

## The Influence of Plyometric Exercises on Biomechanical Factor Front Crawl and Back Crawl Speed in Elite Swimmers

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**Abstract :** The objective of conducting this research was to study the influence of plyometric exercises on the biomechanical selected factor of elite teen swimmers and compare the influence of plyometric exercises on the speed of front crawl and back crawl in empirical and control groups of teens. In order to conduct these study 30 swimmers with minimum of 3 years' experience who were 11 or 12 were randomly chosen and divided into 2 groups of 15. The first group was empirical and the second was control group. The speed of the swimmer was analyzed after 25 meters of swimming and their speed were recorded in the last. The researcher was standing stable at the beginning and then started the chronometer and stopped it at the end of the swimming. He repeated the record taking two times and then the average was taken. Before conducting plyometric exercises, a speed test was taken from both groups in both types of swimming. The duration of plyometric exercises was 8 weeks, every week 3 sessions and 24 sessions in total. The exercises in this study were focused on 3 parts of the body. Upper limb part, the lower part of the body and trunk area. Upper limb exercises consisted of four parts. The lower limb exercises consisted of 5 parts, and the trunk exercises consisted of four sections. A Medicine ball, cone and different weights were used in these exercises.

**Keywords :** plyometric, exercises, front crawl and back crawl, speed

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