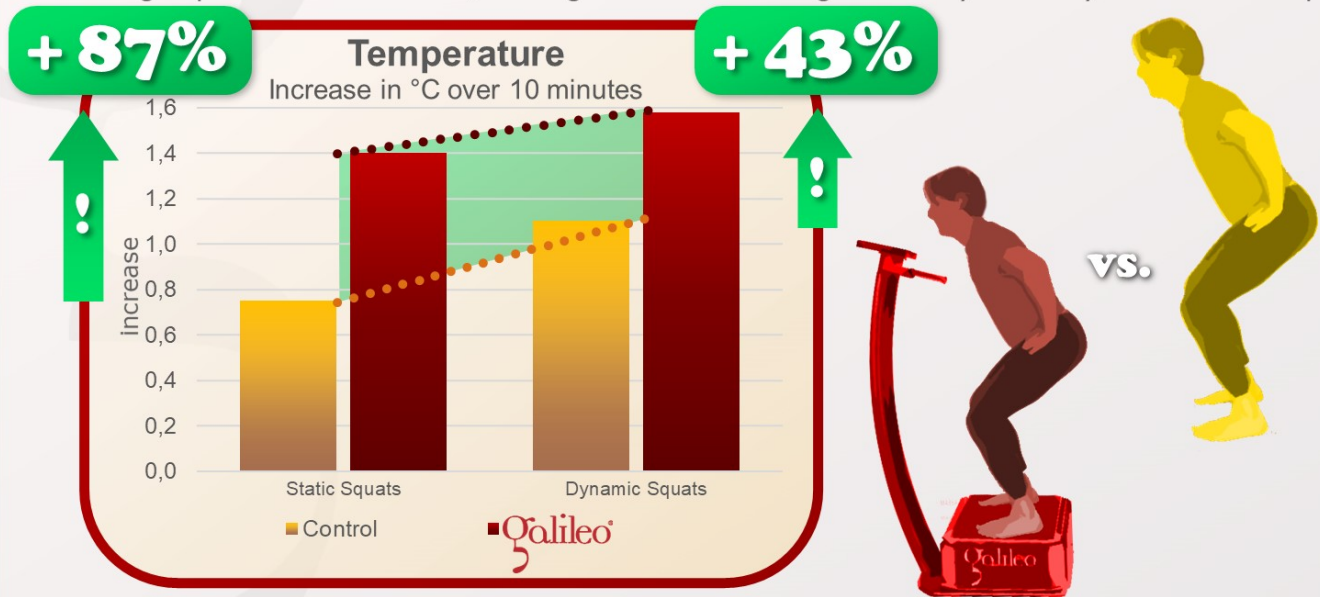


# Can squats with Galileo Training be more effective for warm-up than without Galileo ?

## The answer is: YES

This study documented the effects of Galileo Training in combination with squats on muscle temperature. Dynamic as well as static squats with and without Galileo were tested (26Hz, Pos. 3). The Galileo groups showed significant higher warming-up effects concerning muscle temperature with increases compared to the control group with +43% and +87%, showing that Galileo Training can be very effectively used for warm-up.



Cochrane DJ, Stannard SR, Firth EC, Rittweger J: Comparing muscle temperature during static and dynamic squatting with and without whole-body vibration; Clin Physiol Funct Imaging., 30(4):223-9, 2010; PMID: 20491843; GID: 2375

This study investigated the effects of Galileo Training used as warm-up training. Other studies already showed the positive warm-up effects of Galileo on muscle function, power, balance and flexibility (#GRFS61, #GRFS60, #GRFS47, #GRFS38).

This study however assessed the increase of the muscle temperature and other parameters like heart rate during different warm-up modalities.

It used well-defined static and dynamic squats with and without the combination of Galileo Training at 26Hz and position 3 (training focusing on muscle exhaustion and increased blood-flow and metabolism, #GIS1, #GRFS21).

The Galileo groups showed significantly higher effects over warm-up period of up to 10 minutes with increases compared to controls of +43% and +87%. Similar effects could be show for the heart rate.

In line with the other studies mentioned, this study shows once more how effective Galileo Training can be used as a warm-up tool – and this is independent weather it is used stand-alone or in combination with many other standard warm-up methods.



[Clin Physiol Funct Imaging](#). 2010 Jul;30(4):223-9. doi: 10.1111/j.1475-097X.2010.00931.x. Epub 2010 May 11.

## **Comparing muscle temperature during static and dynamic squatting with and without whole-body vibration.**

[Cochrane DJ](#)<sup>1</sup>, [Stannard SR](#), [Firth EC](#), [Rittweger J](#).

The aim of this study was to investigate the influence of shallow dynamic squatting (DS) versus static squatting (SS) with or without concurrent side-to-side alternating whole-body vibration (WBV) on vastus lateralis temperature and cardiovascular stress as indicated by heart rate (HR).

Ten participants (five men, five women) participated in four interventions [DS with WBV (DS+), DS without WBV (DS-), SS with WBV (SS+), SS without WBV (SS-)] 48 h apart, in a randomized order.

The interventions were preceded by a approximately 20-min rest period, consisted of 10 mins with or without WBV (26 or 0 Hz) with SS (40 degrees of knee flexion) or DS (55 degrees of knee flexion, at a cadence of 50 bpm) where SS+ and DS- were metabolically matched.

Muscle ( $T(m)$ ), core ( $T(c)$ ), skin temperature ( $T(sk)$ ), HR and  $VO(2)$  were recorded during each intervention. For  $T(m)$ , there was a time ( $P<0.01$ ) and WBV ( $P<0.01$ ) effect but no squat effect was evident, and there was time xWBV interaction effect ( $P<0.01$ ).

In all four interventions, the workload was too low to cause cardiovascular stress. Instead normal, moderate physiological effects of exercise on autonomic control were observed as indicated by HR; there were no significant increases in  $T(sk)$  or  $T(c)$ .

There appears to be no benefit in performing an unloaded, shallow DS+ at a tempo of 50 bpm as  $T(m)$ , HR,  $VO(2)$  are likely to be increased by the same amount and rate without WBV.

However, combining SS with WBV could be advantageous to rapidly increasing soft tissue temperature prior to performing rehabilitation exercises when dynamic exercise cannot be performed.

PMID: 20491843 DOI: [10.1111/j.1475-097X.2010.00931.x](#)