Vista Cervical Orthosis (Collar), Client Care and Management in Acute Care

This document is based on use of the Vista Cervical Orthosis, Aspen Medical Products

Quick Links:

- Classification Cervical Spine Injury
- About the Vista cervical orthosis
- Preparing to fit the orthosis
- Applying the orthosis
- Checking the fit
- Post-intervention follow-up
- Client/Caregiver education
- Day-to-day management

VCH on-line instructional video: to review the basics of orthosis application and pad management, go to: https://youtu.be/hnWARbBlZGM

Site Applicability

All VCH & PHC Acute sites

Practice Level

Advanced Skills – Management (including skin care) of a client with spinal instability and requiring use of a Vista orthosis is an advanced skill. Additional education and training is required for the following professions:

- NP, RN
  - LPN (the LPN may assume care once direction from the RN is received)
- OT, PT, Orthotist

Unregulated health care providers – within the competencies of their employer training and job descriptions and under the supervision of the above regulated health care professional:

- Patient Care Aid
- Rehabilitation Assistant

It is important to understand that patient care needs (such as: handling requirements, mobilization protocols, etc.) reflect a continuum of **changing cervical spine status** that progresses from:

- 'Unstable spine' or 'injury suspected (but unknown)', to
- 'Spine stable (but requires protection)', to
- 'Spine stable'

A patient may be deemed to have an 'unstable spine' upon admission to acute care, and then a 'stable spine' at time of discharge (to rehabilitation or community care) - but only one category will apply at one time.

The amount and type of participation of the client (and family) in the provision of care changes as the client becomes more educated about his/her condition and needs. Initial fitting of the orthosis, client/family education about its management, practice to don/doff, understanding guidelines for participating in activities of daily living, and gaining independence in mobility, etc. is most often completed in the acute settings.

Specific practices should be determined by each health care team based on the particular resources available (e.g. staff allotment, professional mix, norms of practice, etc.). In addition to this document, clinicians must use their clinical reasoning skills in the assessment and treatment of clients with actual or suspected cervical spine injuries, including the selection, fit, application and care of a cervical orthosis.

Need to Know

The following information describes acute care standards. To provide continuity of information about clients who are transferred to a rehabilitation or community/home setting, basic information describing care in such settings has been included. In all cases, setting-specific protocols of care should be followed.

Sites other than Acute Care

A client who requires use of the Vista cervical orthosis is likely to be seen in different care settings that may include all of the following:

- acute care
- rehabilitation
- community

Clients who transfer to a rehabilitation setting (from acute care) or who return to the community setting (from acute or rehabilitation care) are most often deemed 'spine stable but requires protection' or 'spine stable'. In the rehabilitation and community setting, management (including skin care) of a client with a Vista orthosis is not typically an advanced skill. Such management requires a basic approach to care that may include assistance to don/doff the orthosis or assistance with personal care. Exceptions to this are rare but can occur. Such exceptions are carefully considered and planning between acute care and rehabilitation or community staff is necessary to ensure all individuals supporting the client have the necessary skills and knowledge.

CAUTION: No part of the Vista cervical orthosis should ever be used to turn, lift, or otherwise move a client.

The Vista cervical orthosis is:

- Designed to provide motion restriction and not complete immobilization
- X-ray, CT and MRI compatible
- Tracheostomy compatible
- Latex-free
- Designed for continuous, long-time wearing and may be utilized in hospital, rehabilitation and community settings.
- Made of soft, water-resistant foam to provide increased comfort (and may be worn in the shower)
- Designed for easy care and management by healthcare professionals as well as family/caregivers and, when able, by the wearer him/herself.

Classification of Cervical Spinal Injury

- Before a diagnosis has been determined and treatment has been initiated, **a new spine injury** should be classified as:
  - **UNSTABLE SPINE or INJURY SUSPECTED (BUT UNKNOWN)**
    - This classification applies only to the pre-hospital and acute care settings.
    - Physician orders are required to clarify cervical spine immobilization. Typically, such orders include:
      - Maintain bedrest with head of bed at 0°
      - Maintain use of extrication orthosis (e.g. Laerdal Stifneck Select) or, change to a different orthosis (a Vista may or may not be the orthosis of choice)
      - If a different orthosis is requested, physician orders must include the type of orthosis needed, the wearing schedule (typically worn continuously) and the don/doff protocol (typically doffed once every 12 hours to check skin and provide skin care)
      - Maintain neutral cervical spine alignment
      - Use 3-person turns and associated, specific protocols to ensure neutral cervical spine alignment at all times

      Use of Pre-printed order set is recommended and is available through Print Services (VCH.VA.PPO.581 or VCH.CO.LGH.0109 or PHC-PH385)
    - Neurosurgical or Spine service consults must be initiated to further diagnose and determine treatment plans (such as performing surgical fixation).
    - Referrals to occupational therapy, and/or physical therapy, and/or orthotics may be required to fit the client with the appropriate orthosis and initiate rehabilitation services.

- In the acute care setting, many clients requiring a cervical orthosis will present wearing an extrication-and-transportation orthosis. Clients are at risk for increased pain and skin problems when they remain in this type of orthosis for extended periods. **Every attempt should be made to fit the client with an orthosis designed for long term wearing as soon as possible once he/she is admitted to the facility.**

  Caution: Before handling a client with a spinal column and/or spinal cord injury, ensure familiarity with these applicable associated procedures:

  - C-380: Three Person Turn for Clients with Cervical Precautions
  - V-050: Mobilization of the Client with Vertebral Column Injury
  - S-238: Assessing for risk for deterioration in level of motor, sensory and autonomic function (Refer to item #5 in the Table of Contents of this Patient Care Guideline)

- After a diagnosis has been determined and treatment has been initiated, **a confirmed spine injury** should be classified as either:
  - **SPINE STABLE (BUT REQUIRES PROTECTION)**
    - This classification applies to acute, rehabilitation and community care settings.
    - Physician orders are required to clarify the type of orthosis needed (a Vista may or may not be the orthosis of choice), the wearing schedule and the don/doff protocol.
    - Physician orders are required to clarify the need for cervical precautions when turning in bed, transferring out of bed and mobilizing clients beyond the bedside. Further, clients without neurological deficit may mobilize, independently, once they have received teaching from OT/PT/RN and can safely maintain mobility and activity precautions. Typically, such orders include:
      - Mobilize as tolerated
      - Maintain neutral cervical spine alignment
      - Use 3-person turn procedure and progress to 2-person turns as patient able to independently maintain neutral spine alignment
      - OT/PT/RN to teach patient to maintain neutral cervical spine alignment and to mobilize independently (as able)

      Use of Pre-printed order set is recommended and is available through Print Services (VCH.VA.PPO.581 or VCH.CO.LGH.0109 or PHC-PH385)
    - Referrals to occupational, and/or physical therapy, and/or orthotics may be required to fit the client with the appropriate orthosis to initiate rehabilitation services.
    - Participation in supervised rehabilitation activities and basic daily activities is permitted (go to: Activity Guidelines Following Spinal Column Injury/Surgery, Cat# FM.553.A38).
    - Follow-up appointments for continued orthosis management may be required.
  - **SPINE STABLE**
    - This classification applies to acute, rehabilitation, and community care settings.
    - In instances of an injury where the spinal column and/or surrounding tissues are stable, an orthosis may be used for the purpose of pain management, comfort and psychological reassurance. In such cases, a referral to occupational and/or physical therapy is required to fit the client with the appropriate orthosis, implement orthosis management strategies and initiate rehabilitation services.
    - Physician orders are required to clarify the need for cervical precautions when turning in bed, transferring out of bed and mobilizing clients beyond the bedside. Further, clients without neurological deficit may mobilize, independently, once they have received teaching from OT/PT/RN and can safely maintain mobility and activity precautions. Typically, such orders include:
      - Mobilize as tolerated
      - Maintaining neutral cervical spine alignment is **not required**
      - OT/PT/RN to teach patient to mobilize independently (as able)
      - Encourage active, pain-free ROM
      - Patient to avoid loaded bending and twisting

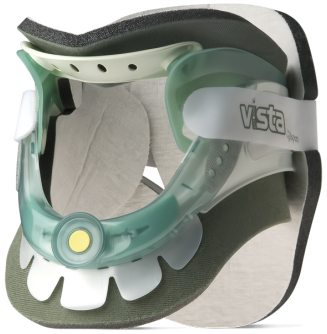
      Use of Pre-printed order set is recommended and is available through Print Services (VCH.VA.PPO.581 or VCH.CO.LGH.0109 or PHC-PH385)

- Participation in supervised rehabilitation activities and basic daily activities is permitted (go to: Activity Guidelines Following Spinal Column Injury/Surgery, Cat# FM.553.A38)
- Physician follow-up for ongoing assessment and management is required (on an outpatient basis).
- When an orthosis is not prescribed, referrals to occupational and/or physical therapy are required if the client demonstrates functional or mobility impairments.

