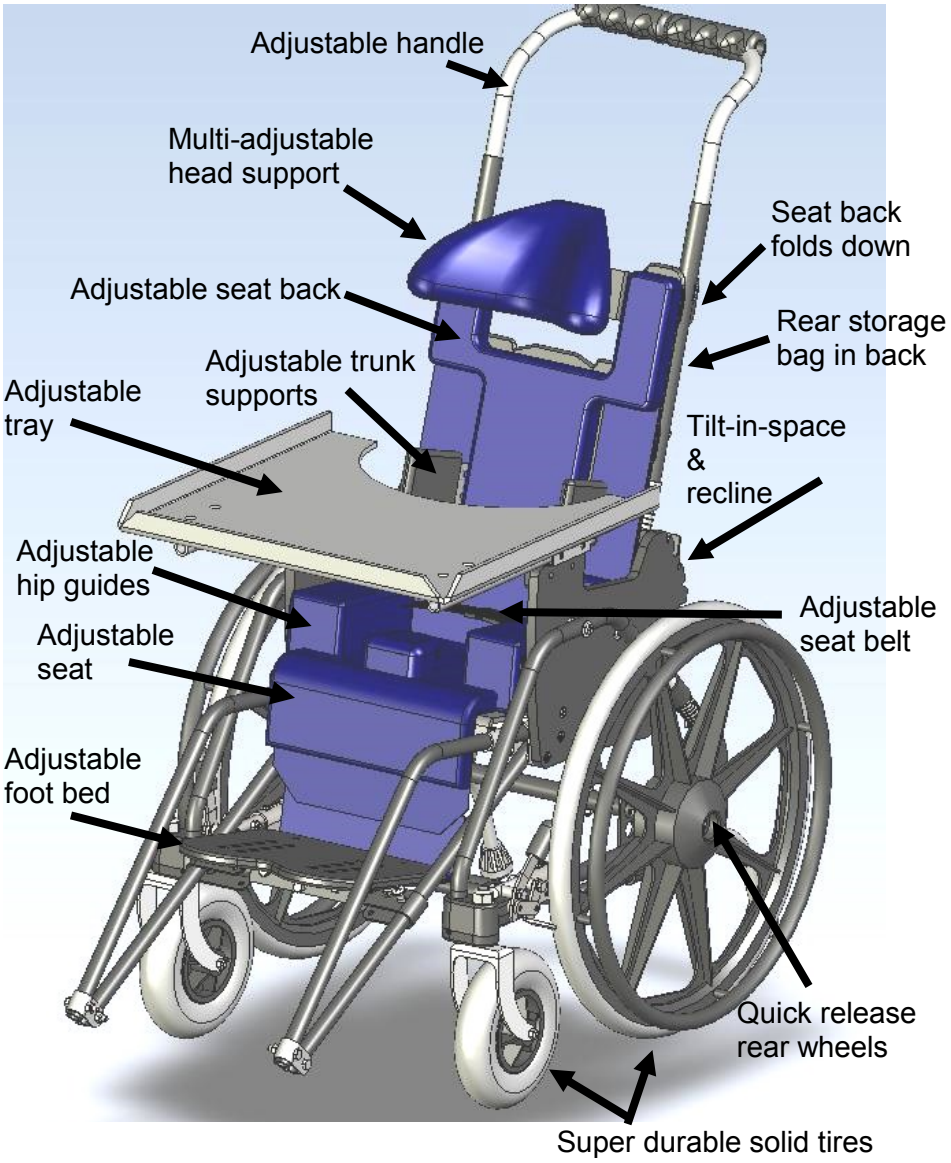
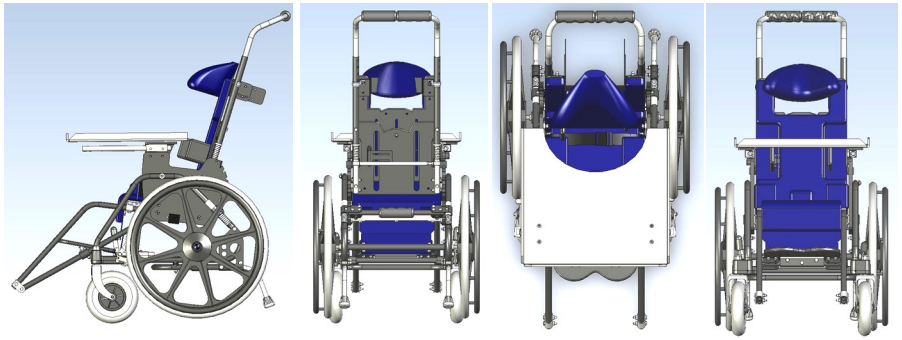
ROC WHEELS
Reach Out and Care.

