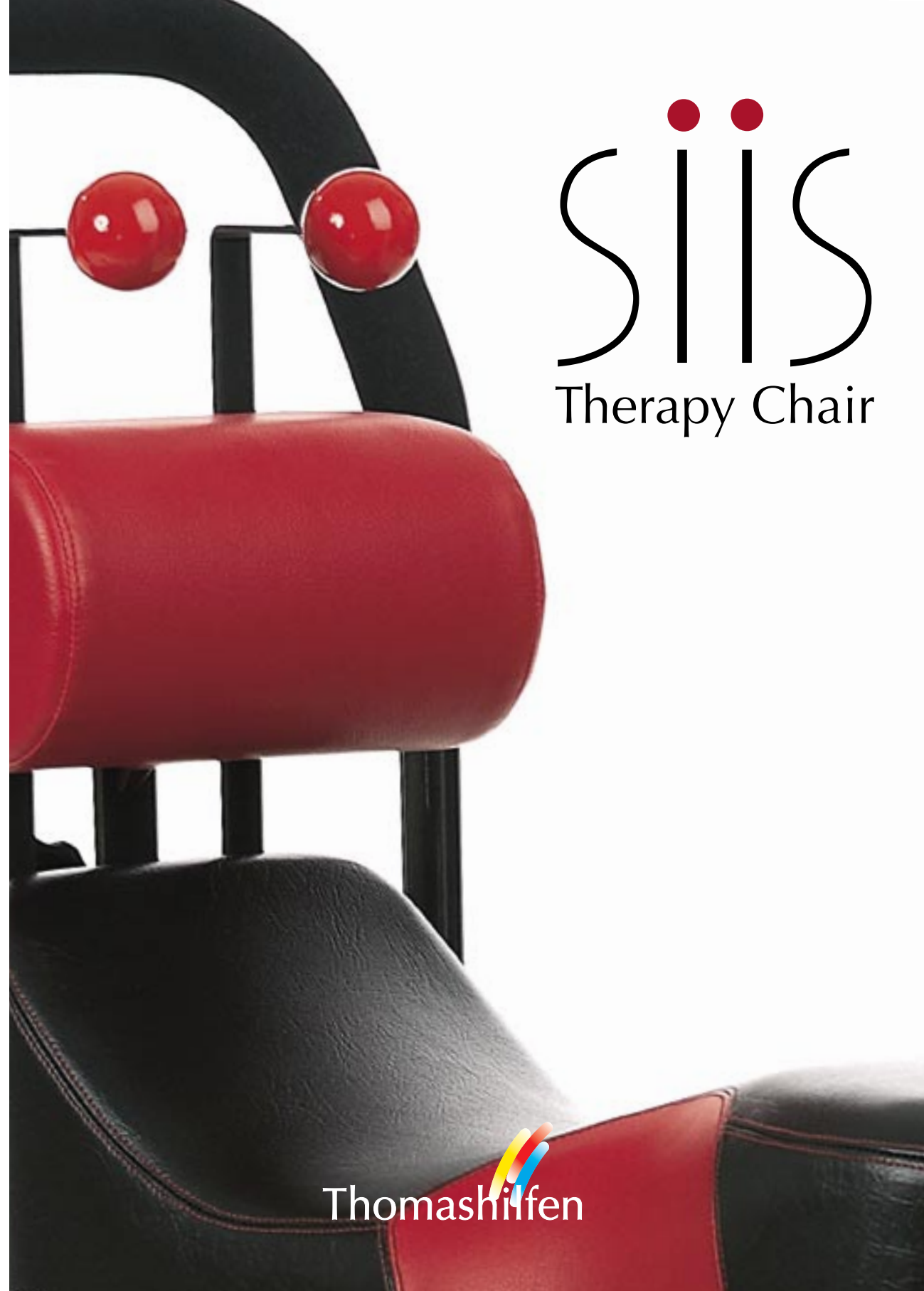




Member of the International Support  
Association for the Rehabilitation of  
children and youths



# Siis

Therapy Chair

  
**Thomashilfen**

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**Thomashilfen**



## People need impulses – and to learn, one needs to feel good.

What if a person is handicapped in the cognition conversion or by a spasm in the sensory or motoric abilities?

