

TROUBLESHOOTING SCOLIOSIS ORTHOSES

PROBLEM	CAUSES	SOLUTIONS
Straps do not lie horizontal (orthosis appears to have shifted superiorly/ inferiorly between left and right side)	<ol style="list-style-type: none"> 1. Leg length discrepancy. 2. Straps are not same levels as loops. 	<ol style="list-style-type: none"> 1. Check to see if patient has length discrepancy, if so, with doctor's prescription, provide lift. 2. Change placement of strap rivet to allow strap to lie horizontal.
Excessive waist pressure (usually opposite a thoracic curve when a lumbar pad is not used)	<ol style="list-style-type: none"> 1. Excessively tight waist measurement, growth, or muscular abdominals. 2. No pelvic tilt during application. 	<ol style="list-style-type: none"> 1. Grind waist roll smaller (avoid causing iliac crest pressure by removing too much). Either peel the waist away from the module or glue a new lining over the region that was ground away. 2. Reinstruct donning procedure of pelvic tilt to open space between ribs and pelvis.
Orthosis impinges on breast tissue when sitting.	<ol style="list-style-type: none"> 1. Inferior trimline too low and impinges on thighs causing orthosis to migrate superiorly. 2. Anterior superior trimline too high. 	<ol style="list-style-type: none"> 1. Trim anterior inferior to allow comfortable sitting. 2. Evaluate superior trimline when standing, if still impinging then trim.
Window Edge Pressure - Inferior Edge (waist)	<ol style="list-style-type: none"> 1. Brace too loose, it rides up when sitting. 2. Pad pressure causes the rib cage to protrude out the window. The edges may constrain this movement if excess plastic is above waist. 3. Ribs angle into waist due to scoliosis, and/or crest roll may be too wide for the narrow waist of patient. 4. Large amount of soft tissue protrudes through window. 	<ol style="list-style-type: none"> 1. Reinstruct proper tight donning. 2. Trim plastic and foam to the waist roll. 3. Trim plastic well into the waist roll region, allowing the lining to roll over the plastic edge. 4. Add gusset or 1/8" pad over window to contain soft tissue and soften transition between crest pad and window.
Window Edge Pressure - Superior, Anterior or Posterior	<ol style="list-style-type: none"> 1. Pad pressure causes the rib cage to protrude out the window. The edges may constrain this movement. 2. Window is not larger than pad. 3. Window is appropriately larger than pad, resulting in excellent curve correction and protrusion through window. 	<ol style="list-style-type: none"> 1. Make window large enough to allow rib excursion (while maintaining sufficient axillary extension width). Eliminate radius of module. 2. Enlarge window or reduce pad size. 3. Gusset over window, provided excursion is taking place.

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Axillary Extension pressure	<ol style="list-style-type: none"> 1. Extension too high. 2. Padding packed out. 3. Edges irritating upper arm. 	<ol style="list-style-type: none"> 1. Trim extension but make sure it is wide enough for strength. 2. Replacing padding periodically. 3. Smooth edge and wrap padding over edges.
Painful rib pressure at superior edge of thoracic extension	<ol style="list-style-type: none"> 1. Thoracic pad not skived down enough superiorly. 2. Thoracic pad does not extend enough beyond the trimline of the orthosis 	<ol style="list-style-type: none"> 1. Skive thoracic pad superiorly. 2. Replace thoracic pad.
Discomfort at anterior lateral section of thoracic extension	<ol style="list-style-type: none"> 1. When trimming orthosis, too much anterior radius may remain at thoracic extension. 	<ol style="list-style-type: none"> 1a. Heat and flare anterior lateral aspect of thoracic extension to prevent impingement. In juvenile patients, pay close attention to this contour, as to not cause any deformation of the developing ribs. 1b. Add gusset from thoracic extension to the apron front.
Pressure under orthosis where the axillary extension connects to the anterior bib	<ol style="list-style-type: none"> 1. Sometimes when treating a high thoracic curve, the window is so large that the “bridge” is very narrow. 	<ol style="list-style-type: none"> 1a. Heat relieve to change contour. 1b. Verify window is larger than thoracic pad and keep pad smaller. 1c. Add pad that floats/extends into window. 1d. Add gusset over window.
Trochanter Extension pressure	<ol style="list-style-type: none"> 1. Prominent greater trochanter. 2. Edges digging in when sitting. 3. Rigid lumbar curve or substantial decompensation requiring large pressures. 	<ol style="list-style-type: none"> 1. Provide a depression in the pad and/or relieve plastic. 2. Flare and/or trim edges for comfort (remove radius). 3a. Assure #1 and #2 have been done. 3b. Shear guard may be added to reduce friction and irritation.
Redness or discomfort along iliac crest	<ol style="list-style-type: none"> 1. Orthosis may have been donned too low (crest rolls need to be at waist). 2. Orthosis may be outgrown. 3. Poor hygiene. 	<ol style="list-style-type: none"> 1. Reinstruct donning procedure. 2a. Heat relieve 2b. Add 1/2” crest roll 2c. Replace orthosis 3. Improve skin care, reinstruct
Lumbar pressure (patient cannot tolerate, present with deep reddened area)	<ol style="list-style-type: none"> 1. Rigid lumbar curve. 2. Prominent lumbar paraspinal area. 	<ol style="list-style-type: none"> 1. Decrease lumbar pad to 1/4”. 2a. Increase the anterior / posterior dimension of the orthosis. 2b. Remove lumbar pad, to be reapplied prior to first inbrace x-ray.