Skin integrity should be monitored as ordered (recommendation: every 12 hours or more frequent if a high risk for skin breakdown exists). All skin breakdown and/or irritation should be documented per site-specific practice. The client's physician and occupational and/or physical therapist should be made aware to facilitate re-assessment of the orthosis fit. Prevention of skin breakdown is accomplished by strict adherence to skin care protocols. See skin and wound guidelines.

Equipment & Supplies

Watch the Aspen Medical Company on-line instructional video that reviews the basic features of the orthosis.
Go to: http://www.aspenmp.com

Vista Orthosis	• semi-rigid, two-piece orthosis • available in adult and paediatric sizes • provides moderate neck support to reduce neck movement (but does not immobilize) • for use over an extended period of time (e.g. weeks to months) • adjustable height dial; sizes 1 (shortest) to 6 (tallest) • velcro straps to secure front and back panels together • includes 2 sets of soft, foam pads (to facilitate washing/changing pads, showering, etc.)	

Practice Guideline

A. Preparation for initial fitting of the orthosis

1. Understand the circumstances of the client's injury.
   - To provide context to the client/caregiver related to the overall purpose of the orthosis so that the client/caregiver may be fully educated in what to expect now and later (e.g. a traumatic orthopaedic fracture requiring full-time spinal column stability and protection on a short term basis; or a cancerous erosion of bone resulting in p.r.n. need for spinal column support and pain management in the context of limited alternate treatment options).
2. Clarify orthopaedic and neurological diagnoses.
   - To ensure the client is safely managed and protected from new or additional bony or neurological injury (e.g. to determine if the client needs to be physically handled in a certain way and if there are certain protocols that must be followed; and to determine if the client has neurologic deficits that preclude his/her ability to self-manage).
3. Review the physician's orders:
   - To ensure care is provided according to physician assessment – every physician order must include:
     - Type of orthosis
     - Mobility protocol
     - Orthosis wearing protocol
     - Don and doffing protocol

- For example, for a client with a cervical spinal column injury deemed 'spine stable but requires protection' and no motor or sensory deficits, physician orders may appear as follows:

1. Type of orthosis:	• Remove extrication orthosis • Fit client with Vista cervical orthosis in cervical spine neutral
2. Mobility protocol:	• Activity as tolerated in orthosis • Maintain cervical spine neutral position at all times • Teach client to independently: maintain cervical spine neutral position; mobilize in bed; mobilize out of bed
3. Orthosis wearing protocol:	• Wear orthosis when head of bed greater than 30° • Orthosis not required when head of bed less than 30° • Soft collar required when head of bed between 0° and 30°
4. Don and doffing protocol:	• Don and doff orthosis in supine with head of bed at 0° • Log rolling may be used as necessary

If any of the four components of a physician's order are not present, they must be obtained before proceeding with any aspect of initial fitting of the orthosis.

4. Determine associated precautions and/or procedures.
   - To ensure all the necessary protocols that accompany management of a client with a spinal column injury are followed (e.g. beyond fitting an orthosis, there may be aspects to mobilization of a client with spinal column injury that may not be obvious but must be understood and employed as part of orthosis management).
   - To identify and arrange the number of staff needed to participate (i.e. 1 to 3 people dependent on whether the client's cervical spine is stable or unstable, and/or if the client is cooperative).
   - To discuss with the physician or nurse if the client requires sedation or analgesia prior to procedure.
5. Review the personal/social history of the client.
   - To provide context to the client/caregiver related to expectations about participation in orthosis management on a day-to-day basis (e.g. family available to help who will need education; or client lives in care facility and education/support will need to be provided to facility staff; or client is cognitively intact and he/she is capable of managing independently).
6. Determine and plan for the next steps of medical assessment and subsequent care.
   - To provide the context needed to coordinate orthosis management with other aspects of interventions and care in a timely manner (e.g. does the client require orthosis fitting to facilitate continued investigations such as MRI/CT scan and then additional follow-up once investigations and final plans of care are determined; or does the client need orthosis fitting followed by immediate education in donning/doffing, daily activities, and post-injury activity guidelines in preparation for imminent discharge).
7. Familiarize yourself with the design and functional features of the orthosis.
   - To ensure safe application, best fit and client comfort (e.g. height adjustments via the dial; circumference adjustments via the Velcro straps, etc.).
8. Introduce yourself to the client/caregivers.
   - To explain the purpose of your intervention and obtain consent from the client (or appropriate caregiver if client unable to provide consent) to proceed with measuring, fitting and application of the orthosis.
   - If application of an orthosis is deemed a medically necessary treatment and the client is unable to give informed consent, the orthosis may be applied as an emergent intervention (as per the physician).

B. Initial application of the orthosis

Watch the Aspen Medical Company on-line instructional video that reviews how to complete an initial orthosis application, go to: http://www.aspenmp.com

Personal protective equipment should be used for all client care as per Infection Control guidelines (available at VCH or PHC). Ensure universal precautions are maintained when measuring and fitting the orthosis, as bodily fluids and/or lacerations may not always be visually evident (i.e. wear gloves and, if needed, use a washable/disposable measuring tape).

1. Position the client lying supine (unless physician orders specify otherwise). If there are concerns regarding the client's respiratory status or intracranial pressure, the head of bed may need to remain elevated. Liaise with the physician as any such requirements should be specified in the physician's orders.

2. Ensure the client's head and neck is in neutral cervical spine alignment (unless physician orders specify otherwise). Neutral cervical spine alignment refers to the normal anatomical position of the head and torso that is assumed when standing and looking straight ahead (the phrase 'neutral spine position' is also used).

   This is a general definition of neutral cervical spine alignment; caution and judgment must be exercised when evaluating this for each and every client. The presence of different spinal conditions (e.g. ankylosing spondylitis and diffuse idiopathic skeletal hyperostosis) may lead to pre-existing spinal column deformity and the inability of the client to achieve the expected normal anatomical position. Thus, positioning and supporting a client in neutral cervical spine alignment must be modified according to individual's pre-existing usual alignment. When necessary, use a folded flannel blanket, sheepskin or pillow(s) behind the client's skull, cervical spine (and, potentially, thoracic spine) to support a client with pre-existing spinal deformity affecting neutral cervical spine alignment.

   Neutral cervical spine alignment is observed in 3 planes: flexion/extension, rotation and side flexion. Landmark as follows:

   - No cervical spine flexion/extension (see 'A' in Diagram 1). The head is elevated approximately 2 cm (on a doubled sheepskin/flannel blanket) to ensure a straight ahead gaze. In supine, the individual will be looking straight up to ceiling. In most individuals, a line drawn from the top of the ear to the outer corner of the eye is perpendicular (i.e. 90°) to the bed.
   - No cervical spine rotation or side flexion (see Diagram 2). The head is not turned or tilted left or right. A line drawn through the centre of the face should line up with the sternum. Landmarks are the chin and sternal notch.
   - No thoracolumbar spine flexion/extension or rotation. Shoulders and hips are in the same plane. Landmark by laying one's forearms across the individual's shoulders and hips; both forearms should be on parallel planes.

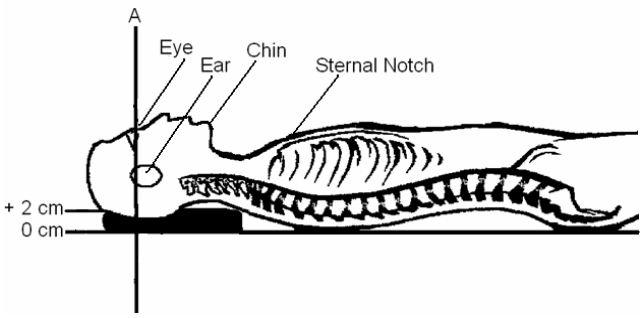


DIAGRAM 1

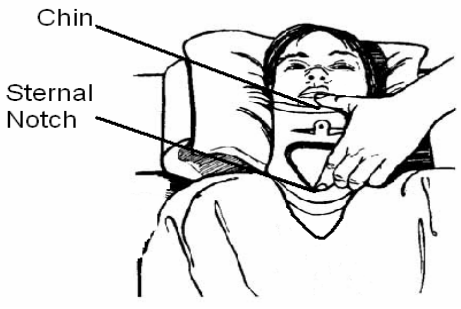


DIAGRAM 2

All questions or concerns related to the inability to achieve or maintain neutral cervical positioning must be immediately directed to the physician, fellow, nurse practitioner, or resident before orthosis fitting or mobilization of the client proceeds.

