Effect of a motion therapy device on the hip joints of children with bilateral spastic cerebral palsy, GMFCS IV/V aged 6 to 10 years, as a procedure embedded in the conductive multi therapy system.

The goal of this research is to provide evidence as to whether the daily use of a motion device, for example the Innowalk, in a daily multitherapy conductive education routine has a positive effect on the degree of mobility of the hip joints as well as on the spasticity of the subjects' hip adductor and ischiocrural muscles.

Litterature research and three-month longitudinal study

Intervention group (7children) and control group (4 children): Bilateral spastic cerebral palsy, GMFCS IV and V, 6-10 years old

Motion therapy device: The Innowalk is a motor operated motion therapy device that places children and adolescents with severe multiple disabilities in an upright correct position, and which helps supported walking motion in both sitting and standing position.

Timing of measurements: Before starting the study, after two months, after three months (end of study)

Measuring parameters: Range of motion both hips using the Goniometer. Spasticity of the hip flexor, abducutors and the ischiocrural muscles using the Modified Tardieu Scale.

Duration: 45 min 5 times per week in motion therapy device

Hip abduction right



ROM in the hip joint in **flexion** (right p=0.006, left p= 0.019), **abduction** (right p= 0.042, Left p= 0.011), **adduction** (p=0.011) and **internal rotation** (right p=0.044) improved significantly for all the children in the intervention group compared with the control group. A significant reduction in **muscle tone** was also determined in the **adductor muscles** (p= 0.008) and in the **ischiocrural muscles** (p= 0.021).

Functional improvements was also seen on: Torso control - Endurance when walking, using aids -Standing duration in other standing devices - Quality of gait

No anti-constipation medication was required for the children, normally using this medication, while using the motiion therapy device.

Conclusion

- Motion therapy device (Innowalk) have direct effect on the hip joint of children with cerebral palsy
- Effects on the range of motion and spasticity could be demonstrated
- The determining factor was the duration of the intervention (3 months)
- It is an expedient supplement for conductive multitherapy education or other therapy concepts
- This approach provides a possiblity to mobilise children with cerebral motion disorders GMFCS IV and V adequately and independently from from their size and weight in an upright correct position as well as to maintain or even improve mobility of the hip joint.







Author; Physiotherapist Jana Käferle



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