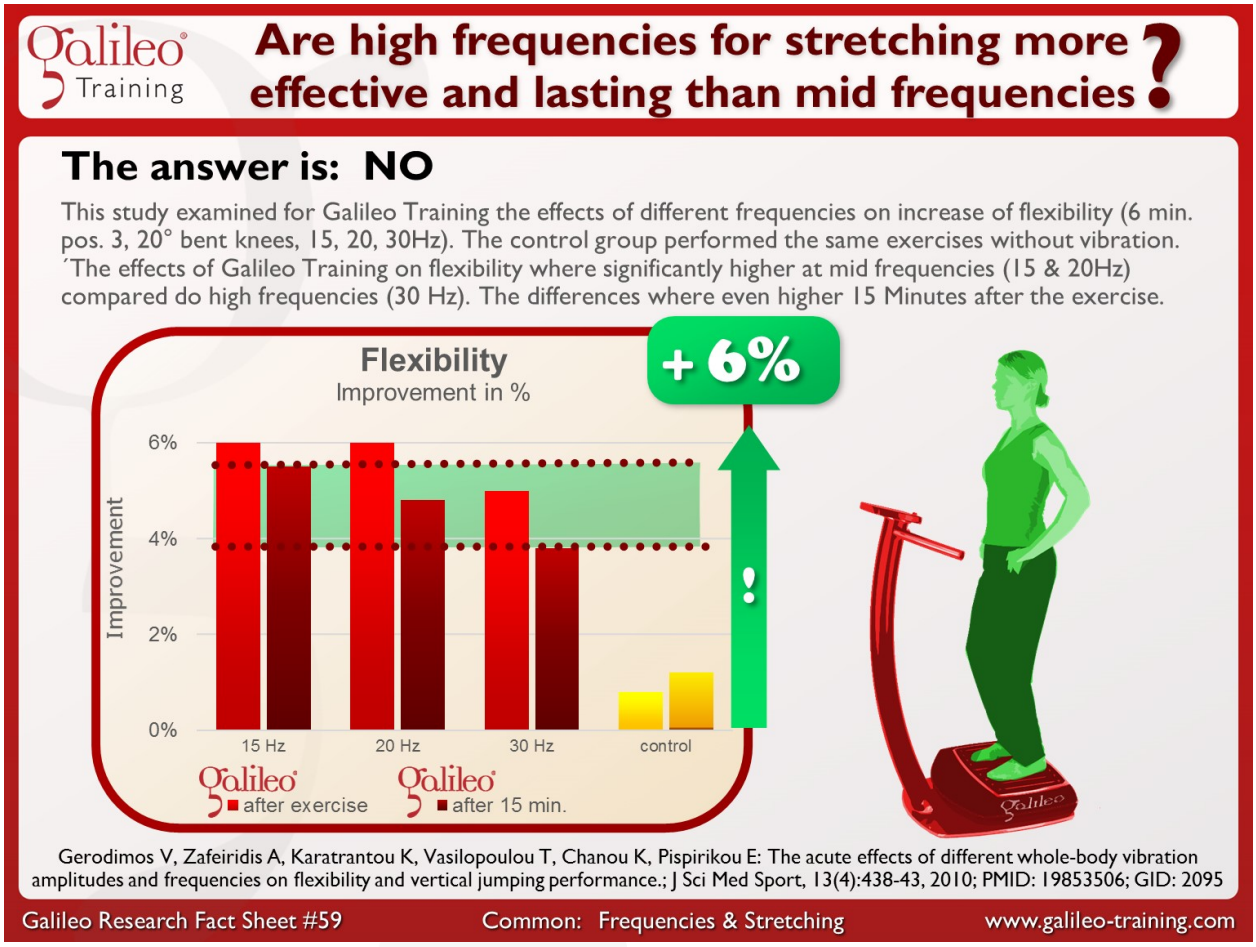

Are high frequencies for stretching more effective and lasting than mid frequencies?

Early Galileo studies (#GRFS16, #GRFS17, #GRFS38) used high frequencies (>25Hz) for stretching effects. But experience shows that mid frequencies (15 to 18 Hz) are much more effective for stretching & flexibility.

This study documented these differences. It tested different frequencies (15, 20 and 30Hz at foot position 3mm) and different amplitudes (positions 2,mm, 3mm, 4mm) at 25Hz. The flexibility before immediately after 6 minutes of exercise and 15 Minutes after the exercise were measured. The control group used the identical exercise without vibration and showed no effects.

The results show that mid frequencies (15 & 20Hz) are significantly more effective for stretching than high frequencies (30Hz) – in addition 15 minutes after the exercise the differences are even more prominent. The study also showed that high amplitudes (>foot position 3mm) are less effective than mid amplitudes (position 2mm and 3mm). Another interesting point is that the study didn't even use classic stretching exercises but mainly almost straight standing – the use of stretching exercises in combination with 15 Hz – 20Hz (mid-frequencies) would have been even more efficient.

One test everybody can try is Hamstring stretching: Foot Position 2mm, straight legs, upper body bent all the way down as far as possible (measure the distance between the finger-tips and the floor). At 16 to 18Hz, feet flat on the plate, body weight slightly shifted forward (but loading the heels) hands on a chair. Keep this position for 2-3 minutes and continuously try to push deeper by bending arms and pushing back with legs. Within 2-3 minutes typically users gain between 5 and 15 cm distance between finger-tips and floor.

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The acute effects of different whole-body vibration amplitudes and frequencies on flexibility and vertical jumping performance.

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Abstract

Frequency and amplitude determine the training load of whole-body vibration (WBV) exercise and thereby possible neuromuscular adaptations. We investigated the effects of amplitude and frequency of a single bout of WBV on flexibility and squat jump performance (SJ) and the time-course of these effects. In the amplitude study,

Twenty-five females performed three vibration protocols (VPs) for 6 min at frequency of 25Hz and amplitudes of 4 mm, 6 mm, and 8 mm and one control protocol (CP). In the frequency study, eighteen females performed three VPs at 6mm amplitude and frequencies of 15 Hz, 20 Hz, and 30 Hz and one CP. Flexibility and SJ were measured before, immediately-post and 15 min recovery. All protocols were performed on a side-to-side alternating vibration plate. In the amplitude study, flexibility was improved ($p<0.01$) immediately-post in VP4, VP6, VP8 (31.8+/-8.2, 31.9+/-7.6, 31.5+/-7.9, respectively) and at 15 min recovery (31.6+/-8.1, 31.5+/-7.9, 31.0+/-8.2, respectively) vs. pre-vibration (30.2+/-8.6, 30.3+/-8.1, 30.2+/-8.3, respectively), but remained unchanged in CP (30.6+/-8.3 immediately-post, 30.7+/-8.2 at 15 min vs. 30.4+/-8.2 pre-vibration).

In the frequency study, flexibility was improved ($p<0.01$) immediately-post in VP15, VP20, VP30 (31.5+/-5.2, 31.3+/-5, 31.7+/-5.3, respectively) and at 15 min recovery (31.3+/-5.4, 31.3+/-5.0, 31.3+/-5.3, respectively) vs. pre-vibration (30.6+/-5.4, 30.2+/-5.7, 30.3+/-5.9, respectively), but not in CP (30.7+/-5.1 immediately-post, 30.6+/-5 at 15 min vs. pre-vibration 30.5+/-5.7). There were no significant effects of amplitude or frequency on SJ.

In conclusion, a single WBV bout using a side-to-side alternating vibration plate may increase flexibility which persists for at least 15 min, without altering jumping performance. These effects were observed irrespective of frequency and amplitude.

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