BUTTERFLY STROKE, ANTHROPOMETRIC CHARACTERISTICS AND MOTOR ABILITIES: CORRELATIONS IN YOUNG AGONISTIC ITALIAN SWIMMERS

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INTRODUCTION
The performance in sports is related to a complex interaction among a number of physiological and psychological elements [1,2]. Several authors studied the role of anthropometric, hydrodynamic and physique elements and their connections with the expressions of the movement and the performances (Clarys and Jiskoot 1974, Chatard 1986, Pelayo et al. 1996 and 1997, Hellard et al. 2002).

AIMS
The aim of this study was to find out whether some correlation exists between the performance in a 100m butterfly stroke and some anthropometric, hydrodynamic and physique parameters in Italian young agonistic swimmers.

METHODS
32 male subjects (mean ± SD, age 10.5 ± 0.5 years, height 143.2 ± 6.6 cm, body mass 36.5 ± 6.2 kg) and 17 female subjects (mean ± SD, age 10.6 ± 0.5 years, height 144.0 ± 8.5 cm, body mass 36.0 ± 6.9 kg) performed a 100m butterfly stroke, according to the Cazorla’s Natation-Eval test battery [1]. Therefore following data were collected:
1. Shoulder flexibility (circumduction of the arms holding a stick); ii. Legs power (standing long jump); iii. Arms resistance (hanging in a pull-up position); iv. Floating (evaluation of the floating in vertical position); v. Duration of the horizontal floating (time necessary to go back in a vertical position from the horizontal floating); vi. Hydrodynamic ability (distance covered sliding from the swimming pool wall).

Pearson’s correlation (p=0.05) have been applied to relate the 100m performance and each test result, and also to the anthropometric data.

RESULTS
Although the correlation values were not very high, in the male subjects significant correlation (p<0.05) were found between the 100m butterfly stroke performance and: i. Legs power (r=-.374); ii. Hydrodynamic ability (r=-.429). In the females subjects, a significant correlation (p<0.05) were found between the 100m butterfly stroke performance and the Hydrodynamic ability (r=-.519). A very significant correlation (p<0.01) was found between the stroke and Floating (r=-.621).
No correlations were found between the 100m butterfly and the anthropometric data (p>0.05).

CONCLUSIONS
The correlations found in the results agree with the butterfly issues. Hydrodynamics is one of the most important component in the butterfly stroke, and its improvement due to the swimmer’s ability can lead to a better performance. Some other factors are related to the gender of the swimmers. In female swimmers the lack of balance due to the butterfly stroke biomechanics is reduced thanks to the characteristic of their body composition allowing a better floating than the male swimmers.

Male swimmers can face up to the lack of balance using more leg power.

REFERENCES
Keywords: Swimming, Motor Control, Motor Skills