualitative evidence from expert opinion, we do not feel the addition of pharmacotherapy possesses enough supporting efficacy to include in this leaflet.
Emphasise need to thorough assessment to guide treatment	<p>Again, not missing, but PFP seems to be a very individualized problem. This means that person with pain should receive individualized treatment and to do that, they need a comprehensive evaluation from an appropriate healthcare professional. It might be good to emphasize this a bit. (2)</p> <p>I also think it would be helpful if you added a point 1 to the How Else Can My Physiotherapist Help? section stating that the physiotherapist can determine which exercises and other treatments are appropriate for each patient/client. (5)</p>	<p>I have added this to the end of the text on the front page:</p> <p>“It is recommended you see an appropriately qualified health care professional to guide your treatment further.”</p> <p>As suggested, this has been added:</p> <ol style="list-style-type: none"> <li>1. “Guide you on your most appropriate exercises and other helpful treatments”</li> </ol>
Addition of footwear	I think it would be helpful to mention that a physiotherapist/physical therapist may examine a patient/client's shoes and make recommendations for appropriate footwear, particularly for runners. Not every patient will need orthotics, but every patient could benefit from advice in this area. (5)	We agree that footwear can be an important consideration. However, based on both empirical and qualitative evidence from expert opinion, we do not feel the addition of any footwear advice can be added with enough supporting efficacy to include in this leaflet.
What management is not appropriate	<p>Maybe advise patients to avoid modalities for pain? (4)</p> <p>possibly consider the role of things like running gait, other modalities</p>	We want to keep this leaflet positive and are also cautious of adding any further content.

	(heat, ice), it might be only to discount them but to clarify their role in management (15)	
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**Theme: Figures**

<b>Sub-theme</b>	<b>Feedback suggesting change</b>	<b>Proposed change or concern about making change</b>
General	<p>Lack photo credits (4)</p> <p>Need a figure on page 3. Too much text. (4)</p>	<p>All pictures were purchased for the purpose of the leaflet and none of the associated artists required or requested acknowledgement</p> <p>We have now added a picture of correct and incorrect form during a step down exercise to this page.</p>
Figure 2	<p>figure 2b: on the x-axis is stated 'tid' (1)</p> <p>Maybe Figure 2B should show one peak going higher than the others? (5)</p> <p>The second page seems highly unorganized, however. It talks about what may cause knee pain, so Figure 2A does not really fit into that message. Probably should go on the last page where a steady build up is not addressed at all (perhaps under "key factors to address"). (8)</p>	<p>This has been removed</p> <p>It is not always the biggest peak that leads to pain development.</p> <p>This Figure (now Figure 1) has been split with the varied and rapid Figure retained on this page and the steady build up moved to the last page as suggested.</p>
Figure 3	<p>It would be nice if the points in figure 3 correspond with the points in the last figure (1)</p> <p>I have only one suggestion: Why not to put "Figure 3" and the explanation beside it, in the same box? I think that way will be more</p>	<p>The numbers have now been properly inserted into the Figure and the figure has been better highlighted and referred to in the text.</p>

elucidative. I think this way will be more clear, it will be easier to understand the abnormalities that are in the figure, since the alterações will be explained together (2)

On the second page where you have 4 points numbered 1 - 4, maybe a line/arrow connecting each numbered point to the arrow visually demonstrating the movement in the diagram to the left would help guide a lay person/patient's eyes through the diagram? Do we need numbers here, or are bullets better? If you don't go with the lines, then maybe put the same 1-2-3-4 beside each relevant arrow on the diagram, again to connect each joint movement with each description. (6)

(Figure 3) not positioned near relevant text (3)

Figure 3 not referenced in the text. (4)

Figure 3 needs to be better introduced in my opinion. There is no comment of it in the text, and how the four points follow on from the text above is not totally clear for the lay reader I think. (17)

Figure 3 is not really referenced anywhere and seems to come out of nowhere. (8)

I do not think that the general public would understand Figure 3. I think it would be clearer to have text that explains the theoretical model. I can definitely follow figures 1 and 2. (1)

One thing that struck me is that Figure 3 was not referred to in the text - although the text to the right of this figure did describe it. Since the factors in Figure 3 are so important to support the rationale for the Treatment Options on page 3 and the Key Factors and Treatment Options on page 4, you should add a sentence or two describing these

	factors. (13)	
Page 4 figure	<p>Recommend replacing thighs with quadriceps for #3 of exercises to complete (2)</p> <p>Figure on Page 4: Key factors to address #1 should mention core as well as hip (5)</p>	<p>After discussion we felt thigh was more relatable for the general public. (Nb: the next step will involve patient feedback)</p> <p>Although we do not disagree with the importance of the core, we do not feel we have sufficient empirical evidence to make it a focus</p>
Additional figures?	<p>Maybe you can add some additional figures with example exercises? (4)</p> <p>I believe that it would be helpful to add some figure related to treatment options, perhaps a bigger one of exercise and a smaller one exemplifying the additional treatments. (7)</p>	<p>Example of good and poor exercise technique has been added. Further patient-centred resources will be added to the website.</p>