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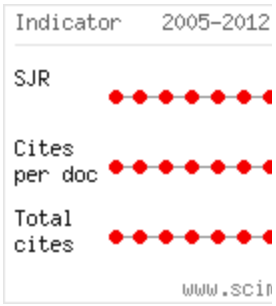

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Temporal analysis of elite men's discus throwing technique.

Vassilios Panoutsakopoulos, Iraklis A Kollias

Abstract

The purpose of this study was to investigate the relationship between the duration of the throw and the official throwing distance in a group of elite male discus throwers. The time analysis of the technique phases (i.e. preparation, entry, flight, transition, delivery, release) of the participants in a top international athletics competition was used in order to conduct the study. Data were retrieved after recording seven right-handed throwers (age: 28.8 ± 4.1 years, body height: 1.94 ± 0.09 m, body mass: 119.4 ± 11.6 kg) with a

Casio EX-FX1 (Casio Computer Co. Ltd) digital video camera (sampling frequency: 300fps) and analyzing the captured throws with the V1 Home 2.02.54 software (Interactive Frontiers Inc.). The relationships among the duration of the technique phases of the throw and the official throwing distance were examined with Pearson Correlation Analysis using the SPSS 10.0.1 software (SPSS Inc.). Results revealed that no significant correlation ($p > 0.05$) existed among the average official throwing distance (63.04 ± 6.09 m) and the duration of the discus throw or the duration of each technique phase. The temporal and correlation analyses were in agreement with previous studies. The dominant style of release was the release with no support on the ground. The majority of the throwers spent a larger percentage of the delivery turn (transition, delivery and release phases) being in single than in double support. It was noted that a

short duration of the transition phase, combined with lower values of the ratio of the time spent for the starting turn compared to the time spent for the delivery turn might be favorable regarding the achievement of a larger throwing distance.

Key words: track and field throws; official throwing distance; single support phase; double support phase; biomechanics

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