FAMILY GUIDE


Adjustable handle
Multi-adjustable head support
Seat back folds down
Adjustable seat back
Rear storage bag in back
Adjustable trunk supports
Adjustable tray
Tilt-in-space & recline
Adjustable hip guides
Adjustable seat belt
Adjustable seat
Adjustable foot bed
Quick release rear wheels
Super durable solid tires

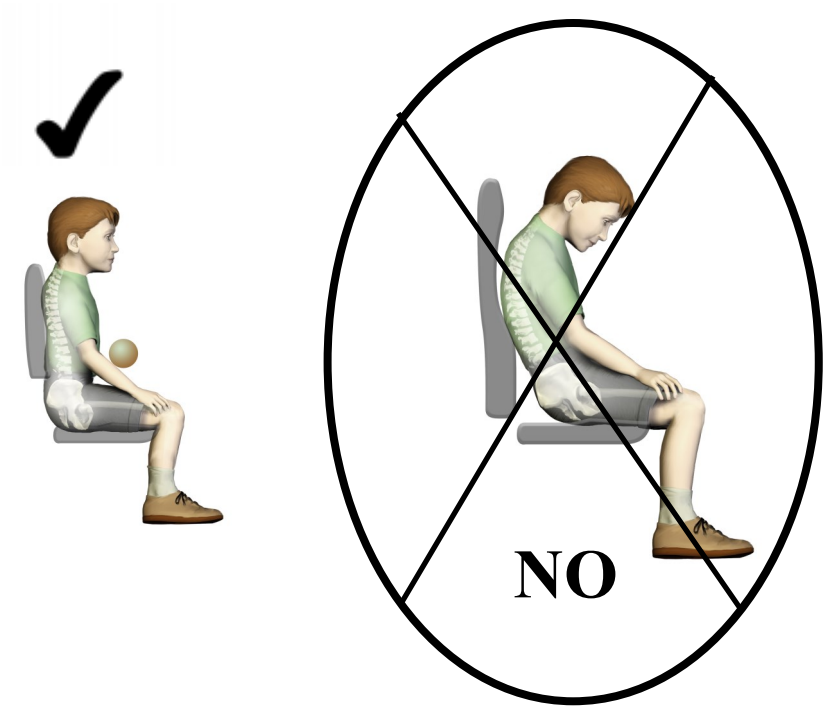


SITTING POSITION

IMPORTANT:

When children do not sit upright, they have trouble with breathing, eating, talking, and moving the upper body. The goal of sitting upright using a wheelchair is to provide the child with enough trunk support so that energy can be used to participate in any given task of his or her choice. The child should not struggle to stay upright or be afraid of falling. Making sure the child has a proper sitting posture will promote overall health and prevent deformity.

(Paleg, 2006)



SITTING POSITION

WHY IS SITTING POSITION IMPORTANT?

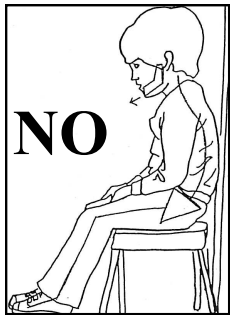
BREATHING: The lungs are compressed when a person slides forward and sits in a slouched position. Breathing and being able to cough can become difficult. The breathing risks for sitting in a slouched position are poor capacity of the lungs and lung infection. Also when a person sits slouched, the lungs do not expand fully.

DIGESTION: Sitting in a slouched position compresses the stomach. A compressed stomach and intestines can lead to severe constipation.

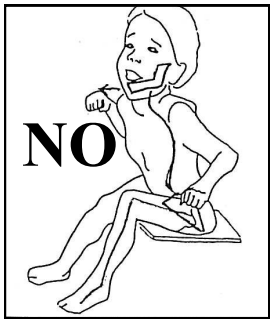
BLOOD CIRCULATION: Sitting in a slouched position combined with weak or inactive leg muscles decreases the blood flow in the legs. This increases the risk for swelling and ulcers.

