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*Abstract*

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**Influence of anthropometry and body composition in climbing ability**

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ABSTRACT

**INTRODUCTION:** Climbing has become a popular, competitive and recreational sport. It requires, principally, skilled technique and high muscle strength. Therefore, it has been necessary to implement formal studies about the training of this discipline. Investigations have been performed some studies to demonstrate that the improvement of climbing can be explained with anthropometric and physiological variables.

**PURPOSE:** The purpose of this study was evaluate the main variables that affect the performance of the climbing, namely, anthropometry, body composition and climbing level.

**METHODS:** Eighteen climbers, ranged 22 - 40 years old and V2-V7 of climbing ability (according Hueco Tanks scale), were volunteered to participate. Measurements of anthropometric characteristics and body composition including height, arm spam, forearm maximum, midstylion-dactilion, lean arm mass, body mass index (BMI), skeletal muscle mass, body fat mass, visceral fat, were performed. All variables were evaluated by using a combination of a principal component analysis (PCA) with a cluster analysis.

**RESULTS:** When the analysis was performed in both anthropometry (skeletal muscle mass, lean arm mass and forearm maximum) and body composition (BMI, body fat mass and visceral fat) groups of variables, the results showed an 86% of the variance. The anthropometry variables showed correlation with 60% of the total variance. Concretely, the higher climbing level athletes (V5-V7) showed a higher lean body mass and arm muscle mass than the lower climbing levels athletes (V0-V4). On the other hand, the last group showed higher body fat mass and visceral fat mass with respect to the V5-V7 climbing athletes. **CONCLUSION:** The data of the present study showed a clear tendency on the variables, both body composition and anthropometry, in terms of the climbing level. However, these results are not completely conclusive. We suggest necessary to improve the performance of the measurements in future studies.