3. Stabilize the client's head in neutral cervical spine alignment throughout the procedure; a second staff member should stabilize the head while the first staff member manages the orthosis.
   - **VCH instructional video:** to obtain a CD copy of the instructional video, Spinal Precautions - Minimizing the Risk of Further Spinal or Neurologic Injury, contact the Acute Spine Program occupational therapist at (604) 875-5804.

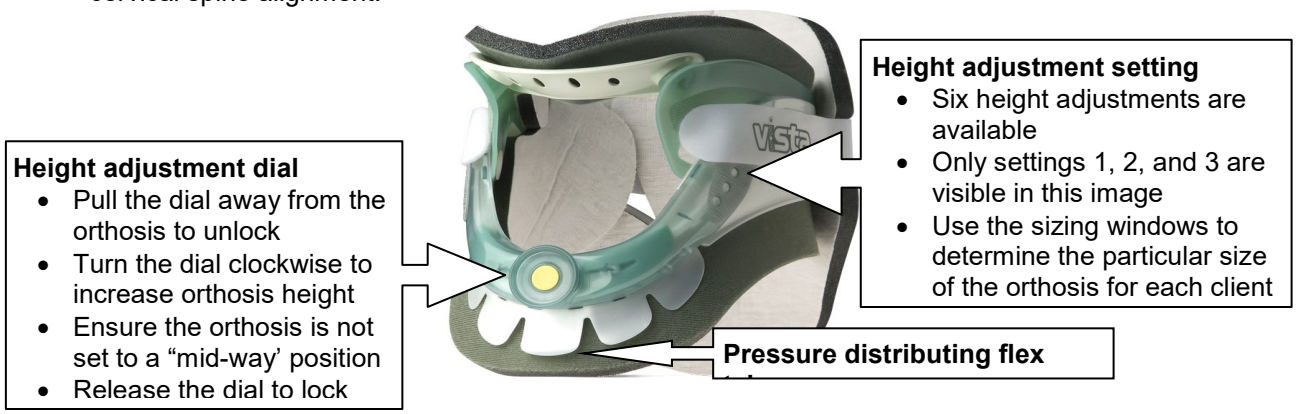
4. If an extrication-and-transportation orthosis is in place, remove it. Release the Velcro strap and slide the orthosis from underneath the client by pushing the orthosis into the mattress to prevent flexing/extending the client's head. It may be necessary to log roll the client. If a log roll is necessary, a third staff member is required to execute a 3-person turn and maintain neutral cervical spine alignment (more staff may be required in situations where client care is more complex).
   Go to: C-380: Three Person Turn for Clients with Cervical Precautions.

5. Apply the back panel of the orthosis (whether the client is supine or has been log-rolled onto his/her side). Pre-shape the back so that it is slightly curved. Apply the back panel by pushing the orthosis into the mattress to prevent flexing/extending the client's head. Slide the back panel under the client's head until it is centered under the neck. The Velcro straps should be between the client's ear and trapezius. If the client has been log-rolled, return the client to supine before applying the front panel.

6. Apply the front panel. First, roll the ends of the side panels together and flare the pressure-distributing flex tabs upwards. The front panel should be at the lowest setting (i.e. 1) to begin. Apply the front panel by pulling the sides of the front panel apart and positioning the bottom of the tracheal aperture at the sternal notch. Position the side panels up-and-over the trapezius muscles, and tuck them inside the back panel. It is not uncommon for the ends of the side panels to almost meet behind the neck. In most cases, the chin support will not touch the underside of the chin.

7. While holding the orthosis against the chest, pull out the height-adjustment dial (to unlock) and turn the dial clockwise to raise the chin support. When the chin support firmly contacts the chin, release the dial (to lock). Ensure that the dial is not set mid-way between two sizes as it will not lock.

   Unless otherwise specified by the physician, standard fitting of a Vista orthosis is to be in neutral cervical spine alignment.



8. While holding the front panel in place, attach the loop Velcro strap on each side. Ensure the plastic of the back panel overlaps the plastic of the front panel a minimum of 1". To adjust the circumferential size, anchor the orthosis with one hand and release, tighten, and reattach the Velcro straps. Do this on each side to remove all slack between the front and back panels to achieve a snug, symmetrical fit; the orthosis should not shift on the client's neck. When the front and back panels do not overlap by a minimum of 1", the Vista standard back panel must be substituted with a Vista large or Aspen large back panel.

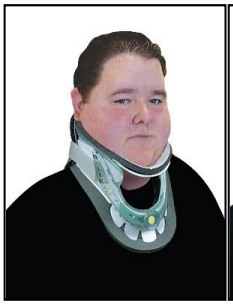
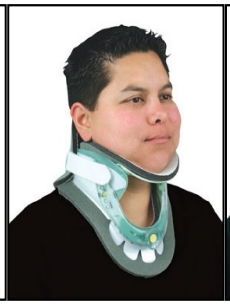
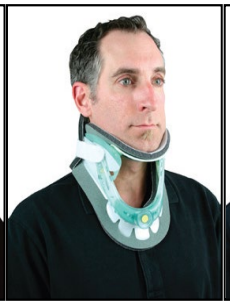
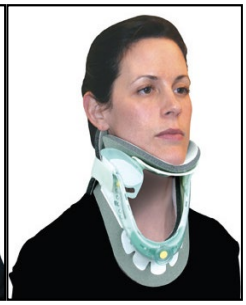
9. Ensure that the chin is resting on the chin cup and that the back/underside of the chin support is not pressing inward on the throat. If it is, release the Velcro straps, lift the back ends of the side panels upwards and off the trapezius muscles to create an upwards angle of the orthosis and reapply the straps. The client's chin should rest close to the top/front edge of the chin support (the chin should not extend beyond the edge of the plastic) and the back/underside of the chin support should not press on the client's throat.
10. Ensure the foam pads cover all plastic edges and are not bunched or buckled and the ends of the side panels sit below the client's ears.

For additional application information – click here

C. Checking the initial fit of the orthosis

Most clients are fit while in a supine position. Clients tend to adopt an 'overall position of flexion' when lying on a stretcher or bed despite attempts to achieve neutral cervical spine alignment. An orthosis fit in supine may be 'too short' despite appearing to be properly sized. Typically, this becomes apparent when the client is mobilized into an upright position and assumes a 'true' posture of neutral cervical spine alignment and depression of the shoulders occurs. Reassess the fit of the orthosis after mobility orders are received and the client begins mobilizing to the upright position.

1. Once in sitting, check that the client's cervical spine is supported in neutral alignment and that the orthosis is not too tight or too loose.
2. If necessary, adjust the fit to ensure the best circumference and height settings have been achieved; modify the fit by adjusting one Velcro strap at a time and/or by changing the setting of the height-adjustment dial.
3. Consider overall fit: paediatric sizes, large and extra-large back panels are available from the manufacturer/supplier. As per the manufacturer's recommendation, it is acceptable to interchange Vista and Aspen panels to achieve optimal fit, support and comfort.
4. Make note of the height adjustment setting and record this in the client record. The Vista provides for 6 height settings; position 1 (shortest) to position 6 (tallest).

Position 1 Shortest	Position 2 Short	Position 3 Medium	Position 4 Tall	Position 5 Taller	Position 6 Tallest
					

5. When the collar has been properly applied:
   - The head and neck will be in a neutral cervical spine alignment (i.e. in a straight line).
   - The chin will rest close to the top/front edge of the chin cup.
   - The back/underside edge of the chin cup will not press into the throat.
   - The printed wording of the back panel will be upright.
   - The front and back panels will appear level and symmetrical.
   - The orthosis will feel "snug but comfortable".

