

# Cervical Collars: Indications, Fitting and Evidence Informed Practice for Occupational Therapists and Physiotherapists

## Site Applicability

PHC – All sites

## Practice Level

Occupational Therapists

Physiotherapists

## Guideline

### Physician's Orders

**If physician's orders are not clear, contact the referring physician to clarify.** The physician may not be aware of the various types of collars and their purposes. If you feel the requested collar is not the most appropriate option, share your concerns with the physician.

Consider the following:

- Has spine been "clinically cleared"? The patient must be awake and alert for this physician assessment
- Physician's purpose for providing the collar. The collar may be used as conservative management for specific patients e.g. elderly, confused with osteoporosis, palliative
- Patient's current neurological/medical status
- Is the patient awaiting surgery?
- Does this patient already have a collar
  - What kind? (Extrication, soft or Aspen/Vista?)
  - Is the collar at home or in hospital?

**PHC physicians will often consult with LGH or VGH neuro/spine service** to review imaging and treatment/intervention recommendations. Unstable spinal injuries should be transferred and treated at LGH or VGH. A patient does NOT need to be transferred to LGH or VGH for collar fittings; OT/PT at SPH and MSJ are trained to fit and provide soft and semi-rigid/hard collars




**If you do not feel comfortable fitting the cervical collar; DO NOT PROCEED. Consult another OT/PT and/or the referring physician to review your concerns**

## Indications and Fitting

Type of collar	Soft (foam)	Semi-rigid		Rigid
		Philadelphia Collar	Aspen*/Vista Collar <small>* Aspen collar is being phased out and replaced with the Aspen Vista</small>	Stifneck extrication collar
<b>Indications</b>	<ul style="list-style-type: none"> <li>Pain from cervical spine arthritis</li> <li>Pain from MSK trauma/injuries e.g. whiplash with no fractures</li> <li>Post cervical fusion or laminectomy/discectomy</li> </ul>	<ul style="list-style-type: none"> <li>Stable cervical fracture management</li> <li>Positioning in bed of unstable cervical injury (while awaiting further stabilization plan)</li> <li>Pain from cervical spine arthritis</li> <li>Pain from MSK trauma/injuries e.g. whiplash with no fractures</li> <li>Post cervical fusion or laminectomy/discectomy</li> <li>Post halo brace</li> </ul>		<ul style="list-style-type: none"> <li>Suspected cervical spine injury</li> </ul>
<b>Purpose</b>	<ul style="list-style-type: none"> <li>Provides minimal neck support</li> <li>Increases comfort</li> <li>Reminder for neck movement precautions</li> </ul>	<ul style="list-style-type: none"> <li>Provides support and stabilizes cervical spine vertebrae and soft tissue to allow healing</li> <li>Restricts flexion/extension, lateral tilt, and rotation to reduce risk of worsening pathology e.g. fracture, ligamentous injury, post-surgery</li> </ul>		<ul style="list-style-type: none"> <li>Restrict cervical spine movement</li> </ul>
<b>Pros</b>	<ul style="list-style-type: none"> <li>Comfortable</li> <li>Low cost</li> </ul>	<ul style="list-style-type: none"> <li>Effectively restricts neck movement</li> <li>2 pieces (easy to care for)</li> <li>Low cost</li> </ul>	<ul style="list-style-type: none"> <li>Effectively restricts neck movement</li> <li>Comfortable foam pads</li> <li>Accommodates different neck shapes</li> <li>Adjustable occipital strap for improved fit</li> <li>Good ventilation</li> <li>2 sets of pads</li> </ul>	<ul style="list-style-type: none"> <li>Easy to apply and remove</li> <li>Low cost</li> </ul>

