

# ORTHOTIC REVIEW APPOINTMENTS

Your Orthotist is .....

Please attend: Neurosurgery Clinic,  
St Vincent's Hospital

Daly Wing

35 Victoria Parade Fitzroy 3065

## At the following times

Date..... Time.....

Date..... Time.....

Date..... Time.....

Date..... Time.....

Date..... Time.....

Date..... Time.....

## Prosthetic and Orthotic Department Patient Information Guide to wearing a

# HALO-THORACIC SPINAL ORTHOSIS

Your Orthotist is.....

### EMERGENCY PHONE NUMBERS:

**The Prosthetic and Orthotic Department: (03) 9231 3837**

Business hours: 7:30am-4:30pm Monday- Friday

Outside of normal business hours:

**Emergency Department: (03) 9231 4364**



PO Box 2900 Fitzroy  
VIC 3065 Australia  
(03) 9288 2211  
www.svhm.org.au

*St Vincent's Hospital Melbourne Prosthetic and Orthotic Department acknowledge the assistance of The Alfred Hospital Prosthetic and Orthotic Department in developing this patient information booklet*



A FACILITY OF ST VINCENT'S HEALTH AUSTRALIA

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This booklet provides general information for patients wearing a Halo-Thoracic Spinal Orthosis. Any instructions given directly to you by a Neurosurgeon, Orthopaedic Surgeon or your Orthotist, should be followed over and above anything written in this booklet.

# WHEN TO CONTACT ST VINCENT'S HOSPITAL

If at any time whilst wearing the halo any of the following occur please contact the orthotic or emergency department on the numbers below:

- **Sensation in your toes or fingers becomes worse or is altered (i.e. pins and needles, tingling or numbness)**
- A pin site becomes red and sore, or starts clicking
- Any part of the jacket becomes loose or broken
- Skin irritation or pressure area develops under the jacket

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**Emergency Department:  
(03) 9231 4364**

# THINGS TO AVOID

**DO NOT DRIVE A CAR OR RIDE ANY KIND OF BIKE**

**DO NOT** sit up straight in bed. (Refer to pages 12&13)

**DO NOT** alter your jacket. If it feels too loose or tight and you feel it needs adjusting, notify your Orthotist.

**DO NOT** lift anything heavier than a telephone book (e.g. A-K section).

**DO NOT** allow anyone to pull on the frame of the halo. This can change the alignment of the halo and put pressure on the pins.

**DO NOT** jump or run. Careless behaviour, falling or bumping into an object could cause serious damage to your neck.

**DO NOT** remove the hex key from the front of the jacket.

**DO NOT** shower or change the liners without your Orthotist.

**DO NOT** consume alcohol or participate in activities which affect your balance.

# INTRODUCTION TO THE HALO-THORACIC ORTHOSIS

The Halo-Thoracic Orthosis provides maximum stability after a neck (cervical spine) injury. It is commonly fitted for a fracture, dislocation or severe soft tissue injury and can be used following surgery.

Your halo will be worn for approximately twelve weeks, however, your treating doctor will review you frequently and determine when is the best time to remove it. Your Orthotist will also organise fortnightly reviews.

The Halo stabilises your neck (cervical spine) as your injury heals, whilst allowing you to be mobile and return to some everyday activities. Previously people with unstable cervical injuries had to lie on their back in bed for twelve weeks. With this in mind the advantages of the halo are:

- Sitting out of bed and walking earlier (if appropriate)
- Reduced hospital stay
- Better chest (pulmonary) care
- Ability to carry out basic activities
- Imaging of your spine can occur while your neck is in a stable position.

When discharged from hospital many patients cope well with some assistance from family members at home. District nursing services can be organised for patients who require further assistance.

If you have any questions when wearing the halo-thoracic spinal orthosis, please do not hesitate to ring the Prosthetic and Orthotic Department- the number is on the front of this booklet.

# FITTING THE HALO-THORACIC ORTHOSIS

Before fitting the Halo, you will be measured for the ring by your Orthotist to ensure a good fit. The Halo will be fitted on the ward or in theatre if surgery is required. It is common to be awake during the fitting however, pain relief injection (a local anaesthetic) and antiseptic will be applied to your forehead before the pins are positioned. The injection may sting when it is inserted; however, the area will go numb quickly.

During the fitting your doctor or Orthotist will explain each step to you. When the pins are positioned, you will feel some discomfort. It is common to feel pressure on your skull as the pins are being tightened. This pressure will ease but sometimes takes a few days to settle.

