AKTIVITET, BEVÆGELSE OG SELVSTÆNDIGHED

- for alle

Odense 04 03 16

Børn vil vanligvis bevæge sig ind i en oprejst position i alderen fra 9-12 måneder.

Den vertikale stilling og muligheden for at bevæge sig, har stor betydning for barnets fysisk og psykiske udvikling.

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- ✓ Børn med **nedsat funktionsevne** har begrænset mulighed for selvstændig bevægelse og dermed dårligere forudsætninger for at bevæge sig i en oprejst position.
- ✓ De vil have behov for forskellig grad af støtte for at kunne opnå dette, blandt andet ved hjælp af **hjælpemidler**

«NF-WALKER giver mulighed for at utvikle barnets potensiale for selvstændig bevægelse i stående position»

DET ER GOD PRAKSIS AT OVERVEJE AT ANVENDE POSITIONERING AF BARNET I STÅENDE STILLING HOS BØRN MED CEREBRAL PARESE UDEN SELVSTÆNDIG STANDFUNKTION

OVERVEJ AT ØGE VARIGHEDEN AF POSITIONERING I DEN STÅENDE STILLING HOS BØRN MED CEREBRAL PARESE UDEN SELVSTÆNDIG STANDFUNKTION

Ref.: «National klinisk retningslinje for fysioterapi og ergoterapi til børn og unge med nedsat funktionsevne som følge av cerebral parese

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Helsedirektoratet *oppfordrer* ***alle,*** *uansett alder, til at minske stillesitting og øke tiden med fysisk aktivitet. Regelmessig fysisk aktivitet virker helsefremmende, giver overskudd og et viktig virkemiddel for at forebygge forskjellige diagnoser og tilstander.*

Ref.: ww.helsedirektoratet.no

FORDELE VED POSITIONERING I OPREJST STILLLING MED BEVÆGELSE

- ✓ Mestringsoplevelse
- ✓ Socialt samspil
- ✓ Udforske omgivelserne
- ✓ Deltagelse
- ✓ Reducere sekundære komplikationer
  - hofteluksastion, osteoporose, cirkulation, respiration, ledbevægelighed

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BEVÆGELSES HJELPEMIDLER

Made for Movement udvikler og leverer individuelt tilpassede hjælpemidler til børn med nedsat funktionsevne.

Barnet følges kontinuerligt op af vores hjelpemiddelkonsulenter således at produktet til enhver tid er tilpasset barnets størrelse og funktionsniveau

INNOWALK small
Brukerstørrelse
80 - 150 cm
Max 50 kg

NF-WALKER
Brukerstørrelse
70 - 150 cm
Max 50 kg

NF-WALKER

- ✓ Oprejst position med vægtbæring
- ✓ Gir nødvendig støtte og korrektion
- ✓ Selvstændig bevægelse og forflytning
- ✓ Begge hænder fri
- ✓ Individuelt tilpasset
- ✓ «Vokser» med barnet
- ✓ Ekstra udstyr

Hvornår igangsætter du tiltag for stående positionering hos børn med nedsat funktionsevne?

Hvilke overvejelser gør du som terapeut i vurdering af stå og/eller ganghjælpemiddel?

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Barnet får mulighed for at udforske sine omgivelser i oprejst position med hænderne fri

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INNOWALK

- ✓ Gør bevægelse mulig
- ✓ Giver assisteret, guidet og gentagende bevægelse
  - i oprejst, kontrollert position med vægtbærring
- ✓ Er enkel at bruge som daglig aktivitet
- ✓ Giver sikker mobilisering af brugeren
- ✓ Der kræves ingen selvstændig stå- eller gå-funktion for at bruge INNOWALK
- ✓ Tilpasses individuelt
- ✓ Følges kontinuerligt op af vores hjælpemiddelkonsulenter

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.

AIM

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.

METHOD

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

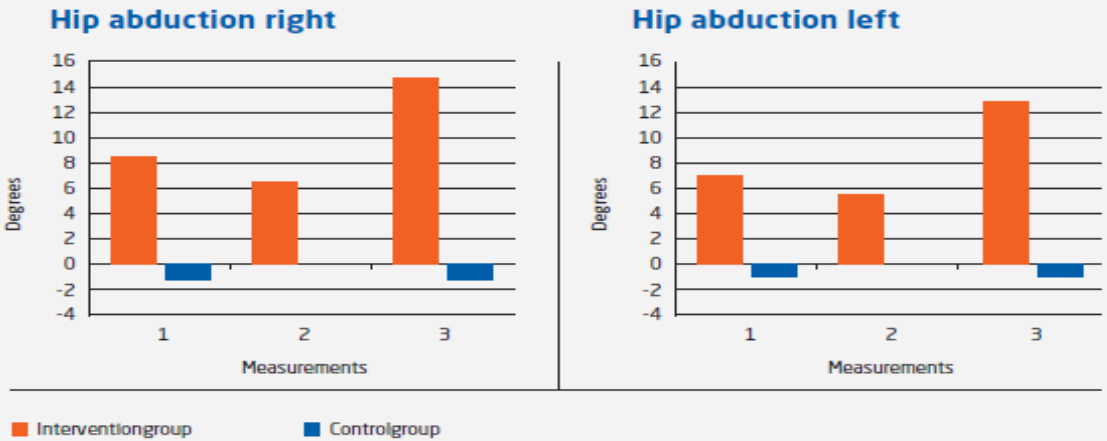
Motion therapy device: The Innowalk is a motor operated motion therapy device that places children and adolescents with severe multiple disabilities in an upright correct position, and which helps supported walking motion in both sitting and standing position.