For additional achieving best fit information – click here

D. Initial client/caregiver education about the orthosis

1. Explain the purpose of the orthosis to client/caregiver.
2. Review the prescribed wearing schedule.
3. Review all applicable movement/activity precautions.
4. Teach the client/caregiver how to care for and apply and remove the orthosis.
5. Provide the client/caregiver with the following Patient Health Education Materials (VCH or PHC):
   - Vista Cervical Orthosis (Cat# FB.707.V57)
   - Activity Guidelines following Spinal Column Injury/Surgery (Cat# FM.553.A38)

For additional client/caregiver education information – click here

E. Post Intervention follow-up

1. There may be a financial cost charged to the clients for the cervical orthosis. Billing should occur according to site-specific practices. Partial to full coverage of the cost may be reimbursed to the client by ICBC, WorkSafeBC, or extended health benefits (generally, the client/caregiver will need to submit a receipt and a physician's prescription).
2. If community supports are not required (or available), ensure appropriate Vista care plans are in place to support the client/caregiver for discharge. Including:
   - Ability of the client to don/doff the orthosis is determined
   - Family/other support is in place as necessary
   - Orthosis wearing schedule is understood
   - Skin care needs are understood
   - ADL management abilities are determined
3. If community supports are required, ensure that relevant clinical information is provided to the appropriate community health professionals. Including:
   - Physician's mobility orders
   - Notation describing the stability of the cervical spine
   - Orthosis type
   - Orthosis wearing schedule
   - Skin care routines
   - Patient health education materials (i.e. Vista Cervical Orthosis and Activity Guidelines following Spinal Column Injury/Surgery
   - Follow-up appointments

F. Day-to-Day management of the orthosis

Note: Day-to-day management of the orthosis will differ depending on the stability of the spine and the care setting. The following information describes acute care standards. To provide continuity of information to acute care staff about clients who are transferred to a rehabilitation or community/home setting, basic information describing care in such settings has been included. In all cases, setting-specific protocols of care should be followed.

VCH on-line instructional video: to review the basics of orthosis application and pad management, go to: https://youtu.be/hnWARbBlZGM

1. **Donning and Doffing the orthosis:**

   Acute, rehabilitation and community settings:
   Note: Neutral cervical spine alignment must be maintained at all times. Unless otherwise specified by the physician, standard donning and doffing of a Vista orthosis is to be done in supine. Log rolling may be used to facilitate placement and removal of the rear panel (Go to: Vista Cervical Orthosis - Cat# FB.707.V57).

   - **Donning the back panel**
     a. Slide the back panel under the client's head until it is centred under the neck.
     b. Align the Velcro straps so that they are centred between the shoulders and ears.
     c. Ensure the Velcro straps extend the same distance to the front.

- **Donning the front panel**
  a. Flare apart the sides of the front panel and place the orthosis midline over the neck; landmark the orthosis by positioning the bottom of the tracheal aperture at the sternal notch.
  b. Hold the orthosis in place and push each side panel up-and-over each shoulder and around the neck. It is not uncommon for the ends of the side panels to almost meet behind the neck. Ensure that the side panels are tucked in and lay flat against the neck.
  c. Pull each Velcro strap (of the back panel) forward and attach it to the front of the orthosis.
  d. The back panel should overlap each side of the front panel by a minimum of 1".
  e. Ensure symmetry of the orthosis on both sides.
- **Doffing the orthosis:**
  a. Release the Velcro straps.
  b. Lift the front panel away from the client.
  c. Flatten the back panel and slide it out from under the client.
  d. Apply a soft collar orthosis if indicated.

  Watch the Aspen Medical Company on-line instructional video that reviews how to put on and take off the orthosis. Go to: http://www.aspenmp.com

For additional donning/doffing information – click here

2. **Monitoring the fit of the orthosis must be done daily.**

Acute and Rehabilitation settings:
a. Adjustments **related to fit and comfort** should be done by any health care staff (e.g. RN, LPN, patient care aid) with the required training and experience.
b. Subsequent changes **related to size and height** should be done by health care staff (e.g. OT, PT, NP, orthotist) with additional training and experience to meet this advanced skill.

Community settings:
a. Monitoring the **fit and comfort** and making adjustments may be done by the client or family in addition to community healthcare providers.
b. Subsequent changes **related to size and height** should be done by health care staff (e.g. OT, PT, RN) with additional training and experience to meet this advanced skill.

For additional fit information – click here

3. **Care and maintenance of the orthosis must be done daily.**

In the event of orthosis 'failure':
a. Place the client supine in bed and change his/her mobility status to 'strict bed rest'.
b. Alert other members of the health care team to ensure awareness and caution.
c. Consider the need to perform a motor/sensory evaluation and alert the physician, fellow, resident if changes have occurred. Go to: S-238: Assessing for risk for deterioration in level of motor, sensory and autonomic function (refer to item #5 in the Table of Contents of this Patient Care Guideline).
d. In the rehabilitation and community settings, consider the need to transport the client to an acute care setting.

Acute and Rehabilitation settings:
a. Observe and check the various parts of the Vista cervical orthosis.
   i. Ensure the Velcro (hook) tabs are suitably attached.
   ii. Ensure the Velcro (loop) straps are in good condition (with repeated use, the straps can fray and lose their ability to remain secured).
   iii. Ensure the height adjustment dial is in the locked position.
   iv. Ensure the liner pads are in the proper location (with repeated use, the liner pads can lose their ability to remain secured in place causing them to shift).
b. Record problem areas and make (or request) adjustments or repairs to the orthosis.

Community settings:

a. Maintenance of the orthosis, as described above, may be done by the client or family in addition to community healthcare providers.

4. **Changing liner pads <u>may be done as needed, but must be completed once a week</u>.**

Acute and Rehabilitation settings:

a. Remove/replace the front pads:
Remove: Simply peel the pads off the Velcro dots. Clean the plastic portion of the orthosis with a wet and then dry face cloth, and then re-attach the fresh pads. If necessary, an alcohol pad can be used to further wipe-down and clean the orthosis so that odour does not occur.

Replace: Attach the pads so the grey side grips the Velcro dots and the white side touches the client's skin. Landmark the chin pad by folding it in half and placing it on the Velcro dot located on the centre of the chin support. Landmark the chest pad by aligning the circular cut-out around the backside of the height adjustment dial. Ensure the pads lay side-by-side where they meet and do not overlap. Once properly applied, the pads should extend beyond the plastic edges of the orthosis by (approximately) 1" (chest pad) and 1/4" (chin pad). No plastic edges of the orthosis should ever come into contact with the client.

b. Remove/replace the back pad:
Remove: Pull the Velcro straps out of the plastic tabs. Remove the pads by simply peeling it off the Velcro dots. Clean the plastic portion of the orthosis as described above.

Replace: Attach the pad so the grey side grips the Velcro dots and the white side touches the client's skin. Landmark the pad by folding it in half and placing it midline on the back panel, unfold the pad so that the matching notches (on the left and right sides) align with the location of the Velcro straps. Pull each Velcro strap up-and-through the ventilation holes of the pad, lay them over the padding at the notches, and then feed them through the plastic slots of the panel. Once properly applied, the pads should extend beyond the plastic edges of the orthosis by approximately 1". No plastic edges of the orthosis should ever come into contact with the client.

c. **Do not throw out the liner pads; a second set of liner pads is provided and should be found in the client's personal effects.** Hand wash used pads in the sink with warm water and hypoallergenic body wash soap. Never use bleach on the pads or put the pads in the washer or dryer.

d. Rinse the pads thoroughly and squeeze them between towels to remove all excess water. Do not wring-out/twist.

e. Let the pads air-dry (about 6 to 8 hours).

Community Settings:

a. Changing liner pads, as described above, may be done by the client or family in addition to community healthcare providers.

For additional orthosis care and maintenance information – click here

5. **Skin care under the orthosis <u>must be done daily</u>.**

Without proper care and follow-up, a skin problem can result in the development of stage 1-4 pressure ulcer. Early signs of skin problems will include: reddened epidermis (as compared to normal skin colour), a clear and distinct border separating the red skin from the normal coloured skin, a lasting change in redness (i.e. will not fade away) even after the pressure has been removed for 10 to 15 minutes. Reddened and painful skin areas can develop if the orthosis constantly presses or intermittently rubs against bony areas. Typical problem areas include: the apex of the chin, the angle of the jaw bone, the clavicles, or the occipital prominence.

Acute and Rehabilitation settings:

a. Remove the orthosis once a day and visualise all areas covered by the orthosis. If the orthosis wearing protocol is 'wear at all times', the orthosis may be removed once a day, in supine position while maintaining neutral cervical positioning, to perform a skin assessment and care.

b. If skin redness is noted, do not add extra 'padding' between the client and the orthosis with the intent to increase comfort and protect the skin area. Adding more padding increases the overall thickness and bulk between the orthosis and the body and, thus, increases the pressure on the skin. Such an area should be 'bridged' to offload the skin; request a review of the orthosis fit by an OT or PT.
c. Obtain cleansing and dressing kit supplies and treat the area following approved skin care guidelines. A listing of skin and wound care policies are available at: (VCH or PHC)
d. When performing skin care, take this opportunity to body wash under the orthosis and change the liner pads.