What if a child has to cope with long sitting down periods, eg in the kindergarten or at school?

The results are ...

- Decrease of the holding tension
- Increase of the spasm in the hands
- Early collapse of concentration
- Physical and mental fatigue
- Fidgety or disturbed behaviour

Not a good condition for learning in school or activities in therapeutical situations and engaged attendance with open senses in the environment.

### **The basis of activities is learning, cognition and movement!**

What does a person need to be awake and concentrated?

- A solid seating position
- Regulating equal balance movements / equilibrium
- Physical well-being
- Active holding tension
- Ability of movement in the upper extremities
- Control over the head
- Adequate body tension



## Seat with integrated impulse sensors

People with spasms as well as people with cognition converting malfunction get a new chance with help of the Siis Therapy Chair

- Stable base
- Body perception
- Finding of the body centre
- Sensory input
- Initiation of a physiological seating position

### Areas of application / clinical pictures

- Cerebral apraxia (diplegia, tetraspasticity, single-side problems)
- Cognitive processing deficiencies / ADD
- Tonus dysregulation deficiencies (so-called „atonic“ and „hypertonic“ children and adults)
- Various disabilities with effect on the motoric

„Less chair – with a lot of impulse effect“  
Active people achieve more!



### Expert view:

The basic conditions for the provision with a Siis Therapy Chair are:

The child has to show a minimum amount of leg support function.

The child has to show a minimum amount of torso control, which can be activated through stimulation (e.g. compensation movement, prop up of the arms to the front) and is changeable in normotone direction.

## Properties of the Siis Therapy Chair

### Siis Therapy Chair - seat

- The firm seat block provides a maximum of sensory stimulation for the person.
- The longish shape of the seat helps the forward facilitation of the arms. (Stabilisation, symmetrisation, tonus regulation). In addition, by bracing the arms on the set block an interim impact change for the spine can be achieved.
- The seat block forces the user into a physiological seating position.
- The seat block is sloped in the back part in order to slightly tilt the pelvis. A straightening of the spine can be carried out this way.
- Ergonomic seat block design

### Siis Therapy Chair - back

- The small and firm iliac crest support with slight lean against the body helps the stabilisation.
- The iliac spine support and the impulse generator are adjustable in height and depth for the individual user.
- The point-shaped impulse transmitters give an orientation for the back position and at the same time stimulate the erection and orientation process.

### Siis Therapy Chair - base frame

- The seat is infinitely adjustable in height, which ensures an individual positioning of the legs.
- The chair is adjustable. An individual adaptation can be carried out.
- The lever brake and height adjustment can be operated independently by the user, which ensures a certain degree of autonomy.
- The base frame guarantees a good rolling function and plenty of foot room. In the case of a contra lateral walking pattern (alternate positioning of the feet) enough free moving space in the seated position is available.
- The therapy chair is tilt resistant.
- The push bar enables an assistant to also carry the chair inside over long distances.





Before



After



### Mustafas therapist

- On the SiiS mini Therapy Chair he can act much better using his hands. He is also starting now to use scissors.



## Mustafa

Age: 6 years

Diagnosis:  
leg accented tetra paresis

### BEFORE provision with the SiiS mini

- Little foot contact to the floor
- No suitable position to develop the hip dysplasia
- Pelvis largely tilted to the back with a largely arched hump back
- Difficulties to keep the head and torso upright over a long time
- Shoulders lifted up
- Restricted field of vision through poor lifting of the head
- Random activation of fine motoric skills is aggravated by insufficient straightening.

