Managing Neck Muscle Weakness

Based in large part on an article written by Pamela A. Cazzolli, R.N.

Some people with ALS develop muscle weakness of the neck. This may cause limited mobility of the head. Turning the head from side to side or holding the head upright may be difficult, as the neck supports the head, which weighs about 20 pounds. Limited head movement can contribute to a stiff neck, a poor head posture, and severe pain if these problems are not managed. In fact, neck muscle weakness can lead to a vicious cycle of limited head mobility and a stiff neck (resulting in pain and impairing head mobility ever further), causing more pain with emotional distress. Emotional stress can also compound muscle tightness and cause pain.

People with neck muscle weakness are vulnerable to injury. If the head suddenly flops backward, forward, or sideways, this can cause muscles and ligaments in the neck to tear. It can also cause serious injury to the cervical spinal cord or vertebrae in the neck. Such injuries maybe a result of “overstretching” due to a sudden excessive force that propels the neck forward, backward, or to one side or another. Hyperextension (backward) or hyperflexion (forward bending) injuries may be referred to as “whiplash.”

This can occur, for example, when a person is transferring in or out of a bed or a chair and the neck is jarred. For some people, even a slight jerk of the head can cause a torn muscle in a weak neck. Injuries to the neck can be very painful, especially when turning the head, raising and lowering into bed and rolling over when in a lying position. Besides causing pain and injury to the neck, poor head posture can aggravate breathing, swallowing and communication.

Through effective management of neck muscle weakness, complications of pain and injury can be prevented or treated. Finding the best methods for supporting the head in an upright position to protect against injury is essential.

Strategies

Strategies for improving the head posture and promoting head/neck mobility, comfort and safety include:

1. Achieve and maintain a good body alignment when sitting to promote an upright head position. Use of a cushion, pillow, or rolled towel behind the lumbar region of the low back not only helps to align a slumped posture, but will help keep the head and shoulders from slouching forward. If sitting in a high back chair, placing a rolled towel behind the neck also improves the head posture and helps prevent or alleviate discomfort in the neck. Placing a pillow under each arm or on top of each armrest of the chair helps promote an upright head position, and provides maximum comfort when sitting for a long time. Proper alignment of the head, neck, and body allows the lungs to expand for better breathing.

2. Wearing a soft collar or a neck brace, called a cervical collar, is an effective method of holding up the head if this is difficult. A collar supports the head when the person is walking or being transferred from one sitting position to another. To protect against injury from sudden motion, people with advanced neck weakness should wear a collar when they are moving or being transferred from one
Identify and use the appropriate cervical collar(s) that will best meet your needs. Most people with neck weakness are unable to tolerate wearing a collar all the time, especially one that can lead to skin breakdown and discomfort. A variety of comfortable collars are available. One of the most common is a soft foam collar. Although non-rigid collars provide comfort, they offer minimal support if neck weakness is advanced. One popular lightweight collar is the Headmaster Collar™ (Symmetric Designs Ltd., Salt Spring Island, BC). It is a low-profile cervical collar with a padded chin rest. The padded tubular design feels cool and comfortable, even in warm weather, and does not constrict the neck. Another collar to consider is the Miami J Cervical Collar™ (Jerome Medical, Moorestown, NJ). It offers good neck support with a breathable type of foam and is found to be comfortable by a number of collar wearers. Cervical collars can be obtained at most medical suppliers, and the cost is usually covered by health insurance if ordered by the physician.

Leaning back in a reclining chair is another method to support the head and to help keep the head from falling forward. This may include a reclining wheelchair with a high back or one on which a headrest can be attached. Power lift chairs also recline, and with a push of a button they can recline back exactly to the desired angle. People with excessive oral secretions might have difficulty reclining backward. To help prevent choking on oral secretions, the head can be positioned to the side and propped with a pillow.

Using a wheelchair head support system can position the head in an upright position by a band across the forehead that attaches to an adjustable headrest that mounts to a chair. Some head support systems include the use of an elastic band, such as the Dynamic Forehead Strap System (Whitmyer Biomechanix, Inc., Tallahassee, FL) that moves with the user for a greater degree of movement and comfort than is provided by conventional bands. Head support systems usually can be obtained from a medical supplier who specializes in wheelchair accessories. People who need maximum support in holding up the head and who cannot tolerate long term use of a cervical collar might benefit from intermittent use of a head support system.

When in bed, avoid sleeping on a pillow that is too high. This will not only strain the neck, but may cause wakefulness at night. A rolled towel placed underneath the back of the neck with the head resting on a low pillow can provide support and comfort of the neck and head when sleeping. In addition, people who have trouble keeping their head upright might try lying in bed a few times during the day to relieve the neck muscles.

Stretching exercises of the neck muscles can help promote mobility of the head, alleviate stiffness of the neck, and help prevent and treat neck pain. To avoid injury, evaluation and training of other exercises by a physical therapist or a visiting nurse may be warranted. Two exercises can be done safely:

- Slowly turn your head to the right as far as possible, hold, and return to the center. Do the same to the left.
- Tilt your head straight over towards the right ear, hold, and return it to the center. Do the same on the left side.
People who have unresolved neck pain or difficulty holding up their head should consult with their physician who may prescribe physical therapy for treating their problems. A physical therapist is specially trained to evaluate the neck, help relieve neck pain, make recommendations for supporting the neck and head, and provide education on reducing the risk of neck injuries. Some methods of treatment may include the use of moist heat, massage and exercises that stretch the neck to alleviate stiffness and to enhance mobility and comfort. Life should not have to be a “pain in the neck.”

