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## CLINICAL COMMENTARY

# CURRENT CONCEPTS IN BIOMECHANICAL INTERVENTIONS FOR PATELLOFEMORAL PAIN

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### ABSTRACT

Patellofemoral pain (PFP) has historically been a complex and enigmatic issue. Many of the factors thought to relate to PFP remain after patients' symptoms have resolved making their clinical importance difficult to determine. The tissue homeostasis model proposed by Dye in 2005 can assist with understanding and implementing biomechanical interventions for PFP. Under this model, the goal of interventions for PFP should be to re-establish patellofemoral joint (PFJ) homeostasis through a temporary alteration of load to the offended tissue, followed by incrementally restoring the envelope of function to the baseline level or higher.

High levels of PFJ loads, particularly in the presence of an altered PFJ environment, are thought to be a factor in the development of PFP. Clinical interventions often aim to alter the biomechanical patterns that are thought to result in elevated PFJ loads while concurrently increasing the load tolerance capabilities of the tissue through therapeutic exercise. Biomechanics may play a role in PFJ load modification not only when addressing proximal and distal components, but also when considering the involvement of more local factors such as the quadriceps musculature.

Biomechanical considerations should consider the entire kinetic chain including the hip and the foot/ankle complex, however the beneficial effects of these interventions may not be the result of long-term biomechanical changes. Biomechanical alterations may be achieved through movement retraining, but the interventions likely need to be task-specific to alter movement patterns. The purpose of this commentary is to describe biomechanical interventions for the athlete with PFP to encourage a safe and complete return to sport.

**Level of Evidence:** 5

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