



Relationship between power and performance in Brazilian Army Military pentathlon athletes

Frederico Peter Altmann^{1,3}, Alexandre C. Theophilo G. O. Filho¹, Marcos Vinicius Marques Loyola^{1,2}, Laércio Rodrigues¹, Dirceu Gama^{3,4}, Danielli Braga de Mello^{1,3}, Adriane Mara de Souza Muniz¹

1. Physical Education College of Brazilian Army (EsEFEx, EB, Brazil).

2. Brazilian Army Sports Commission (CDE, EB, Brazil).

3. Laboratory of Exercise and Sport of Rio de Janeiro State University (LABBES, UERJ, Brazil)

4. Exercise and Sports Science Program, Rio de Janeiro State University (PPGCEE, UERJ, Brazil).

INTRODUCTION

Military pentathlon is a typical military sport practiced in more than 30 countries that requires functional abilities to perform shooting, obstacle run, obstacle swimming, throwing and cross-country running modalities.

Physical and physiological demands necessary to improve performance have not been well clarified yet in this sport. There is a lack of knowledge about the physical strength and power levels necessary for selecting and preparing athletes at this modality.



OBJECTIVE

Analyze the correlation between lower limb vertical jump power and military pentathlon performance (MPP).

METHODS

Study design: Descriptive correlational.

Sample: Fifteen pentathletes from Brazilian Army Military team (26.8 ± 3.4 years; 1.71 ± 0.8 m; 67.4 ± 11.27 kg).

Data collection:

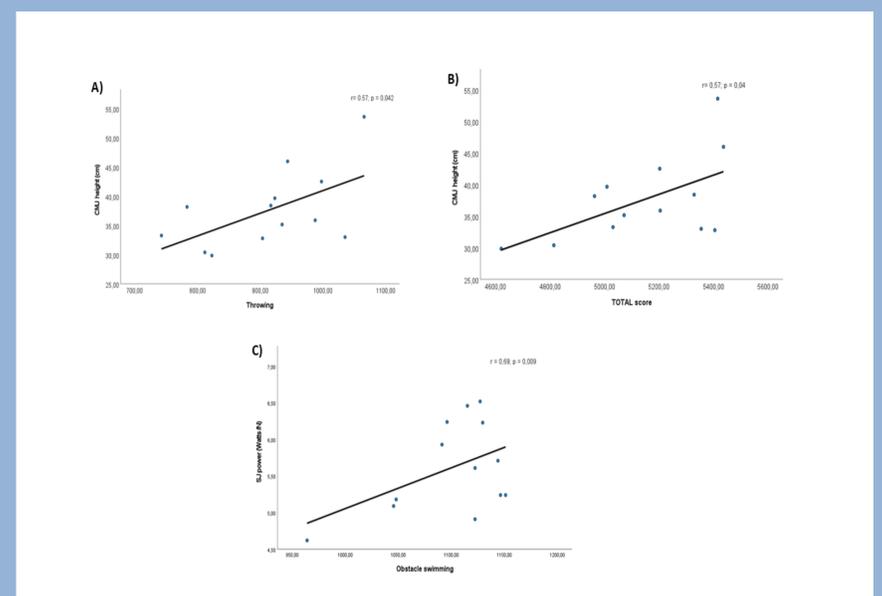
MPP was analyzed by data from National qualify trial for 67^o World Pentathlon Championship.

Vertical jump power: Three squat (SJ) and countermovement (CMJ) jumps were performed at maximal effort. Data was collected on the force platform (Bertec, USA).

Statistical analysis: Pearson's correlation coefficient was calculated between vertical jump variables and each pentathlon event. Significance level was set at $\alpha = 0.05$ and statistical analyses were computed in SPSS 20.0 (IBM, USA).

RESULTS

Moderate significant correlation was observed between **CMJ height and throwing** ($r=0.57$; $p=0.04$), **CMJ height and total score** ($r= 0.57$; $p=0.04$) and **SJ power and obstacle swimming** ($r=0.69$; $p= 0.009$).



DISCUSSION AND CONCLUSION

Vertical jump performance is related to the maximal strength, sprint ability, change of direction¹ and explosive force in athletes.

Therefore, the results pointed to the importance of power and plyometric training to improve pentathlon performance.

Practical Implications for CISM

The authors recommend to add the strength and plyometric training in the physical training to the improvement of military pentathletes performance.

REFERENCES

Comfort, Paul, et al. "Relationships between strength, sprint, and jump performance in well-trained youth soccer players." *The Journal of Strength & Conditioning Research* 28.1 (2014): 173-177.

Rodríguez-Rosell, David, et al. "Traditional vs. sport-specific vertical jump tests: reliability, validity, and relationship with the legs strength and sprint performance in adult and teen soccer and basketball players." *The Journal of Strength & Conditioning Research* 31.1 (2017): 196-206.

