

- IDEAL POSTURE**
- Neutral alignment of spine and head
 - Level pelvis
 - Shoulders slightly posterior to pelvis

Pelvic Support User's Guide

The pelvis is the key to postural alignment as it dictates the position of the trunk, head and extremities.

There are three primary support surfaces: the seat, the back and the foot rest. Pelvic stabilization can be greatly improved by using an anterior support belt.

PRIMARY SUPPORT SURFACES CONSIDERATIONS

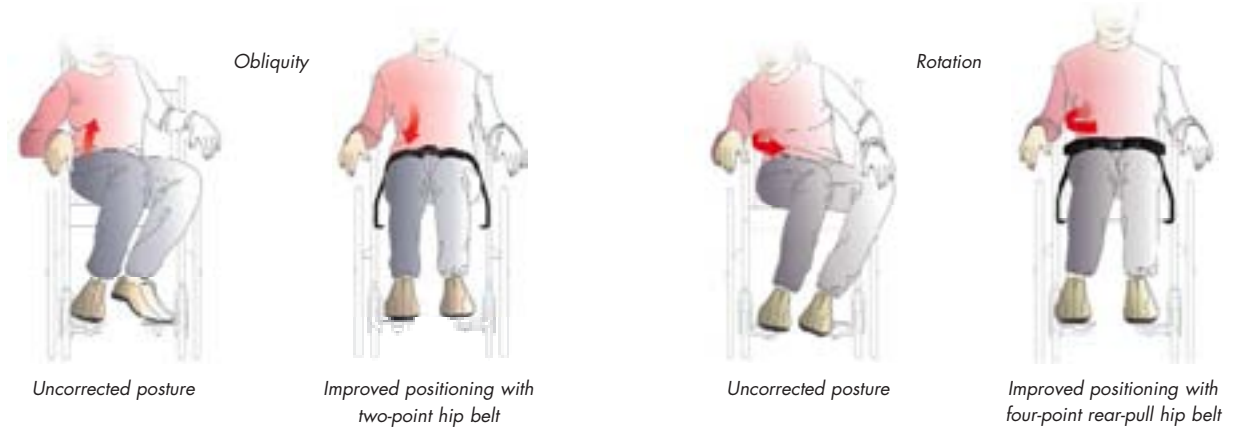
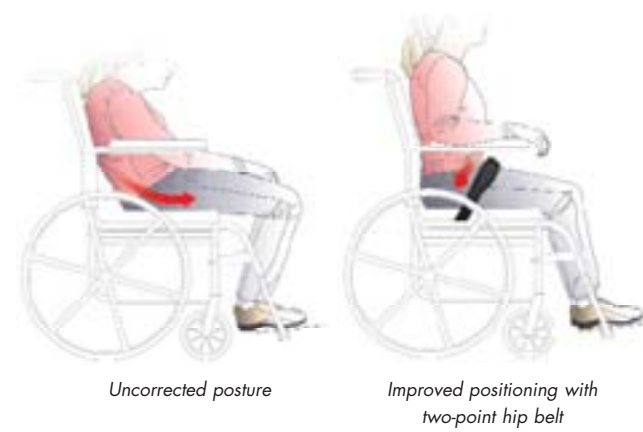
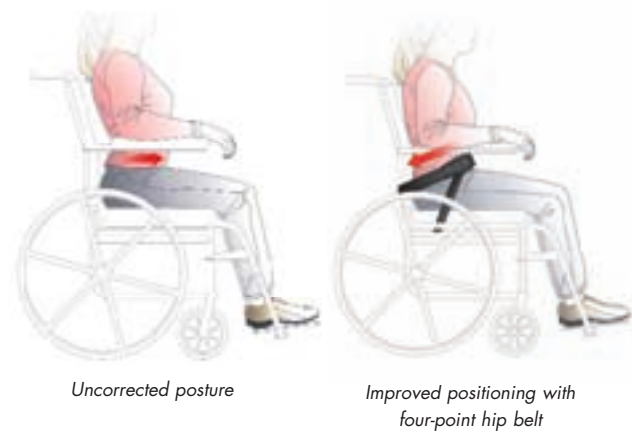
- Fitted to the individual
- Solid seat and back
- Stable cushion
- Correct back height depends on the amount of trunk support needed
- Seat depth allows 1" (25mm) from back of knee to front of seat

- Appropriate use of lateral supports
- Correct armrest height allows for 30° shoulder flexion and 60° elbow flexion
- Footplate height allows 2" (50mm) clearance from floor and positions femurs parallel to seat
- Seat width allows 1/2" (13mm) on either side
- Achieves balance between support and function



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Anterior Pelvic Tilt

ASSESSMENT

- Thoracic kyphosis is reduced or reversed
- ASIS lower than PSIS (Posterior Superior Iliac Spine)
- Increased lumbar lordosis
- Trunk extension
- Shoulders retracted

POSSIBLE CAUSES

Wheelchair problems: seat-to-back angle too small.