Community settings:
a. Providing skin care, as described above, may be done by the client or family in addition to community healthcare providers.

For additional skin care information – click here

6. **Activities of daily living**
In general, the Vista orthosis must be worn when engaged in all daily activities (unless otherwise specified by the physician). Clients are encouraged to participate in basic daily activities and may be independent in many respects. In some cases, clients may need to be assisted by the family and/or healthcare providers. For more information about how to participate in daily activities, go to: Activity Guidelines Following Spinal Column Injury/Surgery (Cat# FM.553.A38)

Acute and Rehabilitation settings:

Body washing (under the orthosis) must be completed daily.
a. Remove the orthosis once a day and wash all areas covered by the orthosis. If the orthosis wearing protocol is 'wear at all times', the orthosis may be removed once a day, in supine position while maintaining neutral cervical positioning to perform washing. For males, shaving may be completed at this time (or a beard may be allowed to grow).

Hair washing in bed or showering (head-to-toe) may be completed as needed, but must be performed once a week (unless contraindicated).
a. The Vista is designed to become fully wet. A second set of liner pads is provided so that after hair washing or showering, the orthosis can be removed and dried, the wet liner pads replaced with dry liner pads, and the orthosis can be re-applied immediately. **Do not throw out the liner pads; a second set of liner pads is provided and should be found with the client's personal items.** Hand wash used pads in the sink with warm water and hypoallergenic body wash soap.

Community settings:
a. Body and hair washing, as described above, may be done by the client or family in addition to community healthcare providers.

For additional activities information – click here

Site Specific Practices

The care and management of cervical spine injuries requires an interdisciplinary approach as well as collaboration with the client and their caregivers.

The procedures described, herein, represent a general approach to the care of a client in a Vista cervical orthosis. Every client, the nature of his/her injury, and the context of the provision of his/her care is unique.

Site specific practices should be determined by the health care team of each setting based on the particular resources available at that setting (i.e. staff allotment, professional mix, norms of practice, etc.). In all cases, setting-specific protocols of care should be followed.

Suggested Practices – RN, LPN, Patient Care Aid

Day-to-day care (following initial fitting):

1. Application, adjustments for comfort, and removal of the orthosis
2. Monitoring orthosis fit and integrity
3. Changing the orthosis liner pads
4. Skin care (under the orthosis)
5. ADLs: hair washing/body washing (under the orthosis)

Suggested Practices – OT, PT

Orthosis fitting (initial), follow-up adjustments for sizing and fit, and client/caregiver education:

1. Initial fitting of the orthosis
   a. Under the direction of the attending physician/surgeon, when given the option to choose between a Philadelphia, Aspen, or Vista cervical orthosis, the occupational or physical therapist may choose the orthosis that provides best fit and comfort.
   b. An OT or PT may make modifications (e.g. extending the Velcro straps to aid reaching, adding loops to aid grasping, etc.) to facilitate don/doffing of the orthosis **providing that no change to the maintenance of neutral cervical spine alignment results**.
   c. An OT or PT may make small adjustments to improve fit, comfort, and to protect skin (e.g. change the height or circumference setting(s), or modify padding to 'bridge' a bony prominence), providing that no change to the maintenance of neutral cervical spine alignment results. **Significant modifications that will alter the maintenance of neutral cervical spine alignment must only be made by an orthotist in conjunction with the attending physician/surgeon**.
2. Client/caregiver education in the day-to-day management of the orthosis.
3. Assessment and intervention addressing mobility and ability to perform activities of daily living.

Expected Patient/Client/Resident Outcomes

- Vista orthosis fits properly
- Spinal alignment is maintained
- Neurological status is maintained
- Client reports comfort when wearing the orthosis
- Skin care (under the orthosis) is completed daily
- Skin breakdown does not occur
- Monitoring orthosis fit and integrity is completed daily
- Liners pads are changed once a week, or more frequently as needed
- Hair washing is completed once a week (unless contraindicated), or more frequently as needed
- Head-to-toe showering is completed once a week (unless contraindicated), or more frequently as needed
- Client/caregiver education pertaining to orthosis donning/doffing (including post-injury/post-operative activity precautions) and day-to-day management is complete
- Client and/or caregiver state the provided education is understood and are able to demonstrate the ability to follow the instructions
- The client independently and safely dons/doffs the orthosis or, in the event that he/she is unable to independently and safely don/doff the orthosis, caregivers (e.g. family, friend, etc.) receive 1:1 assessment/training to be able to provide assistance.

Related Documents

Clinical Practice Documents:

- C-380: Three Person Turn for Clients with Cervical Precautions
- V-050: Mobilization of the Client with Vertebral Column Injury
- S-238: Assessing for risk for deterioration in level of motor, sensory and autonomic function (refer to item #5 in the Table of Contents of this Patient Care Guideline)

Pre-Printed Order:

- Acute Spine Program: Spine Precautions, Brace, and Activity Orders (VCH.VA.PPO.581 or VCH.CO.LGH.0109 or PHC-PH385)

Videos:

- VCH on-line instructional video, Vista Collar Fitting: https://youtu.be/hnWARbBlZGM
- VCH CD-based instructional video, Spinal Precautions – Minimizing the Risk of Further Spinal or Neurologic Injury

Patient Health Education Materials: order through VCH or PHC

- Vista Cervical Orthosis (Cat# FB.707.V57)
- Activity Guidelines Following Spinal Column Injury/Surgery (Cat# FM.553.A38)

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VCH: *(Regional SharePoint 2nd Reading)*

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Health Authority & Area Specific Interprofessional Advisory Council Chairs (HAIAC)
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PHC: Professional Practice Standards Committee

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January 11, 2022 – added 2nd PPO link to DST (See blue highlights)

ADDITIONAL DETAIL INFORMATION SECTION:

Application of the Vista Cervical Orthosis – *additional information*

Note: Most clients requiring a first fitting of a Vista cervical orthosis will present (in the Emergency Department or in a patient care unit) wearing an extrication-and-transportation orthosis such as the Laerdal StifNeck Select orthosis.

An extrication-and-transportation orthosis is not designed for long-term wearing; clients are at risk for increased pain and skin problems when they remain in such an orthosis for extended periods of time.

Every attempt should be made to fit the client with an orthosis designed for long term wearing as soon as possible.

Remove extrication-and-transport orthosis:

a. Maintain neutral cervical position.
b. Remove the extrication-and-transport orthosis by releasing the Velcro strap and sliding the back of the orthosis from underneath the client's head.
c. If deemed unsafe (e.g. the client is confused or agitated and at risk to not maintain cervical spine alignment), request assistance from one staff member to assist the client to maintain cervical spine alignment.

Inspect and clean skin:

a. Maintain neutral cervical spine alignment.
b. Inspect and clean the client's skin; look for any early signs of injury secondary to pressure from the orthosis or trauma secondary to the accident.
c. Note any such skin injury and report findings (presence or absence) to the attending nurse.

First Fitting and Donning/Doffing a Vista Cervical Orthosis

Don the Back panel –

1. Roll and flare the back panel so that it more easily conforms to the shape of the client once applied.
2. Ensure the liner pad is in correct position; when correctly positioned, the grey side of the pad will attach to the orthosis and the white side of the pad will face the client, the pad will evenly overlap the plastic panel around all edges approximately 1".
3. Fold the Velcro strap underneath the back panel.
4. Slide the back panel under the client's head until it is centered under the neck.
5. Align the back panel so that each Velcro strap is centered between the top of the shoulders and bottom of the ears.
6. On each side, the end of the Velcro strap should come around to the front the same distance; ensure symmetry of the orthosis on both sides.

Don the Front panel –

1. Roll the ends of the side panels together and flare the pressure-distributing flex tabs upwards so that the front panel easily conforms to the shape of the client once applied.
2. Ensure the liner pads are in correct position; when correctly positioned, the grey side of the pads will attach to the orthosis and the white side of the pads will face the client, the pads will evenly overlap the outer edges of the plastic panels approximately 1" (chest pad) and 1/4" (chin pad).

