

Halo-Thoracic Orthosis

Fitting the Brace

The brace is sized and put on you by your spine physician.

You will receive a local anaesthetic at the four spots where the halo-thoracic brace will be attached to your head. Four pins will be inserted into the surface layer of your skull and a halo ring will be attached to these pins. A minimal amount of hair may be removed from the sites where the four skull pins will be located. This helps to insert the pins and to keep the area clean afterwards.



After the halo ring has been applied, you may feel some tightness around your head; this feeling should fade after 24 hours. Also, any discomfort from the pins should not persist beyond 2-3 days. If you continue to have pain, tell a member of your health care team.

Four rods will be added to connect the halo ring to the rigid plastic vest that goes around your chest, back and shoulders. The vest is made of two separate pieces that are lined with synthetic sheepskin; they are held together by four straps (one at each shoulder and one on either side of your chest).

Wearing the Brace

The halo-thoracic brace is used to stabilise your spine after injury or surgery. It helps to hold your spinal column in good alignment during the healing process.

On average, most people wear the brace for 6-12 weeks. You will be told how long you need to wear your brace based on your unique situation; only your spine physician may tell you when you can stop wearing the brace.

If your brace is not fitting comfortably, do not tighten or loosen any screws or bolts or make any adjustments to the shoulder or chest straps. If you are uncomfortable while you are in the hospital, ask for the occupational therapist; he/she may be able to make small adjustments to improve your comfort and to protect your skin. Only the spine physician may make a major adjustment. Once you are home, please call the spine physician's office at the number provided to you by your nurse if you think an adjustment is needed.

The fixed position of your head makes it harder to look around and see everything. It is very important to be aware of your surroundings so you can reduce the risk that you might fall and injure yourself. Before you get out of bed, rise from a chair, or climb stairs be "mindful and prepared" of this change. Watch for uneven ground outdoors, curbs, children's toys on the floor, throw carpets and so on. Use railings on stairs and be careful in crowded places. Shoes with a low heel and rubber soles will help reduce the risk of slipping and falling.

You may hear some clicking sounds coming from the brace as you move about. This is normal and is caused by the forces you place on the brace as you change body positions. However, this might mean that a bolt on the brace is coming loose – while this is uncommon, it can happen. If you think that part of the brace has become loose, or that your head position has changed, contact your spine physician immediately.

Do not remove the (7/16" or 11mm) wrench located on the front vest. The wrench is used to tighten and loosen the bolts that hold the brace together. The wrench may be required in an emergency situation and must always be kept with the brace.

Normally, the shoulder and chest straps are not undone. However, to check your skin, to wash, or to change the sheepskin liners it is okay to undo only one strap at a time. Caution must be used as you will be undoing the parts of the brace that give it stability. Make sure to reattach the straps at the same position they were in before you undid them. Place a mark on the strap so you know where to reattach it.

Both chest straps can be undone at the same time when cardio-pulmonary resuscitation (CPR) is required.

Payment

You will receive a bill from the hospital's Financial Services Department to cover the fitting and use of the brace (you will not be billed for the full cost of the brace). If you have extended health benefits or other income support, you may be eligible for partial or full reimbursement. Please pay the hospital bill and then submit the receipt for review by your extended health benefits or other income support provider.

Care of the Brace

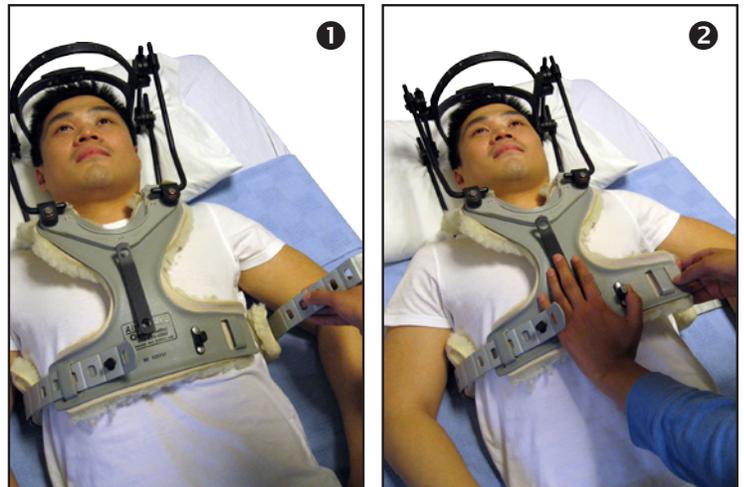
You will be taught how to care for the halo-thoracic brace and how to manage different daily activities such as hair washing and dressing. If you are unable to manage your brace or daily activities independently, a family member or friend will be taught how to help you.