Physical conditions: tight hip flexors, weak abdomen muscles, and lordosis.

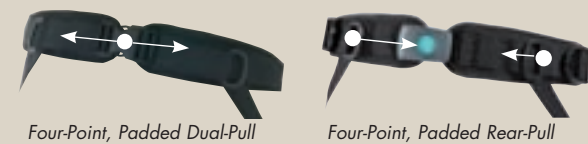
ATTACHMENT

Position the padded belt over the ASIS and attach at 30-45° to the seat. Anchor the secondary straps between 60° and 90° to the seat to prevent the padded belt from lifting up into the abdomen. See back page for Hip Belt options and Angles of Attachment.

PURPOSE

The objective of the belt is to resist forward tilt of the pelvis.

HIP BELT OPTIONS



Posterior Pelvic Tilt

ASSESSMENT

- Sacral sitting – most common tendency
- ASIS higher than PSIS (Posterior Superior Iliac Spine)
- Tends to slide out of chair
- Flexed lumbar spine
- Thoracic kyphosis
- Shoulders protracted
- Increased cervical extension – 'C' type posture

POSSIBLE CAUSES

Wheelchair problems: seat depth too long, back support too short – and footplates too low/too far forward.

Physical conditions: tight hamstrings, muscle weakness, and kyphosis.

ATTACHMENT

Position the padded belt anterior and inferior to the ASIS and attach at a 60-90° angle to the seat. See back page for Hip Belt options and Angles of Attachment.

PURPOSE

The objective of the belt is to prevent sliding.

HIP BELT OPTIONS



Pelvic Obliquity and Rotation

ASSESSMENT

- One side of the pelvis is higher than the other side, usually involves rotation.
- Compensatory C-shaped curve in the lumbar and thoracic spine. Lateral tendency.
- Shoulder on the low side of the pelvis tends to be elevated.

POSSIBLE CAUSES

Wheelchair problems: unresponsive sling back/seat upholstery, wheelchair too wide – and seat too short.

Physical conditions: irregular trunk muscle tone, muscle imbalance – and scoliosis.

ATTACHMENT

Position the padded belt over the ASIS and attach at 60° to the wheelchair seat. When using a Four-Point Hip Belt, anchor the secondary straps to the seat between 45° and 90°. See back page for Hip Belt options and Angles of Attachment.

NOTE

Pelvic obliquity and rotation, usually seen with active movement such as extensor thrust, can often be reduced by an asymmetrical attachment of the belt to the wheelchair. Adjust the position of each anchor point to optimize the pull against the high/forward side of the pelvis.

PURPOSE

The objective of the belt is to bring the pelvis down and back into the seating system.

HIP BELT OPTIONS



Belt Alternative Required

ASSESSMENT

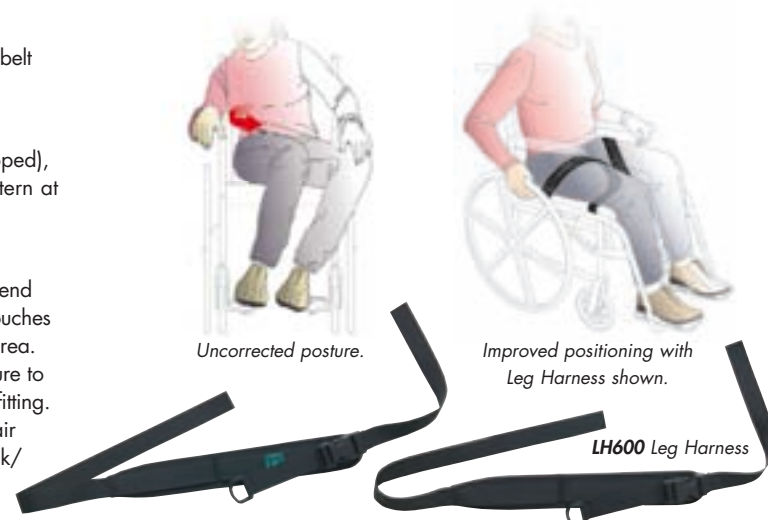
- Pelvic obliquity or rotational tendency not corrected by a hip belt
- Belt is contraindicated

POSSIBLE CAUSES

Physical conditions: pediatric pelvis (hip joint not fully developed), hip extension, strong rotational tendency, extensor reflex pattern at pelvis, feeding tube and bladder or bowel incontinence.