3. Apply the front panel by pulling the sides apart and placing it midline over the neck; the front panel should be at the lowest setting to begin. Landmark the panel by positioning the bottom of the tracheal aperture at the sternal notch. (It is OK if the chin support is not touching the chin.)
4. With one hand, firmly hold the orthosis in place and push each side panel over each shoulder and around the neck. Make sure that the side panels are tucked in and lay flat against each side of the neck; the front panel is covered/overlapped by the back panel.
5. While holding the orthosis against the chest, pull out the sizing dial to unlock. Turn the dial clockwise to raise the chin support. When the chin support is supporting the chin, release the dial and it will self-lock.
6. Check to see that the back/underside of the chin support is not pressing inward on the throat. If it is, lift the back ends of the side panels upwards and off the trapezius muscles to create an upwards angle of the orthosis. The client's chin should rest close to the top/front edge of the chin support (the chin should not extend beyond the edge of the plastic) and the back/underside of the chin support should not press on the client's throat.
7. Pull each Velcro strap (of the back panel) forward and attach it to the front of the orthosis. This temporarily holds the front of the orthosis in place so that adjustments to position and snugness can be made.
8. To adjust the orthosis:
    - Use the right hand to open the right Velcro strap.
    - Use the left hand to hold the front of the orthosis at the tracheal aperture and to guide the side panel so that it is properly tucked against the neck and inside the back panel.
    - Reattach the Velcro strap by pulling it 'up and around' to reattach it to the front panel.
    - Repeat this on the other side; switch hands to the opposite use.
9. Check to make sure the front panel is even and has not been pulled out of midline; ensure symmetry of the orthosis on both sides.
10. The semi-rigid plastic of the back panel should overlap the semi-rigid plastic of the front panel by a minimum of 1".
11. If necessary, turn the dial on the front panel to further adjust the height of the orthosis. Once fit, the height adjustment setting should be recorded in the health record, e.g. 'Vista orthosis fit; adjusted to size #5.

Doff the Front and Back panels –

1. Release the Velcro straps.
2. Lift the front panel away from the client.
3. Flatten the back panel and slide it out from under the client.
4. Apply soft orthosis if indicated.
5. Apply sandbags if indicated.

Checking the fit of the Vista Cervical Orthosis – *additional information*

Check the fit –

When the orthosis has been properly applied:

1. The client's head and neck will be in neutral cervical spine alignment.
2. The front panel of the orthosis will sit firmly on the client's chest at the sternum with the (pressure-distributing) flex tabs flared onto the chest.
3. The chin support will fit, firmly, under the client's chin.
4. The client's chin will rest close to the top/front edge of the chin support (the chin should not extend beyond the edge of the plastic) and the back/underside of the chin support will not press on the client's throat.
5. The client's jaw line will, in general, follow the contour of the chin support (taking into account that each client's anatomy differs).
6. The semi-rigid plastic of the back panel will overlap the semi-rigid plastic of the front panel a minimum of 1".
7. The printed wording on the back panel will be upright.
8. The front and back panels will appear level and symmetrical.
9. The liner pads will not have shifted out of place.
10. The client will report the orthosis is 'snug but comfortable'.

Additional tips for achieving best fit –

The Vista cervical orthosis provides for a single orthosis that offers 6 distinct height settings and variable circumference sizing. Consider the following tips:

1. Most clients are fit while in a supine position. Clients tend to adopt an 'overall position of flexion' when lying on a stretcher or bed. Despite best attempts to maintain neutral cervical spine position in the supine position – an orthosis fit in supine may be 'too short' despite the client appearing to be in neutral and the orthosis appearing to be properly sized. Typically, this becomes apparent when the client is mobilized into an upright position and assumes a 'true' posture of neutral cervical spine alignment and depression of the shoulders occurs.
    a. As per physician order and client tolerance, mobilize the client through side-lying to sitting up in bed (sitting fully upright, with an unsupported trunk and with the head off the bed/pillow is best).
    b. Once in sitting, check the fit to ensure the best circumference and height settings have been achieved. Consider the need to change the orthosis height, circumference, or both measurements.
    c. In sitting, adjust the fit to ensure the best circumference and height settings have been achieved; modify the fit by adjusting one Velcro strap at a time and/or by changing the height-adjustment dial setting.

2. Most clients are fit early in the care process. Following injury or post-operatively, areas of the client's head and/or neck may be swollen which can result in improper long term fit of the orthosis – an orthosis that 'fits now' may be 'too large later.' Consider the need to change the orthosis height, circumference, or both measurements.
    a. After swelling subsides, further adjustments or re-sizing may be required.
        - Adjust the fit to ensure the best circumference and height settings have been achieved; modify the fit by adjusting one Velcro strap at a time and/or by changing the height-adjustment dial setting.

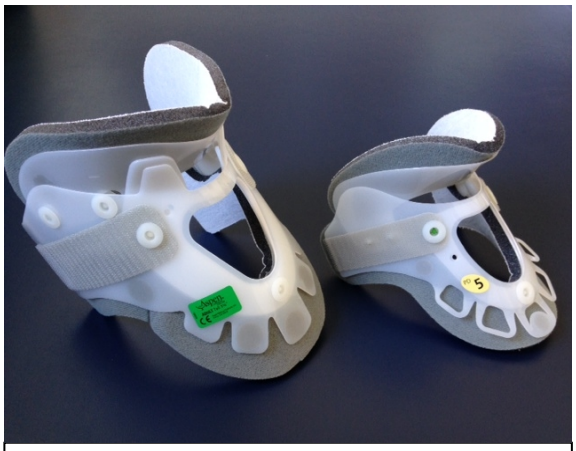
3. A poorly fit orthosis (i.e. 'too short') is likely to 'cut into' the throat of the client. This can result when clients, caregivers, or healthcare providers snug the orthosis tighter and tighter (via the Velcro straps) in an attempt to achieve support from the orthosis. This results in increased discomfort of the client without achieving the desired support.
    a. Such an orthosis must be resized (i.e. made taller); this results in the orthosis resting on the sternum and under the mandible to achieve support and keep the back/underside of the chin

support away from the throat. This is most often/best observed when the client is in the upright position.

- Consider the need to change the orthosis height.
- Re-educate the clients, caregivers, or healthcare providers about proper use of the Velcro straps for best circumference fit.

4. Some clients do not fit the standard, adult-sized Vista orthosis.
   In some cases, it is necessary to fit a petite adult with a paediatric Aspen (i.e. PD5 or smaller).

Aspen paediatric front panel (PD5)



Regular Vista Aspen PD5

5. If a **standard** Vista back panel is not large enough to accommodate the circumference of a larger client's neck (i.e. when a plastic-to-plastic overlap of minimum 1" cannot be achieved) the panel can be substituted with a Vista **large** back panel (larger) or an Aspen **adult large** back panel (even larger).

Vista standard back panel

Vista standard back panel

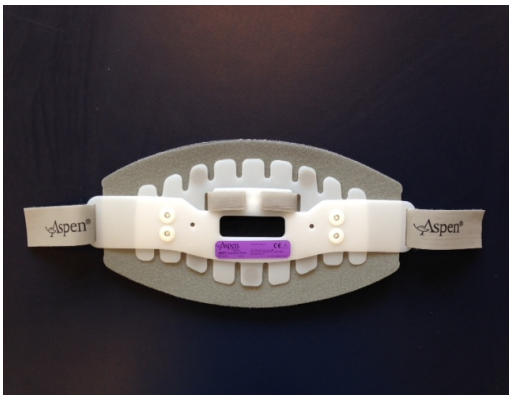
No lettering on the (short) side tab

Vista large back panel

Vista large back panel

Lettering on the (extended) side tab

Aspen adult large back panel

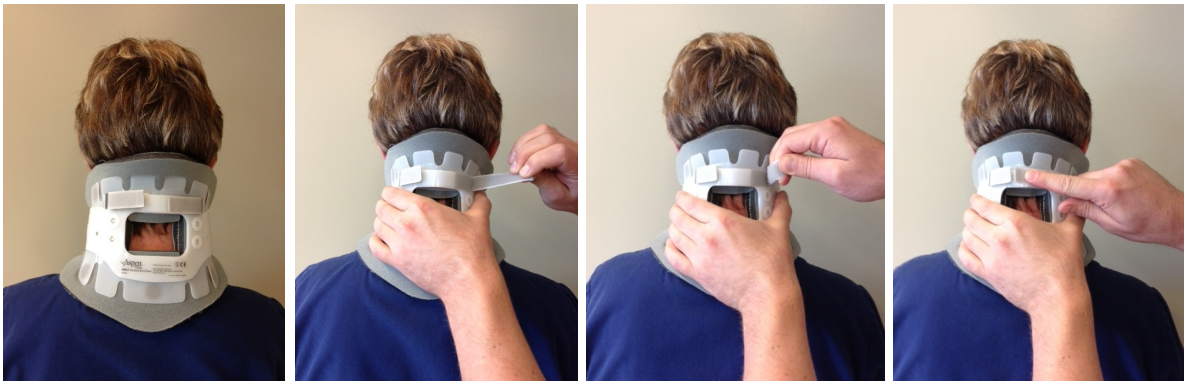


Aspen large back panel

Note: When an Aspen back panel has been substituted, the following applies:

Occiput Strap (Back panel) –
The occiput support strap shapes the back of the orthosis so that it better fits the base of the client's skull to provide more comfort and support. The strap should only be tightened when the client is in the upright position. The strap should be loosened when the client is lying down in the orthosis for long periods of time.

