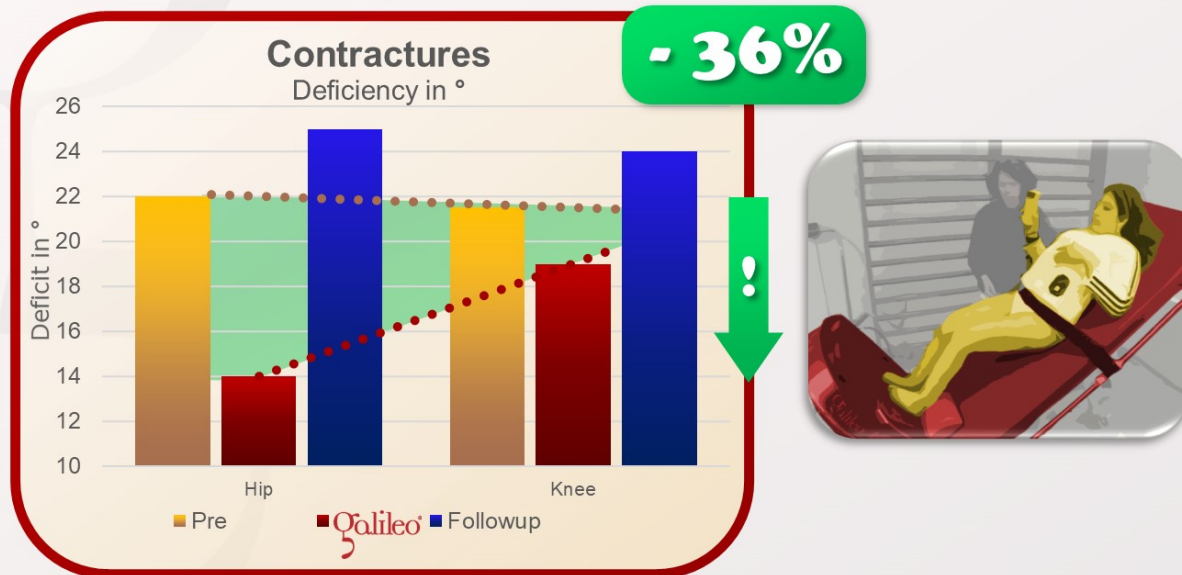


**The answer is: YES**

This study shows the effect of Galileo Therapy (*Cologne Concept*: 3x3 minutes, 10 session/week, 26 weeks) with Spina Bifida patients (5-13 years). Contractures in Hip extension improved up to 36% and up to 14% in knee extension. At the same time standing improved by 36% (GMFM-D) and walking improved by 20% (GMFM-E). (Before Galileo Therapy, after Galileo, after additional 6 month without Galileo Therapy).



Stark C, Hoyer-Kuhn HK, Semler O, Duran I, Schoenau E, et.Al.: Neuromuscular training based on whole body vibration in children with spina bifida: a retrospective analysis of a new physiotherapy treatment program.; Childs Nerv Syst, 31(2):301-9, 2015; PMID: 25370032; CID: 3658

Galileo Research Fact Sheet #15

Kids Therapy: Spina Bifida, Contractures

[www.galileo-therapy.com](http://www.galileo-therapy.com)

Another study from the group of Prof. Schoenau at the University of Cologne (“Cologne Concept”). In this case Spina Bifida (open spine at birth) patients received Galileo Therapy in order to reduce contractures. The amount of contractures was measured as extension deficit at hip and knee before intervention, after 6 months of Galileo Therapy and 6 months post Galileo Therapy (follow-up).

The results show that contractures could be reduced significantly within the 6 months of Galileo Therapy (yellow to red) but decrease again after the end of intervention (red to blue). The reason why they decrease further than the start is probably because these patients in this age group usually show an increase in contractures even under standard therapy.

Contractures can be understood as structural changes and shortening in muscles and tendons, with the largest part of the effect on the muscle side. Therefore to reduce contractures with Galileo Therapy classic stretching exercises (16-18Hz) can be very effective – in the case of knee contractures very efficiently on the Galileo Delta tilt-table e.g. at a tilt-angle of 45°. The knees of the patients have to press down in this position and usually large effects can be seen after 5 minutes only.

To establish these short-term effects permanently this therapy has to be repeated permanently (unless functional improvements can be established as well) – otherwise as documented in this study, the contractures will increase again.

One of the reasons of contractures is the lack of functional usage of the structure – in this case the lack of standing and walking or non-physiological gait patterns. Only if these deficits are addressed successfully, Galileo Therapy focusing on reduction of contractures is not necessary any more. Galileo Therapy can help to address these functional issues as well – in this study improvements of Gait (+20%, GMFM-66) and standing (+36%, GMFM-66) were documented which even persisted after 6 months follow-up – however, obviously not quite enough improvements yet to prevent increasing contractures without Galileo Therapy.



[Childs Nerv Syst.](#) 2015 Feb;31(2):301-9. doi: 10.1007/s00381-014-2577-2. Epub 2014 Nov 5.

## **Neuromuscular training based on whole body vibration in children with spina bifida: a retrospective analysis of a new physiotherapy treatment program.**

[Stark C](#), [Hoyer-Kuhn HK](#), [Semler O](#), [Hoebing L](#), [Duran I](#), [Cremer R](#), [Schoenau E](#).

### **INTRODUCTION:**

Spina bifida is the most common congenital cause of spinal cord lesions resulting in paralysis and secondary conditions like osteoporosis due to immobilization.

Physiotherapy is performed for optimizing muscle function and prevention of secondary conditions. Therefore, training of the musculoskeletal system is one of the major aims in the rehabilitation of children with spinal cord lesions.

### **INTERVENTION AND METHODS:**

The neuromuscular physiotherapy treatment program Auf die Beine combines 6 months of home-based whole body vibration (WBV) with interval blocks at the rehabilitation center: 13 days of intensive therapy at the beginning and 6 days after 3 months.

Measurements are taken at the beginning (M0), after 6 months of training (M6), and after a 6-month follow-up period (M12).

Gait parameters are assessed by ground reaction force and motor function by the Gross Motor Function Measurement (GMFM-66). Sixty children (mean age  $8.71 \pm 4.7$  years) who participated in the program until February 2014 were retrospectively analyzed.

### **RESULTS:**

Walking velocity improved significantly by 0.11 m/s ( $p = 0.0026$ ) and mobility (GMFM-66) by 2.54 points ( $p = 0.001$ ) after the training. All changes at follow-up were not significant, but significant changes were observed after the training period. Decreased contractures were observed with increased muscle function.

### **CONCLUSION:**

Significant improvements in motor function were observed after the active training period of the new neuromuscular training concept.

This first analysis of the new neuromuscular rehabilitation concept Auf die Beine showed encouraging results for a safe and efficient physiotherapy treatment program which increases motor function in children with spina bifida.

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