### AFTER the provision:

- Firm foot contact to the floor
- Improvement of the hip dysplasia by stimulated seating position
- Straightening of pelvis and spine
- Relaxation of shoulder muscles
- The head is moving freely which improves the fine motoric skills
- Mustafa can move away with the chair from the table independently. He alternately moves the feet over short distances and now can reach e.g. his Posterior Walker independently.

### Possible introduction of the SiiS into the therapeutical work with Mustafa:

- Cross the middle line with hands and arms to achieve a rotational movement in the torso around the body axis
- Expand the free sitting on the SiiS Therapy Chair by sequences in which pieces have to be lifted from the floor or from a low box.
- Independent straightening into free stand in front of a table.



## Farhan

Age: 3 years

Diagnosis:  
global hypotony,  
unclear genesis

### BEFORE the provision with SiiS mini

- His feet do not stay firm on the ground.
- Farhan does not manage to create muscle tension in the torso.
- The head often is hyper extended. Because of that the hand-eye coordination is not possible
- He fatigues quickly.
- He feels unsafe on the stool and is afraid he will fall down.

### AFTER the provision:

- His feet stand plane and with pressure, he feels safe as he has such a good basis to sit.
- Farhans pelvis is positioned in a way that eases, at least for short periods of time to sit up straight.
- He can hold his head better. The neck shows more lengthening which makes the hand – eye coordination possible.



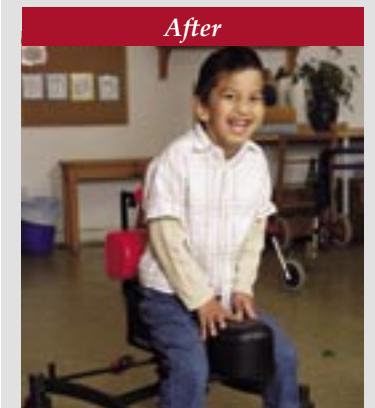
Farhan and Mustafa, when playing

### Experts view

Children with special needs quite often use moving patterns that deviate from the optimum physiological human pattern. From the biomechanical point of view these patterns are inefficient. A good seating position requires the least energy and leaves more capacity for other activities, e.g. concentration or fine motoric skills when playing.



Before



After

### His physiotherapist says

- When Farhan feels his body better he is able to dominate it better and to operate it. The SiiS Therapy Chair helps him with it.

*Experts view*

*Who can trust his body has the heart to carry out movements.*

*Before*



*After*



*René's teacher*

- He pays more attention during tuition.
- Compared to before his work pace has increased significantly.
- René has better erection in the spine; pectoral girdle and arms remain relaxed which make the fine motoric movements easier.



**René**

**Age:** 10 years  
**Diagnosis:** cerebral paresis in the form of a spastic diplegia

**BEFORE the provision of SIIS size 1**

- Atonic torso tension in the wheel chair during recovery periods
- Tendency to over stretch the posture of the head to the back
- Adduction and tendency to turn the legs inwards
- Problems closing the mouth
- Tendency to collapse / tilt the torso to the right

**AFTER the provision:**

- Active erection in the torso
- Adequate reaction on the seating area with compensation movements – by this more symmetry in the torso / good axial alignment
- Physiological positioning of the legs
- Much better erection in the area of thoracic spine and cervical spine – now the mouth can be closed better and swallowing is much easier.
- Increase and improvement of motoric planning abilities and expertise of movement through self employed transfers.
- Slightly more fluent movements
- Starting at the moment with developing a contra lateral walking pattern (alternating positioning of the feet).
- Significant improvement of the support function in the arms which have to be actively applied during transfers.
- Significant improvement of hand-hand and eye-hand coordination through the good axial alignment when sitting.