1. To **tighten** the support strap, squeeze the back panel with one hand; loosen the strap (on one side only) and pull until it is snug and comfortable; reconnect the strap to the Velcro.
2. To **loosen** the support strap, detach the strap from the Velcro (on one side only) and allow the back of the orthosis to "spring open".



Client/Caregiver Education about the Vista Cervical Orthosis – *additional information*

Education about the orthosis may be provided to the client/caregiver only once the client's spinal column is deemed 'spine stable, but requires protection'; ensure the client has been deemed so and that mobility orders permit mobilization.

Determining Spinal Column Stability
The physician, fellow, or resident will determine the stability of the spinal column. The following categories may be used to communicate patient status. A single client may be deemed 'spine unstable' upon admission, and 'spine stable' at time of discharge, but only one category will apply at one time.

- **'Spine Unstable'** - Confirmed or suspected spinal column instability with potential for new or increased neurological deficit if neutral spine alignment is not maintained - maintain neutral alignment.
  Generally:
  - Acute injury
  - Investigations pending or ongoing
  - Definitive medical plan initiated but not yet set
  - Interventions to stabilize the spinal column initiated but not yet completed
  - High risk for new or additional injury to the spinal column or spinal cord
  - Neutral spine alignment is required at all times
- **'Spine Stable but Requires Protection'** - Definitive spinal management has been implemented (i.e. surgical stabilization or conservative management with or without an orthosis) - maintain neutral alignment.
  Generally:
  - Sub-acute (or chronic) injury
  - Investigations completed but additional may be required
  - Definitive medical plan completed
  - Interventions to stabilize the spinal column completed
  - Low risk for new or additional injury to the spinal column or spinal cord
  - Neutral spine alignment is required at all times
- **'Spine Stable'** - Physician, fellow or resident has determined spinal column to be stable (may or may not have required surgical stabilization) – neutral alignment not required.
  Generally:
  - Sub-acute (or chronic) injury
  - Investigations completed
  - Definitive medical plan completed
  - Interventions to stabilize the spinal column completed
  - Low risk for new or additional injury to the spinal column or spinal cord
  - Neutral spine alignment not required; the client may move through active, pain-free ROM without loaded bending and/or twisting.
- Client education should be provided by the designated discipline as identified by site-specific practices.
- Education should be provided, daily, in accordance with the readiness for learning, and the client/caregiver monitored for understanding and ability to follow-through.
- Site-approved patient health education teaching materials should be used to support education.
  For example: (order through Patient Health Information Materials: VCH or PHC)
  - Vista Cervical Orthosis (Cat #: FB.707.V57)
  - Activity Guidelines following Spinal Column Injury/Surgery (Cat #: FM.553.A38)
- Other teaching materials may be used to support education. For example, the Aspen Medical Company on-line video that reviews how to put on and take off the orthosis.
  - http://www.aspenmp.com/index.php/education/videos/
  - Click "View In-Service Video"
- This procedure can take 30 to 60 minutes depending on the care provider's familiarity with the task and the ability of the client/caregiver to consolidate the information.

Prior to beginning client/caregiver education, health care professionals should be familiar with:

- The function of the orthosis
- The mobility precautions associated with the orthosis
- The donning/doffing procedure
- The day-to-day management of the orthosis
- The limitations on activities of daily living created by orthosis wearing

Health care professionals should evaluate the ability of the client/caregiver:

- To adhere to the associated precautions and safely maintain neutral cervical spine alignment
- To don/doff the orthosis safely and independently
- To manage the orthosis on a day-to-day basis
- To perform activities of self care, work and leisure during the period of orthosis wearing

Standard client/caregiver education includes the review of:

- Donning/doffing of the orthosis
  - See: *Application of the Vista Cervical Orthosis, for more information*.
- Neutral cervical spine precautions
- Orthosis wearing protocol (as per physician's direction)
- Mobilizing while wearing the orthosis
  - See the remainder of this section for more information
- Monitoring orthosis fit and integrity (daily)
- Changing the liner pads (once every day if necessary)
  - See: *Care and Maintenance of the Vista Cervical Orthosis, for additional information*.
- Performing skin care (under the orthosis)
  - See: *Skin Care under the Vista Cervical Orthosis, for additional information*.
- Body washing (under the orthosis)
- Showering (head to toe)
  - See: *Activities of Daily Living, for additional information*.

To do this:

- Neutral cervical spine precautions can be explained in the following manner for the client whose spine is 'stable but requires protection', for example – to the client/caregiver:
  - 'Following injury/surgery, the spine is stable but needs protection while healing thus the use of the orthosis and the need to maintain the neutral position.'
  - 'Maintain neutral cervical spine position to best ability at all times - avoid forward flexion, backward extension, left and right lateral flexion, or rotation.'
  - 'Small, pain-free movements are inevitable and acceptable - avoid large, forceful, or resisted cervical spine movements.'
  - 'Use/maintain own postural control while in the orthosis, and consider the orthosis as a 'helper' to maintaining neutral cervical spine alignment - that is, the orthosis does not do all the work.'

- Wearing protocols vary depending on the particular client circumstances and must be communicated to the client/caregiver. As per the physician's direction, a typical protocol may include any combination of the following:
  - **How long the orthosis is to be worn**, for example – to the client/caregiver:
    'Until the Spine Physician says to stop wearing it (commonly 6 to 8 weeks, but can be shorter or longer depending on the particular circumstances).'

  - **How often the orthosis is to be worn**, for example – to the client/caregiver:
    'Wear at all times (including at night when sleeping, when getting up to go to the bathroom in the middle of the night, and when in the shower).'

    OR

    'Wear only during the day when up and out of bed (including when getting up to go to the bathroom in the middle of the night and when in the shower). No orthosis required at night but it

can be worn when sleeping if desired. If wearing the orthosis 24/7, it is recommended to remove the orthosis, when supine, to allow for the skin to 'breath'.

OR

'If required to wear the orthosis 24/7, the orthosis may be removed once each day for the purpose of: skin care, body washing under the orthosis, shaving, removal of wet pads after showering, changing soiled pads, and cleaning the orthosis.'

- **Position to don/doff the orthosis**, for example – to the client/caregiver:
  'Put the Vista orthosis on, and take it off, when lying flat on the bed and while maintaining a neutral cervical spine.'

  OR

  'Put the Vista orthosis on, and take it off, when in a sitting position and while maintaining a neutral cervical spine.'

- Donning/doffing of the orthosis can be done with or without assistance
  - If client has the ability to don and doff the orthosis, the focus of education will be fully on the client.
  - However some clients may require a degree of assistance due to cognitive or physical limitations. In such cases, the focus of education will be shared between the client and caregiver. For example, the client manages his/her body positioning (i.e. maintaining neutral cervical spine alignment, log rolling, etc), and the caregiver performs all orthosis donning/doffing (i.e. placing the orthosis, managing the Velcro straps, etc.)
  - Regardless of the process, the following aspects of orthosis education must be completed:
    Teach:
    - Maintenance of neutral cervical spine alignment
    - Log rolling in bed (if/as needed) to facilitate orthosis donning/doffing
    - Application of the orthosis including land-marking for proper placement
    - Securing straps and making final adjustments for best fit
    - Removal of the orthosis
    - General mobility out of bed

- When considering the general mobility of the client wearing an orthosis, there are two areas of concern: effect on visual field and effect on movement.
  - Visual field – the orthosis will effect 'what the client can see'
    - Visual field is reduced because the client cannot bend or rotate his/her neck in the customary fashion to look down or around.
    - When standing upright, maintaining a neutral cervical spine, and looking down with the eyes only (i.e. without bending the trunk), a client will not be able to visualize an area of approximately 3' around his/her feet.
  - Movement – the orthosis will effect 'how the client can move'
    - Mobility (i.e. balance/righting reactions) may be challenged.
    - Marginal mobility may be further hampered (often seen in clients who already present with mobility difficulties, e.g. the elderly).

