Correlation of static and dynamic trunk muscle endurance and bat swing velocity in high school aged baseball players

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Abstract

BACKGROUND: Trunk muscle endurance training is used by most high school baseball or softball coaches. However, evidence demonstrating a relationship between trunk muscle endurance and batting performance is lacking.
OBJECTIVE: This study aimed to establish a relationship between trunk muscle endurance and bat swing velocity in a high school baseball team.
METHODS: Sixty-one high school (15-18 years old) baseball players, taken from the same team, with 6.5 ± 1.3 years of training experience, participated in the following 5 tests: static trunk flexion/extension endurance tests, dynamic trunk flexion/extension endurance tests and a maximum bat swing velocity test.
RESULTS: Bat swing velocity showed significant low-to-moderate negative correlations with static trunk flexor endurance ($P = 0.001$, $r = -0.404$), dynamic trunk flexor endurance ($P = 0.016$, $r = -0.308$) and the ratio of static flexor/extensor endurance ($P = 0.021$, $r = -0.298$).
CONCLUSIONS: These findings support the concept that better trunk flexor endurance might not benefit batting performance. Trunk flexor endurance training should not be over-emphasized when the targeted training goal is to enhance bat swing velocity.

Keyword：hitting, core muscle, spine stabilization.