**You need to notify your doctor and Orthotist if you experience any of the following during the fitting of the halo:**

- Sharp pain at the pin site when the pins are being inserted
- Any tingling, numbness, pins and needles or changes in sensation in your fingers or toes.

The pins will be tightened (re-tensioned) 24-48 hours after the fitting. This ensures the correct pressure is applied and secure fixation is achieved.

***If the pins ever become very sore, or start clicking or grinding, contact the emergency numbers on the front of this booklet.***

## INITIALLY AFTER FITTING:

### After having the halo-thoracic orthosis fitted, you may initially notice:

- **Dizziness:** when you first sit or stand. This is usually due to lying down for a long period and will fade as your strength increases. Your Physiotherapist will initially assist you to walk and sit out of bed again.
- **Headaches:** are often experienced. It is normal to feel pressure on the skull; this is due to having the pins inserted. Headaches will usually fade throughout the day. Nursing staff can provide pain relief.
- **The weight:** of the Halo feels considerable. It weighs 3kg and may take you some time to adjust.
- **Difficulty sleeping:** Tell your doctor if this occurs. A sleeping tablet is sometimes prescribed. However, as discomfort settles, your sleep will improve. Refer to 'Sleeping or Lying - Finding a Comfortable Position' (page 11)
- **Clicking sensations in your neck:** This is usually only soft tissue becoming tight (i.e. tendons). If clicking persists, advise your doctor.

## CARE OF THE PIN SITES

Before discharge, advice will be provided to you and your carer (if going home) on looking after you and your Halo. We do not recommend you clean the pin sites on your own; you will require assistance from family, friends or a health professional.

- **Clean pin sites daily:** This is essential to reduce the risk of infection. Refer to details below on cleaning procedures.
- **Trim hair weekly:** The hair around the back pin sites will need to be clipped **every week**. This reduces the chance of hair becoming caught around the pin. If the hair grows too long, it can wind around the pin and cause an infection.

## CLEANING THE PIN SITES

The following items can be purchased from pharmacies and will be required for pin site care:

- Cotton tips
- Saline solution
- Betadine Solution



1. Use saline solution to wet the pin sites.
2. Remove any ooze or dead skin with a clean cotton tip. **Use a new cotton tip for each pin site** to avoid any cross infection.
3. Look at the skin around the pin to check for redness or swelling. **Do not touch the pin site with your fingers, as germs on your hand can lead to an infection.**
4. Apply a small amount of Betadine solution to each pin site. **Use a new cotton tip for each pin site** to avoid any cross infection.

**NOTE: If you observe any of the following, contact St Vincent's Hospital using the emergency numbers on the front of this booklet:**

- Red (Inflamed) pin site
- Moving of the pin through the skin
- Pain at the pin site
- Clicking sensation
- A cut or opening of the skin at the pin site

*These symptoms could indicate a loose pin, which needs attention*

## THE JACKET

The jacket/vest is polypropylene plastic and the frame is a carbon graphite composite material. Once fitted the vest is very rigid. It is dangerous to alter your halo yourself as your neck will be compromised. Your Orthotist and Neurosurgeon are the only people who can adjust the halo. If any part of the jacket is “digging in” or irritating you, contact your Orthotist.

### DO NOT ALTER THE HALO YOURSELF!

Do not pull on the jacket as this can alter the alignment of your neck or cause loosening of the frame. Never apply articles of clothing or padding (other than your singlet) between the jacket and your body, this can cause increased pressure on your skin and change the fit of the orthosis.

Occasionally a gap will form between your body and the jacket. This can be due to weight loss. When all straps and bolts are firm, the neck will be held securely.

If you have any concerns regarding the fit of the Halo contact your Orthotist.

**DO NOT remove the hex key from the front of the jacket. This is needed to loosen the jacket and allow access to your chest in the event of an emergency.**

## HYGIENE

Your Orthotist will change the sheepskin liners once during your treatment. **DO NOT attempt to change the liners at home.**

You can wear a thin singlet between your skin and the halo vest, which can be altered by your Orthotist so it can fasten at the shoulders.

### When to contact your Orthotist:

- If **heavy soiling** occurs to the liner
- If the liners are wet. **The orthosis must be kept dry.** If the liners are wet by accident, use a hair dryer to dry the liners out as much as possible, taking care not to burn your skin, then phone the Orthotic department to arrange a liner change
- If you notice any **skin irritation or pressure area** developing under the jacket

### BATHING AT HOME

When washing at home, **DO NOT GET THE LINERS WET!**

#### Option 1:

Sponge bath, this is the easiest and quickest way to wash.

