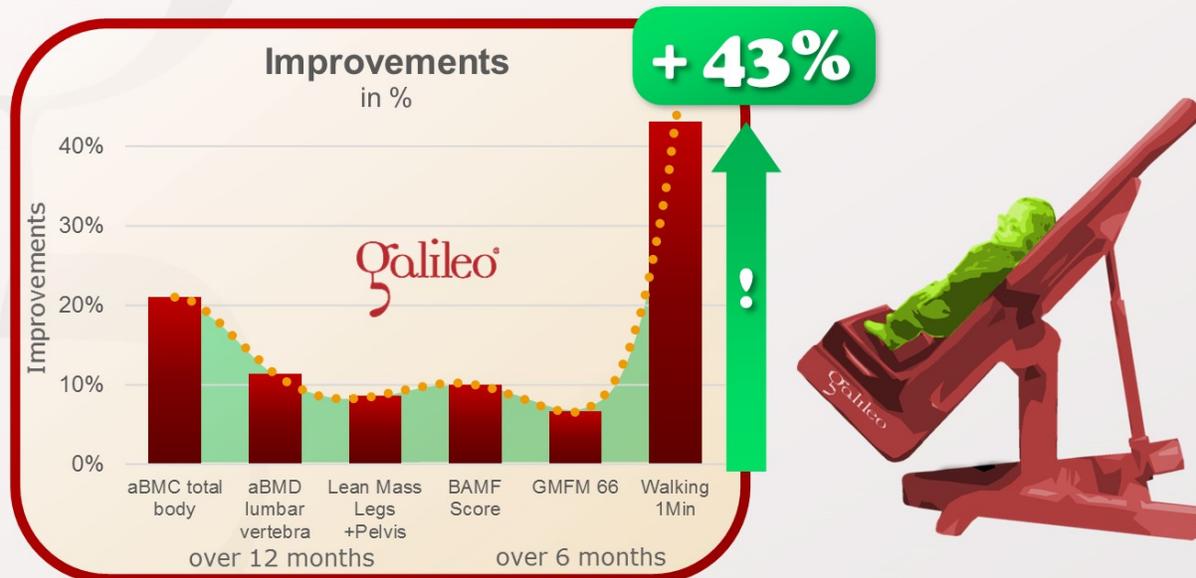


## The answer is: YES

This study evaluated the effects of 6 months of Galileo Training in Osteogenesis Imperfecta (OI) patients (Cologne Concept, 10 units/week, 6 months, 15-20Hz, individual exercises). The Galileo Therapy showed significant increase in muscle function (e.g. GMFM66 or walking distance) of up to 43%, an increase of muscle mass in the legs and pelvis of 8% and total body bone mineral content (BMC) of 21%



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The Cologne Concept “Back on Your Feet” ([#GRFS15](#), [#GRFS14](#), [#GRFS13](#)) was developed by the group around Prof. Eckhart Schoenau at the University Hospital Cologne, Germany and has published many positive effects of Galileo-Training over 15 yrs.

This study highlights the effects of Galileo Training in Osteogenesis Imperfecta (OI, also called “brittle bone diseases”) patients. Interestingly OI is a typical example for one very fundamental problem: The additional (secondary) negative effects on the human body of muscle DISUSE. These secondary problems can be seen in almost any disease or condition and its effects are often even more drastic than the primary effects of the disease itself.

What happens is quite simple: if the muscle is not used muscle mass and function is lost and this has negative effects on many other aspects of the human body including bone mass and bone geometry. In case of OI due to a genetic defect bone is over calcified (so the bone becomes “brittle”) which causes a high fracture risk especially in children (often several fractures per year). Due to this these high fracture risk patients are tempted not to be physically active to minimize the number of fractures.

However, this lack of muscle use (disuse) causes loss of muscle function and therefore additional loss of bone mass – a downward spiral which is simply caused by disuse of muscle. Especially during the growth period physical activity is important (about 30% of growth in length is caused by physical activity – therefore being less physical active means less growth). This study shows the effect of the Cologne Concept (6 months home-based Galileo Training, 10 sessions per week, 20-24Hz, exercises optimized to the individual needs) in OI patients:

After 6 months of Galileo Training there was a significant improvement in muscle function (GMFM66, walking distance) of up to 43%, and increase of muscle mass in legs and hips of 8% and an increase of bone mineral content (aBMC) of over 20% - a nice example of how Galileo Training can help to stop the downward spiral of disuse.



[J Musculoskelet Neuronal Interact.](#) 2014 Dec;14(4):445-53.

## **A specialized rehabilitation approach improves mobility in children with osteogenesis imperfecta.**

Hoyer-Kuhn H<sup>1</sup>, Semler O, Stark C, Struebing N, Goebel O, Schoenau E.

### **Abstract**

#### **OBJECTIVE:**

Osteogenesis imperfecta (OI) is a rare disease leading to recurrent fractures, hyperlaxicity of ligaments, short stature and muscular weakness. Physiotherapy is one important treatment approach. The objective of our analysis was to evaluate the effect of a new physiotherapy approach including side alternating whole body vibration on motor function in children with OI.

#### **METHODS:**

In a retrospective analysis data of 53 children were analyzed. The 12 months approach included 6 months of side alternating whole body vibration training, concomitant physiotherapy, resistance training, treadmill training and 6 months follow up. Primary outcome parameter was the Gross Motor Function Measure after 12 months (M12).

#### **RESULTS:**

53 children (male: 32; age (mean±SEM): 9.1±0.61, range 2.54-24.81 years) participated in the treatment approach. A significant increase of motor function (GMFM-66 score 55.47±2.45 to 58.67±2.83; p=0.001) and walking distance (47.04 m±6.52 to 63.36±8.25 m (p<0.01) between M0 and M12 was seen. Total body without head bone mineral density increased significantly at M12 (p=0.0189).

#### **CONCLUSIONS:**

In the cohort of OI children which participated in the specialized treatment approach improvements of motor function were observed. Therefore this program should be considered as additional therapeutic approach for children with severe OI.

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