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.

RESULTS



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.

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IMPROVED GAIT AND GASTROINTESTINAL FUNCTION FOLLOWING INNOWALK TRIAL

INTRODUCTION/AIM

The aim of the project was to evaluate the effect of 6 weeks Innowalk trial on gait and gastrointestinal function in a 13 year old child with spastic bilateral cerebral palsy, GMFCS level III.

Due to a small sample size (1), the results can not be generalized.

First time intervention – testing Innowalk

Patient: 13 years
Diagnosis: spastic bilateral cerebral palsy (CP)
GMFCS level III: Walks using a handheld Mobility Device, limitations walking outdoors and in the local community (www.canchild.ca)

6 weeks testing log
Aug.-Oct.2009 shows:
A total of 37 sessions
Duration 20 minutes - 1 hour
45 minutes, mainly approximately 1 hour.

An illustration of standing alignment

1 - Key Walker

2 - Innowalk

RESULTS

Rectus femoris tightness

Duncan Ely* - test for rectus femoris dys-function (PROM, tested by slow knee flexion):

Before
Right: 50 degree angle
Left: 30 degree angle

After
Right: 50 degree angle
Left: 60 degree angle

In our patient, measured by the angle between the base of support and the calf as the pelvis rises.

Resistance against rapid passive stretch

Hip extensors:

Before	After
Right: 2	Right: 1
Left: 2	Left: 1

Measured by the Asworth scale

Hip adductors:

Before	After
Right: 2 +	Right: 1 +
Left: 2 +	Left: 1 +

Measured by the Asworth scale

Spasticity: "disordered sensorymotor control, resulting from an upper motor neurone lesion, presenting as intermittent or sustained involuntary activation of muscles" (JH. Burridge et al, 2005).

Gastrointestinal function

Before (registration period of 2 weeks prior to the 6 week Innowalk trial):
- 2-3 toilet accidents, 3 days complained of stomach pain, one of these days, the patient had to go home from school because of pain.
- Use medicine for Gastrointestinal Function

During Innowalk trial (6 weeks):
No complaints of stomach ache, 1 toilet accident.
Now: No medicine for Gastrointestinal Function.

Additional effects:

Muscle circumference
Calf **Before:** Left (affected leg): 21 cm circumference
After: Left (affected leg): 21.5 cm circumference

Blood flow
- Warm feet after each session (usually they are cold)

GAIT PATTERN – BEFORE TRIAL

The feet are significantly **outwards rotated** throughout the gait cycle, so that the left leg consistently **nudges** into the back of the right foot in the swing phase when walking at normal speed. This is less pronounced when the patient is walking faster. The **upper body is clearly stooping forwards** and there is **flexion in the hips and knees.** Walks with "kissing knees".

GAIT PATTERN – AFTER TRIAL

The feet are **slightly less outwards rotated** so that the toes are pointing more forward throughout the gait cycle. We can also see that **the left foot now and then is nudging** the right foot in the swing phase when the patient is walking at normal speed, but **not consistently.** There is **longer distance between the feet** in the gait cycle. The **upper body is more upright and the patient is walking with slightly less flexion in the hips.** The patient still walks with "kissing knees".

Our professional impression is that walking function has improved.

Poster holders: Tonje Thon, Physiotherapist, Children's Department and Family Health Service, Porsgrunn, Norway, Knut Magne Ziegler-Olsen, Physiotherapist/Adviser at NAV Center of Assistive Technology in Telemark, Norway

Uanset funktionsniveau vil barnet få oplevet bevægelse og glæden ved fysisk aktivitet

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NF-WALKER og INNOWALK tilpasses individuelt for at optimere vægtbærring, hensigtsmæssig positionering og gangbevægelse

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POSITIVE FORANDRINGER

- ✓ GMFM66 (Hege Hansen 2014; Tonje Thon 2012; Katarina Lauruschkus et al 2015)
- ✓ ROM (Hege Hansen 2014; Jana Käferle 2012; Tonje Thon 2012; Alhed Piene Wesche et al 2015)
- ✓ MUSKEL TONUS (Jana Käferle 2012; Tonje Thon 2012; Alhed Piene Wsche et al 2015)

FORÆLDRE OG TERAPEUTER RAPPORTERER

- ✓ Bedre mave/tarm funktion
- ✓ Bedre kontrol af overkrop og hoved
- ✓ Reducerede smerter
- ✓ Øget vågenhed
- ✓ Øget aktivitetsniveau
- ✓ Øget udholdenhed

60% af dem som bruger Innowalk bruger det 5 eller flere gange i ugen

Hvordan integreres positionering i stående i dagligdagen og hva kan vi gøre for at motivere ressurcepersoner rundt børnene?

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