**Melanie**

**Age:** 15 years  
**Diagnosis:** spastic tetra paresis with substantial bending tonus of the arms, athetosis, dysarthric enunciation malfunction



**BEFORE provision with SIIS size 1**

- Decrease of holding tension in the torso during long sitting down periods
- Increase of the tonus in the shoulder – arm area
- Problems closing the mouth
- Uncoordinated movement of the hand at each attempt of fine motoric action

**AFTER the provision:**

- Active seating position with good axial alignment
- Straight positioning of pelvis, hips, knees and feet as a basis for the active erection
- Facilitation of the hands to the body centre (blocking of the spastic moving pattern) and more symmetry.
- Significant tonus decrease in the upper extremities which improves the grabbing function.
- Safe handling of gravitation and balance
- Much better erection in the area of thoracic spine and cervical spine – now the mouth can be closed better and swallowing is much easier.
- Starting at the moment with developing a contra lateral walking pattern (alternating positioning of the feet) and herewith facilitation of the hands to the body centre (blocking of the spastic moving pattern in the arms)

*Experts view*

*The ability to perform active holding work creates pride and a feeling of self-worth!*

*Before*



*After*



*Melanie's teacher*

- The tension in Melanie's arms decreased which makes it easier for her to use the keyboard of the PC.
- Little moments of shock when in danger of losing the balance lead to more attentiveness (open mind in awake body).

**Experts view**

*Who has a good feeling of the body centre will be flexible.*

**Before****After****Tjarks teacher**

- *Balancing on the chair requires his concentration and makes it easier for him to join the tuition. Tjark does not fatigue as quickly any more as previously*
- *Tjarks handwriting improved significantly through the upright body posture.*
- *The use of the Siis Therapy Chair improved Tjarks work pace considerably.*

**Tjark**

**Age:** 15 years

**Diagnosis:**

tetra spastic – accentuated right, hypotonus of the torso, oral hypotonus with dyslalia, foot in valgus position, massive cognitive processing malfunction

**BEFORE the provision with Siis size 1**

- He has a humped back in the wheelchair
- Atonic torso tension, collapses to the side
- Often vacant, can not hold the focus of attention
- Reduced bilateral function
- Problems closing the mouth

**AFTER the provision:**

- He reacts to the seat block with regulating compensation movements (vestibular and deep sensory stimulation).
- The physiological positioning of pelvis, knees and feet activates a deep sensoric input which triggers the active body erection.
- Tjark is challenged to actively balance on the seat to keep his equilibrium. By this he is motivated to take self responsibility for his body position.
- Symmetry, the torso can be kept better in the centre and the hands are channelled to the body centre when sat freely.
- When self actuating the contra lateral walking pattern (alternating positioning of the feet on the ground) he also builds up tension in the torso.
- Improvement of mouth closure and swallowing
- Due to the upright seating position a significant improvement of visualising both hands took place. This improves the starting position for grip function, hand-hand and hand-eye coordination.
- Tjark again and again calls through the impulse sensors deep sensoric stimulations, which make it easier for him to visualise his body in the room and to orientate his body to the centre.

**Application studies with children suffering from cerebral apraxia**

- They find their body centre – Symmetry
- Inhibition of spastic moving patterns
- The arms and hands are lead towards the centre of the body
- Relaxation of the shoulder-neck region:  
The shoulders are not pulled that much towards the head anymore
- Introduction of a physiological sitting pattern
- Positive effect on the torso and head control
- Partial improvement when closing the mouth and swallowing
- The fine motoric skills of the hand is significantly improved
- Improvement of hand- hand and eye- hand coordination
- Positive effect on visual control
- Development of motion sequences for the independent transfer

**Application studies with children suffering from cognitive processing deficiencies**

- The children realise their environment and surroundings far more engaged
- The contact of the feet to the ground, the firm seating area and the back rest promote clear sensoric information and a sensible orientation.
  - „Where am I in the room?“ (Body awareness, body scheme)
  - A better possibility to use the attention target orientated – the children find it easier to adjust to the body centre.
  - The input is given by the contact to the ground, this triggers a stable orientation with aligned axis.
  - The firm seating area ensures a positive influence on the tonus regulation
  - Compensation movements have a regulating influence on the cognition conversion (proprioceptive and vestibular stimulation) and also cause a tonus regulation.