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Rotating Module (usually clockwise when viewed from above)	<ol style="list-style-type: none"> 1. Brace loose. 2. Module too big/wide for pelvis. 3. The order of strap closure. 4. Thoracic pad too thick posteriorly. 5. Lumbar pad too thick. 6. Apron trimmed too narrow. 7. Rigid rotation in lumbar curve. 8. Rigid rotation in thoracic curve. 	<ol style="list-style-type: none"> 1. Tighten module / trim posterior opening / add an abdominal pad 2. Decrease module ML by filling in lateral gluteus medius spaces with padding, or new module. 3. Tightly secure the inferior strap (the pelvis) first, then the waist and superior straps. 4. Lateralize thoracic pad 5. Thin lumbar pad (assuring adequate force for correction) 6a. Weld gusset from lateral side of apron to the anterior lateral aspect of thoracic extension 6b. Rivet a dacron strap from the thoracic pad region to the apron corner 7. Anterior abdominal derotation pad - medial to the ASIS to midline & from waist to distal anterior trimline - on the same side as a thoracic curve / opposite lumbar curve 8. Anterior thoracic derotation pad full thickness laterally skived to mid line.
Able to tighten the orthosis so posterior opening is less than the width of L5, this may occur with in the first few weeks of wear	<ol style="list-style-type: none"> 1. If occurs at initial fit, orthosis is too large. Compression over several weeks is expected, plan for it in your module selection. 	<ol style="list-style-type: none"> 1a. Add 1/4" or 1/2" abdominal pad, to be skived at all 4 edges. 1b. Increase size of crest rolls, add 3/16" or 1/4" foam layer.
First in-brace x-ray shows slight correction (it is recommended to check patient before first in brace x-ray to make sure brace properly fits).	<ol style="list-style-type: none"> 1. Brace may not be tight enough. 2. Opening and pads may not be in proper place. 	<ol style="list-style-type: none"> 1. Review blueprinted x-ray, compare it with in-brace x-ray. 2a. Check copper burrs on x-ray - make sure they are pushing at the apex of the curve. If they are too high or low, they will not provide the correct forces on the curve you are treating. 2b. Verify how orthosis was donned, tighten brace and mark straps.
In-brace x-ray shows excellent curve correction but significantly increased decompensation.	<ol style="list-style-type: none"> 1. Patient has leg length discrepancy. 2. Trochanter extension on wrong side. 3. Trochanter extension needs pad added. 4. Side contralateral to trochanter extension is too long. 	<ol style="list-style-type: none"> 1. Verify leg lengths and add appropriate height shoe lift with prescription. 2. Review initial and inbrace x-ray, remove extension and weld extension to opposite side. 3. Add trochanter pad to extension. 4. Trim to relieve contralateral trochanter.

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<p>In orthosis x-ray reveals lumbar and thoracic curves corrected well, however superior thoracic curve of triple curve had increased.</p>	<ol style="list-style-type: none"> 1. Axillary extension impinges anteriorly or posteriorly. 2. Axillary extension too high. 	<ol style="list-style-type: none"> 1a. Trim axillary extension so it does not impinge on scapula, axilla, or breast tissue. 1b. Flare axillary extension to relieve anteriorly and posteriorly. 2. Trim axillary extension lower than conventional trimline to allow shoulders to be level.
<p>If x-ray reveals good cobb correction but lateral x-ray shows diminished kyphosis approaching 0° - to a lordosing thoracic spine.</p>	<ol style="list-style-type: none"> 1. Hypokyphosis in Thoracic Spine. 	<ol style="list-style-type: none"> 1a. Report to doctor 1b. Refer patients to Physical Therapy for appropriate exercises ie. stretch hip flexors. 1c. Add pro-kyphosis extension from posterior.