

# The Role of Hip Muscle Function in the Treatment of Patellofemoral Pain Syndrome

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## Abstract

**Background:** Previous literature has associated hip weakness with patellofemoral pain syndrome.

**Hypothesis:** Improvements in hip strength and flexibility are associated with a decrease in patellofemoral pain.

**Study Design:** Cohort study; Level of evidence, 2.

**Methods:** Thirty-five patients with patellofemoral pain syndrome, aged 33 ± 16 years (29 women, 6 men; 43 knees), were evaluated and placed on a 6-week treatment program. Hip flexion, abduction, and adduction strengths, Thomas and Ober test results, and visual analog scale scores for pain with activities of daily living as well as with exercise were documented on initial evaluation and again 6 weeks later. Treatment consisted of strength and flexibility exercises primarily focusing on the hip.

**Results:** Hip flexion strength improved by 35% ± 8.4% in 26 lower extremities treated successfully, compared with -1.8% ± 3.5% in 17 lower extremities with an unsuccessful outcome ( $P < .001$ ). Before treatment, there were positive Ober test results in 39 of 43 lower extremities; positive Thomas test results were seen in 31 of 43 lower extremities. A successful outcome with a concurrent normalized Ober test result was seen in 83% (20/24) of lower extremities, and successful outcomes with normalized Thomas test results were seen in 80% (16/20) of lower extremities. A combination of improved hip flexion strength (> 20%) as well as normal Ober and Thomas test results was seen in 93% of successfully treated cases (14/15 lower extremities), compared with 0% success (0/5 lower extremities) if there was no change in hip flexion strength (< 20%) and if Ober and Thomas test results remained positive.

**Conclusions:** Improvements in hip flexion strength combined with increased iliotibial band and iliopsoas flexibility were associated with excellent results in patients with patellofemoral pain syndrome.