(Engstrom, 2002)

Best Sitting Position



Slouched Sitting Position
Pelvis tilts backward



Forward Sitting Position
Pelvis tilts forward

PRESSURE RELIEF

VERY IMPORTANT

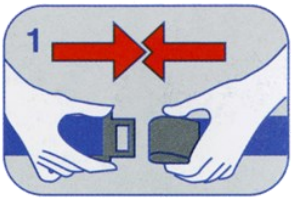
Children who use a wheelchair for mobility are at an increased risk for pressure ulcers and skin breakdown. Wheelchair use can lead to increased friction on the child's skin. The main areas to watch for redness or new sores on the skin are on the buttocks and legs. If you see redness in these areas that does not fade away within 30 minutes, it may be the beginning signs of skin irritation and breakdown. However, pressure ulcers can be avoided if extra care is taken. Extra care means making sure the skin is clean and dry, the skin gets inspected every day, and movements to relieve pressure are taken.

1. When a wheelchair is outgrown or not adjusted properly for the child's growth, friction occurs behind the knees or at the feet if they hang over the edge of the footbed. Use the instructions for adjusting for growth included in this manual to help prevent friction.
2. If the wheelchair cushion or seat becomes too small, friction can occur in the buttocks area. Use the instructions for adjusting for growth included in this manual to help prevent friction.
3. Wheelchair cushions should be checked often for cleanliness. Poor bladder control or excessive sweat making a wet seat cushion is another cause for skin breakdown. It is important to keep the child's clothing and seat cushion clean and dry. Make sure the cushion is fully dry before returning it to the chair.
4. Remind the child to wiggle and lift his or her bottom at least every 15 to 20 minutes. If your child can push up from the wheelchair arm rests, remind him or her frequently to do a push up to relieve pressure and allow blood to circulate to all areas.
5. If the child needs help to change sitting positions, the caregiver should change the child's sitting position at least one time per hour.
6. The tilt-in-space function of the ROC Wheelchair can assist with pressure relief. In order to effectively reduce pressure from the buttocks and thighs, the wheelchair should be tilted to 45 degrees a few times throughout the day.

(Samaniego, 2003; Stockton & Parker, 2002; Ding et al., 2008)

Wheelchair Safety

In order to transport a person in a wheelchair, it is important to know how to handle a wheelchair safely and securely. It is important for the caregiver to be familiar with the safe use of the wheelchair in order to protect the person in the wheelchair as well as the caregiver. **DO NOT ATTEMPT to navigate a wheelchair unless you are ABSOLUTELY sure that you can handle the weight of the individual and maintain full control at all times.**



SEAT BELT: ALWAYS fasten the seat belt. Make sure the seat belt is tight enough to secure the person for safety, but the seat belt should not bind. Make sure the seat belt is not overly tight each time by slipping two fingers between the seat belt and the child..

BRAKES: Lock the brakes on the wheelchair before transferring a child. Always engage the brakes when the child is unattended.

Make sure the child's feet are placed firmly on the footbed to prevent the feet from dragging. Also, make sure the child is wearing shoes. This will prevent injury and will also allow the wheelchair to be moved easily. Also, the child should never stand on the footbed.

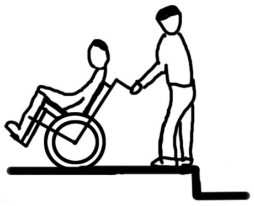
SHOES: The person pushing the wheelchair should always wear proper shoes. The shoes should have no or low heels, closed toes, and preferably a rubber sole.

Wheelchair Safety

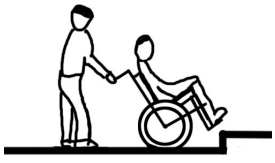
Before pushing the wheelchair, be SURE that all belts are fastened, arms and feet are secured, and arms are placed on the therapeutic tray.

NEVER tilt the wheelchair forward. Always tilt it backward. The child may fall out or become injured by tilting the wheelchair forward when navigating curbs and other objects.

When a chair is being pushed on rough ground, gently tilt the chair onto the back wheels.



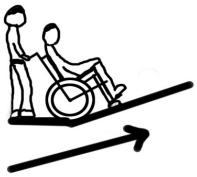
When going down a curb, turn the chair around in a backward direction. Once the caregiver is on the lower part of the curb, gently guide the large wheels off the curb slowly. After the large wheels are on the lower part of the curb, tilt the chair back to allow room for the casters. Continue to move backward until casters can be rested on the lower part of the curb.



When going up a curb, tip the chair gently and place the front wheels on the sidewalk. Once the back wheels are touching the curb, ease the chair forward and roll the wheelchair gently onto the curb.

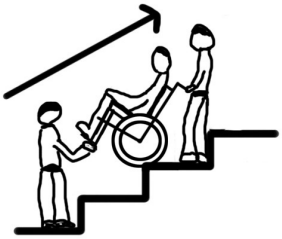
(Bolding, Adler, Tipton-Burton, Verran, and Lillie, 2013)

Wheelchair Safety

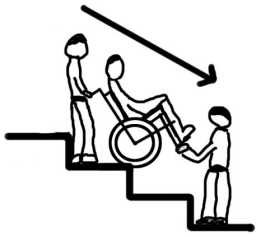


To push a child up a ramp, the caregiver should move in a forward direction.