**Expert view**

*Who can trust his body has the heart to carry out movements.*

**Transfer Example**

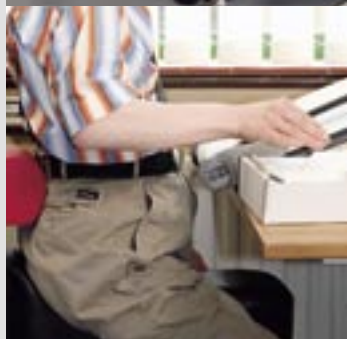
*Expert view*

*When the muscles are more active, the mental awareness increases as well.*

*Before*



*After*



**Kai**

**Age:** 41 years  
**Diagnosis:** mental disability, distinct hypotonus in torso and extremities, decrease of drive

**BEFORE the provision with Siis plus**

- Little foot contact to the floor. He mainly sits with crossed legs.
- Significant back tilt of the pelvis, the bottom slides on the seating area towards the front
- Humpback
- Overstretched neck muscles (vulture neck)
- Fine motoric activities are powerless and very slow

**AFTER the provision:**

- Plane foot contact to the ground with proprioceptive input. Because of the shifting of weight by the open hip angle, the pressure on the lower extremities is increased.
- The crossing of the legs is stopped by the abducted sitting position. The blood circulation in the lower extremities improves.
- With help of the abduction, the pelvis becomes more free and easier to straighten. The iliac crest support ensures good holding function for the upright position.
- The tilting of the pelvis puts the spine back into its natural form. Balancing the head becomes much easier. Over stretching can be avoided.
- Kais vision widens up and he becomes more alert.
- He can move independently from the work place into the room and by this take part more active in the surrounding life.
- His movements are more free. He straightens and activates his muscles tonus self employed.



**Andre**

**Age:** 21 years  
**Diagnosis:** Down-Syndrome (Trisomy 21)

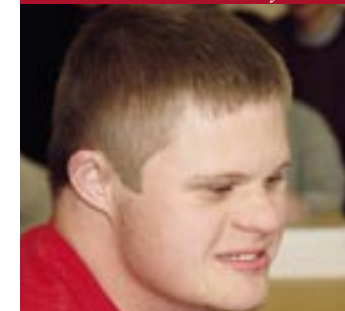
**BEFORE provision with Siis plus**

- Andre hardly ever positions his feet flat. He falls back into he seat on the chair and by this looses his torso stability.
- Firm, immobile shoulder muscles, shoulders pulled upwards.
- Overstretched neck with hypotonic face muscles, which disable the mouth closure and bring the lower jaw to the front.

**AFTER the provision:**

- Improved neck erection, which leads to better mouth closure
- The improved foot contact to the ground and repetitive impulse with the impulse sensor, point out the body limitations better.
- Andre relaxes his shoulder muscles.
- His fine motoric skills become more fluent and sophisticated.
- The pelvis becomes straighter and the hump back is reduced.

*Mouth closure - Before*



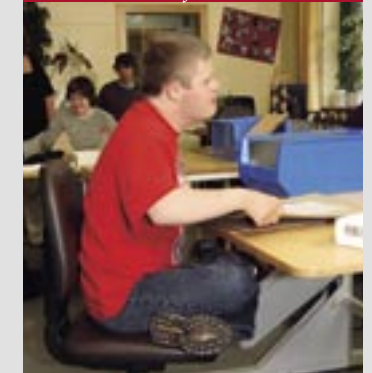
*Mouth closure - After*



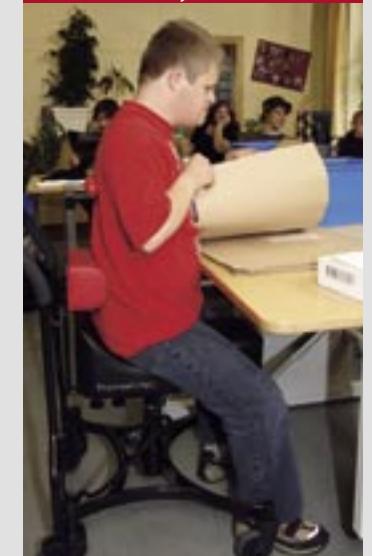
*Expert view*

*The foot contact to the ground supplies constant information about the position of the joints and the orientation of the body in the room.*

