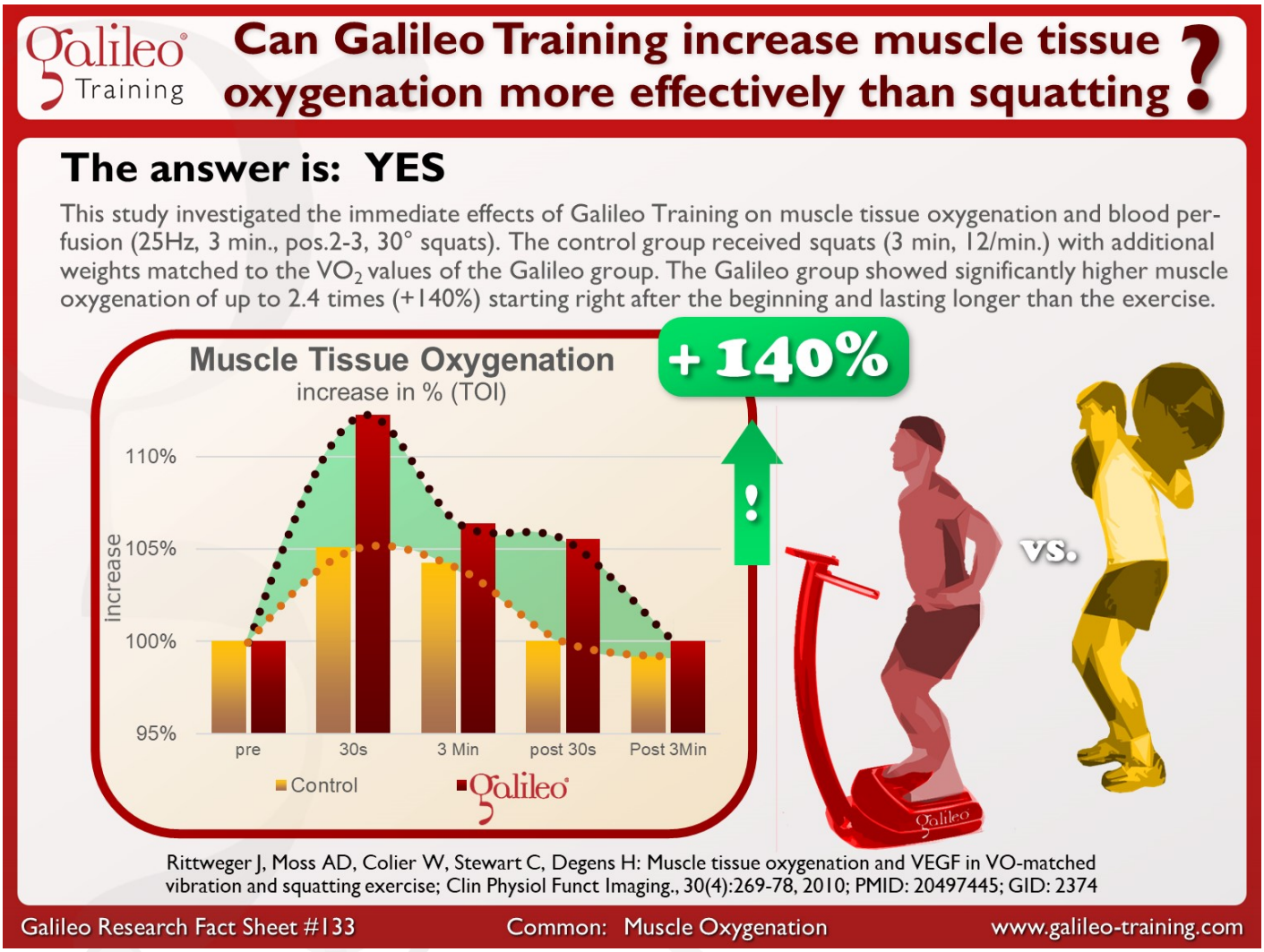

This study documented the short-term effects of Galileo Training on blood-flow and miscue tissue oxygenation.

The study compared 3 minutes Galileo Training position 2-3 (maximum width which allowed stable stance)) with squats using extra loads.

The additional loads used where matched to the VO2 (oxygen uptake) during the 3 minutes exercise of the Galileo group.

The results showed in the Galileo group a significantly higher muscle tissue oxygenation level (TOI, Tissue Oxygenation Index) with up to 2.4 times higher (+140*) then the control group (squatting with extra loads).

The effects showed right after the start of the training and, other then in the control group, lasted even after the end of the exercise.

Other Galileo studies already showed the influence of Galileo on blood-flow (#GRFS82, #GRFS 24, #GRFS 21, #GRFS 20) and also the increase of blood-flow immediate after the end of the exercise (#GRFS24).

The increase muscle tissue oxygenation as well as the increase blood-flow is probably one of the reason for the effect of Galileo Training to increase endurance (#GRFS46, #GRFS12, #GRFS11).

In addition #GRFS21 showed that blood-flow strongly increases with increasing frequencies – therefore using higher frequencies (30-33HZ) would have been probably even more effective in this study.

Clin Physiol Funct Imaging. 2010 Jul;30(4):269-78. doi: 10.1111/j.1475-097X.2010.00937.x. Epub 2010 May 23.

Muscle tissue oxygenation and VEGF in VO-matched vibration and squatting exercise.

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Exposure to vibration has traditionally been associated with compromised perfusion.

This study investigated whether blood supply during whole body vibration (WBV), as an exercise modality, is in proportion to the metabolic demand by the contracting musculature.

As a secondary aim, serum levels of vascular endothelial growth factor (VEGF) were assessed. Ten young healthy males performed WBV and dynamic shallow squatting (Squat) exercise at comparable levels of oxygen uptake for 3 min.

Changes in oxygenated, deoxygenated and total haemoglobin (O(2)Hb, HHb and tHb, respectively) along with tissue oxygenation index (TOI) were measured continuously before, during and after the exercise by near-infrared spectroscopy (NIRS, Portamon, Artinis Medical Systems, Zetten, The Netherlands).

Vascular endothelial growth factor-A blood levels before and after exercise were assessed by ELISA. Oxygen uptake was comparable in Squat and WBV (11.4 and 10.7 ml kg(-1) min(-1)), respectively, P = 0.49), as were all other cardiopulmonary variables.

Near-infrared spectroscopy data were found to be non-stationary during and shortly after WBV, but stationary in Squat. There was an increase in O(2)Hb and TOI, and a decrease in HHb during the first 30 s of WBV, but no significant change was observed during Squat.

No group difference was found in VEGF serum levels. These results suggest that oxygen supply during WBV is sufficient, and oxygenation is even enhanced during the first approximately 30 s.

Most likely, the transient response is because of local vascular regulatory mechanisms and due to muscle contraction mechanics. This might become clinically relevant under pathological conditions, e.g. in vascular disorders.

PMID: 20497445 DOI: 10.1111/j.1475-097X.2010.00937.x