ABSTRACT

TITLE: Exercise prescription protocol to optimize knee articular cartilage health

STUDY DESIGN: Case Report

BACKGROUND: Knee osteoarthritis can lead to a significant reduction in quality of life. Therapeutic exercise has been shown to positively impact articular cartilage morphology of the knee. Evidence for best practice regarding physical therapy exercise protocol for those patients with knee osteoarthritis is lacking. This case report describes a unique exercise protocol for management of a patient with moderate knee osteoarthritis.

CASE DESCRIPTION: A 41-year-old man suffering from a 7-year history of right knee pain was referred to outpatient physical therapy. At initial evaluation, primary symptoms consisted of sharp, medial joint line pain with any weight-bearing activities, intermittent knee swelling, early morning stiffness, and knee extensor weakness. Initial evaluation findings included limited right knee flexion range of motion, antalgic gait, tenderness to palpation over medial joint line, and mild knee edema. Outcome measures included the numeric pain rating scale, the CareConnections Lower Extremity Functional Index, and the global rating of change scale. Treatment consisted of a specifically designed therapeutic exercise protocol, performed 3x/week, over a 12-week episode of care.

OUTCOMES: A positive increase in right medial femoral condyle articular cartilage measurements, from 3.0 mm (initial) to 3.5 mm (discharge), were realized via radiographic evidence. Reduction in right knee pain from 2.5 to 0, was reported at the conclusion of the 12-week exercise period. From initial assessment to discharge, CareConnections Lower Extremity Functional Index scores improved from 92% to 100%, with an associated global rating of change scale score of +6 (“a great deal better”). Finally, pain-free single leg squat excursion improved from 30° to 85°, from initial evaluation to discharge.

DISCUSSION: This case report describes the short-term change in articular cartilage height and improvement in clinical outcomes, for a patient presenting with symptoms of moderate knee osteoarthritis, following a specifically-dosed therapeutic exercise protocol. Using this approach may enhance clinical decision making for the physical therapist, when managing individuals with knee osteoarthritis.