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<b>Cons</b>	<ul style="list-style-type: none"> <li>Does not effectively restrict neck movement</li> </ul>	<ul style="list-style-type: none"> <li>Can be uncomfortable</li> <li>Poor ventilation</li> <li>May require cutting to accommodate pressure areas</li> <li>May need a second collar for bathing</li> <li>Latex chin recess</li> </ul>	<ul style="list-style-type: none"> <li>Can be uncomfortable</li> <li>Foam pieces require changing (more challenging to care for)</li> </ul>	<ul style="list-style-type: none"> <li>Uncomfortable</li> <li>Should not be used long-term</li> <li>Risk of skin breakdown</li> </ul>
<b>Sizes</b>	<ul style="list-style-type: none"> <li>12 sizes</li> <li>3 lengths (22",24",27")</li> <li>4 heights (3",3½",4",4½")</li> </ul>	<ul style="list-style-type: none"> <li>16 sizes</li> <li>4 circumferences (S,M,L,XL)</li> <li>4 heights (2¼",3¼",4¼",5¼")</li> </ul>	<ul style="list-style-type: none"> <li>Aspen - 9 sizes</li> <li>4 adult sizes (short regular,tall,X-tall)</li> <li>Vista – dial adjustable</li> </ul>	
<b>Where to find</b>	<ul style="list-style-type: none"> <li>SPH PT department</li> <li>MSJ ED or UC orders from Epro if patient is admitted</li> </ul>	<ul style="list-style-type: none"> <li>SPH OT department</li> <li>MSJ can request transfer/delivery from SPH</li> </ul>	<ul style="list-style-type: none"> <li>SPH OT department or ER</li> <li>MSJ ER</li> </ul>	
<b>Cost</b>	<ul style="list-style-type: none"> <li>\$26</li> </ul>	<ul style="list-style-type: none"> <li>TBD</li> </ul>	<ul style="list-style-type: none"> <li>Aspen \$95</li> <li>Vista \$93</li> </ul>	<ul style="list-style-type: none"> <li>\$40</li> </ul>
<b>Fitting</b>				
<b>Special instructions</b>		<ul style="list-style-type: none"> <li>Does patient demonstrate understanding of injury and any c-spine precautions?</li> <li>Obtain patient consent to fit collar (caregiver can consent if patient unable). If collar deemed medically necessary &amp; patient unable to consent, collar may be applied as emergent intervention (as per MRP)</li> <li>Identify number of staff needed (1-3 depending on if c-spine stable or unstable, and if patient cooperative)</li> <li>Discuss with Dr/nurse if patient requires sedation or pain meds before fitting</li> </ul>		

<b>Patient position</b>	<ul style="list-style-type: none"> <li>• Bed as flat as tolerated</li> <li>• Supine</li> <li>• Head &amp; neck in neutral</li> </ul>	<ul style="list-style-type: none"> <li>• Bed as flat as allowed/tolerated e.g. resp considerations, cranial pressure concerns</li> <li>• Supine</li> <li>• Head &amp; neck in neutral (may need sheepskin or folded soaker pad under head for neutral position)</li> </ul>	
<b>Measuring</b>	<ul style="list-style-type: none"> <li>• Length – measure neck circumference               <ul style="list-style-type: none"> <li>○ 22" collar fits 11½" - 13½" neck</li> <li>○ 24" collar fits 13½" - 15½" neck</li> <li>○ 24" collar fits 15½" - 17½" neck</li> </ul> </li> <li>• Height – measure sternal notch to base of chin (3", 3 ½", 4", 4 ½")</li> </ul>	<ul style="list-style-type: none"> <li>• Height – measure from base of chin to sternal notch (A in diagram). If measurement falls between 2 consecutive sizes, apply smaller size first</li> </ul> 	<ul style="list-style-type: none"> <li>• Use Aspen cervical collar sizing guide</li> </ul> 
		<ul style="list-style-type: none"> <li>• Circumference - measure around patient's neck at level of Adam's apple (B in diagram). If measurement falls between 2 consecutive sizes, apply larger size first</li> </ul> 	