#### Option 2:

Bathe in a shallow bathtub (ie. water level below the bottom of the jacket), and wash the upper body with a damp face-washer. To assist in keeping the liners dry, plastic can be tucked into the bottom of the jacket. Ensure the base of the bath is non-slip and use extreme caution when climbing in and out of the bath. It is essential to have an assistant when entering and exiting the bath, as well as using a handrail if one is installed

**DO NOT shower yourself, as it is impossible to keep the liners dry**

### HAIR WASHING

In some circumstances, it is possible to wash your hair at home. Please request instruction from your Orthotist for directions.

If hair becomes dirty or oily in between washes, dry shampoo can be used and is available from most chemists. Occasionally patients may experience cradle cap, consult your pharmacist for appropriate treatments, e.g. Ego Cappel.

**Do not use hair dyes, bleaches or other chemicals whilst wearing the halo**

## SITTING IN BED

When fitted with the Halo-Thoracic Orthosis you may initially find it is hard to move around. In the first couple of days, you may require assistance to sit up in bed. Your doctors will need to give you the all-clear before you can sit up in bed.

Please carefully read the following instructions regarding sitting up in bed. Failure to comply may result in serious consequences including:

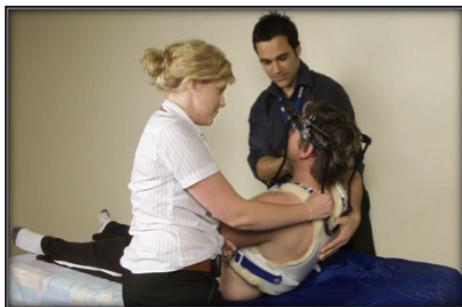
- Pin loosening leading to severe pain
- Movement of your spine
- Spinal cord damage

### How to assist a patient to sit up in bed:



- Position two slide sheet layers under patient
- Ensure hips are positioned at "break" of bed
- Raise bed to a maximum height of 45° using automatic raise
- Raise legs to prevent patient slipping

### Please DO NOT:



- Do not manually lift a patient
- Do not pull on frame



- Do not use auto raise without slide sheet
- Do not slump in bed

## GETTING OUT OF BED

When the doctors are happy for you to begin getting out of bed a physio will assist you in becoming mobile again. Getting out of bed will require extreme caution. Once you are able, it is better to sit out of bed rather than in bed. Continued sitting in bed may affect the fit of the Halo and lead to pin loosening.

Please carefully read the following instructions regarding getting out of bed. Failure to comply may result in serious complications including:

- Pin loosening leading to severe pain
- Movement of fracture segments
- Spinal Cord Damage



1. Start lying flat in bed



2. Roll onto your side



3. Slide your legs over the edge of the bed



4. Use your elbow and hand to push yourself up

### WARNING:

**YOU MUST FOLLOW THE ABOVE STEPS TO SIT UP**

## SOCIAL ISSUES

When wearing a halo you can continue to go out for dinner, walks, movies etc. However, you may notice you have less energy than normal. Be careful in confined spaces ie. going through doorways or reaching into the fridge. Initially you will notice that judging distances is hard. Heavy knocks onto the Halo can cause serious problems.

### Do not do activities that involve:

- Jumping
- Running
- Driving
- **Lifting a weight greater than 3.5 kilograms.** (The A-K section of a phone book is a good indicator of the maximum weight which can be lifted)

Work and school can continue as long as it is not physically demanding and no sports or physical activities are attempted. Discuss this with your doctor and Orthotist first. In both these cases, it is advisable to return on a part time basis at first. If any dizziness, pain or headaches occur, stop and rest.

Be prepared for some unusual comments or looks, as most people are very curious about the halo. Try to be tolerant of people. Talking to people about the halo will help them to understand and become more at ease.

Sexual activity is fine whilst wearing the halo, but positions will need to be modified and a more passive role should be assumed. It can become quite dangerous if care is not taken. In some circumstances, if your spine is still unstable, your doctor or surgeon may advise you to refrain for some time

## FOOD AND DIET

Wearing a halo usually increases the amount of energy you use during the day so you may find your appetite increases. Try to maintain at least your normal daily intake. It is normal for your weight to fluctuate whilst in the halo. However, try to avoid either a large weight gain or loss. The fit of the halo may be affected by large fluctuations. If this occurs, contact your Orthotist.

