

# ASSOCIATIONS BETWEEN PARTIAL TIMES AND TOTAL TIME IN 50 M FRONT CRAWL, ACCORDING TO AGE



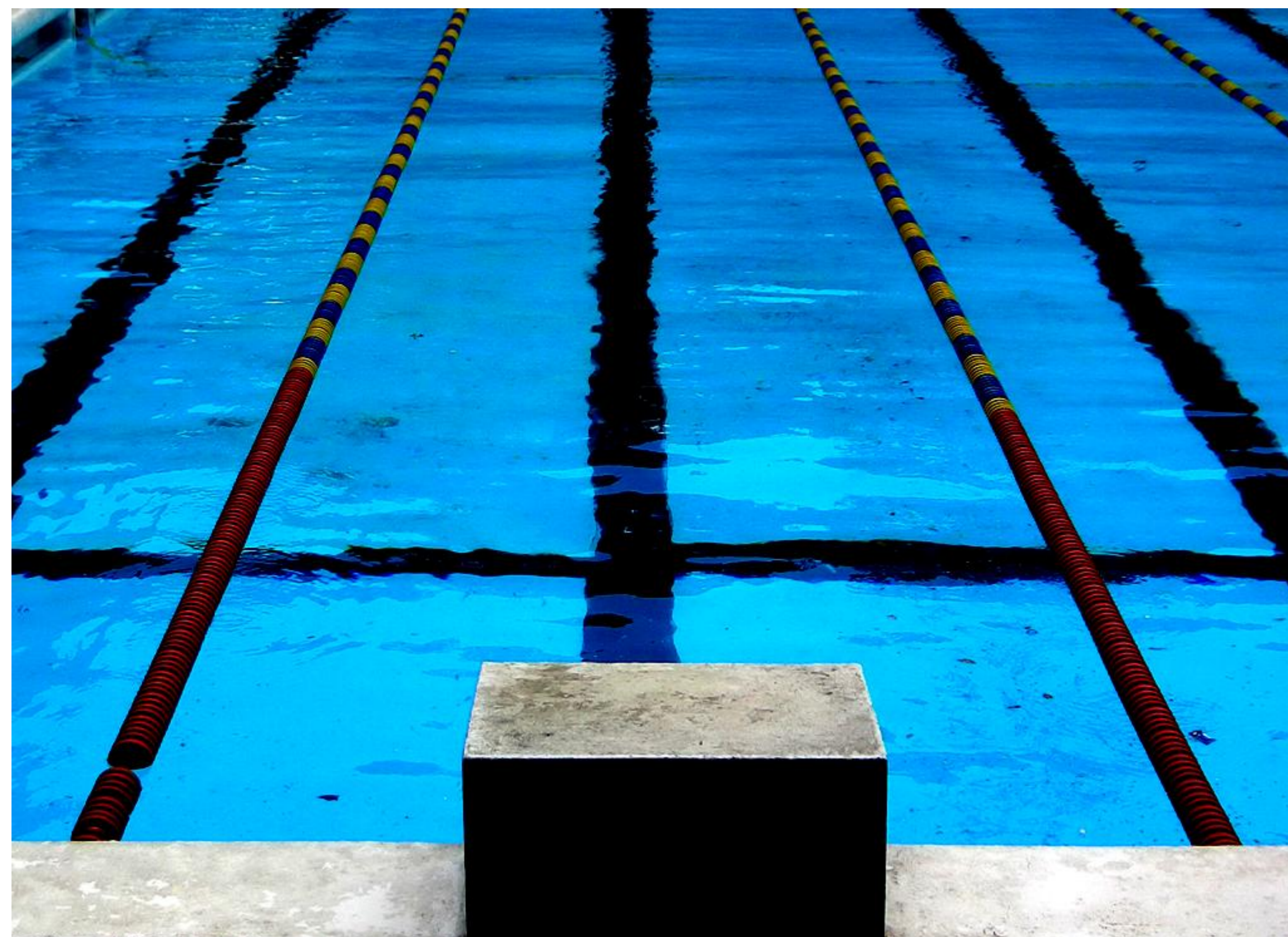
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## Introduction

In Portugal there are several clubs training in 25 m swimming pools and competing in 50 m ones. Concerning the 50 m front crawl training bouts, it is expected that different velocities are obtained in the first and second 50 m. Coaches are aware of that and estimate differences without taking into consideration the start, turn and gliding.

**Therefore, the aim of the present study was to analyze possible relationships between times to accomplish 4 m before turn and before finish, with overall 50 m time.**



## Materials & Methods

Two groups of 6 male swimmers each took part in the study.

**Table 1. mean ( $\pm$ SD) values for the main physical characteristics of the participants.**

	age (years)	body mass (kg)	height (m)
G1 (n = 6)	13.5 $\pm$ 0.32	49.0 $\pm$ 7.9	1.64 $\pm$ 6.8
G2 (n = 6)	18.8 $\pm$ 2.64	73.3 $\pm$ 8.6	1.81 $\pm$ 8.1

After an 800 m warm-up, each subject performed a maximum 50 m front crawl swimming, assessing swimming time (t50).

Tests took place in a 25 m swimming pool and two cameras recorded the trials at 60 fps (Casio Exilim, FH1). A PVC structure (15 x 2 m) allowed the calibration of video images. Utilius easy inspect (CCC software, Germany) was used to estimate swimming time in two separate fractions: from 16 to 20 m (t1) and from 41 to 45 m (t2).

Since the reduce sample size and the rejection of the null hypothesis in the normality assessment, non-parametric procedures were adopted. The level of statistical significance was set at  $p < 0.05$ .

## Results

In younger swimmers the difference between t1 and t2 presented high correlations with t1 ( $\rho = 0.94$ ,  $p < 0.01$ ) and t50 ( $\rho = 0.81$ ,  $p < 0.05$ ).

Were assessed significant correlations between t1 with t50 for G1 ( $\rho = -0.88$ ,  $p < 0.05$ ) and G2 ( $\rho = -0.83$ ,  $p < 0.05$ ).

In older swimmers no other relationships were assessed.

Coupling groups, multi factorial analysis obtained an adjusted  $R^2 = 0.838$ ,  $p < 0.001$  for

$$t50 = 6.464 + (3.968 \times t1) + (5.554 \times t2)$$

Predicted times presented an estimated error of  $0.36 \pm 0.12$  s for G1 and  $-0.36 \pm 1.22$  s for G2.



## Conclusions

The main finding of the present study is that in 50 m maximum front crawl can be predicted by partial times.

The association between the difference in partial times and the overall time in G1 indicate that faster swimmers in the beginning of the bout obtain higher performances, even if they aren't able to maintain velocity, presenting higher decrease.

This data points that race tactics should be trained in order to enhance performance in young swimmers.