

## ABSTRACT

<https://doi.org/10.6063/motricidade.25128>

# Predictors of success in youth water polo players shooting velocity and efficiency

Miguel Ramalheira<sup>1</sup>, Francisco Noronha<sup>1</sup>, Aléxia Fernandes<sup>1</sup>, Beatriz Cavaleiro<sup>1</sup>, Susana Soares<sup>1,2</sup> , Sofia Canossa<sup>1</sup>, Ricardo Jorge Fernandes<sup>1,2\*</sup> 

We aimed to verify if the upper and medium body strength, as well as relevant anthropometric characteristics, are success predictors of water polo shooting velocity and efficiency. Eighty-two male youth water polo players performed shots to the goal in two conditions — goalkeeper vs canvas — from a fixed position and with previous displacement, as well as some well-known physical conditioning tests (sit-ups, medicine ball throw and hand grip). Height, seated height and arm span were also assessed. Means and SD were computed, and Pearson bivariate correlation was used to evaluate the relationship with shooting velocity ( $p \leq 0.05$ ). The medicine ball throw ( $r = 0.74$  and  $0.71$  with goalie and with canvas) and the handgrip ( $r = 0.75$  and  $0.70$  with goalie and with canvas) were strongly related with shooting velocity. Height ( $r = 0.55$  and  $0.57$  with goalie and with canvas) and seated high ( $r = 0.61$  and  $0.64$  with goalie and with canvas) were high moderate and strongly related with shoot velocity (respectively), while arm span was low moderate related ( $r = 0.30$  and  $0.33$  with goalie and with canvas). Overall upper and medium strength showed a strong relation between upper and medium strength with shooting velocity ( $r = 0.79$  and  $0.74$  with goalie and with canvas). Overall anthropometrics values showed moderate relation with shooting velocity ( $r = 0.54$  and  $0.58$  with goalie and with canvas). In contrast with shooting velocity, efficiency had always despicable relation with the variables presented ( $r < 0.30$ ). It seems that upper strength and anthropometric characteristics are significant predictors of shooting velocity performance but not from shooting efficiency. Focus on precision, the opponent and goalkeeper position are also necessary to score a goal. To conclude it was possible to observe that upper strength has an important role on shooting velocity but not in efficiency and strength should be focused on the training process. Futures studies should be carried with youth women players and examine the relations between these variables and decision making.

<sup>1</sup>Centro de Pesquisa, Educação, Inovação e Intervenção em Esporte, Faculdade de Esporte, Universidade do Porto – Porto, Portugal.

<sup>2</sup>Laboratório de Biomecânica do Porto, Universidade do Porto – Porto, Portugal.

\*E-mail: ricfer@fade.up.pt

**Conflict of interests:** nothing to declare. **Funding:** nothing to declare.