Discuss with your doctor prior to drinking alcohol. The halo compromises balance, so a combination of alcohol and the

orthosis may put you at serious risk of having a fall and causing further damage to your neck. Medication is also frequently affected by alcohol.

## SLEEPING OR LYING

### *FINDING A COMFORTABLE POSITION*

As your body adjusts to the halo, you may find your sleeping pattern is disrupted. Finding a comfortable position in which to sit or lie may also be difficult at first. With time, sleeping periods will increase as your body adjusts to the halo. You may feel tired in the early stages because your body is using more energy than normal and getting less sleep. Naps during the day may be needed until you are sleeping well at night.

Any position can be assumed when sleeping (ie. back, side or stomach), as long as you are comfortable and no pain is being experienced. When lying down your head will not be in contact with the bed, some people find this strange or uncomfortable. Use of a pillow is discouraged as this lifts your head and may change the position of your spine. However, if having no pillow hurts or feels too odd, a very soft or low pillow can

be placed under your head. Ensure the pillow does not place any pressure onto the back of your neck.

When lying on your back or stomach, avoid any direct pressure on the pins. This can alter the tension of the pin and may cause pin loosening. When side-lying you may find it more comfortable to position a pillow behind your back for support.

## CAR TRAVEL

### **DO NOT DRIVE – Driving whilst wearing a Halo Thoracic Orthosis is incredibly dangerous and against the law.**

Being a passenger in a car is ok, although you should limit non-essential travel over long distances as much as possible. It is advisable to take a break after every hour of travel. More frequent breaks may be required if discomfort is experienced.

To enter the car it is easiest to have the front seat pushed as far back as possible. Use the door as a stabiliser, and back up into the seat with your body bent forward. When your bottom is on the seat then swing your legs into the car. To get out, reverse this process.

## ALTERNATIVE FORMS OF TRANSPORT

Transport in a car is the safest option whilst in a halo.

**DO NOT use bicycles, motorbikes or any other two or three wheeled** forms of transport. Balance is reduced and the risk of falling is far too high.

Flying is usually ok, however, you will need to confirm this with your doctor. Whilst in mid-flight you may need to have a short stand or walk.

Avoid public transport wherever possible. Never travel during peak periods. In off-peak times, wearers may travel on buses if essential. It is advisable to be accompanied by an assistant and to ensure the driver is aware that you must be seated.

All other forms of public transport are discouraged. Be aware that public transport often vibrates and brakes quickly, which can affect balance and cause headaches.

## CLOTHING

Due to the superstructure of the halo, wearing normal clothes above the waist is quite difficult. The easiest alternative is for the patient to wear a slightly larger than usual button-up shirt. This can be worn without alterations and is easily put on and taken off. Tops that have a zipper are also a good alternative. The sheepskin liners should help you to keep warm, therefore usually only light clothes are needed. However, in the winter a windcheater or jumper may need to be altered.

### *ALTERATIONS TO CLOTHES:*

As wearing time in a halo is quite substantial, many people elect to customise their clothes to achieve a better fit. The Orthotic Department can offer advice on how alterations can be done. Please ask at your next appointment.

### *FOOTWEAR:*

Flat soled shoes with good grip are essential e.g. runners. Balance is affected in a halo, therefore poor footwear will increase your risk of falls. High heels and slip-on shoes put you at high risk of falling.

## REMOVAL OF THE HALO

The halo will be removed when your Orthopaedic Surgeon or Neurosurgeon determines that sufficient healing is achieved. X-rays are usually taken before removal of the halo to ensure your neck is stable. Often a neck (cervical) collar will be required for several weeks after halo removal (e.g. Philadelphia, Miami J or soft collar). This decision will be made by your doctor at the time your halo is removed.

Usually no special rehabilitation is required on the neck after removal of the halo. It has been found that the neck muscles cope very well and do not require additional exercises. Your doctor will advise if any rehabilitation is required.

## PIN SITE CARE AFTER HALO REMOVAL

### Cleaning

Pin sites will be cleaned by an Orthotist after halo removal. Do not get your pin sites wet for the first day. After 24 hours, you may get

pin sites wet. Continue to wash pin sites in the shower. Pin sites do NOT require a dressing. Monitor pin sites for any sign of infection. If you notice an infection, visit your GP or contact St Vincent's Orthotic Department.

### Massaging

Allow two days after the halo removal for the skin to seal over then begin gentle massaging of the two front pin sites. You may wish to use a cream such as Sorbolene. Continue this three times per day until the skin freely moves over the bone (approx. two weeks). Massaging breaks any connections which form between the skin and the bone while wearing the halo and prevents any new connections from forming.