Choosing a Neck Support for Patients with ALS

ALS patients usually wear neck supports only for specific activities (i.e. walking, reading, riding in a car or airplane, writing, or dressing). At other times, wheelchair head rests or high back chairs provide the needed head support. Neck supports should not be worn while eating. Neck supports that immobilize weakened neck muscles are usually rigid, uncomfortable, and may inhibit speech and swallowing. It may be difficult to find a collar that will meet all the needs of an individual patient and the type of support needed will change if weakness progresses. The therapist or physician will need to test the strength of the neck and upper body muscles to determine the degree and type of support required.

The patient should take an active role, with the help and advice from the medical team, in choosing the neck support that best meets their individual needs. Most patients prefer the least “restrictive” collar as possible, but one that will also provide adequate support. The proper amount of support, combined with appropriate seating, postural training, and exercise, can improve comfort, function, and independence for most ALS patients. Important questions to ask when selecting a collar include:

1. Does the collar provide adequate support?
2. Does the collar cause sweating or friction?
3. Does the collar cause a “choking” sensation?
4. Is it affordable?
5. Is it cosmetically acceptable?

The following is a listing of collars that have been successfully used for patients with ALS.
### Soft Collar

These collars are inexpensive and can be purchased from most medical supply companies. They are used when there is very mild neck weakness to prevent fatigue and strain. When significant neck weakness occurs, these collars are not adequate to support the weight of the head. Since they tightly encircle the neck, they may feel restrictive and uncomfortable and therefore, they usually are worn only for brief periods of time. Soft collars are available with or without a vinyl stabilizing panel and in various contours, foam densities (medium, firm) and heights (2", 3", 4", 4.5") to fit wide range of patient neck sizes.

### Headmaster Collar (Adjustable Wire Frame Cervical Collar)

This collar is lightweight, open, and is comfortable in warm climates. It is easily formed by hand to fit snugly under the chin. It is made of a specially tempered wire frame which is liberally padded with foam rubber covered in a soft, washable fabric and uses a velcro closure strap attached to cushioned back piece. It is very helpful for patients with weak neck extensors to prevent the head from falling forward. However, if weakness is present in rotation and/or lateral flexion (i.e. when shaking the head “no” or touching the ear to the shoulder), it will not be adequate and more support is needed. Symmetric Designs Ltd. Toll Free Phone (Canada & USA): 800-537-1724. Website: [http://www.symmetric-designs.com/](http://www.symmetric-designs.com/)

### Executive Collar

Similar in general design to the Headmaster Collar, this collar is made of a comfortable, lightweight Kydex frame and has an open neck design. An occipital pad (back piece) attached to hook ‘n pile strap can be positioned to fit any neck circumference. Available in small (4” height), medium (4½ height) and large (5” height) sizes. As with the Headmaster, it is very helpful for patients with weak neck extensors to prevent the head from falling forward. However, if weakness is present in rotation and/or lateral flexion (i.e. when shaking the head “no” or touching the ear to the shoulder), it will not be adequate and more support is needed.
| **Aspen Collar** | This collar (formerly called the Newport collar) encircles the neck, is somewhat open, and provides motion restriction without creating pressure points that lead to skin breakdown. It is extremely rigid, yet flexible at its edges to conform to each patient's anatomy. Pads & shells are removable and washable. This is the best style of collar for ALS patients who have neck weakness in both flexion and extension (up and down) as well as in lateral flexion and rotation (side to side). Aspen Medical Products, Inc. Toll Free Phone: 800-295-2776. Website: [http://www.aspencollar.com/](http://www.aspencollar.com/) |
| **Miami J Collar** | This collar is similar in style to the Aspen collar. Its polyethylene shell provides rigid support and immobilization. Contact pressure is evenly distributed, and all contact points are padded. Sorbatex padding absorbs and wicks moisture away from skin. Pads & shells are removable and washable. Jerome Medical. 305 Harper Drive, Moorestown, NJ 08057-3239. Toll Free Phone: (800) 257-8440. Website: [http://www.jeromemedical.com/](http://www.jeromemedical.com/) |
| **Philadelphia Collar** | Constructed from high-density polyethylene plastic this collar features removable Orthowick™ foam padding. The contoured back of this collar provides support at the back of the head. The front tends to restrict motion and confine the throat. If needed, an extension can be used for more support, but results in additional restriction. This collar is recommended when less restrictive collars are unable to provide enough support. Philadelphia Cervical Collar Company. Mid Atlantic Corporate Ctr, 1414 Metropolitan Ave, PO Box 566, Thorofare, NJ 08086. Toll Free Phone: 800-923-9760. Website: [http://www.phillycollar.com/](http://www.phillycollar.com/) |
## PRO-DFS Wheelchair Head Support System

The PRO-DFS system provides wheelchair mounted head support. It is especially designed to provide light anterior support for the individual who has difficulty keeping his/her head in an upright position. It uses a patented pulley system allows the forehead strap to actually move safely with the user. An assortment of strap styles are available. Whitmyer Biomechanix, Inc. 1833 Junwin Court, Tallahassee, FL 32308. Toll Free Phone: 877-944-8246. Website: [http://www.whitbio.com/](http://www.whitbio.com/)

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