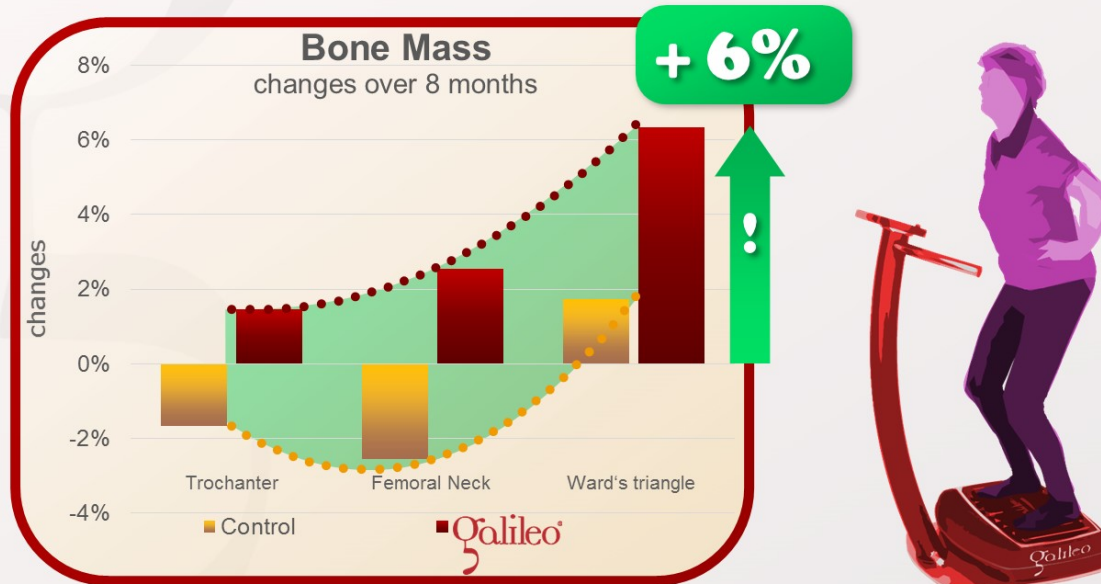


# Can Galileo Training increase bone mass and decrease fracture risk ?

## The answer is: YES

This study compared Galileo Training vs. an one hour walking training (12,5Hz, pos. 3 , 60° bent knees, 6\*1 min./day, 3/week, 8 months). The control group received a walking training (60 min.) + stretching exercises. The control group could not prevent bone loss. The Galileo Group could increase bone mass by more than 2% in the Ward-region even up to 6% and increase balance parameters by more than 25%.



Gusi N, Raimundo A, Leal A: Low-frequency vibratory exercise reduces the risk of bone fracture more than walking: a randomized controlled trial; BMC Musculoskelet Disord., 7:92, 2006; PMID: 17137514; GID: 338

### This study shows how Galileo Training can be used in the elderly.

One question frequently asked about Galileo Training is whether it's safe to be used in the elderly or if it might be too intense for them? What's important to note is that more than 20 years ago Hans Shieβl invented Galileo Training for exactly this purpose: to allow effective training of osteoporotic elderly. The astonishing fact is not that Galileo Training can be used in frail osteoporotic elderly ladies but that the same device can also be used to generate significant training effects in athletes. Many studies showed that Galileo Training can improve balance (#GRFS38, #GRFS43) and muscle function / muscle power (#GRFS10, #GRFS26, #GRFS32, #GRFS42) and therefore also fall risk (#GRFS27). But if a training can increase muscle function and make the elderly use their muscles in every-day living again (e.g. stair climbing) then a long-term effect on bone parameter can be expected. In this study elderly women used Galileo 6 minutes at 12.5Hz, slightly bent knees, 3 times per week over a period of 8 months. The control group did extensive walking training (60 minutes) plus stretching exercises. While the control group could not prevent bone-loss, the Galileo group increased bone mass at the upper leg (trochanter and femoral neck) by more than 2% and inside the femoral neck (the so called Ward's triangle, where the loss of bone mass is most obvious) even over 6%. This is astonishing considering that young men after a bedrest period of 2 months (ESA Bedrest studies: #BBR#GRFS45) only increase their bone mass by 2% in average. Therefore, this increase of bone mass over a period of 8 months is close to the maximum possible bone acquisition rate.



[BMC Musculoskelet Disord.](#) 2006 Nov 30;7:92.

## **Low-frequency vibratory exercise reduces the risk of bone fracture more than walking: a randomized controlled trial.**

Gusi N<sup>1</sup>, Raimundo A, Leal A.

Abstract

### **BACKGROUND:**

Whole-body vibration (WBV) is a new type of exercise that has been increasingly tested for the ability to prevent bone fractures and osteoporosis in frail people. There are two currently marketed vibrating plates: a) the whole plate oscillates up and down; b) reciprocating vertical displacements on the left and right side of a fulcrum, increasing the lateral accelerations. A few studies have shown recently the effectiveness of the up-and-down plate for increasing Bone Mineral Density (BMD) and balance; but the effectiveness of the reciprocating plate technique remains mainly unknown. The aim was to compare the effects of WBV using a reciprocating platform at frequencies lower than 20 Hz and a walking-based exercise programme on BMD and balance in post-menopausal women.

### **METHODS:**

Twenty-eight physically untrained post-menopausal women were assigned at random to a WBV group or a Walking group. Both experimental programmes consisted of 3 sessions per week for 8 months. Each vibratory session included 6 bouts of 1 min (12.6 Hz in frequency and 3 cm in amplitude with 60 degrees of knee flexion) with 1 min rest between bouts. Each walking session was 55 minutes of walking and 5 minutes of stretching. Hip and lumbar BMD (g.cm<sup>-2</sup>) were measured using dual-energy X-ray absorptiometry and balance was assessed by the blind flamingo test. ANOVA for repeated measurements was adjusted by baseline data, weight and age.

### **RESULTS:**

After 8 months, BMD at the femoral neck in the WBV group was increased by 4.3% (P = 0.011) compared to the Walking group. In contrast, the BMD at the lumbar spine was unaltered in both groups. Balance was improved in the WBV group (29%) but not in the Walking group.

### **CONCLUSION:**

The 8-month course of vibratory exercise using a reciprocating plate is feasible and is more effective than walking to improve two major determinants of bone fractures: hip BMD and balance.