

The effectiveness of an intensive Halliwick therapy in children with damaged central nervous system

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Question: how effective is intensive therapy?

Goal:

- Improving movement functions on land
- Increasing water adaptation
- Providing community feeling

- **NHT**
- **Halliwick**
- Special swimming

Objectives:

- 3 children, mean age 6 yrs
- 45 minutes individual Halliwick therapy
- In a five days long intense sessions

In August 2014 and February 2015

Measurement methods:

Measuring on Monday and Friday

- Time up and go test
- Functional reach test
- 3 minute walk test
- WOTA 2 test



Born: May, 2013.

Spinal cord tumor (Th1-12)

Partial tumor resectio: May, 2012.

Spastic paraplegia

Scoliosis (47 Cobb degree)

Gaits with two sticks

Wears Cheneau Corsette, TheraTogs and AFO

Goal:

- Improving trunk control
- Increasing gait stability
- Making the spine more flexible in water



		AUGUST	FEBRUARY
HALLIWICK	Mental adjustment	XX	XX
	Sagittal Rotation Control	x	XX
	Transversal Rotation Control	x	XX
	Longitudinal Rotation Control	x	XX
	Combined Rotation Control	x	XX
	Upthrust	x	XX
	Balance in Stillness	XX	XX
	Turbulent Gliding		x
	Simple Progression		
	Basic Movement		
SPECIFIC TASKS	Postural stability	x	XX
	Transitions	XX	XX
	Developing unassisted gait	XX	XX

