

## PATIENT AND PIN CARE

### Pin Care

The pin sites will drain a small amount of fluid following application of the Halo. Frequent pin care at this time is important in order to prevent the accumulation of discharge, which increases the risk of infection. A solution of sterile water is recommended to clean the pin sites using a cotton bud, three times per day.

The goals of washing the pin sites are to keep the pin sites free of debris and permit the drainage to easily flow to the outside. This will help to prevent infection and abscess formation. Patients can be taught to do their own pin care. The pin sites need to be checked daily for signs of infection.

- DO NOT TOUCH THE PIN SITES WITH YOUR HANDS
- DO NOT USE ANTIBIOTIC OINTMENT UNLESS DIRECTED TO DO SO BY YOUR DOCTOR OR ORTHOTIST

### Vest Care

We recommend passing a lightly moistened towel in a drying motion beneath the inside and outside portions of the vest daily. Do not allow vest liner to become absorbed with excessive amounts of liquid.

### Hygiene

DO NOT SHOWER WHILE WEARING BRACE. Wash under the liner with a slightly damp towel and then lightly dust with talcum powder. With the permission of the prescribing Doctor or Orthotist, a cotton "tank" type undershirt may be worn between the halo vest and the body. To fit the undershirt, cut the shoulder straps and slide the shirt over the legs and pull it up under the vest.

During your hospital stay, your Doctor and Orthotist will follow up pin torque and the vest fit as necessary.

### VERY IMPORTANT

After release from the hospital, continue to clean the pin sites. It is the responsibility of the patient to see the Doctor or Orthotist for a halo check every two weeks. Report any signs of loose pins or discomfort to your Doctor or Orthotist as soon as possible. The Doctor or Orthotist can recommend how to modify clothing to wear over the halo vest.

**WARNING:** Failure to follow the installation and use procedures set forth above may lead to structural failure of the component, subjecting the user to a risk of serious personal injury

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**CHRIS HANLEY & PARTNERS**

**4 Kilvey Road, Brackmills, Northampton NN4 7BQ**

**T: 01604 709999 F: 01604 700057**

**www.chaneco.co.uk**



## HALO SYSTEMS INSTRUCTIONS AND USER GUIDE



## Features

- MRI compatible
- Adult and paediatric sizes available
- Molded vest provides excellent stabilisation and optimum comfort for the patient
- The Lerman Low Profile Halo uses a unique combination of nylon and long fibreglass reinforcements along with carbon composite components. These materials give the halo its strength and low weight characteristics
- All connection sites have serrated interlocking discs providing unlimited adjustment, allowing for ease of application and reducing the bulky appearance associated with traditional halo systems
- The vest of the Low Profile Halo is adjustable utilising plastic straps and a thumbscrew guide. This results in a secure, well-fitting vest without hook and loop

## MRI Compatibility

The Low Profile Halo employs non-ferrous metals and composite material. This results in a halo which is non-ferromagnetic and non-electroconductive. Images obtained on a phantom and volunteer subject using conventional cervical spinal protocol have been approved as diagnostically acceptable by Frank G. Shellock Ph.D.1, a nationally renowned research scientist and an authority in MRI halo compatibility at Cedars Sinai Medical Center in Los Angeles, CA.

**WARNING: The Lerman Low Profile Halo is approved for MRI scanning, however, it is not acceptable to re-use this product. Re-used component parts may acquire non-MRI compatible foreign particles such as non-compliant parts, debris, dust and metal fillings or fibres.**

Frank G. Shellock is an Associate Professor of Radiological Sciences at the UCLA School of Medicine in Los Angeles, CA. He is also Co-Chairman of the MRI Safety and Biological Effects Committee, Society for Magnetic Resonance Imaging

## Cardiopulmonary Resuscitation

The Lerman Halo features a breakaway vest in order to perform CPR without removing the ring and superstructure. To perform CPR, follow these procedures:

1. The patient should be supine
2. Loosen and release plastic straps from thumbscrew guide on sides
3. On the anterior portion of the vest, locate the crease in the shell and fold back at the crease
4. Using the posterior portion of the vest as the crash board, perform CPR as necessary

## Application of Ring and Vest Ring

1. The proper position for the halo ring is on or below the equator of the skull and not touching the patient's ears. Pins should be placed 1cm superior and at the lateral  $\frac{2}{3}$  of the eyebrow. Placement of the pins at this location is crucial in order to avoid the supraorbital artery and the supratrochlear nerve. The ring should be approximately 1.5cm away from the skull all the way around.
2. While placing the halo in the proper position, use the spacers, or positioning pins, in the holes that will be intended for the skull pins. Finger-tighten positioning pins to maintain equal clearance between ring and skull.
3. While the halo ring is positioned, have the patient close their eyes while the Doctor or Orthotist injects local anaesthesia into the chosen pin sites.
4. Once the area is numb, apply sterile skull pins into the chosen holes. Ensure the patient's eyes are tightly closed in order to prevent tension on the eyebrows and eyelids once the halo application is complete. Finger tighten pins, two at a time, 180° apart from one another. DO NOT FORCE SKULL PINS. IF THERE IS RESISTANCE, THE PINS MAY BE CROSS THREADED. When satisfied with the halo position and the skin is not under tension, tighten the pins to 6-8 inch-pounds for adults or 4 inch-pounds (with 6 pins) for children.
5. Remove positioning pads and re-check torque on skull pins. Tighten all lock nuts.
6. Re-check and tighten pins approximately 24-48 hours post-application.

## Ring Attachment Clamp and Traction:

The pre-attached ring plate adaptor located on the horizontal double-ended (serrated) rod attaches to the serrated interlocking disk located on the side of the halo ring. By loosening the screws attached to the horizontal rod, anterior/posterior adjustment is easily done. Flexion/extension is directly achieved by changing the interfacing positions of the serrated disks in **5° increments**.

## Traction/Distracton can be achieved in two ways:

1. Use of the traction bail attached to the ring with vest and assembly applied later
2. Distracton via tube clamp uprights using Allen set screws to lock rod positioning in the tube clamps. Please note the rods are marked in equal increments in order to facilitate even distracton. Use both anterior and posterior set screws. A torque screwdriver with a ball-point Allen bit may be used to tighten the tube clamps. Tighten to 12 inch-pounds of torque.

**NOTE:** Once all final settings have been decided, all screws must be checked for secure tightness