ATTACHMENT

Place one of the pads against the inner thigh so that the upper end (the one with the buckle) touches the ASIS and the lower end touches the seat, but does not extend under the leg or touch the groin area. Pass the lower strap under the thigh (medial to lateral) and secure to the bottom of the seat, or to the wheelchair frame with the end-fitting. Attach the upper strap to the rear of the seat or to the wheelchair frame behind the trochanter (hip joint). Tighten strap to pull back/down against the user's thighs.



Sub-ASIS Pads and Belt

Sub-ASIS pads significantly improve the ability of a belt to transform circumferential tension into localized pressure, mimicking the hands of a therapist. Sub-ASIS pads focus contact with the pelvis at two points for precise support, while lifting the belt away from the belly to relieve pressure on the soft tissue. The result is greatly enhanced control of obliquity and rotation without the need for a tightly fitted belt.

ASSESSMENT

- Severe pelvic rotation or obliquity (see above section on obliquity/rotation).
- Bladder control problems or other contraindications to a tightly fitted belt.

POSSIBLE CAUSES

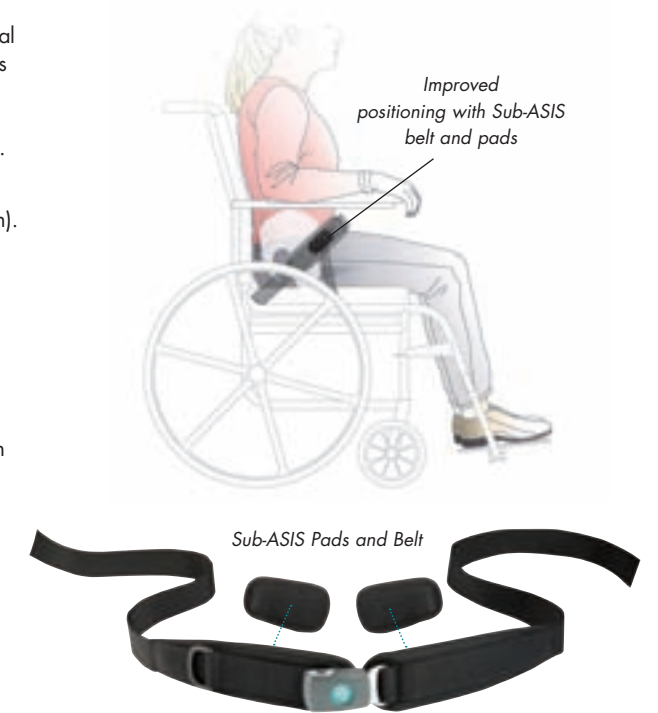
See causes of obliquity and rotation above.

ATTACHMENT

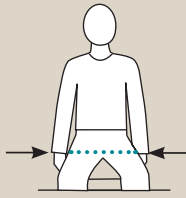
Position the belt anterior and inferior to the ASIS and attach between 30° and 60° to the wheelchair seat. See back page for Hip Belt options and Angles of Attachment. A higher mounted belt (30°) is best suited to countering pelvic rotation while a lower mount (60°) will counteract obliquity best.

A 45° angle can be a good compromise when both obliquity and rotation are present. Keep in mind that when trying to counteract asymmetrical tendencies, it can be helpful to mount the belt asymmetrically, according to the direction of rotation or obliquity present. Used with special Hook-and-Loop (similar to Velcro®) compatible belts, the sub-ASIS pads can be adjusted for a precise fit against the user's pelvis.

NOTE: Select from small or large sub-ASIS pads according to the user's build, choosing the smaller pads when they have adequate contact with the pelvis.



