ABSTRACT

BACKGROUND AND PURPOSE: One of the most prevalent orthopedic conditions affecting young running athletes today is patellofemoral pain syndrome (PFPS). Currently there is minimal research available on hip strength in female adolescent athletes with PFPS and there is a general lack of literature regarding core and endurance in relation to PFPS. Therefore, the primary purpose of our study was to investigate differences in hip strength and core endurance between female runners with PFPS and their age matched controls. The secondary purpose of our research was to examine any correlations between hip strength and core endurance in our participants.

SUBJECTS: 34 adolescent female cross country runners. Cases with PFPS were defined as young female runners with a minimum 3 month history of anterior knee pain with insidious onset and a most severe knee pain of 3/10 or higher. Control subjects had no history of knee surgery, traumatic knee injuries, patellar instability, or neurologic conditions.

METHODS AND MATERIALS: A cross sectional design was used. We recorded pain, Kujala score, hip strength and endurance and core endurance in our participants.

ANALYSES: Between-group differences and correlations were calculated between age matched cases and controls for selected measures.

RESULTS: No significant differences were observed between cases and controls for strength and endurance, but differences, though non-significant, in selected endurance measures between cases and controls were observed. A significant but low correlation was found between absolute hip abductor strength and side plank time (r=0.28, p<0.05)). A strong and significant negative correlation was found between subjects’ reported worst pain and Kujala score (r=−0.79, p<0.05)). A non-significant moderate negative correlation between side plank endurance and usual pain was found (r=−0.49).

CONCLUSION: There were minimal differences noted in isometric strength tests between groups. There was a clear difference noted with endurance testing between group. However, this difference was not found to be significant, likely due to low number of subjects with PFPS. The differences in endurance between athletes with PFPS and their pain free counterparts merit further investigation and research.

IMPLICATIONS: It was found that strength and endurance had a minimal correlation; this indicates that clinically, endurance cannot be inferred from isometric strength testing. Therefore, we recommend clinicians perform specific measures of endurance when attempting to identify impairments.