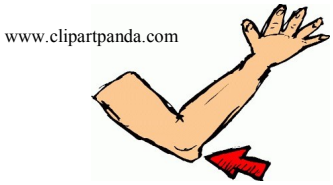
To push a child down a ramp, the caregiver should tilt the chair backward to 30 degrees. Then, ease the chair down the ramp in a forward direction. If the ramp is steep, negotiate the ramp going from side to side to control speed.



GOING UP STEPS: A **minimum of two people** should be used when taking a wheelchair up steps. Position the chair squarely at the foot of the steps with its back toward the steps. Place one foot up on the first step, and pull the chair up by straightening your legs. The second person stands in front of the chair and assists by holding the front frame of the wheelchair (do NOT use the footbed).



When going down steps, the chair should be tipped back and moved to the edge of the step. The pusher controls the descent of the chair by bending the knees. The second person stands in front of the chair and steadies the chair by holding the front frame (do NOT use the footbed).



Be watchful and ensure that the child's elbows are not going to be bumped going through a doorway or that the child's hands are not placed on the hand rims.

Adjustable Parts

Head Support

The head support should provide enough support to enable the child to balance without preventing the child's ability to shift position to engage in functional activities.

The top of seat back cushion and chest harness straps should be even with tops of shoulders.

Chest Harness

The chest harness should be firm enough to support the trunk and must allow enough space to breathe properly.

Seat Back Cushion

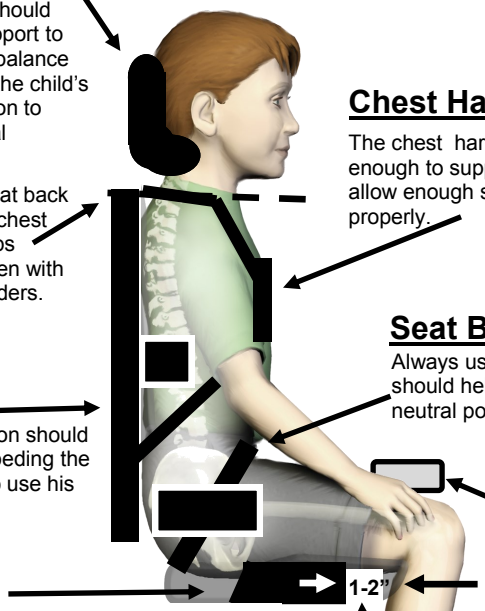
The seat back cushion should be firm while not impeding the ability for the child to use his or her hands.

Seat Belt

Always use seat belt. The seat belt should help position the pelvis in a neutral position allowing maximum

Abductor Block

The abductor block keeps the legs aligned with the pelvis.



Seat Cushion (depth adjustment)

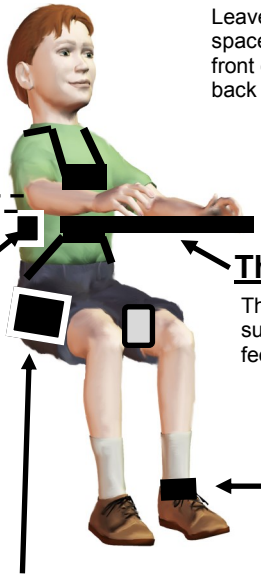
Seat Cushion should provide firm support under the pelvis and thighs to encourage a neutral pelvic position.

Leave 1 to 2" of space between front of seat and back of knees

Foot Bed

The feet should rest firmly on the foot bed to provide support for lower extremities

Trunk Supports



The trunk supports help maintain an erect upper body. A 1 to 3" space between trunk support and arm pit helps prevent the child from having skin irritation and breakdown.

Therapeutic Tray

The therapeutic tray provides upper body support as well as a platform to use for feeding, work, and play.

Ankle Supports

Ankle supports stabilize and position the feet while still allowing controlled movement.

Hip Guides

Hip guides facilitate thigh alignment, stabilize sitting posture, and prevent hip abduction. They can help with centralizing the pelvis on the seat cushion.

ROC WHEELS
Reach Out and Care.

How to Make Adjustments

The following pages provide valuable information for how to adjust for the child's growth and other capabilities of the ROC Wheelchair.

