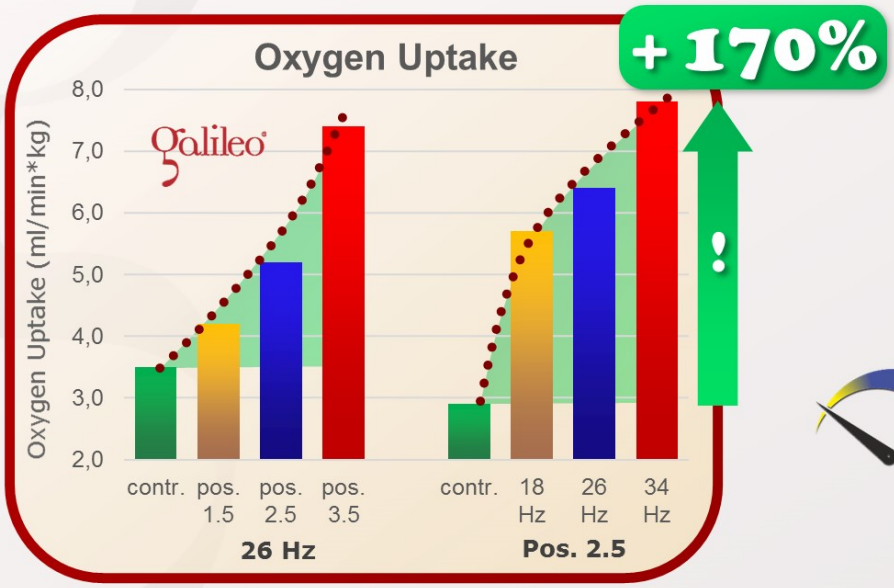
Is oxygen uptake during Galileo Training independent from frequency and amplitude ?

The answer is: NO

This study reports the influence of frequency and amplitude during Galileo Training on the oxygen uptake (1 min., 18-34Hz, position 1.5 to 3.5, active standing at 170°). The results show that with increasing frequency and amplitude oxygen consumption during Galileo Training can be increased up to 170%. The effect of higher increasing frequencies dominated the effect of increasing amplitude.



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Rittweger J, Ehrig J, Just K, Mutschelknauss M, Kirsch KA, Felsenberg D: Oxygen uptake in whole-body vibration exercise: influence of vibration frequency, amplitude, and external load; Int J Sports Med., 23(6):428-32, 2002; PMID: 12215962, GID: 264

Int J Sports Med. 2002 Aug;23(6):428-32.

Oxygen uptake in whole-body vibration exercise: influence of vibration frequency, amplitude, and external load.

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Abstract

Vibration exercise (VbX) is a new type of physical training to increase muscle power. The present study was designed to assess the influence of whole-body VbX on metabolic power. Specific oxygen uptake (sVO(2)) was assessed, testing the hypotheses that sVO(2) increases with the frequency of vibration (tested in 10 males) and with the amplitude (tested in 8 males), and that the VbX-related increase in sVO(2) is enhanced by increased muscle force (tested in 8 males).

With a vibration amplitude of 5 mm, a linear increase in sVO(2) was found from frequencies 18 to 34 Hz ($p < 0.01$). Each vibration cycle evoked an oxygen consumption of approximately 2.5 micro l x kg(-1). At a vibration frequency of 26 Hz, sVO(2) increased more than proportionally with amplitudes from 2.5 to 7.5 mm. With an additional load of 40 % of the lean body mass attached to the waist, sVO(2) likewise increased significantly. A further increase was observed when the load was applied to the shoulders.

The present findings indicate that metabolic power in whole-body VbX can be parametrically controlled by frequency and amplitude, and by application of additional loads. These results further substantiate the view that VbX enhances muscular metabolic power, and thus muscle activity.

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