



# Neck Problems and Referred Neck Pain

Excerpts of a study by Hugh Smythe, MD, University of Toronto

## Frequency and localization:

Lower neck problems are so common as lower back problems. Symptoms appear long before X-ray changes. By the age of 30, 30% of one population studied had had neck/shoulder/arm pain, but in 90% of these, the X-rays showed minimal or no changes. By 50, 50% showed X-ray changes. At 65, 90% showed damage. These changes are concentrated in the lower neck, exactly where we find the tenderness; which appears with the symptoms decades earlier.

What is so special about the human neck? Nothing; the problem is our human shoulder, propped high and to the side, by our long collar bone, and broad, flat rib cage, that permits our great versatility of totally free upper limb function as we can swing our arms through 360°. **(Figure 2)** During the day we can do all sorts of things that other animals cannot. But during the night; we cannot sleep on our stomach or side without stressing our neck. Imagine the very marked twisting and crushing forces in your shoulder if someone put your hand behind your back, and pulled up and out. This is what happens in your lower neck during sleep.

Effective treatment requires reliable support for the lower neck all night every night. This can only be learned intellectually, because the key site will remain unfelt, and the brain will continue to receive messages that the problems lie elsewhere. The therapist must make the correct diagnosis and give the correct advice clearly, as it is necessary for the patient to persist with effective support to prevent recurrences.

## The C6/C7-Syndrome

Some patients find neck support strategies comfortable, so they use them faithfully, but continue to have upper body symptoms. The pattern may be changed, with a lower distribution of pain, about or between the shoulder blades in the back, or beside or below the breast area in front. If there is numbness in the hand, it is more likely to affect the long, ring and little fingers, and less likely to affect the thumb and index finger. But symptoms remain, so the treatment result is disappointing.

The therapist may be puzzled too, because the previous tenderness at the 5-6 level will have disappeared, and referred tenderness in the shoulder muscles, upper ribs, and outer elbow, will also have gone. Further examination will show a new pattern of tender sites; none on the medically standard list of sites to be examined in patients with chronic pain syndromes. The inner elbow will be much more tender than the outer elbow, and marked tenderness may be found at the site of the heart beat, or behind the outer breast (among other sites.) The mystery is solved by the finding of very noticeable tenderness even lower in the neck, at the C 6-7 level. This level is not being adequately supported. Two fingers can be inserted between the neck support ridge and the collar bone. The solution is to make sure that the very lowest levels get the needed support, by curling the head forward and angling the neck support ridge as shown in the right drawing in **Figure 4**.

## The Biomechanics of Cervical Strain

Understanding the location and nature of the forces acting on the lower neck is essential in determining the treatment. The concentration of damage in the lower neck and the lower back are uniquely human problems. We are highly vulnerable in these two sites, contrary to other species, and this is related to our uniquely human anatomy.

**Figure 3:** shows how difficult it is to support the key site, in the lower neck, because of the raised lower shoulder. When we lie on our side, we change our shape to adapt to the flat surface of the bed, by allowing the lower shoulder to rise upwards, to the level of the chin or higher. Instinctively we pull our pillow under our neck, but the shoulder blocks the support at the jaw level.

## Reliable Neck Support

After discussing the problems; it was indicated that the solution is to deliver reliable support to the sagging bones in the lower neck.

To support the tender, vulnerable site in the front of the low neck, the neck Support ridge and the neck must both be angled forward, but with the chin high and free from pressure. Because the patient is unaware of the key site, they must be carefully instructed. If you can get a finger between the neck support ridge and the Inner collar bone, the support is not being delivered low enough! **(Figure 4)**

It seems natural for the patient to place the pillow with the neck support ridge straight across, or nearly so, as in **(Figure 5)**. The gap between the support ridge and the inner collar bones means that support is not reaching the lower neck, and there may be upward pressure on the chin.

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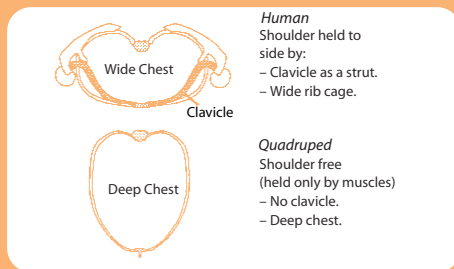
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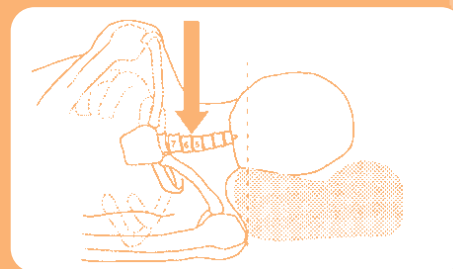
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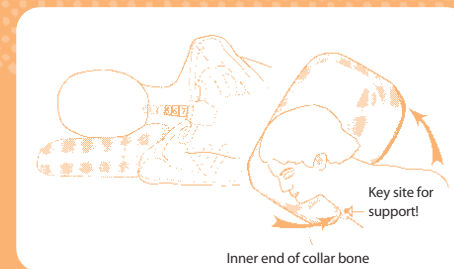
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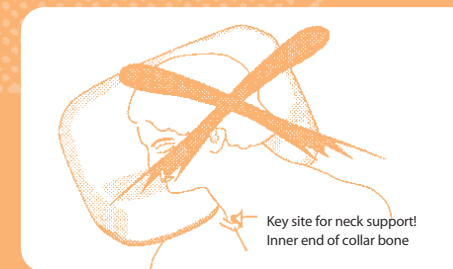
**Figure 2:** Evolutionary changes in the shape of the rib cage, and the development of the clavicle which strut the human shoulder high and to the side.



