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LETTERS TO THE EDITOR

Letter to editor in chief: Do hip muscle weakness and dynamic knee valgus matter for the clinical evaluation and decision making process in patients with patellofemoral pain?

We read the article by Rabelo and Lucareli[1] with great interest and would like to congratulate them for their manuscript and the choice of such a current and pertinent theme. The authors claim that hip muscle weakness and kinematic changes such as dynamic knee valgus are not the only factors that should be taken into consideration when evaluating patients with patellofemoral pain (PFP). The authors question in the title the use of these two biomechanical issues in the clinical decision-making process. However, we noted that the arguments used in the manuscript refer extensively to the discussion of the ''egg-or-chicken'' theory, i.e., theorizing the cause or effect of anterior knee pain instead of the use or not of muscular strengthening in patients with PFP.

There are important randomized controlled trials on this topic that testes the strengthening of the hip muscles, associated or not with strengthening of the quadriceps muscles, has shown clinical benefits in comparison with a non-treatment or placebo group or even isolated strengthening of the quadriceps.[2–5] Indeed, this information can be confirmed in recent systematic reviews.[6–8] It should be highlighted that the fact that the studies cited by the authors of this masterclass do not show a direct relationship between muscle strengthening and correction of dynamic valgus does not invalidate this therapeutic approach in clinical decision-making, since the primary outcomes like pain and function should always prevail over secondary outcomes like strength and kinematics. The authors themselves have published clinical trials showing the beneficial effects of muscle strengthening in this population.[2,9]

From the approach and discussion developed about the influence of strength or dynamics valgus as a predisposing factor for anterior knee pain, we believe that the arguments presented are much more about prevention of PFP rather than treating patients with this condition. Besides this, even regarding preventive character, there is evidence that the reduction of eccentric hip abduction strength and dynamic valgus in specific populations are risk factors for PFP.[10–12] Finally, greater care should have been taken when suggesting a biopsychosocial approach to the treatment of PFP, since no clinical trial has compared the efficacy of adding this approach to the current usual care. The studies cited on this masterclass suggested the use of a biopsychosocial approach in patients with PFP. However, this still can not be considered a therapeutic tool to be implemented in the treatment of a primarily biomechanical condition, due to the fact that the influences of this type of intervention have not been tested in high-quality clinical trials.[13]

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Response the letter to the editor for the masterclass: Do hip muscle weakness and dynamic knee valgus matter for the clinical evaluation and decision-making process in patients with patellofemoral pain?

We would like to thank you for the opportunity to continue this discussion based upon the opinions and interpretations of Neto and Fukuda[1] about our recently published Masterclass, which discusses some gaps regarding the management of patients with patellofemoral pain (PFP).[2]

In their letter to the editor, the authors questioned our manuscript concerning our emphasis on muscle strengthening in patients with PFP. They stated that we referred ''extensively to the discussion of the 'egg-or-chicken' theory, i.e., theorizing the cause or effect of anterior knee pain instead of how to achieve muscle strengthening in patients with PFP''.

We disagree with their statement and it seems to us that the authors have not correctly interpreted the objectives of our paper. As mentioned in the masterclass and by Neto and Fukuda,[1,3] it is widely known that strengthening hip and knee muscles provides favorable outcomes in patients with PFP. Based on this perspective, an extensive approach concerning this topic would be unnecessary and redundant at this stage given our knowledge on the topic.

Besides, it is known that PFP is a multifactorial condition with a high incidence and prevalence,[4] and still with a clearly unfavorable long-term prognosis.[5] Therefore, the main objective of the masterclass was not to discuss what is already consensual,[6] but rather to initiate a discussion about the current management in which this condition has been historically interpreted. Gaps have been highlighted that still exist concerning current professional understanding of isolated biomechanics and sometimes over-simplistic approaches adopted by many practitioners, especially physical therapists, when treating patients with PFP. We know that, due to the scarce number of longitudinal studies, we have little support or active discussions regarding the mechanisms of the cause and effect of PFP. However, we believe that by discussing the inconsistent understanding of this condition can serve to motivate clinicians to approach their patients in a more individual manner, and alert researchers to broaden their research objectives regarding this topic.

The authors of the letter also ''would like to highlight that the studies cited by the authors in this masterclass do not show a direct relationship between muscle strengthening and correction of dynamic valgus; nevertheless, this fact does not invalidate this therapeutic approach in clinical decision-making''. We agree that it does not invalidate the use of this approach in the treatment of patients with PFP, but again, it seems that Neto and Fukuda[1] misinterpreted our paper. First of all, the masterclass did not disqualify the use of hip and knee muscle strengthening in the treatment of this condition. We highlighted the need to understand that clinical improvement of patients submitted to this approach may not be due only to kinematic changes,[7] as concluded by many clinicians and researchers, including one of the authors of the letter.[8] This leads us to question the importance of this issue.

The authors also highlighted some mechanical variables that are considered risk factors for the development of PFP in very specific populations; therefore, the present studies can only be interpreted as reflective of new female runners[9] and teenagers.[10,11] In our point of view, this statement only confirms the discussion initiated in the masterclass that these patients can have a distinct set of factors related to PFP and, thus, deserve to be evaluated and treated individually because a ''one size fits all'' approach is unlikely to work effectively with different samples of patients with PFP.

Finally, the sentence ''biopsychosocial approach in patients with PFP still cannot be considered a therapeutic tool to be implemented in the treatment of a primarily biomechanical condition, due to the fact that the influences of this type of intervention have not been tested in high-quality clinical trials'' contradicts the current consensus regarding PFP,[12] and assumes that this condition is a complex interaction between anatomical, biomechanical,

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