Skin Care

- Reddened and painful skin can develop in places where the vest constantly presses against bony areas such as at the ribs (front and back), the shoulder blades, or high up over your spinal column at the base of your neck. A properly sized and fitted halo-thoracic brace should not cause skin problems.
- Red areas that might become a problem usually follow the shape of the vest or the bony area; they are very red; they have a clear and sharp edge that separates the red skin from the normal coloured skin; and they do not fade away even after the pressure has been removed for 10-15 minutes.
- If you develop reddened and painful skin make sure, first, that you are not always lying in the same position and always loading your weight onto the same area of your body. If the problem seems to be the basic fit of the brace and the redness and pain won't go away, or if the surface of your skin breaks open, contact your spine physician.
- It is important to check your skin regularly – you can do this when you wash and you will need someone to help you.

- To do this:

- Lie down on your bed and roll onto your side.
- Undo the chest strap ❶ and gently lift the vest away from your body, but only enough to see the skin. Use one hand to support the plastic vest and the other hand to gently lift the vest ❷.
- Check your skin (front and back); using a flashlight may be helpful.
- Reattach the chest strap and roll onto your other side and repeat the process.
- Make sure to reattach the chest strap at the same position it was in before you undid it. Place a mark on the strap so you know where to reattach it.
- Avoid using powders and lotions as they tend to build up and will soil the liners.



Hair Washing

- You can regularly wash your hair as long as you keep your liners dry.
- To do this:
 - Lie down on your back on your bed (lie across the bed from side to side).
 - Position your head over the edge of the bed while keeping your shoulders on the mattress (the vest will support your head and neck).
 - Place a towel around your neck to stop water from running into the vest.
 - Position a plastic sheet under your shoulders; drape it over the edge of the bed and into a bucket on the floor.
 - Wash and rinse your hair as you normally would; use a mild shampoo and do not colour your hair or use other products as this could cause an infection at the pin sites.
 - It is okay to get the pin sites wet; also, this is a good time to clean them with a cotton swab and remove any build-up.



Body Washing

- You can regularly body wash as long as you keep your liners dry.
- To do this:
 - Wash with a towel that has been dampened only with water and pull it back and forth in a see-saw motion under the vest.
 - If you use soap, only use a small amount and make sure to thoroughly rinse off all residue.
 - The outside of the plastic vest may be wiped down with a damp cloth.



Showering

- You can regularly shower from the waist down as long as you keep your liners dry.
- To do this:
 - Step into the tub and use a hand-held shower head to direct the water away from the vest. If you do not have one, use a plastic cup to wash and rinse off taking water from the faucet (do not use the shower-head).

OR

- If needed, you may shower from head-to-toe getting the entire halo-thoracic brace completely wet. For instance, you may not be able to get a good, basic wash or you may have spilled something on you. In this case, shower with the liners in place, dry off as much as possible, and change the sheepskin liners. While it is sometimes necessary to do this – it is a big job; only shower from head-to-toe if it is really needed.

Note: If the liners become damp (for any reason), dry them with a hair dryer (set to low) or let them air dry. If they get very wet, you may need to replace them with the dry replacement liners.

Pin Site Care

- The pin sites should be cleaned two times every day.
- To do this:
 - Use normal saline (that is, a 0.09% saline solution that is available at a local drug store) and cotton tipped swabs.
 - Pour some of the solution into a separate container and use that to clean the pin sites. Dip a swab into the saline solution and gently clean one pin site. You may soak the area to remove any crusted material. Gently push the skin back from the pin to reduce the chance that it will stick to the pin. Use a separate swab for each pin site and do not "double-dip" the swabs in the solution.
 - If the pin sites look red or swollen, feel hot or painful, or if they have continuous oozing they may be infected. If so, clean them four times a day with a mix of ½ hydrogen peroxide and ½ normal saline and contact your spine physician immediately.
- If you do not have anyone that can do this for you, you can go to your family doctor, a local health clinic, or an arrangement may be made for a community nurse to see you.