<b>Application</b>	<ul style="list-style-type: none"> <li>• Hard plastic piece faces away from neck</li> <li>• Groove goes under chin</li> <li>• Review neck movement restrictions (if applicable) before fastening velcro at back of neck</li> </ul>	<ul style="list-style-type: none"> <li>• 1 person to stabilize head in neutral throughout procedure</li> <li>• Remove extrication collar if in place - release velcro strap and slide collar out from under patient (push collar into mattress to prevent flexing/extending head)</li> <li>• Collar is not made of latex, but the small patch of moleskin in chin recess is made of latex. If patient is latex intolerant, remove the moleskin and traces of glue from chin recess</li> <li>• Position front piece of collar (ensure the word “front”, on the collar, is right side up) with patient’s chin resting in recess (shelf)</li> <li>• Slide back of collar underneath patient’s neck (push collar into mattress to prevent flexing/extending head) OR may need to log roll patient (may need 3 or more staff for a 3-person turn maintaining c-spine precautions)</li> <li>• Front piece of collar should overlap back piece by ~2”</li> <li>• Snuggly fasten Velcro</li> <li>• Collar should not move on neck</li> </ul>	<ul style="list-style-type: none"> <li>• 1 person to stabilize head in neutral throughout procedure</li> <li>• Remove extrication collar if in place - release velcro strap and slide collar out from under patient (push collar into mattress to prevent flexing/extending head)</li> <li>• Slide back of Aspen/Vista collar under neck (push collar into mattress to prevent flexing/extending head) OR may need to log roll patient (may need 3 or more staff for a 3-person turn maintaining c-spine precautions)</li> <li>• Apply front panel, ensure chin is resting on chin cup and ends of panel sit under ears (inside back panel)</li> <li>• Back panel should overlap ~ 2” of front panel</li> <li>• Ensure foam pads cover all edges of plastic</li> <li>• Snuggly fasten Velcro</li> <li>• Collar should not move on neck</li> </ul>	
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<b>Fit</b>	<ul style="list-style-type: none"> <li>• Check neck is supported in neutral</li> <li>• Check collar not too tight or too loose. Trial longer or shorter collars as needed</li> </ul>	<ul style="list-style-type: none"> <li>• Check chin fits snugly into chin recess and neck is supported in neutral</li> <li>• Check collar rests on sternum, but is not pressing into skin (skin is not blanching)</li> <li>• Check for areas of pressure e.g. earlobes, clavicles, Adam's apple. Carefully trim these areas with scissors to provide better fit as needed</li> <li>• May need to combine front and back pieces from 2 different collars to achieve optimal fit</li> </ul>	<ul style="list-style-type: none"> <li>• Check neck is supported in neutral. Adjust dial or trial taller/shorter collars as needed</li> <li>• Check collar not too tight or too loose</li> </ul>	
	<ul style="list-style-type: none"> <li>• If mobility orders, check collar with patient sitting, as shoulders may depress further due to gravity</li> </ul>			
<b>Patient/care giver Education</b>	<ul style="list-style-type: none"> <li>• Explain purpose of collar and wearing schedule as outlined by MRP</li> <li>• Teach how to don and doff collar and review any movement precautions</li> <li>• Review care of collar, Provide handouts (as applicable)</li> <li>• Liaise with nursing to ensure clear and comfortable following care plan</li> </ul>			
<b>Education handout</b>		<ul style="list-style-type: none"> <li>• Philadelphia Cervical Orthosis handout <a href="http://vch.eduhealth.ca">http://vch.eduhealth.ca</a> (catalogue # FN.707.P53)</li> </ul>	<ul style="list-style-type: none"> <li>• Vista Cervical Orthosis handout <a href="http://vch.eduhealth.ca">http://vch.eduhealth.ca</a> (catalogue #: FB.707.V57)</li> </ul>	
<b>Follow-up</b>	<ul style="list-style-type: none"> <li>• Ensure collar care plan and supports in place for D/C</li> <li>• Bill patient if leaves hospital with collar</li> <li>• OT/PT to complete "Medical supply requisition form" with patient's name, address, &amp; phone number (attach patient label) on all 3 copies. Inform patient that bill will be mailed to them or they can pay at cashier's before leaving</li> <li>• Partial to full cost may be covered by ICBC, WorkSafe BC, or extended health benefits. Patient/caregiver will need to submit a receipt to claim</li> </ul>			

