Abstract

Title: Analysis of the acceleracion phase of a short hurdle sprint

Objectives The objective of this bachelor's thesis was to familiarize the reader with the issue of short hurdle sprints, with an emphasis on data analysis concerning the acceleration phase obtained from measurements on subjects from the adult, junior, and youth categories. Subsequently, from the evaluated data, the aim was to formulate conclusions applicable in practice for both coaches and the athletes themselves.

Methods: For obtaining data, the Optojump measurement device was used together with video recordings from the first and second hurdles and the freely accessible computer program Kinovea. The data obtained from the Optojump device was transferred to Microsoft Excel. Subsequent graphs were also created in this program. The analysis was based on the professional literature, primarily (Pollit 2018) and Walker (2019), and involved comparing the data from the measurements of individual participants with each other.

Results: From the results of the measurements and the professional literature, we found in the subsequent discussion that most of the tested hurdlers chose the eight-step strategy during the approach. In contrast, elite athletes increasingly practice the seven-step strategy during the approach, but this does not necessarily guarantee a faster approach. There are cases, as seen from the ČAS measurements and measurements at top events, where a properly executed eight-step approach can be faster. Additionally, this work identified technical or speed deficiencies in some of the measured athletes, while others showed good results in specific parameters, closely resembling or even matching elite athletes. However, none of the measured athletes reached the level of elite competitors overall. It also emerged that the youth hurdlers who participated in the measurements, despite the lower height of the hurdles, were generally unable to compete in speed and technique with older athletes.

Keywords: Track and field, 110 m hurdles, acceleration, length of steps, steps frequency