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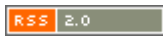
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Throwing velocity predictors in elite team handball players

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Abstract

Team Handball (TH) consists of intense, intermittent activities such as running, sprinting, jumping as well as regular throwing, hitting, blocking, and pushing between players. In addition to technical and tactical skills, it has been argued that one of the key skills necessary for success in team handball is throwing performance (Gorostiaga et al., 2006; Marques and González-Badillo, 2006). Although the technique of motion and the fitness level can be improved by the training process, others variables like strength and power can determine throwing ball velocity (TBv). To our best

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knowledge, few studies have examined the relationship between ball throwing performance in elite team handball players with dynamic strength and power metrics of the upper-extremity and lower extremities. The bench press is a widely used movement to develop strength and power in the upper-body in TH players. However, data about kinematics factors using light free weights is limited (Gorostiaga et al., 2006). Additionally, others studies observed that TBv is able to establish a strong correlation with lower-extremities, namely with maximum strength and vertical jump (Marques and González-Badillo, 2006). Furthermore, once most throwing actions are made during a step running throw, we also hypostatized that TBv could be related with short sprint running. Therefore, aim of this study was to examine the relationship between ball throwing velocity and bench press performance, squat strength, sprint

ability, and jump power in a group of elite TH players. A group of fifteen senior elite male TH players volunteered to participate in the study (average age: 23 years-old, range 20-29 years-old), including five Portuguese international players. Subjects were required to sign an informed consent form prior to the study. Study was also approved by the Institutional Review Committee Board of the local Committee for Medical Research Ethics. Study was also developed according to current Portuguese law and regulations as well as, the Helsinki Declaration.

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