Scarring at the pin sites does occur occasionally. Failure to massage the front pin sites will result in a scar, which resembles a large dimple.

### **Dimples will form at the pin sites if skin remains stuck to the bone.**

Massaging may cause some pain as your skin regains some movement. You may massage the back pins although this is not necessary as they are usually covered by hair.

## HELPFUL HOME HINTS

- 1. FLEXIBLE STRAWS -**  
make drinking easier. Can be obtained from supermarkets or convenience stores.
- 2. ELASTIC SHOELACES-**  
make putting shoes on easier.
- 3. LONG HANDLED SHOE HORN -**  
helps to get your foot into the shoe. Available from chemists or discuss with your Occupational Therapist.
- 4. SOCK DONNER -**  
Helps to put your socks on. Discuss with your Occupational Therapist.
- 5. ANGLED BOOK HOLDER -**  
tilts the book to allow easier reading. This can help if returning to work or school. Discuss with your Occupational Therapist.
- 6. SHELF ARRANGEMENTS -**  
encourage people you live with to leave items in shoulder and waist height cupboards.

**IF ANY QUESTIONS OR QUERIES HAVE NOT BEEN ANSWERED IN THIS BOOKLET, PLEASE DO NOT HESITATE TO CONTACT YOUR ORTHOTIST.**

*(Refer to Emergency Numbers on the front cover)*

## EMERGENCY REMOVAL OF THE HALO

In the event of an **emergency** where access to the chest is required, the front (anterior) portion of the vest can be removed.

1. Position patient flat on their back.
2. An assistant should **hold the patient's head** to maintain alignment of the spine.
3. Release the two waist straps.
4. Release the two shoulder straps.
5. Use the hex key attached to the front (anterior) upright to loosen the two hex key screws as marked in *Figure 1*. **The hex key MUST remain in position on the anterior upright at all times. It should only be removed in the event of an emergency.**
6. Slide both anterior uprights (*indicated in Figure 2, red arrows*) up and away from the patients face until they disconnect
7. Lift the anterior jacket off the patient's chest
8. Immediately contact St Vincent's Hospital (*Refer to Emergency numbers on page 4 of this book*) for review of fracture alignment and re-fitting of the Halo.

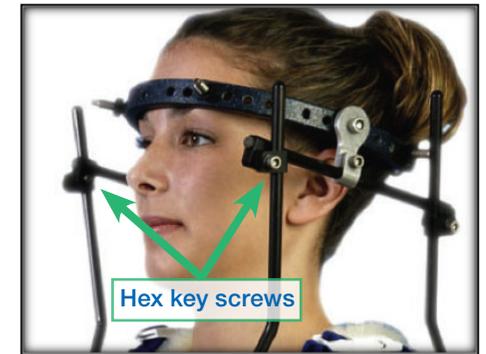


Figure 1.

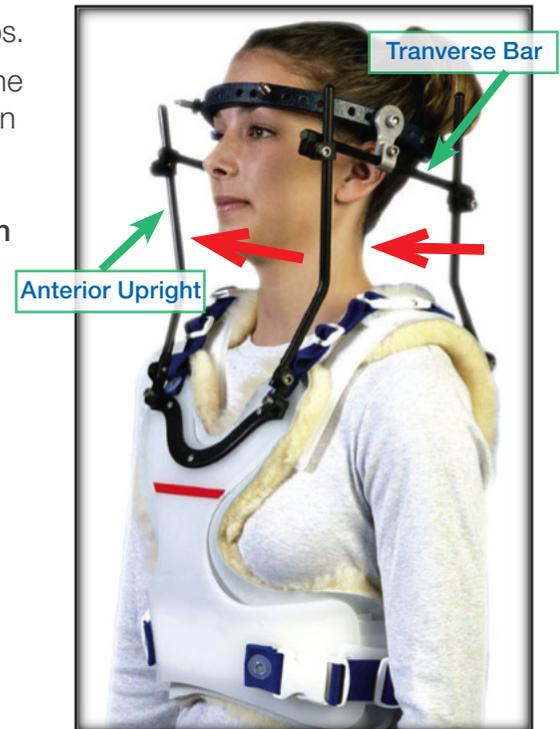


Figure 2.

**NOTE: THIS SHOULD ONLY BE CARRIED OUT IN THE EVENT OF AN EMERGENCY**

