

International Conference and Expo on **Biomechanics & Implant Design**

July 27-29, 2015 Orlando, USA

Analysis of the movement pattern in crawl stroke tumble turn

Ning Wang and Yeou-teh Liu

National Taiwan Normal University, Taiwan

The aim of this study was to examine the movement pattern in the turn of front crawl swimming to determine whether the turning behavior would change relate to the speed. Eighteen swimmers of club and regional standard participated in the study. The turning movement was monitored with a 50 Hz underwater camera. According to Maglischo (1993), the tumble turn was divided into three phases: approach, rotation, and wall contact phases. Furthermore, the approach phase was composed of five different critical key points: (a) penultimate stroke entry, (b) penultimate stroke stop, (c) last stroke entry, (d) last stroke stop, (e) start rotation and three phases. Pearson Chi-Square and contingency coefficient were used to test the frequency of different sequence in two different speeds. The phase percentage analyses are expressed as descriptive statistics. The largest proportion of turning movement was observed at the rotation phase compared to other phases. Besides, a significant higher percentage of reverse sequence (a-b-c-e-d) showed in fast speed. We conclude that turning movement would change by speed. More specifically, swimmers would prefer initiate their tumble turn before finishing last stroke when the speed is faster.

freening324@gmail.com