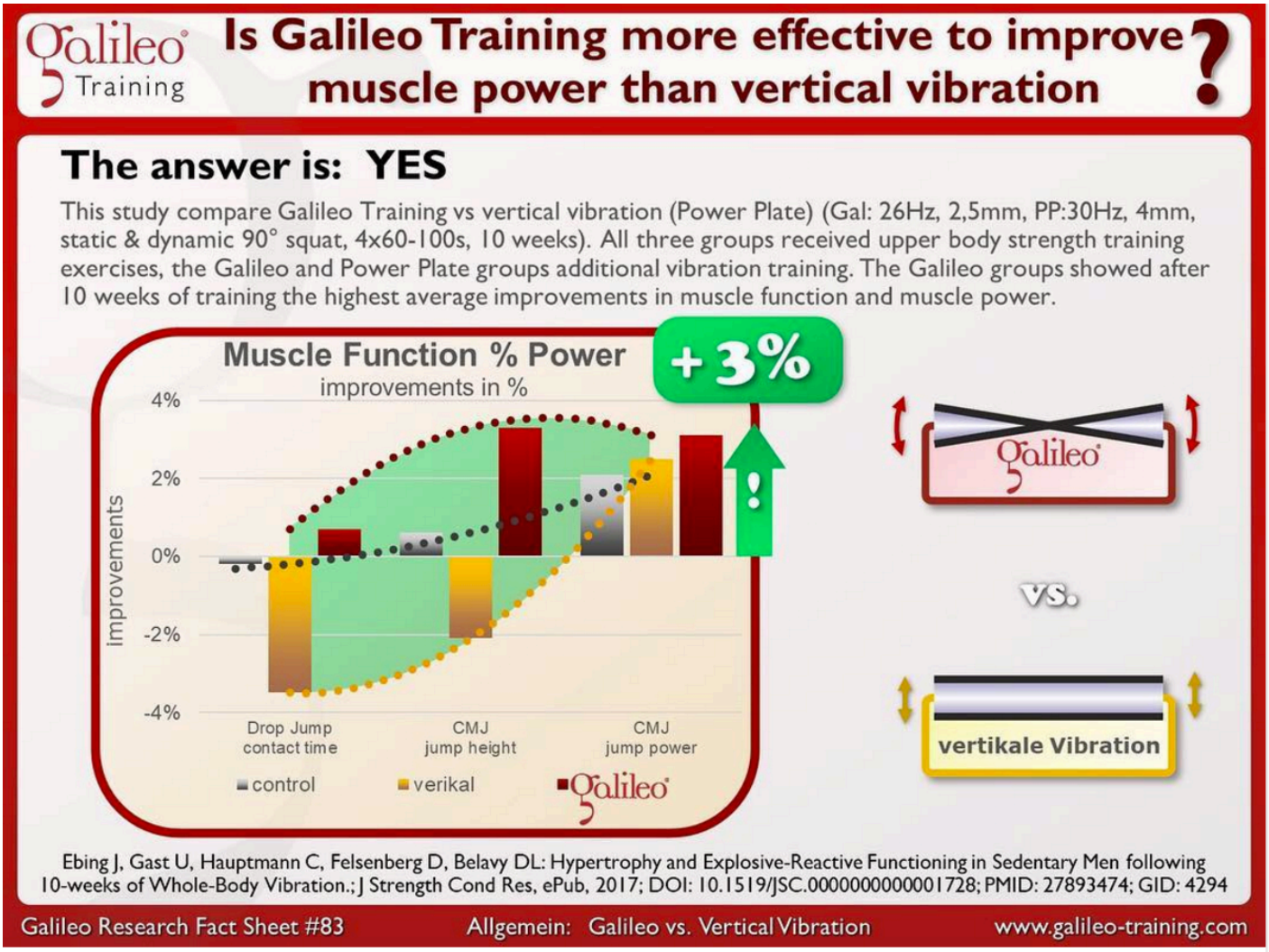

This study compared 10 weeks of Galileo Training vs. vertical vibration to increase muscle power at similar vibration stimuli (Galileo: 24Hz at 2,5mm amplitude (pos. 2.5); Power Plate: 30Hz at 2mm amplitude).

A control groups received strength training for the upper body only, the two vibration groups additional vibration training (3*60s to 4*100s static and dynamic 90° squats).

Both vibration groups showed similar significant improvements in muscle cross-sectional area, the Galileo Groups showed after 10 weeks of exercises in average the highest improvements in Muscle function and muscle power (e.g. increase jumping height and decrease drop jump contact time) – most probably due to the higher efficiency of Galileo Training in muscle activation (#GRFS2).

Galileo Training quite probably would have been even more effective at even higher frequencies up to 36Hz (#GRFS3, #GIS1).

Additional weights would have increased the efficiency of Galileo Training due to the increased muscle activation (äGRFS4) and therefore faster exhaustion of the muscle.

J Strength Cond Res. 2016 Nov 16. [Epub ahead of print]

Hypertrophy and Explosive-Reactive Functioning in Sedentary Men following 10-weeks of Whole-Body Vibration.

Ebing J[1], Gast U, Hauptmann C, Felsenberg D, Belavý DL.

Abstract

The objective of this study was to determine the impact of vertical (Power-plate; POW) and side-alternating (Galileo; GAL) whole-body vibration exercise on muscle mass and lower-limb neuromuscular function.

Forty-three sedentary male subjects (18-30yr) randomized into three groups underwent two upper-body exercise sessions per week for 10 weeks. Two groups of subjects underwent additional squat exercises on the GAL (N=15) or POW (N=14) devices. The third group was control.

On magnetic resonance imaging, volume of the thigh muscles was measured. Countermovement jump, multiple one-leg hopping, drop-jump, landing-test, 15m sprint and grip strength were performed. Measurements were performed at baseline, 5wks and 10wks.

Significantly greater increases in vasti volume were seen in the GAL (+4.15%; p=0.00076 vs. control) and POW (+4.81%; p=0.0074 vs. control) groups than in the control group (-1.22%) at 10wks. Adductor magnus volume increased in GAL (+2.24%; p=0.00038 vs. baseline) and POW (+2.33%; p=0.00038 vs. baseline) at 10wks, but this was not significantly different to control (-0.67%; p=0.54 vs. baseline). Hamstring volume decreased in GAL (-1.85%; p=0.00038 vs. baseline) at 5wks with the reduction in the POW group at 5wks (-1.73%; p=0.17 vs. baseline) not reaching significance.

There were no significant differences between the POW and GAL groups (p≥0.084) and no significant changes in neuromuscular performance.

Twice weekly squat with vibration exercise progressing from 3min to 5min time-under-tension lead to thigh muscle hypertrophy but no improvements in explosive-reactive function.

PMID: 27893474