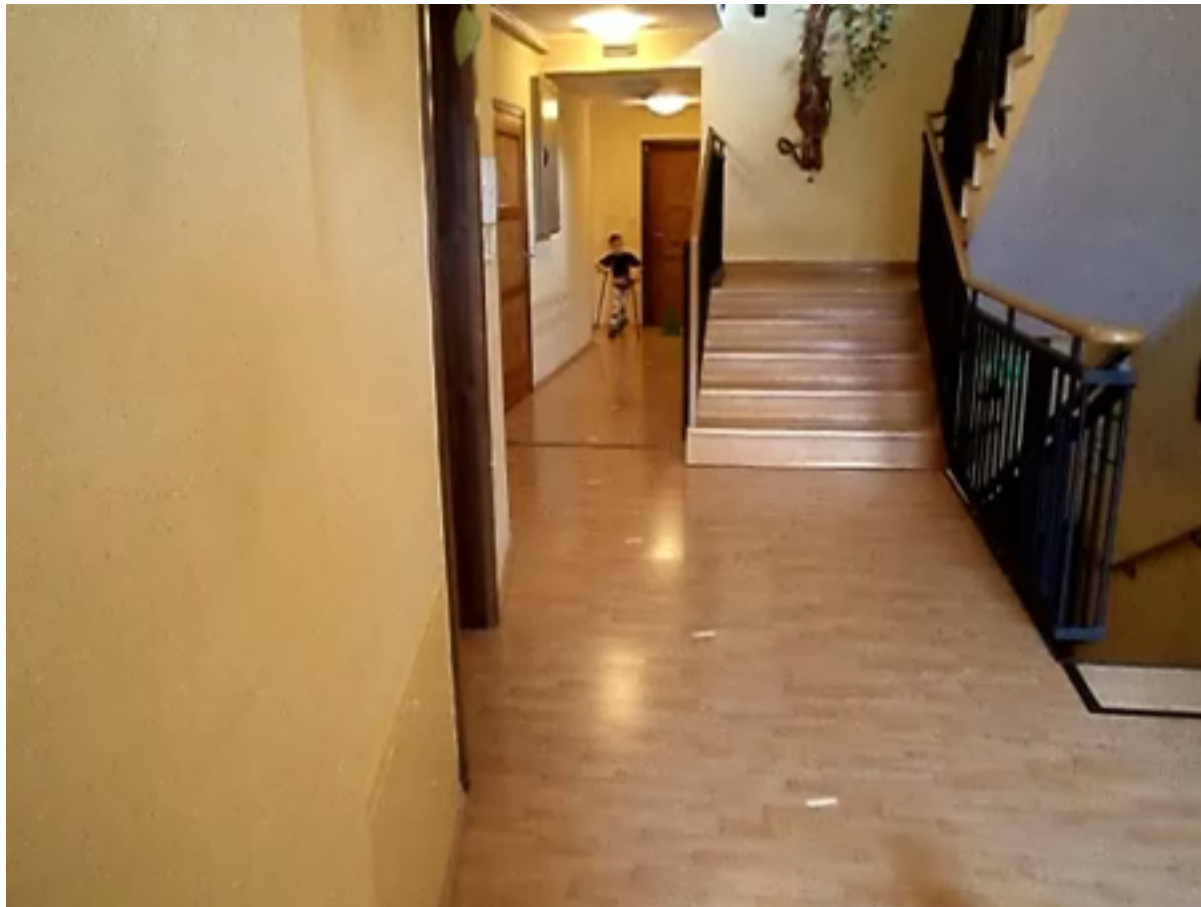




In the beginning



In the end



Part of 3 minute walk test

		AUGUST			FEBRUARY			
		2014.08.11	2014.08.15	Changing	2015.02.23	2015.02.27	Changing	
3 minute walk test (m)		84	86	102%	106	112	106%	
Time up and go test (sec)		34	31	91%	18	14	78%	
Functional reach test forward (cm)	sitting	20	26	130%	11	17	155%	
	standing	6	12	200%	10	14	140%	
Functional reach test side (cm)	right	sitting	6	11	183%	13	13	100%
		standing	6	4	67%	2	12	600%
	left	sitting	10	16	160%	8	10	125%
		standing	10	11	110%	11	12	109%
WOTA 2 test (%)		22	35	159%	18	50	278%	

Born: Aug, 2007.

Spinal cord tumor (C1-5)

Tumor resectio: Oct. 2013.

Hypothonic tetraplegia

Left lateral flexion in the trunk

Does not use his left arm

Oct. 2014.: Get a TheraTogs

Febr. 2015.: AFO, shoulder ortesis get ready

Goal:

- Muscle strengthening
- Improving trunk control
- Supporting him to use his left arm in the ADL functions



		AUGUST	FEBRUARY
HALLIWICK	Mental adjustment	XX	x
	Sagittal Rotation Control	x	XX
	Transversal Rotation Control	x	XX
	Longitudinal Rotation Control	x	XX
	Combined Rotation Control	x	XX
	Upthrust	x	XX
	Balance in Stillness	XX	XX
	Turbulent Gliding		x
	Simple Progression		
	Basic Movement		
SPECIFIC TASKS	Muscle strengthening of the upper arm	XX	XX
	Practising ADL functions	XX	XX
	Prevention of falling		x
PHYSIOTHERAPY ON LAND			XX
ERGOTHERAPY			XX







In the beginning



In the end



Part of 3 minute walk test

			AUGUST			FEBRUARY			
			2014.08.11	2014.08.15	Changing	2015.02.23	2015.02.27	Changing	
3 minute walk test (m)			129	183	142%	212	188	89%	
Time up and go test (sec)			8	8	100%	5	6	120%	
Functional reach test forward (cm)		sitting	24	25	104%	26	32	123%	
		standing	29	33	114%	23	23	100%	
Functional reach test side (cm)		right	sitting	17	17	100%	14	23	164%
			standing	16	18	113%	13	21	162%
		left	sitting	16	17	106%	18	17	94%
			standing	18	16	89%	21	15	71%
WOTA 2 test (%)			17	55	324%	62	69	111%	

Born: Sept, 2008.

Cerebral Paresis

Spastic paraplegia

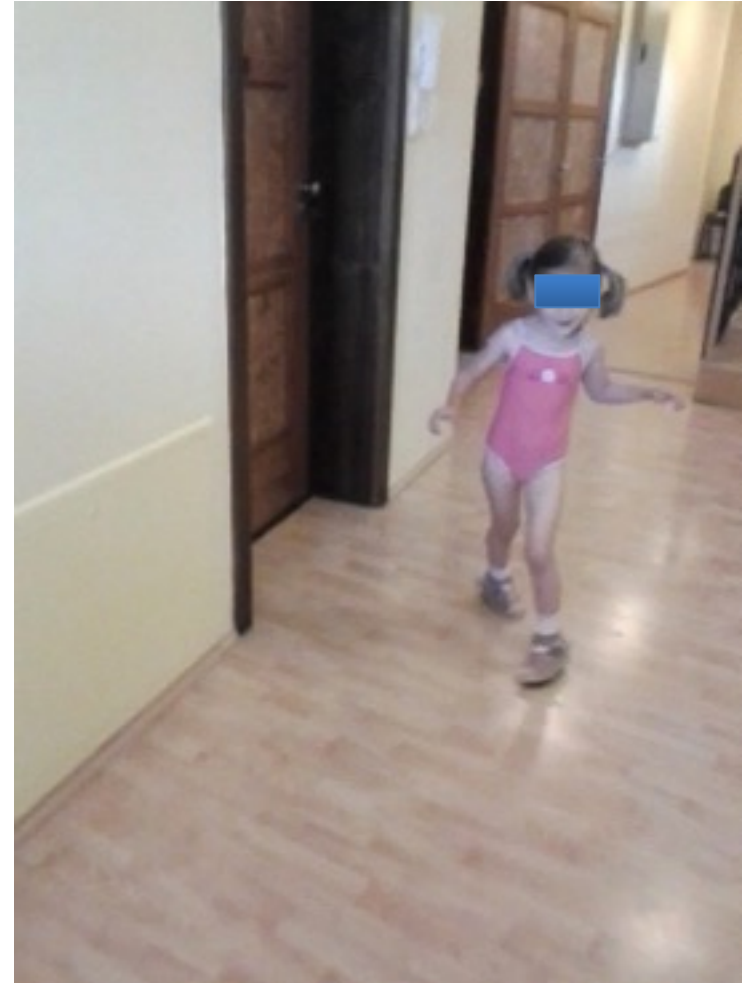
Febr, 2014: releasing orthopedic
operation