- Teach 'mindfulness' and 'preparation', for example – to the client:
  - Mindfulness – Compensation through behavioural change:
    - 'Remember to look down at the floor and be more alert of your surroundings'
    - 'Be more careful than you normally need, do not get up without thinking first'
  - Preparation – Compensation through environmental modifications:
    - 'Make a change to how the home is set-up'
    - 'Remove tripping hazards, ensure best lighting inside and outside the home'

Care and Maintenance of the Vista Cervical Orthosis – *additional information*

Care and maintenance: Checking the integrity of the orthosis must be done daily. This procedure can take 1 to 2 minutes depending on the care provider's familiarity with the task.

When checking the orthosis, take this opportunity to provide a skin check and body wash, and to clean the plastic portion of the orthosis and change the liner pads. If necessary, an alcohol pad can be used to further wipe-down and clean the orthosis so that odour does not occur.

To do this:

1. Place the client into the supine position and remove the orthosis.
2. Observe and check the various parts of the orthosis.
   a. Ensure the Velcro (hook) tabs are suitably attached (the tabs can lose their ability to remain secured over repeated use).
   b. Ensure the Velcro (loop) straps are in good condition (the straps can lose their ability to remain secured over repeated use).
   c. Ensure the height adjustment dial knob is in the locked position.
   d. Ensure the liner pads are in the proper location (liner pads attach to the plastic shell of the orthosis via Velcro and can lose their ability to remain secured over repeated use causing them to shift during application or wearing and expose the client to hard edges causing discomfort and injury to skin).
3. Record problem areas.
4. Make (or request) adjustments or repairs to the orthosis.
5. In the event of orthosis 'failure', place the client supine in bed and change his/her mobility status to 'strict bed rest'.
   a. Consider the need to perform a motor/sensory evaluation and alert the physician, fellow, resident, or medical student if changes have occurred.
   b. Alert other members of the health care team to ensure awareness and caution.

Changing liner pads: Changing the liner pads should be completed once every day if necessary, but may be changed less frequently when the pads are clean, dry, and skin integrity remains intact. When liner pads are not changed on a daily/regular basis, they must be changed, at minimum, on a weekly basis. Change the pads any time if they become visibly soiled, have an odour, or if they become moist. This procedure can take 5 to 10 minutes depending on the care provider's familiarity with the task.

When changing the liner pads, take this opportunity to body wash and perform skin care. An extra set of liner pads are provided at the time of first fitting and should be found with the client's personal effects. **Do not throw out the liner pads; pads should be hand-washed and air dried for re-use**.

To do this:

1. Remove/replace the **front pads** –
   a. **Remove:** Peel the pads off the Velcro dots.
   b. **Replace:** Attach the pads so the grey side grips the Velcro dots and the white side touches the client's skin. Landmark the chin pad by folding it in half and placing it on the Velcro dot located on the centre of the chin support. Landmark the chest pad by aligning the circular cut-out around the backside of the height adjustment dial. Ensure the pads lay side-by-side where they meet and do not overlap. Once properly applied, the pads should extend beyond the plastic edges of the orthosis by approximately 1" (chest pad) and ¼" (chin pad). No plastic edges should ever come into contact with the client.

2. Remove/replace the **back pad** –
   a. **Remove:** Pull the straps out of the plastic tabs. Remove the pads by simply peeling them off the Velcro dots.
   b. **Replace:** Attach the pad so the grey side grips the Velcro dots and the white side touches the client's skin. Landmark the pad by folding it in half and placing it midline on the back panel, unfold the pad so that the matching notches (on the left and right sides) align with the location of the Velcro straps. Pull each Velcro strap up-and-through the ventilation holes of the pad, lay them over the padding at the notches, and then feed them through the plastic slots of the panel. Once properly applied, the pads should extend beyond the plastic edges of the orthosis by approximately 1". No plastic edges should ever come into contact with the client.
3. Hand-wash the pads in a sink with warm water and hypoallergenic body wash soap. (Never use bleach on the pads or put the pads in the washer or dryer.)
4. Rinse thoroughly and squeeze the pads between towels to remove all excess water.
5. Let the pads air-dry (about 6 to 8 hours).

Skin Care under the Vista Cervical Orthosis – *additional information*

Skin care under the orthosis must be done daily. This procedure can take 3 to 5 minutes depending on the care provider's familiarity with the task.

Reddened and painful skin can develop if the orthosis constantly presses against bony areas. Without proper care and follow-up, these can result in the development of a stage 1-4 pressure ulcer. Early signs of skin breakdown includes: reddened epidermis (as compared to normal skin colour), a clear and distinct border separating the red skin from the normal coloured skin, a lasting change in redness (i.e. does not fade away) even after the pressure has been removed for 10 to 15 minutes. Typical problem areas may include: at the apex of the chin, the angle of the jaw bone, over the clavicles. When performing skin care, take this opportunity to body wash under the orthosis and change the liner pads.

To do this:

1. Remove the Vista orthosis as described.
2. If reddened and painful areas are observed:
   a. Ensure that the orthosis is fit and applied correctly; if the problem seems to be the 'basic fit' of the orthosis, contact the physician, fellow, resident, Occupational or Physical Therapist.
   b. Provide teaching about: the client's need to use postural control when wearing the orthosis (i.e. the orthosis does not do 'all' the work' and the client must also work to hold his/her head and maintain a neutral cervical spine alignment).
   c. Do not add 'padding' between the client and the orthosis with the intent to increase comfort and protect the skin area. Adding extra padding increases the overall thickness and bulk between the orthosis and the body and, thus, increases the pressure on the skin causing greater damage.
   d. While a dressing may add thickness and bulk under the orthosis, it is necessary to provide this skin care which may include the use of dressings. Include only as much dressings as needed. Obtain cleansing and dressing kit supplies and treat the area following approved skin care guidelines.

      See skin and wound care guidelines:

      - VCH SHOP (Shared Health Organizations Portal)
      - PHC: Wound and Skin Care
3. If the skin worsens despite intervention, contact the physician, fellow, nurse practitioner, resident, or Occupational Therapist.

Activities of Daily Living – *additional information*

NOTE: If the client has had surgery and has an incision, restrictions or conditions related to incision care must be observed before washing. At minimum, surgical wounds should remain dry for 3 days following surgery.

Body washing (under the orthosis)

Body washing under the orthosis should be completed daily. This procedure can take 5 to 10 minutes depending on the care provider's familiarity with the task.

Pressure, moisture, heat and dirt may lead to redness and soreness of the skin. To avoid skin breakdown, keep the skin clean, dry, and cool. When body washing under the orthosis, also change the liner pads and perform skin care.

To do this:

1. Bring the necessary supplies to the bedside: a washbasin, soap, washcloth, dry towels, and the clean replacement pads.
2. Unless otherwise specified, body washing under the orthosis must be done while the client is supine on the bed; log rolling may be used to re-position the patient if necessary.
3. While washing the client, ensure he/she maintains neutral cervical spine alignment.
4. Remove the orthosis as described.
5. Wash the client's face and neck.
6. In addition, men can shave at this time while remaining supine and maintaining neutral spine alignment. (It is also acceptable to grow a beard.)

Hair washing (in bed) and Showering (head-to-toe)

Hair washing in bed and showering (head-to-toe) may be completed daily, but may be performed less frequently. When hair washing and showering is not completed on a daily/regular basis, it must be done, at minimum, on a weekly basis. This procedure can take 10 to 20 minutes depending on the care provider's familiarity with the task.

Unless otherwise specified by the physician, the entire orthosis must be worn into the shower. The orthosis is designed to become fully wet. A second set of liner pads is provided so that, after hair washing, the orthosis can be removed and dried, the wet liner pads replaced with dry liner pads, and the orthosis can be re-applied.

To do this:

1. Escort the client to the shower (using hypoallergenic body wash soap a barrier-free shower with a hand-held shower head and a commode or shower chair is preferable).
2. Direct or assist the client to wash and dry his/her hair.
3. Escort the client to his/her room.
4. As described:
    a. Remove the orthosis as described.
    b. Provide a body wash to the neck area and the opportunity to shave.
    c. Perform a skin check and provide skin care as necessary.
    d. Remove the wet liner pads, dry the orthosis and apply the dry liner pad replacements.
    e. Reapply the orthosis.