Combination of external load and whole body vibration potentiates the GH-releasing effect of squatting in healthy females.

M. Giunta, A.E. Rigamonti, F. Agosti, A. Patrizi, E. Compri, M. cardinale, A. Sartorio

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In recent years, whole body vibration (WBV) has become an efficient complement or alternative to resistance training. Very limited data on the effects of different WBV protocols on anabolic hormones are available. In this study, we compared the growth hormone (GH), blood lactate (LA), and cortisol responses to different protocols involving WBV. Six healthy women recreationally active performed 10 sets of 12 dynamic squats in the following conditions: squatting alone (S), squatting + vibration (SV), squatting + external load (SE), and squatting + external load + vibration (SEV). All responses at the different stimuli determined acute increases in GH, cortisol, and LA. In particular, GH secretion significantly increased in all 4 conditions immediately after exercise session compared to other time points. Furthermore, a significantly larger increase was identified following SEV as compared to the other conditions. Cortisol concentrations significantly decreased after S, SV and SE whereas they increased significantly following SEV. LA peaks occurred immediately at the end of each condition. However it reached statistical significance only following SEV. The results of our study demonstrate that the combination of squatting + external load + vibration (SEV) could represent the most suitable modality to potentiate the somatotropic function and, indirectly, to obtain an increase in muscle strength and positive changes in the body composition. Further studies are necessary in order to determine the chronic effects of this exercise modality on the hormonal profile.