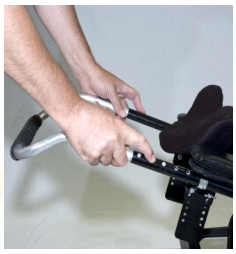
Tool Kit

You will need:

- 7 1/16" nut driver
- Phillips screw driver
- measuring tape
- pen

Other tools can be used for custom configurations.

Adjustable Handle Bar

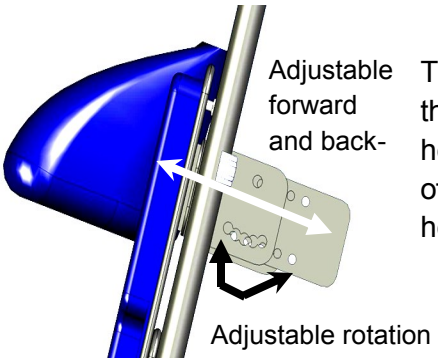


The handle bar is adjustable by changing the position of the snap buttons on the seat back tubes. You can flip the handle bar around for a better handle height by drilling an additional hole to accommodate the snap button.

Folding the Wheelchair

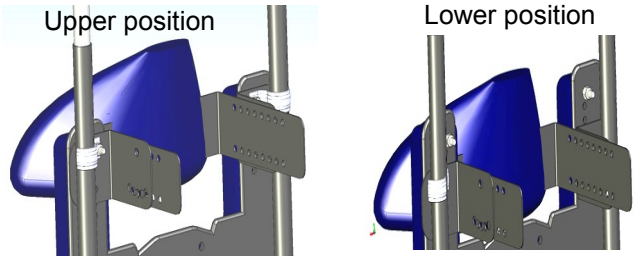
The ROC Wheelchair comes with quick release rear wheels and a foldable back cane. Make sure the chair is tilted all the way forward and that the positioning components are not in the way. To avoid the footbed interfering in the process, tilt the wheelchair to either 2nd or 3rd position to provide clearance.

Head Support

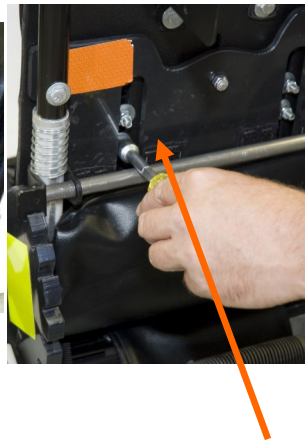


The head should be neutrally aligned with the eyes horizontal. Contouring of the head support can be customized by pulling off cover and fitting in new foam shapes to help support the child's head.

Adjustable Up and Down



Trunk Supports



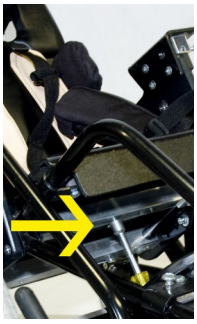
The trunk supports are adjustable in height, width, depth and angle.

Use the 7/16" nut driver to adjust the trunk supports. There should be 1 to 2" of space between underarm and top of trunk support.

Seat Cushion

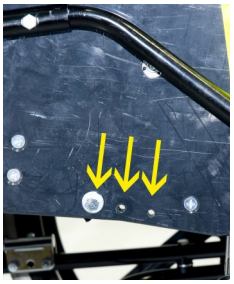
Seat cushion has 7” of growth

The seat depth can be adjusted with the 7/16” nut driver as shown to the right with the yellow arrow.



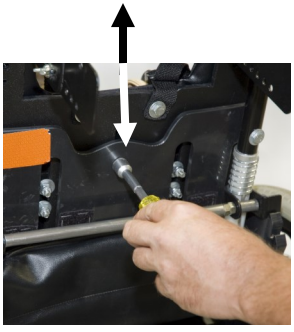
Seat Belt

A properly positioned seat belt is usually at 45 degrees to the sitting surface. Depending on the child’s pelvis, the seat belt position may have to be changed to keep the pelvis in the neutral position.

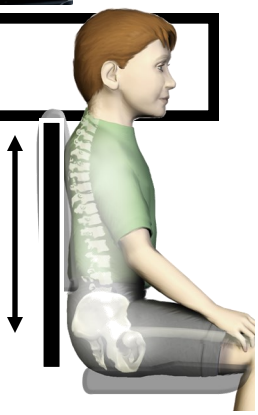


Yellow arrows indicate places to adjust seat belt.