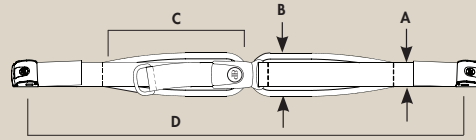
Hip Belt Selection Guide



XS	5-9" (13-23cm)
S	7-11" (18-28cm)
M	9-15" (23-38cm)
L	13-19" (33-48cm)

MEASURING FOR A HIP BELT
Measure hip width across the greater trochanters with the person seated. If the hip width falls between sizes on our chart, consider other factors such as growth, weight changes, and clothing.

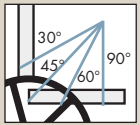
HIP BELT SPECIFICATIONS



	A	B	C	D
XS	1" (25mm)	1-3/4" (44mm)	6" (15cm)	50" (127cm)
S	1-1/2" (38mm)	2-1/4" (57mm)	7" (18cm)	55" (140cm)
M	1-1/2" (38mm)	2-1/2" (64mm)	9" (23cm)	60" (152cm)
L	2" (50mm)	3" (76mm)	11" (28cm)	65" (165cm)

ANGLES OF ATTACHMENT

The angle the hip belt is attached to the wheelchair has a direct effect on the angle of pull on the pelvis. In general, the angle of pull can be conceptualized by imagining the therapist standing in front of the user, utilizing his/her hands to support or correct the user's position; the belt should extend along the same angle as the therapists arms – the belt simply pulls into the point where the therapist would push with his/her hands. If the therapist needs to PUSH down and back, the belt should PULL down and back. This concept works as well with obliquity, rotation – and other asymmetrical postures.



Considerations:

- A 60° angle of attachment to the seat positions the hip belt anterior and inferior to the ASIS, which reduces the tendency of the client with a posterior pelvic tilt to slip underneath the belt.
- A higher attachment on the back post assists in positioning clients with an anterior pelvic tilt. A 30° angle of attachment pulls back against the top of the pelvis, but is problematic for users with neutral or posterior pelvic tilt.
- The secondary straps of a four-point hip belt are attached to the seat between 45° and 90° to hold the primary padded strap in place and to prevent the belt from riding into the abdomen or twisting.

- The angle of attachment may have to be compromised in order to accommodate such things as wounds in the pelvic area, unstable hip joints or gastric tubes.

TIGHTENING THE BELT

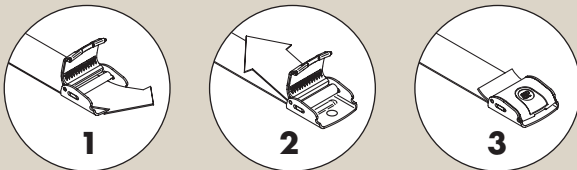
Keep belt tightened during fitting, and maintain this tightness during daily use to ensure correct placement. For padded hip belts, the pads will touch when fully tightened. For non-padded hip belts the adjustment strap at the buckle should be approximately 4-6" (10-15cm) long. Teaching the caregiver these techniques is essential for correct hip belt positioning.

ATTACHING TO THE FRAME

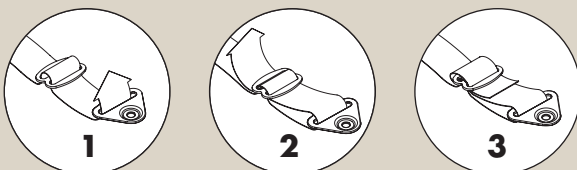
Cinch-Mount™ end-fittings provide a quick and easy method for achieving precise adjustments when fitting the belt to the wheelchair. Although more time-consuming to adjust, Flat-Mount™ end-fittings offer a lower-profile alternative. Using either in conjunction with FrameSaver™ clamps, allows a wide variety of suitable mounting locations to be created. Proper mounting also extends the life of the belt and keeps it in place. Mount the belt to the bottom of the seat or directly to the wheelchair frame as close to the pelvis as possible. Consider interference with any other devices and moving parts on the wheelchair.

ADJUST BELT LENGTH IN 3 EASY STEPS!

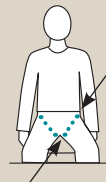
Patented Cinch-Mount™ Hardware



Flat-Mount™ Hardware



MEASURING FOR A LEG HARNESS



Measure from the Anterior Superior Iliac Spine (ASIS) to the point where the inner thigh touches the seat.

S	M	L
Fits 8"-11" (20cm-28cm)	Fits 11"-14" (28cm-36cm)	Fits 14"-16" (36cm-41cm)



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