

## Introduction - Cervical Orthoses (CO)

Several drawbacks to CO use have been noted, as follows :

- The soft-tissue structures around the neck (eg, blood vessels, esophagus, trachea) limit the application of aggressive external force.
- The high level of mobility at all segments of the cervical spine makes it difficult to restrict motion.
- Cervical orthoses offer no control for the head or thorax; therefore, motion restriction is minimal. <sup>5</sup> (Cervical orthoses serve as a kinesthetic reminder to limit neck movement.)

Appropriate precautions associated with orthotic use should be observed. It should be kept in mind that the long-term use of orthoses has been associated with decreased muscle function and dependency.

The soft collar (see below) is a common, lightweight orthotic device made of polyurethane foam rubber with a stockinette cover; Velcro closure straps are used for easy donning and doffing. Patients find the collar comfortable to wear, but it is easily soiled with long-term use. The average soft collar costs \$50.



Soft collar.

Indications for the use of a soft collar include the following benefits for the patient:

- Warmth
- Psychological comfort
- Head support when acute neck pain occurs
- Relief from minor muscle spasm associated with spondylolysis
- Relief from cervical strain

The soft collar provides some motion limitations for the patient, including the following:

- Full flexion and extension are limited by 5-15%.
- Full lateral bending is limited by 5-10%.
- Full rotation is limited by 10-17%.

Hard cervical collars are similar in shape to soft collars but are made of Plastizote, a rigid polyethylene material. Hard collars are ring-shaped with padding; some of these have an adjustable height, providing patients with a better fit. Velcro straps are used for easy donning and doffing. With regard to long-term use, hard collars, which cost approximately \$60, are more durable than soft collars.

Several problems can be alleviated with the use of a hard collar. Indications for the orthosis include the following:

- Head support when acute neck pain occurs
- Relief of minor muscle spasm associated with spondylosis
- Psychological comfort
- Interim stability and protection during halo application

Motion restrictions associated with the hard collar include the following:

- Full flexion and extension are limited by 20-25%.
- The hard collar is less effective in restricting rotation and lateral bending.
- It is better than a soft collar in motion restriction.

article reference: <http://emedicine.medscape.com/article/314921-overview>