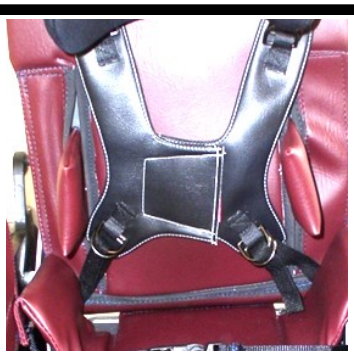
Seat Back

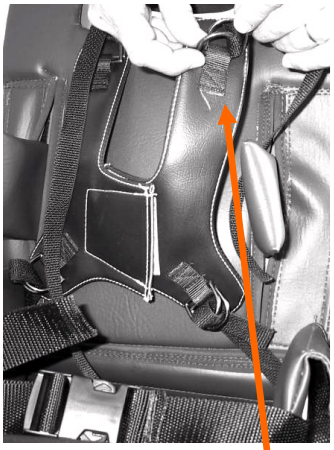


The seat back can be adjusted with a 7/16” nut driver. The seat back has room for 8” of growth. The height of the seat back should not interfere with arm motion or function.



Chest Harness





How to adjust the straps of the harness

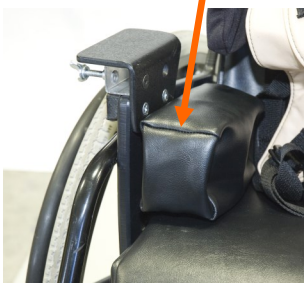
A chest harness can be instrumental in keeping the upper body stable and positioned properly. It also keeps the shoulders positioned and distributes even pressure across the shoulders and sternum.

Arm Rests

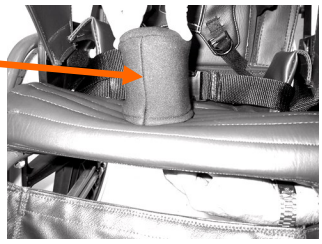
The arm rests provide upper extremity support enabling the child to maintain alignment and improve function. The arm rests also serve as the support for the therapeutic tray.

Hip Guides/ Abductor Block

Hip guides assist in maintaining symmetrical pelvic alignment.



The abductor block separates the thighs and stabilizes posture. Depending on the needs of the child, an abductor block may or may not be installed.



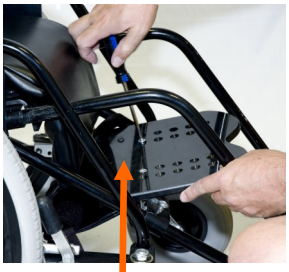
Foot & Ankle Support

<u>Foot positioning</u> is critical and possible only after achieving correct alignment of the pelvis and legs. The foot should be flat with most of the weight carried through the heel.

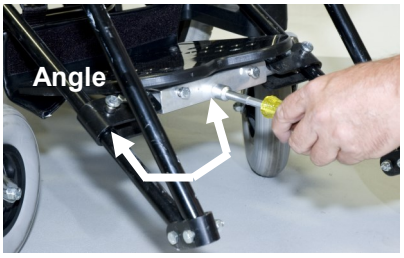
Foot and ankle supports

Footbed Adjustability

Calf protectors in upper position

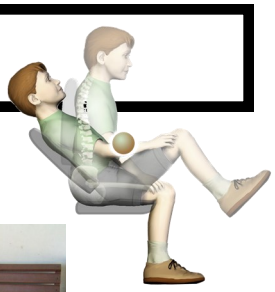


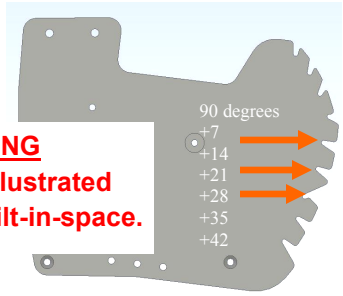
Forward and Back



Calf protectors in lower position

Tilt-in-Space

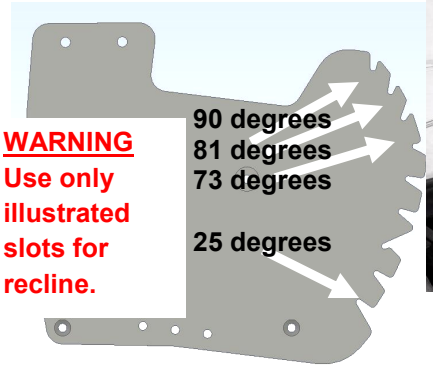




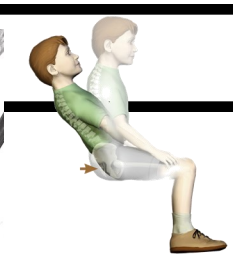
WARNING
Use only illustrated slots for tilt-in-space.

