

Lay Abstract

Chronic patellofemoral joint pain (pain around the knee cap; PFP) is a common, persistent, and potentially debilitating pain condition, affecting females to a greater extent than males. One proposed contributing factor is a faulty movement pattern where the lower limb moves inward during weight bearing (dynamic knee valgus). Work in our laboratory suggests that training to avoid dynamic knee valgus (movement pattern training) may lead to positive outcomes for females with PFP. We propose to test a physical therapy intervention focused solely on training people to move correctly (i.e. avoid dynamic knee valgus) while performing daily activities. The aims of this preliminary study are to determine whether the intervention 1) is feasible, and 2) could lead to improvements in lower limb movement patterns, pain, function, and activity participation in females with PFP. We will test 25 female subjects who have PFP and observable dynamic knee valgus. Subjects will participate 2x/week for 6 weeks in a training program that emphasizes moving correctly without increasing pain, while performing a variety of daily physical tasks. Feasibility will be established if 1) we recruit and enroll 25 subjects and 85% of them complete the study, and 2) subjects report being successful in maintaining their optimal movement pattern during their daily activities 75% of the time and >75% of subjects are able to describe and demonstrate correct performance of functional tasks. Outcome measures of lower limb movement patterns, pain, function, and activity participation will be taken at baseline, at the end of treatment, and four weeks following the end of treatment. An additional assessment of self-report measures only will be made at the midpoint of the treatment period. Outcomes will be compared across time points to determine if subjects improved over the intervention phase, if improvements were noted earlier than expected, and if the improvements lasted after the intervention ended. If the study aims are achieved, the data will be used to design and implement a randomized controlled clinical trial comparing this movement pattern training intervention and a typical muscle strengthening intervention in females with PFP. Movement pattern training as a treatment approach has potential to 1) reduce health care costs, as effects might be seen earlier than the typical 6-week intervention period, and 2) improve outcomes by increasing long-term adherence, as the activities are incorporated into patients' daily lives.