

Sports Medicine & Movement Laboratory

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Biceps Tendon Response Following an Acute Bout of Pitching: Youth Windmill Softball Pitching

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ABSTRACT

Background: Pitch counts do not exist for softball, and pitchers may throw between 1200 and 1500 pitches over short 3-day events. High biceps muscle activation and shoulder forces have been reported during the windmill softball pitching. A common symptom among softball pitchers is anterior shoulder pain.

Purpose: The purpose of this study was to examine acute changes in the long head of the biceps tendon (LHBT) in youth softball pitchers following an acute bout of pitching.

Study Design: Prospective cohort study.

Methods: Nineteen softball pitchers (11.89 ± 1.2 years; 158.23 ± 9.71 cm; 61.59 ± 14.76 kg) participated. Images of the LHBT were obtained with a NextGen LOGIQe Ultrasound (GE Healthcare, Milwaukee, WI) prior to and immediately following a simulated game protocol. Repeated measures MANOVA with α priori level set at 0.05 was used to determine if there was a difference in long-head biceps tendon size before and after the simulated game protocol. For a follow-up to significant repeated measures MANOVA, we ran paired samples t-test. To adjust for multiple comparisons, we used the Bonferroni inequality, setting test-wise error at $\alpha = .016$.

Results: There were significant increases in both transverse thickness ($t_{18} = -2.76$, $p = 0.013$, 95% confidence interval = -0.050 to -0.007) and longitudinal thickness ($t_{18} = -2.64$, $p = 0.016$, 95% confidence interval = -0.060 to -0.007) of the biceps tendon following an acute bout of pitching.

Conclusion: Examining the biceps tendon after an acute bout of softball pitching adds to the knowledge of injury mechanisms in these athletes which may help prevent injury in these athletes. A thorough examination of youth softball pitchers is needed to identify injury propensity. Specifically, examination of those youth pitchers with and without anterior shoulder pain is needed to better explain injury susceptibility.

This abstract is a brief overview of a manuscript submitted for publication. The full manuscript will be sent to you once it is accepted for publication.

The Sports Medicine & Movement Laboratory will seek to continue this line of research regarding biceps tendon response in youth softball pitchers. Specifically, we will be seeking those with anterior shoulder pain as well as those pain free.

Further information can be found at www.sportsmedicineandmovement.com as well as <https://scholar.google.com/citations?user=ae6HxHgAAAAJ&hl=en>. Specific inquiries can be sent to goliver@auburn.edu. Thank you again for your participation in our research and we look forward to your further participation. Thank you!