(M. gastrocnemius, Hamstring)

Jan, 2015: Get a TheraTogs

Goal:

- Improving trunk control
- Increasing standing stability
- Turns while gaiting
- Techniques of falling



		AUGUST	FEBRUARY
HALLIWICK	Mental adjustment		
	Sagittal Rotation Control	XX	x
	Transversal Rotation Control	XX	XX
	Longitudinal Rotation Control	XX	XX
	Combined Rotation Control	XX	XX
	Upthrust	x	
	Balance in Stillness	XX	XX
	Turbulent Gliding	x	x
	Simple Progression		XX
	Basic Movement		x
SPECIFIC TASKS	Postural stability	XX	XX
	Transitions	XX	XX
	Developing unassisted gait	XX	XX
	Prevention of falling	x	XX





In the beginning



In the end



Part of 3 minute walk test

			AUGUST			FEBRUARY			
			2014.08.11	2014.08.15	Changing	2015.02.23	2015.02.27	Changing	
3 minute walk test (m)			70	125	179%	157	152	97%	
Time up and go test (sec)			28	19	68%	13	12	92%	
Functional reach test forward (cm)		sitting	16	27	169%	27	27	100%	
		standing	6	17	283%	15	17	113%	
Functional reach test side (cm)		right	sitting	13	15	115%	22	17	77%
			standing	7	10	143%	15	11	73%
		left	sitting	7	16	229%	13	19	146%
			standing	10	7	70%	5	10	200%
WOTA 2 test (%)			58	72	124%	71	79	111%	

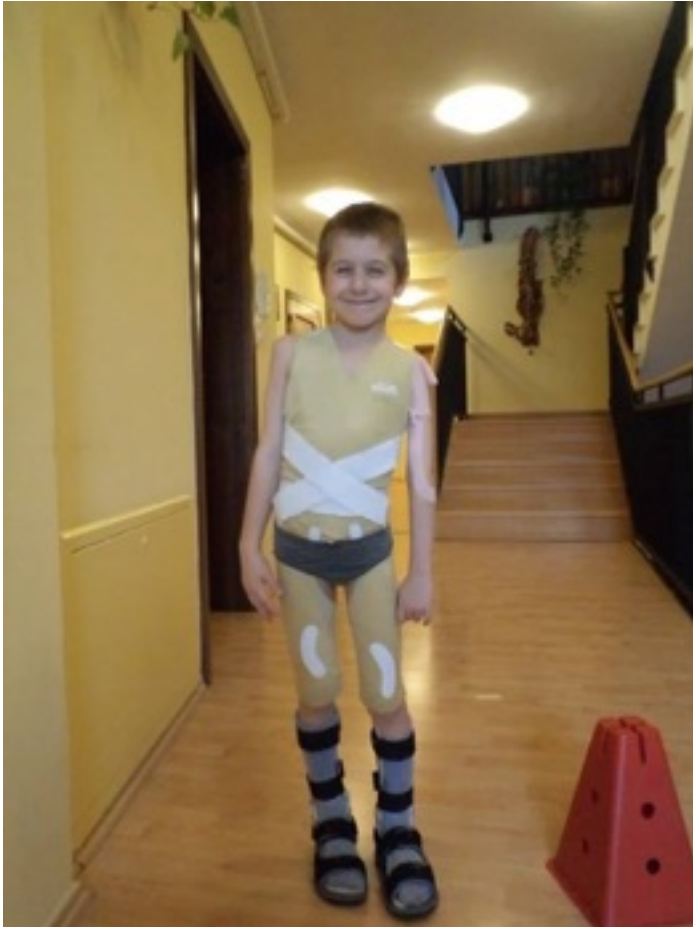
**We achieved change in movement functions
both on land and in water**

Changes could be justified

Parental feedback is positive



- Can accompany parents to do shopping
- Can walk upstairs with alternating steps.
- Orientation towards parasports



- Began to use his left arm spontaneously
- *„He hasn't been so straight for two years”*

Feedback from Ben himself:

- *„I became stronger”*
- *„Don't help me!”*



August:

- Her posture became visibly better in two-three days.
- She could begin to walk and stop without assistance.
- She could stand up and sit down without assistance.
- She began to jump with parallel feet with assistance.

February:

- She falls less frequently in uncertain balance positions.
- When falling, she can protect herself effectively.
- Using stairs, her walk is more dynamic, with alternating steps.

Intensive, one-week therapy program adding to the regular therapy highly improve both the quality and the quantity of the movements in children

The results achieved during an intensive one-week therapy program persist and can be sustained.

THANK YOU FOR YOUR ATTENTION!



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