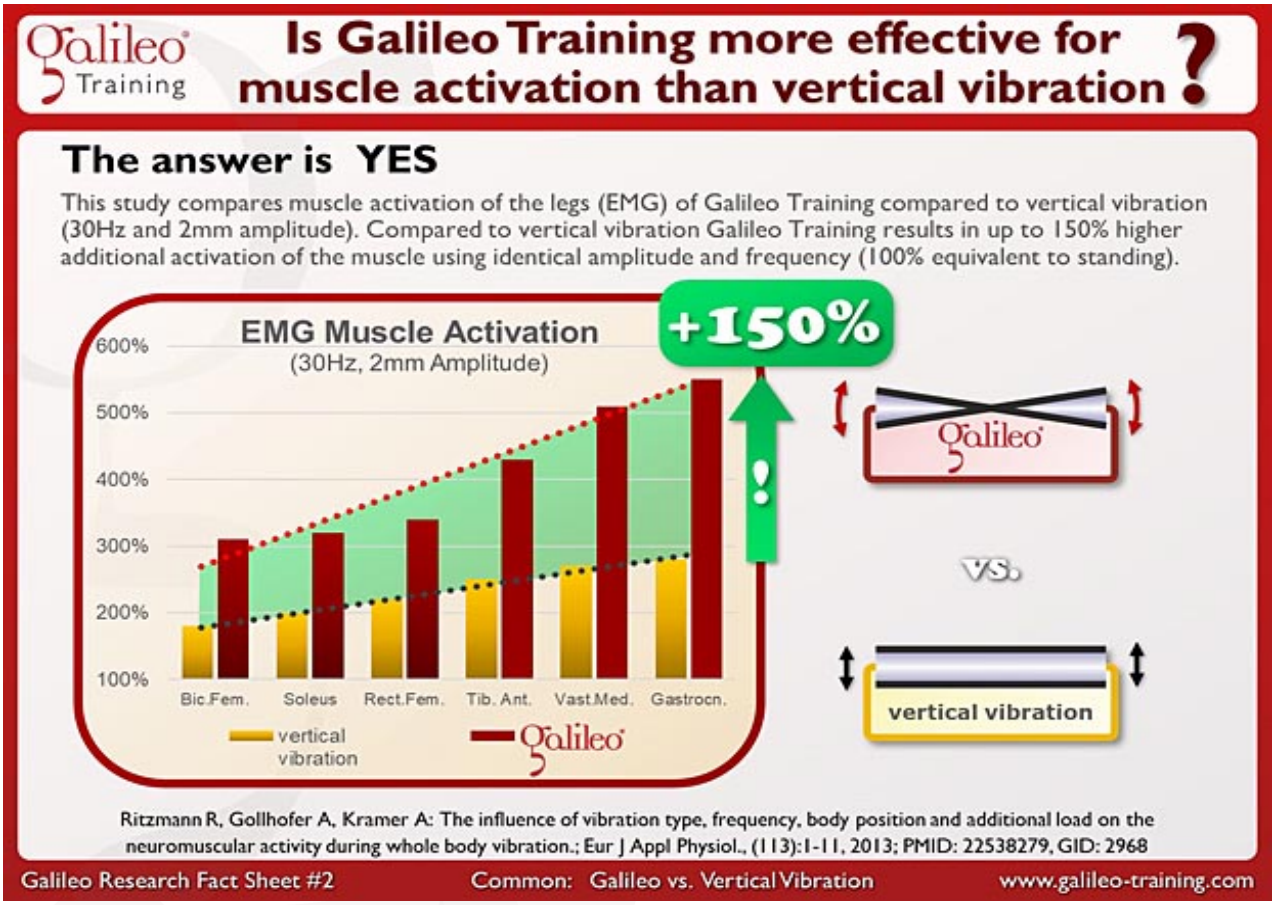

The original idea behind Galileo, which was also patented, was to use as physiological a movement as possible, something akin to human gait training.

Decisive component of walking is to load the legs alternately - and this is exactly what Galileo does with his concept of side-alternating vibration.

And as the research shows, this has many advantages (# GIS1 # GRFS7 # GRFS6 # GRFS18) such as that even with identical parameters (ie frequency and amplitude (deflection of the plate), as in this case eg 2mm amplitude (position 2 on Galileo) at 30Hz) the side-alternating vibration up to 150% higher additional muscle activation measured by EMG achieved as vertical vibration.

After 20 years of Galileo in research, one thing is clear: the type of vibration and the frequency range make the difference - not everything that vibrates is comparable to Galileo!

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The influence of vibration type, frequency, body position and additional load on the neuromuscular activity during whole body vibration.

Ritzmann R[1], Gollhofer A, Kramer A.

This study aimed to assess the influence of different whole body vibration (WBV) determinants on the electromyographic (EMG) activity during WBV in order to identify those training conditions that cause highest neuromuscular responses and therefore provide optimal training conditions.

In a randomized cross-over study, the EMG activity of six leg muscles was analyzed in 18 subjects with respect to the following determinants:

(1) vibration type (side-alternating vibration (SV) vs. synchronous vibration (SyV), (2) frequency (5-10-15-20-25-30 Hz), (3) knee flexion angle (10°-30°-60°), (4) stance condition (forefoot vs. normal stance) and (5) load variation (no extra load vs. additional load equal to one-third of the body weight).

The results are: (1) neuromuscular activity during SV was enhanced compared to SyV ($P < 0.05$); (2) a progressive increase in frequency caused a progressive increase in EMG activity ($P < 0.05$); (3) the EMG activity was highest for the knee extensors when the knee joint was 60° flexed ($P < 0.05$); (4) for the plantar flexors in the forefoot stance condition ($P < 0.05$); and (5) additional load caused an increase in neuromuscular activation ($P < 0.05$).

In conclusion, large variations of the EMG activation could be observed across conditions. However, with an appropriate adjustment of specific WBV determinants, high EMG activations and therefore high activation intensities could be achieved in the selected muscles.

The combination of high vibration frequencies with additional load on an SV platform led to highest EMG activities.

Regarding the body position, a knee flexion of 60° and forefoot stance appear to be beneficial for the knee extensors and the plantar flexors, respectively.

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