*Before*



*After*



*Team leader of Andre*

- His work pace increased significantly compared to before.

*Work situation*



**Application studies of adults with mental disabilities:**

- A straighter seating position has for many people a positive effect on the motivation.
- In most cases the muscle tonus in the torso is too low and is regulated by straightening in the pelvis, the muscles are activated.
- The firm seat supplies straight forward sensoric information about the seating area.

**Application experience in workshops for disabled:**

- The employees are even after longer work periods less fatigue.
- The radius of action increases. The employees become more active on the chair.
- Hand guidance and practical direction are easier due to the open back and arm area.
- The firm seating area has a positive effect on the tonus regulation

**Dosing the application of the Siis Chair:**

- When sitting on the Siis Therapy Chair, the muscle is strained differently to the „passive“ sitting.
- Especially in the beginning of application restraints are possible and the patient can suffer from muscle ache.
- In the beginning the chair is only to be applied for short work / therapy sequences to ensure the patient gets enough chance to rest.
- After a while it will get easier to keep in the upright seating position.
- *The Siis is literally a „Therapy Chair“, that promotes the abilities of the patient and challenges him again and again.*

**Positioning recommendation for the Siis Therapy Chair**

**First step:**

The feet require firm contact to the ground at all times.

**Second step:**

Height adjustment: to set the correct position for the knee and pelvis joint. The height of the seat has to be set in a way that the child is stood with the feet on the floor. In practise a knee angle and hip angle over 90 degree proved its value and resulted in good straightening effects.

**Third step:**

Setting the straightening and orientation impulse with the small firm iliac crest support. It has to be positioned on the lower iliac crest, often in direct contact with this area. As described in the brochure, this iliac crest element can be set in height and depth according to the individual requirements.

**Fourth step:**

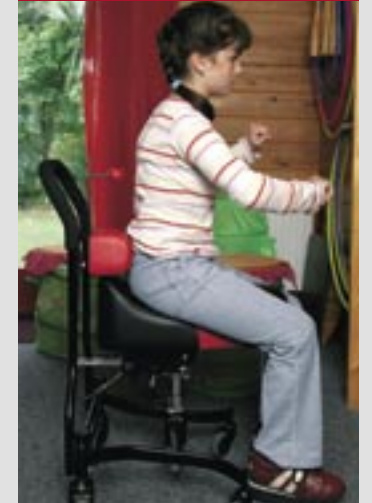
Positioning of the point shaped impulse sensor: Every child reacts to individual stimulation points that are located between the lower costal arch and underneath the shoulder blades.

*Expert recommendation*

*First step*



*Second step*



*Third step*



*Fourth step*





*Application example  
SiiS mini*



*Expert view*

*The sitting posture on the SiiS can long term prevent from deformation of the spine and hip dysplasia.*

**SiiS mini**

- Optimum care in the **kindergarten**
- Children get used to self employed sitting very early
- Malposition can be corrected in early age.
- The autonomy is encouraged by the free arm and foot area.