Tilt-in-space will assist the child's muscular trunk control against gravity and aid in pressure relief. If it is too erect, he may slump. If too far back, he may pull forward to become more erect. It is important to position the child as erect as possible to encourage the child to develop the strength and balance needed to improve. As needed, tilt the child back to remove pressure from the buttocks area in order to allow proper circulation of blood and oxygen and increase comfort.

Recline

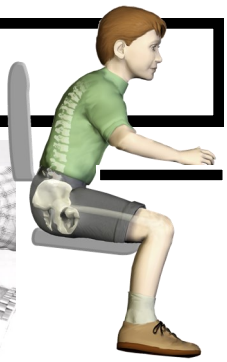


WARNING
Use only illustrated slots for recline.

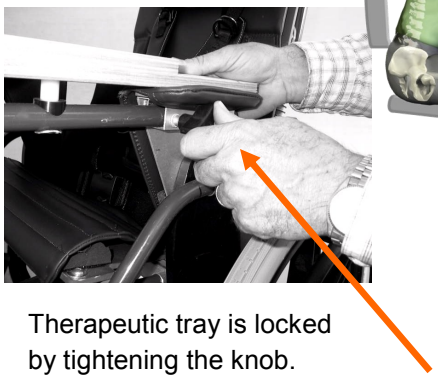


Pull up on bar to recline seat back

Therapeutic Tray



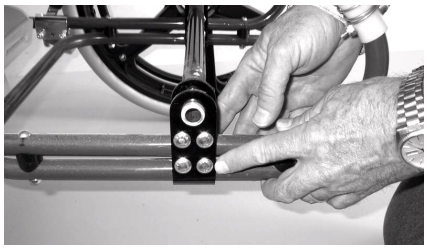
The tray can be adjusted forward and backward

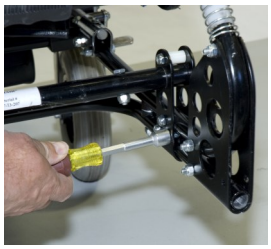


Therapeutic tray is locked by tightening the knob.

<u>Lapboards and armrests</u> encourage upper extremity functional use, but they should not be used as a trunk support.

Independent Mobility





The ROC Wheelchair has an adjustable wheelbase to enable the child to get maximum positioning for self propelling. The rear axle can be adjusted as illustrated to achieve the best positioning.

IMPORTANT: Please use anti-tips when the wheels are positioned forward since the chair will be more apt to tip over.

WHEELCHAIR MAINTENANCE

Wheelchairs require regular maintenance and cleaning in order to prolong the use of the wheelchair. To keep the wheelchair rolling smoothly, you will need to take care of minor problems. Some basic maintenance requires the basic tools shown on page 10 of this manual. It is a good idea to carry these tools in a container that can be easily located when traveling outside of the home in case of emergency. The following list is a suggested maintenance schedule to be done at home.

As Needed:

- Cleaning the cushion: It is best to clean the wheelchair cushions when it is time for the child to go to bed. This will allow ample time for the cushion to dry. The wheelchair cushions should be cleaned each time the cushions become soiled to decrease odor and potential for infection.

Weekly:

- Wipe the chair down with a damp cloth. Use mild detergent if needed to reduce germs.
- Check the wheel brakes and make sure they are easy to activate. Also make sure they are secured tightly to the frame.
- Remove any hair, strings, or other objects from the wheel axles that make the wheel hard to turn. Clean off any sand or road grime that can wear down parts over time.
- Inspect the wheels to ensure the spokes from the axle to the rim are secure. Also check to make sure the rims are not bent.
- Check the front casters for any wobbling or excessive motion.

Monthly:

- Check for loose nuts and bolts. If any nuts or bolts need to be replaced, use only the same size, grade, and strength of the original ones.
- Check for any cracks in the frame.
- Check the wheel alignment.
- Thoroughly clean the chair with a damp cloth.

Yearly:

- Lubricate any pivot points. Wheelchairs with reclining backs and tilt-in-space should return to the upright position without difficulty.

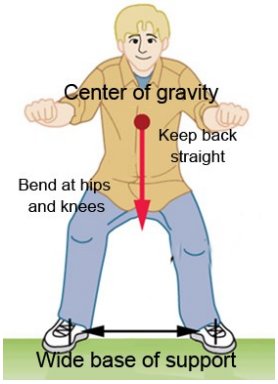
TRANSFERS

Parents and caregivers who have the frequent task of transferring a child from one location to another are at risk for bodily injuries, specifically back injuries. Here are some guidelines for avoiding these types of injuries during a transfer.

