

Acute whole body vibration training increases vertical jump and flexibility performance in elite female field hockey players

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Objective: To quantify the acute effect of whole body vibration (WBV) training on arm counter-movement vertical jump (ACMVJ), grip strength, and flexibility performance.

Methods: Eighteen female elite field hockey players each completed three interventions of WBV, control, and cycling in a balanced random manner. WBV was performed on a Galileo machine (26 Hz) with six different exercises being performed. For the control, the same six exercises were performed at 0 Hz, whilst cycling was performed at 50 W. Each intervention was 5 min in duration with ACMVJ, grip strength, and flexibility measurements being conducted pre and post intervention.

Results: There was a positive interaction effect (intervention \times pre-post) of enhanced ACMVJ ($p < 0.001$) and flexibility ($p < 0.05$) parameters following WBV; however no changes were observed after the control and cycling interventions. There was no interaction effect for grip strength following the three interventions.

Conclusions: Acute WBV causes neural potentiation of the stretch reflex loop as shown by the improved ACMVJ and flexibility performance. Additionally, muscle groups less proportionally exposed to vibration do not exhibit physiological changes that potentiate muscular performance.