**Areas of application:**

- Cerebral apraxia
- Cognitive processing deficiencies / ADD
- Tonus dysregulation deficiencies

**SiiS size 1 + size 2**

- Especially suitable for **school children**
- Optimum position to work at a writing desk

**Areas of application:**

- Cerebral apraxia
- Cognitive processing deficiencies / ADD
- Tonus dysregulation deficiencies

**SiiS<sup>+</sup>**

- Wider seating area for more robust patients
- Often used in **work shops** or **neurological areas**

**Areas of application:**

- Cerebral apraxia
- Cognitive processing deficiencies / ADD
- Tonus dysregulation deficiencies
- very suitable for sheltered workshops

**SiiS mini**

<b>Seat height</b>	32 - 38 cm / 12.6 - 15"
<b>Seat width</b>	15 cm / 5.9"
<b>Impulse generators - height adjustment</b>	23 cm / 9.1"
<b>Iliac crest support</b>	
- Height adjustment	8 cm / 3.1"
- Depth adjustment	3,5 cm / 1.4"
<b>Total dimensions (w x h x d)</b>	54 x 88 x 54 cm / 21.3 x 34.6 x 21.3"
<b>Wheel size</b>	10 cm / 3.9"
<b>Wheel distance front</b>	53 cm / 20.9"
<b>Wheel distance rear</b>	54 cm / 21.3"
<b>Max. weight capacity</b>	22 kg / 49 lb
<b>Weight</b>	11 kg / 24 lb

**SiiS**

	size 1	size 2
<b>Seat height</b>	42 - 50 cm 16.5 - 19.7"	42 - 61 cm 16.5 - 24"
<b>Seat width</b>	19 cm / 7.5"	19 cm / 7.5"
<b>Impulse generators - height adjustment</b>	18 cm / 7.1"	18 cm / 7.1"
<b>Iliac crest support</b>		
- Height adjustment	8 cm / 3.1"	8 cm / 3.1"
- Depth adjustment	3,5 cm / 1.4"	3,5 cm / 1.4"
<b>Total dimensions (w x h x d)</b>	54 x 88 x 54 cm 21.3 x 34.6 x 21.3"	60 x 88 x 56 cm 23.6 x 34.6 x 22"
<b>Push bar height</b>	88 cm / 34.6"	88 cm / 34.6"
<b>Wheel size</b>	10 cm / 3.9"	10 cm / 3.9"
<b>Wheel distance front</b>	53 cm / 20.9"	58 cm / 22.8"
<b>Wheel distance rear</b>	54 cm / 21.3"	55 cm / 21.7"
<b>Max. weight capacity</b>	50 kg / 110 lb	120 kg / 265 lb
<b>Weight</b>	13 kg / 29 lb	14 kg / 31 lb
<b>Body size</b>	max. 135 cm max. 53.1"	from 135 cm from 53.1"

**SiiS<sup>+</sup>**

<b>Seat height</b>	42 - 61 cm / 16.5 - 24"
<b>Seat width</b>	22 cm / 8.7"
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<b>Body size</b>	from 135 cm / from 53.1"

*Model Overview*

*SiiS mini*



*SiiS size 1 and size 2*



*SiiS plus*





*Children are strong, little personalities that we take seriously.*

**Kita Hirtenweg  
Live, play and learn together.**

The kindergarten Hirtenweg looks after children in the age of 2 to 6 years in 4 integrated groups. Qualified educators and therapists aim at a well directed development of your child.

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A loving and caring attendance in reliable group structures

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**Residential school for the physically disabled, Damp  
Living and learning by the sea**

The residential school is like a small village on the edge of the health and recreation paradise of the Baltic Sea resort Damp.

Safety and security at the developmental age, individual care, and encouragement related to the physical and mental handicap with the goal of optimal self-sufficiency are at the center of activities of the residential school.

The Damp Academy is the private supporter of the residential school. The local social services department covers the cost for accommodation at the residential school. If you would like more information, please visit us on the web [www.damp.de](http://www.damp.de) or simply call us. **Phone: +49 (0) 43 52 / 80 83 50**

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*"Get to know us -  
we are looking forward to it!"*



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# Fax reply +49 (0) 47 61 / 8 86-19

I would like further information about Siis, please send me the:

- Siis Brochure
- Additional information on the topic of child rehabilitation



Sender:

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