

Abstract

Title: Changes in biomechanical parameters of the running stride during model training of a special pace 800 m runner (in the preparatory and competition period)

Objectives: The aim of this pilot study was to determine the dynamics of changes in selected biomechanical parameters and then to compare these changes in probands over a 2-month period based on baseline and outcome measurements.

Methods: The measurements were performed on three probands, each proband representing a different type of runner (novice athlete, recreational athlete, performance athlete in the national under-23 team). Qualitative analyses with the Optojump device were used. The research was carried out in a pressurized hall in Strahov on an indoor 200 m track in two measurements. The first measurement represented the end of the preparation period and the second the competition period. The probands completed the so-called model training (300 m and 200 m) at a special pace with a one-minute break between sections. During the selected sections, biomechanical parameters were collected by Optojump equipment on an indoor 200 m track in 10 m corridors.

Results: Proband 1 improved by 3.1 s over 300 m and by 2.1 s over 200 m in the output measurements of the model training. This improvement was reflected in a 0.006 s reduction in ground contact time, a 13.8 cm increase in average stride length, and a 0.23 Hz increase in average frequency. Proband 2 also improved by 1.9 s at 300 m and 1.3 s at 200 m. There was a 0.004 s reduction in the ground contact time, an 11.5 cm increase in stride length and a 0.19 Hz increase in frequency.

Conclusion: The improvement in running stride parameters for Proband 1 and Proband 2 in the special pace test was reflected in improved performance in model training and

subsequently in the achievement of new personal bests during the indoor season. Proband 3 struggled with an injury after the first measurement and therefore his parameters stagnated or deteriorated.

Keywords: running technique, Optojump, biomechanics of running, model training