**Checklist Post Cervical Collar Provision**

- ☐ Appropriate collar provided with satisfactory fit and positioning
- ☐ Appropriate patient handouts provided and reviewed with patient and family/caregivers
- ☐ Patient and/or family/caregivers are aware of wearing time and any movement restrictions
- ☐ Patient and/or family/caregivers able to apply and remove collar safely
- ☐ Liaised with bedside nursing as needed to ensure comfortable with care plan
- ☐ Plan in place to monitor c-spine and/or soft tissue injury reviews (when c-spine and/or soft tissue injury 'cleared' by MRP, cervical collar requirements may be discontinued in physicians orders)
- ☐ Documentation completed
- ☐ Care plan updated to inform team of collar specifics (wearing schedule, regular monitoring of skin integrity and fit of collar, who to contact if team have concerns about the collar)

**Evidence to Support Practice****Restricting motion**

- Miller et al. (2010) noted the Vista collar restricts active flexion/extension (53.7%), lateral bending (34.9%) and rotation (59.2%), compared to previous studies of the Aspen collar motion restrictions in the sagittal (64%), lateral (39%) and rotational (60%) planes
- Miller et al. (2010) compared ROM restrictions of the Vista collar versus a soft collar during 15 simulated ADL tasks and noted "there were no significant differences between the functional ROM values acquired during 13 of the 15 ADLs simulated in this study, regardless of whether these patients were placed in a soft collar or rigid brace" (p.1277). The two activities where a difference was noted were backing up a car and sitting down in a chair – requiring more neck rotation/flexion – and the Vista collar was superior to the soft collar for restricting motion in the sagittal plane
- When comparing a soft collar to the Vista collar, Miller et al. (2010) noted that "these braces act primarily as proprioceptive guides to regulate the movement of the cervical spine rather than as a restraint to physically impeded motion" (p.1276)

**Skin breakdown**

- Ackland, Cooper, Malham, & Kossmann (2007) report "decubitus ulceration of occiput, chin, mandible, ears, shoulders, laryngeal prominence or sternum can occur as a result of pressure from the cervical collar" (p.423) "The most common site was the occiput (59%). Other sites included the chin, clavicle and shoulder" (Ackland, Coopepr, Malham, & Kossman, 2007, p.425).

**Red Flags**

Many patients will have some or all of the symptoms listed below to begin with; a red flag is when the symptoms are NEW or INCREASING.

- Pain (axial spinal or radicular, i.e. down the arm), numbness, tingling or weakness.
- L'hermitte's phenomenon (i.e. an electric shock-like sensation travelling from neck down the back or into arms). This is usually due to spinal cord or nerve compression when the neck is flexed. It's usually a late finding.
- If the collar is too tall it will put the neck into exaggerated extension which may worsen

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cord/nerve root compression.

(Personal communication: Dr. R. Sahjpaul, Neurosurgeon, Lions Gate Hospital, July 2008).

### Documentation

Documentation should include:

- Name and professional designation of staff who assisted with collar fitting and their role in the procedure
- Any modifications made to the collar to achieve optimal fit
- Any problems reported by patient regarding fit, comfort etc.
- Wearing schedule and plan for monitoring skin integrity and collar fit to be documented in PT or OT note with directive to this for nursing added under **Situational Awareness in CST** (nursing to monitor skin integrity and notify OT/PT with any concerns regarding the collar fit)

### Patient and Family Education

### References

- Ackland, H.M., Cooper, J.D., Malham, G.M., & Kossman, T. (2007). Factors predicting cervical collar- related decubitus ulceration in major trauma patients. *Spine*, 32(4), 423-428.
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