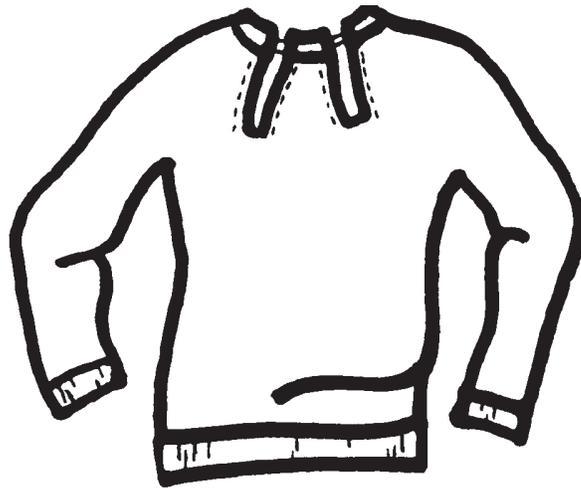
When CPR/Life Support is Required

1. Call 911.
2. Place the individual on his/her back.
3. On the front of the vest, use the (7/16" or 11mm) wrench to loosen the left and right sided bolts (that hold the upright rods in place) located near the shoulders **1**.
4. Completely release the left and right side chest straps by turning the locking posts **2** and pulling the bands up-and-off the posts and sliding them out of the plastic slots **3**.
5. Steady both upright rods with one forearm **4**, using the other hand hold the vest at the bottom and lift it up to expose the chest **5** – the vest stays connected to the brace and pivots up by rotating on the universal joints.
6. Using the back of the vest like a 'crash board,' perform CPR/Life Support as you normally would. Defibrillation of the individual may be performed without removal of the brace.

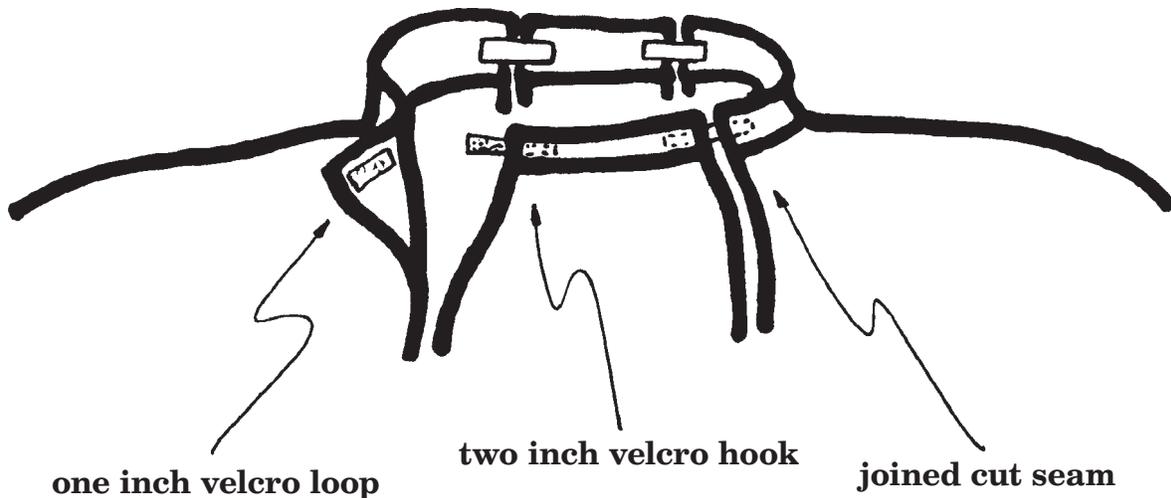


Dressing

- In general, it is recommended that you sit while getting dressed and undressed. You should be completely independent to dress your lower body, but you may need help to dress your upper body.
- Wearing adapted clothing that fits around the vest will be necessary; if available, you will be provided with one or two garments. Adapted clothing is made available by donation. If you make some of your own you can donate it by bringing it with you to the Spine Out-Patient Clinic when your halo-thoracic brace is removed.
- Making adapted clothing:
 1. Begin with a sweatshirt that is at least one size larger than the person's regular size.
 2. With the person lying down on his/her back, lay the sweatshirt over the person and approximate its location when it will actually be worn. Mark the points where the upright rods join with the vest.
 3. Have the person roll onto his/her front. You can place one or two pillows under his/her chest to raise his/her face away from the bed. Approximate the location of the sweatshirt again, and mark the back of the sweatshirt at the points where the rods join with the back of the vest.
 4. Lay the sweatshirt face up on a flat surface and decide the best way to cut down from the collar to each of the marks. Do the same on the back. Sometimes it is possible to follow a natural seam.
 5. Cut the fabric from the collar to the mark. These seams can be finished for strength and appearance if desired.
 6. It will be necessary to attach velcro to each seam at the collar so that it can be rejoined for wearing.
 7. On the inside of the collar adjacent to a seam, sew on a one inch length of loop velcro in a horizontal direction. The soft loops should be facing the person when the sweatshirt is being worn.
 8. On the other side of the seam, also on the inside of the collar in a horizontal direction, sew on a two inch length of hook velcro. Sew only one inch to the collar, the other is meant to span across the seam so that it can be attached to the one inch loop velcro. Make sure to sew the velcro so that the hooks face away from the person when the sweatshirt is being worn.
 9. Now, the velcro hooks can be attached to the loops so that they span the seam and rejoin the collar. Repeat this step for the remaining three seams.
 10. This process (with modifications) can be used to adapt other types of clothing. Cotton weaves and similar materials generally work better than knits. Sweatshirts are often a first choice but other types of shirts are often adapted by family members (tank tops are very easy to adapt at the shoulders and are good in the summer). Three to four adapted pieces of clothing are usually sufficient to allow for changing styles, between launderings, etc.



