

CASE REPORT

CHRONIC UCL INJURY: A MULTIMODAL APPROACH TO CORRECTING ALTERED MECHANICS AND IMPROVING HEALING IN A COLLEGE ATHLETE—
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ABSTRACT

Background: Ulnar collateral ligament (UCL) tears and associated Tommy Johns surgical intervention from excessive and poor quality pitching has increased immensely—with more college and professional pitchers undergoing the surgery in 2014 alone than in the 1990s as a whole.¹ Faulty mechanics developed at young ages are often well-engrained by the late adolescent years and the minimal healing ability of the largely avascular UCL often leads to delayed safe return to sport.²

Purpose: The purpose of this case study was to describe an innovative, multimodal approach to conservative management of a chronic UCL injury in a college-aged baseball pitcher. This innovative approach utilizes both contractile and non-contractile dry needling to enhance soft tissue healing combined with standard conservative treatment to decrease pain and improve sport performance as measured by the Disabilities of Arm, Shoulder and Hand (DASH), Numeric Pain Report Scale (NPRS), and return to sport.

Study Design: Retrospective Case Report

Case Description: A collegiate athlete presented to an outpatient orthopedic physical therapy clinic for treatment of UCL sprain approximately six weeks post-injury and platelet-rich plasma injection. Diagnostic testing revealed chronic ligamentous microtrauma. Impairments at evaluation included proximal stabilizing strength deficits, myofascial trigger points throughout the dominant upper extremity, improper pitching form, and inability to pitch in game conditions due to severe pain. Interventions included addressing strength deficits throughout the body, dry needling, and sport-specific biomechanical training with pitching form analysis and correction.

Outcomes: Conventional DASH and Sport-Specific scale on the DASH and the numeric pain rating scale improved beyond both the minimally clinically important difference and minimal detectable change over the 12 week treatment.^{3,4} At 24-week follow up, conventional DASH scores decreased from 34.20% disability to 3.33% disability while sport-specific DASH scores decreased from 100% disability to 31.25% disability. Although initially unable to compete due to high pain levels, the subject is currently completing his pitching role full-time with 1/10 max pain.

Discussion: The approach used in this case study provides an innovative approach to conservative UCL partial tear treatment. Dry needling of both contractile and non-contractile tissue in combination with retraining of faulty mechanics may encourage chronically injured ligamentous tissue healing and encourage safe return to sport.

Level of evidence: Level 4

Keywords: Baseball, biomechanics, dry needling, pitching, ulnar collateral ligament

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This project (H1601019) was reviewed by this Institutional Review Board for Human Subjects Research in accordance with Federal Regulations 21 CFR 56.110(b) and 45 CFR 46.110(b) (for expedited review) and was approved under Category 5 per 63 FR 60364.