- When lifting, use your leg muscles, keep your knees and hips bent, and keep your back straight.
- If you need to turn to the side, move both feet around together at the same time to avoid twisting at the waist.
- Do not place your hands over any joints of the child who is being transferred during a lift.

Maintain these four principles during a transfer:

- Stable center of gravity
- Wide base of support
- A line of gravity
- Proper body alignment



NOTE: Wearing shoes with closed-toes when performing a transfer is imperative to safety for both you and the child. <u>Do not transfer with bare feet or in socks.</u>

(Blaire, 2008; Cipriani, Hensen, McPeck, Kubec, & Thomas, 2012)

REFERENCES

Blair, H. (2008). Caregiver care. Practice good body mechanics for a safe working environment. *ONS Connect*, *23*(2), 24.

Bolding, D., Adler, C., Tipton-Burton, M., Verran, A., & Lillie, S. (2013). Mobility. In Pendleton, H. & Schultz-Krohn, W. (Eds.), *Pedretti's occupational therapy: Practice skills for physical dysfunction* (pp. 233-294). St. Louis, Mo.: Elsevier.

Cipriani, D. J., Hensen, F. E., McPeck, D. L., Kubec, G. D., & Thomas, J. J. (2012). Rating Scale Analysis and Psychometric Properties of the Caregiver Self-Efficacy Scale for Transfers. *Physical & Occupational Therapy In Pediatrics*, *32*(4), 404-415. doi:10.3109/01942638.2012.694993

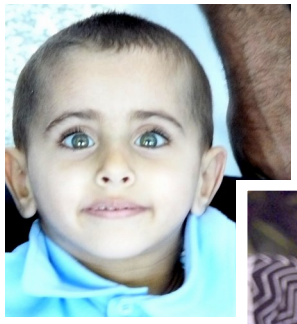
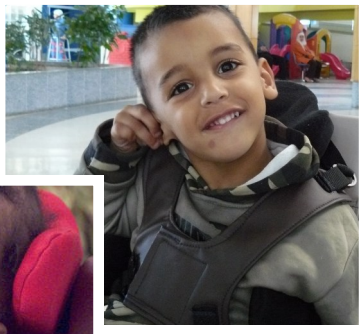
Ding, D., Leister, E., Cooper, R., Cooper, R., Kelleher, A., Fitzgerald, S., & Boninger, M. (2008). Usage of tilt-in-space, recline, and elevation seating functions in natural environment of wheelchair users. *Journal Of Rehabilitation Research & Development*, *45*(7), 973-984.

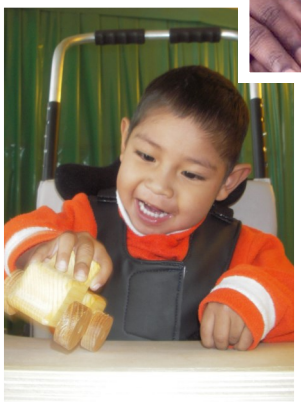
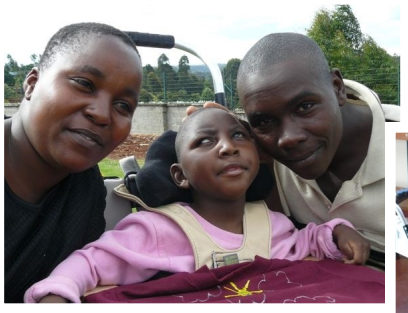
Engstrom, B. (2002). Physical intelligence and physical disability. In Ergonomic seating: A true challenge : Seating and mobility for the physically challenged : Risks & possibilities when using wheelchairs ([New ed.). Stockholm: Posturalis Books.

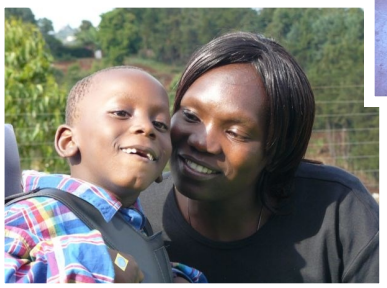
Paleg, G. (2006). Pediatric seating and support. *Rehab Management: The Interdisciplinary Journal Of Rehabilitation*, *19*(1), 55.

Samaniego, I. (2003). A sore spot in pediatrics: risk factors for pressure ulcers. *Pediatric Nursing*, *29*(4), 278-282.

Stockton, L., & Parker, D. (2002). Pressure relief behaviour and the prevention of pressure ulcers in wheelchair users in the community. *Journal Of Tissue Viability*, *12*(3), 84-84, 88, 90 passim.

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