




Spine Orthosis Selection - SOS document

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The purpose of this document is to provide guidelines on the management of different spinal injuries and offer an overview of different orthotic spinal bracing options. Patients admitted to the Royal Brisbane and Women’s Hospital (RBWH) following a suspected or confirmed spinal injury are often placed on spinal precautions which can involve movement or positional restrictions depending on the injury. In many cases the patient may require a spinal orthosis to protect the spine from further injury or to maintain the spine in a neutral alignment. Establishing the level of the fracture, whether it is stable or unstable, and determining which movements need to be controlled; will aid the clinician in determining the most appropriate orthosis. All orthoses are prescribed by the medical team and should be fit by an orthotist or other allied health/nursing professional who has received the appropriate training.





Video link for application of braces: <https://vimeo.com/showcase/6773122>

Hard Cervical Collars





Aspen Vista Collar	Miami J Select	Philadelphia Collar
		
<ul style="list-style-type: none"> • Stabilises C2-C5 <p>Indications</p> <ul style="list-style-type: none"> • Limits flexion/extension, minimal rotation control • Stable C fractures/ ligamentous injuries • Adjustable chin height – one size fits most • Extra short/stout neck – may need different collar • Less pressure areas than a Philly • Attaches to Aspen CTO <p>Precautions</p> <ul style="list-style-type: none"> • “Unstable fractures” • \$\$ 	<ul style="list-style-type: none"> • Stabilises C2-C5 <p>Indications</p> <ul style="list-style-type: none"> • Limits flexion/extension, minimal rotation control • Stable C fractures/ligamentous injuries • Adjustable chin height – one size fits most • Extra short/stout neck – may need different collar • Less pressure areas than a Philly • Attaches to Miami JTO • <u>Occian back available for pressure relief during prolonged bed rest.</u> <p>Precautions</p> <ul style="list-style-type: none"> • “Unstable fractures” • \$\$ 	<ul style="list-style-type: none"> • Stabilises C2-C5 <p>Indications</p> <ul style="list-style-type: none"> • Limits flexion/extension, minimal rotation control • Stable C fractures/ligamentous injuries <p>Precautions</p> <ul style="list-style-type: none"> • <u>Not adjustable</u> – many different sizes • <u>Risk of pressure areas</u> - Short term option • Attaches to Philadelphia CTO • \$

Cervical Orthoses

Halo, Cervical Thoracic Orthoses (CTO) & Cervical Thoracic Lumbar Sacral Orthosis (CTLSO)

Ossur Halo Brace	Miami JTO	Minerva Brace	Bi-valved CTLSO
			
<ul style="list-style-type: none"> Stabilizes C1-C7 <p>Indications</p> <ul style="list-style-type: none"> Most restrictive C-spine orthosis Commonly upper cervical injuries (C1-C2) Aims to eliminate flexion, extension, rotation and lateral bending of C-spine Unstable C-spine fractures or injuries MRI compatible <p>Precautions</p> <ul style="list-style-type: none"> Pin site infection, pin loosening, pin migration Bone density (age >70, children) Cognitive issues or co-morbidities (geriatrics) Falls risk Halo reviews required every 2 weeks – pin retention (regional patients) Patient compliance – review appointments, pin site cleaning Concomitant skull # with cervical involvement \$\$\$\$\$ 	<ul style="list-style-type: none"> Stabilizes C2-T2 <p>Indications</p> <ul style="list-style-type: none"> Flexion/extension support Mild – moderate rotation support More comfortable and easier to don/doff than Minerva and less likely to cause pressure injury <p>Precautions</p> <ul style="list-style-type: none"> Posterior section not attached to collar – compromising some stability High level instability \$\$\$ 	<ul style="list-style-type: none"> Stabilizes C2-T2 <p>Indications</p> <ul style="list-style-type: none"> Flexion/extension support Mild – moderate rotation support <p>Precautions</p> <ul style="list-style-type: none"> High level instability Increased risk of pressure areas & more difficult to don/doff Frequent adjustments required when change in positioning from lie to sit to stand \$\$\$ 	<ul style="list-style-type: none"> Stabilizes C2 – L5 <p>Indications</p> <ul style="list-style-type: none"> Very restrictive/supportive CTLSO in all 3 planes Maximum support to eliminate flexion/extension/lateral bending and reduce rotation Total contact design – decreased movement Custom moulded or prefabricated <p>Precautions</p> <ul style="list-style-type: none"> Difficult to fit to “non-average” sized patients Custom CTLSO – increased wait time Patient will require assistance donning/doffing Very hot \$\$\$\$

Thoracic Lumbar Sacral Orthosis (TLSO)

Cash/Cruciform TLSO (Anti-flexion brace)	Jewett TLSO (Anti-flexion brace)	Lumbar Sacral Orthosis (LSO) – Chairback style, Low spinal brace	Bi-valved TLSO
			
<ul style="list-style-type: none"> Stabilizes T7 – L5 <p>Indications</p> <ul style="list-style-type: none"> Limit trunk flexion and encourage extension Unload anterior column Reduce kyphosis in Osteoporotic patients Pain relief – stable # Interchangeable sternal pad/ pectoral pads Easy to don/doff Quick dry <p>Precautions</p> <ul style="list-style-type: none"> Tri-columnar injuries Compression # caused by Osteoporosis No lateral bending restriction No extra lumbar support No rotation control Does not accommodate large abdomen Flexion control limited by tightness of strap \$\$ 	<ul style="list-style-type: none"> Stabilizes T7 – L5 <p>Indications</p> <ul style="list-style-type: none"> Limit trunk flexion and encourage extension Unload anterior column <u>Restricts some lateral trunk bending</u> More supportive than Cash TLSO <u>Accommodates large abdomen</u> Pain relief – stable # Easy to don/doff Quick dry <p>Precautions</p> <ul style="list-style-type: none"> Tri-columnar injuries No extra lumbar support No rotation control Flexion control limited by tightness of strap \$\$ 	<ul style="list-style-type: none"> Stabilizes L2 - L5 <p>Indications</p> <ul style="list-style-type: none"> Limits flexion, extension, minimal lateral bending Easy to don/doff <p>Precautions</p> <ul style="list-style-type: none"> High level instability Restricting flexion Encouraging hyperextension Large abdomen Rotation control \$\$ 	<ul style="list-style-type: none"> Stabilizes T5 – L5 <p>Indications</p> <ul style="list-style-type: none"> Maximum support to eliminate flexion/extension/lateral bending and reduce rotation Better rotation support than hyperextension type orthoses Total contact design – decreased movement Custom moulded or prefabricated <p>Precautions</p> <ul style="list-style-type: none"> Difficult to fit to “non-average” sized patients Custom TLSO – increased wait time Patient will require assistance donning/doffing Very hot \$\$\$\$

Produced by RBWH Orthotics and Physiotherapy departments with endorsement from Orthopaedic and Neurosurgery consultants.