

## عنوان مقاله:

Preliminary Design and Construction of Reaction Time Platform for Swimming Start Block

## محل انتشار:

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## خلاصه مقاله:

The purpose of this exploratory descriptive study was to designing and producing a reaction time platform for swimming start block. The participants consisted of 25 male swimmers had been training background at least three years, with mean age of  $18.41 \pm 2.32$  years mean body mass  $64.31 \pm 7.65$  mean height  $174 \pm 5.39$  cm and mean body mass index  $21.07 \pm 1.97$  kg/m<sup>2</sup>; participated in this study, randomly and voluntarily. This device can be installed on the swimming start block. Under the feet of the subject are 6 "batten sensors" that are placed on the front of the platform, and the timer starts to work with device startup bib and is stopped when the swimmer take off from the swimming start block and visible reaction time recorded on the LCD and saved on memory card. The device has two inputs, from the start button and sends data from sensors. The device has two outputs for shows the time and information and connect to the computer via the USB port and sends information to the computer after processing. The device software is written with the programming language C. From experts in swimming, coaches, referees, and swimmers opinions were used to evaluation the validity of device. The Pearson Correlation Coefficient was used to analyze the reliability of the data in two stages by SPSS version 23 statistical software. There was significant correlation coefficient ( $P = 0.023$ ) between reaction time in the first and second times, There was significant correlation coefficient  $47.2$  ( $P = 0.036$ ) between reaction time in the first and third times. There was significant correlation coefficient  $65.9\%$  ( $P = 0.002$ ) between reaction time in the second and third times. Base on the result reaction time in swimming start, there was significant correlation between three times performances. This means with 95% confidence that this device has the reliability and validity required. It is recommended to coaches, referees and researchers use this device in training, competitions and future studies to improve the reaction time of swimmer, reduce the swimming record and referee's error during start.

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