

## **Abstract**

**Title:** Comparisons of movements during a softball swing from the modified tosses and from the batting tee.

**Objectives:** The aim of the work is to analyze the kinematic record of the softball batting motion in school-aged girls and to determine the differences in the timing of the movement when performed on a front toss, underhand pitch, toss from 45 degrees and the batting tee.

**Methods:** Kinematic analysis of the movement of 10 subjects in 4 types of pitch using high-speed camera recording. The analysis was conducted using the Dartfish computer program. The results were subjected to the repeated measures ANOVA statistical method (Bonferroni).

**Results:** When hitting from a tee, where the ball remains stationary, the duration of the stride, backswing, and swing phases is prolonged. Older players in the U13 category exhibit greater stability in swing timing across different types of pitches compared to younger players in the U11 category. Hitting from a tee is more consistent compared to hitting from various modified tosses, where the length of the stride shortens depending on the trajectory length of the ball. Overall, hitters prolong all phases of the swing as the flight time of the ball decreases.

**Keywords:** Softball, hitting, softball pitch, timing, school-aged