CAN ABSOLUTE OR RELATIVE STRENGTH FOR UPPER-BODY, OR FULL-BODY DIFFERENTIATE STARTER VS. NON-STARTER IN COLLEGIATE ROWERS?

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INTRODUCTION

Many athletic positions and or status (starter vs. non-starter) are differentiated by one's physiological profile (speed, strength, agility, etc.). **PURPOSE:** The purpose of this study was to see if there are differences in absolute or relative strength for the back-leg-chest dynamometer and hand grip dynamometer between starters and non-starters in division II collegiate female rowers.

METHODS

Starters and non-starters were grouped according to the head rowing coach for the women's rowing team. Nine non-starters (age = 19.22 ± 1.09 years, height 170.16 cm ± 9.90 cm, mass 73.26 kg ± 13.17 kg) and eight starters (age = 19.75 ± 1.39 years, height 170.44 cm ± 2.28 cm, mass 71.91 kg ± 5.80 kg) performed two-three maximum back-leg-chest (BLC) dynamometer repetitions to assess maximum strength (kg's). All repetitions were performed at 135° knee flexion, an average of the repetitions were used for further analysis. In addition to the BLC assessment, maximum grip strength (HGS) was performed for the right (HGS_R) and left (HGS_L) hands to assess maximum grip strength (kg's). Each participant performed 2-3 repetitions per limb, and the average of the attempts was used for further analysis. Each repetition was performed with the elbow flexed at 90°. Absolute strength did not include one's mass, while relative strength did. A non-parametric Mann Whitney U was used to assess differences between status, and an alpha of 0.05 was used for level of significance.

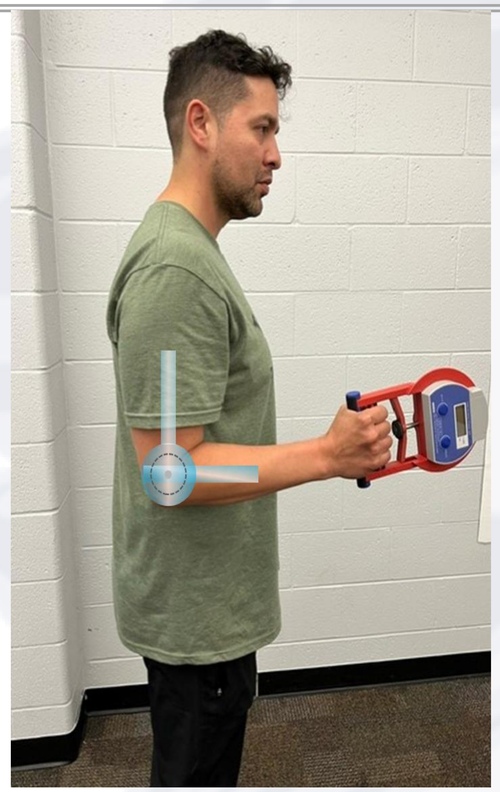

Figure 1. Representation for elbow flexor, knee flexor positions during maximal voluntary isometric contractions.

RESULTS

The present findings observed no significant difference for absolute BLC (P = 0.139), or relative BMC (P = 0.423), additionally, no differences were observed for absolute HGS_R (P = 1.000, relative HGS_R (P = 0.888) nor absolute HGS_L (P = 0.888), or relative HGS_L (P = 0.888).

CONCLUSIONS

The present findings suggest that absolute, nor relative maximum strength values (kg's) were able to differentiate starter from non-starter in division II collegiate rowers.

PRACTICAL APPLICATIONS

These findings may be of importance to the coaching or strength and conditioning staff. While the present study did not see a difference in maximum strength performance between status (starter vs. non-starter), future studies may want to incorporate more sensitive modes of assessment (rate of torque or force development) to further researchers understanding in physiological profile differences with female rowing athletes.

ACKNOWLEDGEMENTS

UCO Rowing Team and Strength and Conditioning Staff

Table 1. Mean (standard ceviation) values for absolute and relative strength for Upper-Body and Full-Body by playing status.

Status	R. Absolute Hand Grip Strength (Kg)	R. Relative Hand Grip Strength (Kg/Kg)	L. Absolute Hand Grip Strength (Kg)	L. Relative Hand Grip Strength (Kg/Kg)	Absolute Full-Body Strength (Kg)	Relative Full-Body Strength (Kg/Kg)
Starter	28.53 (3.27)	0.40 (0.05)	27.32 (3.24)	0.38 (0.03)	103.125 (14.39)	1.43 (0.13)
Non-Starter	28.64 (2.66)	0.40 (0.06)	26.59 (3.71)	0.37 (0.07)	95.64 (10.85)	1.33 (0.21)

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