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Effect of vibratory stimulation training on maximal force and flexibility

CONTRIBUTORS:

[LINK](#) Author: **Issurin, V. B.**

[LINK](#) Author: **Liebermann, D. G.**

[LINK](#) Author: **Tenenbaum, G.** ([Florida State University](#))

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ABSTRACT:

In this study, we investigated a new method of training for maximal strength and flexibility, which included exertion with superimposed vibration (vibratory stimulation, VS) on target muscles. Twenty-eight male athletes were divided into three groups, and trained three times a week for 3 weeks in one of the following conditions: (A) conventional exercises for strength of the arms and VS stretching exercises for the legs; (B) VS strength exercises for the arms and conventional stretching exercises for the legs; (C) irrelevant training (control group). The vibration was applied at 44 Hz while its amplitude was 3 mm. The effect of training was evaluated by means of isotonic maximal force, heel-to-heel length in the two-leg split across, and flex-and-reach test for body flexion. The VS strength training yielded an average increase in isotonic maximal strength of 49.8 percent, compared with an average gain of 16 percent with conventional training, while no gain was observed for the control group. The VS conventional training and 2 cm for the control groups, respectively. The ANOVA revealed significant

pre-post training effects and an interaction between pre-post training and 'treatment' effects (P less than 0.001) for the isotonic maximal force and both flexibility tests. It was concluded that superimposed vibrations applied for short periods allow for increased gains in maximal strength and flexibility.