Front view of an adapted sweatshirt. Note the two seams extending from the collar to the points at which the upright rods will join the vest. (In this case, the natural seams of the sweatshirt have not been followed.)



Close view of the collar of an adapted sweatshirt. Note the four seams. The front left seam shows the one inch velcro loop and two inch velcro hook with one inch overlap. The front right seam shows a joined seam.

Toileting

- You should be completely independent in all aspects of toileting.
- Some people find it helpful to use a raised toilet seat to make moving on and off the toilet easier.

Changing the Sheepskin Liners

Your health care team will show you and a family member or friend how to change the sheepskin liners. Caution must be used as you will be undoing the parts of the brace that give it stability; because of this; you should only change the liners as needed.

- To do this:
 - Follow these simple principles: proceed slowly and patiently; do not loosen any screws or bolts; if possible, do not loosen the chest straps; only loosen the shoulder straps and change the shoulder liners once the vest liners have been changed.
 - Lie down on your bed on your back.
 - If necessary, undo one chest strap only. Make sure to reattach the chest strap at the same position it was in before you undid the strap. Place a mark on the strap so you know where to reattach it.
 - Use your fingers to separate the liner from the vest (the liner is attached to the vest with Velcro) **1**.
 - As you detach more and more of the liner, slip a pillow case between the liner and the Velcro to stop the liner from reattaching **2**.
 - Once the liner is fully detached, slowly pull the liner out from the vest while keeping the pillow case in place **3**.
 - Carefully slide the new liner under the vest and beneath the pillow case. Hold it in position and pull out the pillow case. Press the liner against the Velcro to attach it. The liners must overlap the plastic vest along all its borders; this overlap protects your skin.
 - If you undid a chest strap, reattach it and then roll onto your front and repeat the process to change the back liner. You can place one or two pillows under your chest to raise your face away from the bed.
 - Once the vest liners have been changed, you may then undo the shoulder straps one at a time to change the shoulder pads. Make sure to reattach the strap at the same position it was in before you undid the strap. Place a mark on the strap so you know where to reattach it.

You will be provided with a second set of sheepskin liners. Before you leave the hospital, make sure that you have received these replacement liners – you can ask any member of your health care team about this. Liners should be hand washed and air dried.



When the Brace comes off

When you no longer require the brace, it will be removed by the spine physician at the Spine Out-Patient Clinic.

At that time, you may be fit with another neck collar. This new collar provides support to your head while your neck muscles regain any strength lost during the time in the halo-thoracic brace. In general, this new collar is only worn during the daytime when you are up and about, and it is taken off when you lie down to go to bed. You will receive teaching about how to manage the new collar at the time it is fit.

The pin sites will heal in 7-14 days; they will first leave dark marks that will slowly fade into small scars that are generally not noticeable. If you have a lot of red and raised scarring, go to your family doctor; you can be referred to an occupational therapist for further management of the scar in an attempt to reduce its appearance.

Any initial stiffness or soreness you may feel once the brace is removed is normal and should resolve fairly quickly. Many people do not require prescribed therapy (e.g. physiotherapy) for their neck. However, during your appointment the spine physician will determine if this is needed.

Please remember that adapted clothing can be brought to this appointment to be donated for the next person's use.

Program/Unit of Origin: The Department of Occupational Therapy, VGH

For more copies, go online at <http://vch.eduhealth.ca> or
email pchem@vch.ca and quote Catalogue No. **FB.707.H162**

© Vancouver Coastal Health, March 2017

The information in this document is intended solely for the
person to whom it was given by the health care team.

www.vch.ca