**Figure 3:** Problems in the lower neck during sleep. The ribs, and bones of the shoulders support the chest part of the spine. The bones of the lower neck are unsupported, and sag until ligaments tighten, then they lock and twist.



**Figure 4:** Correct use of neck support pillow. It is hard to deliver support to C6 and C7 levels, very low in the neck. The neck support ridge must slope quite steeply, under the ear in back, and low against the inner collar bone in front. The neck is angled forward, with the chin above the neck support ridge.



**Figure 5:** Wrong use of neck support pillow!

Hugh Smythe, MD  
Director, Rheumatology Program,  
Wellesley Hospital,  
University of Toronto,  
Toronto, Canada, M4Y1J3



# The SISSEL® Neck Pillow



## The Original Orthopedic Swedish Neck Pillow



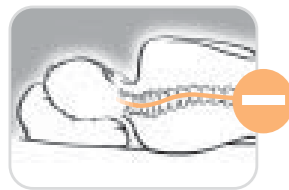
# Do not burden your unstable fragile shoulder with your neck!

## For more relaxed and healthier sleep

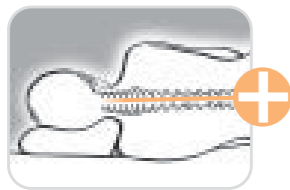
It is scientifically well established that: **Headaches and neck pain do not only surround the neck area but pain may be referred all along the arm and the fingers, leading to stiffness, tiredness, and restlessness in the morning.**

That is more common in older individuals; however younger people are affected by it. Can the pain disappear overnight despite sufficient sleep? No, because a conventional pillow puts the neck in a sagging position overstressing the cervical muscles. Therefore causing misalignment of the cervical vertebrae, resulting in nerve entrapment and consequently pain and discomfort.

**SISSEL Neck Pillow can give you a peaceful sleep and the comfort your neck really needs.**

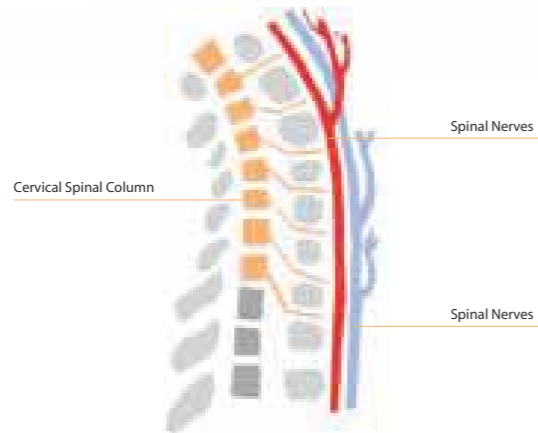


With a conventional pillow, the back of the neck is insufficiently supported. The neck pains are not relieved.



With SISSEL Neck Pillow the back of the neck is equally supported in all positions.

## Muscles, vertebrae, nerves are soothingly relaxed during sleep



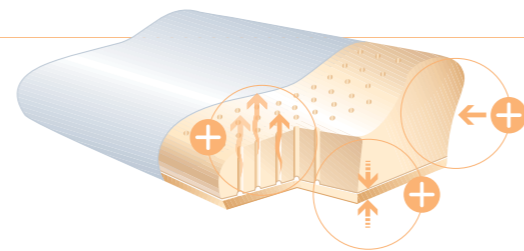
The adult individual has seven cervical vertebrae in the neck region, through which, nerves and blood vessels pass. The vertebrae are supported by the neck muscles which in turn are responsible for carrying and moving the head smoothly during the day.

During the night, it is important that neck and the cervical spine are in a natural, unobstructed position so that restful sleep is achievable no matter in which position you sleep.

**The anatomically correct shape of the clinically tested SISSEL Neck Pillows perfectly carry your neck and cervical spine in the correct posture, ensuring incomparable relaxed and comfortable sleep.**

## The SISSEL Neck Pillow integrated versatility

Neck pain can distress and agonise individuals of different ages. All SISSEL® orthopedic pillows feature substantial support to the back of your neck and the lower cervical spinal column. As a result your entire shoulder and neck region is well supported. Due to its unique angle the pillow glides between shoulder and cervical spinal column and fills the space between, which gently leads the spinal column into the anatomically correct position. A slightly stretching effect on neck and spinal column might make the change feel unusual at first. Your body will require a little time (2 to 14 nights) to get used to a healthy natural sleep. The unique edge of SISSEL® Orthopedic Pillows guarantees ideal support of your shoulder when a lateral position, thus relieving vertebrae and intervertebral discs. A further versatility plus: By inserting or removing of the Vario-pad the pillows can be adapted yet more precisely to the individual's needs as in the SISSEL® plus and SISSEL® Deluxe.



## The natural approach of SISSEL Neck Pillow

**Aleviates tension headaches and, promote neck and shoulder stability. For your best possible sleep and optimal comfort, we tailored SISSEL Neck Pillow out of different materials. You have the choice!**

- Pillows made of Polyurethane foam offer a very good balance between softness and stability. The foam material is elastic, tough, hygienic and odourless.
- Pillow made of the special Viscoelastic active-breathing foam material that was originally developed for space travel. This highly valued material perfectly moulds to your neck forming a soft but stable support, ensuring an optimal pressure distribution.
- The SISSEL® neck pillows are allergy tested, antistatic, and free of CFHC or any toxic substances.
- The SISSEL® neck pillow can be entirely compressed yet regains its original form shortly after. It comes with two years warranty on shape retention
- The pillow covers are easily removable and washable. Also normal covers can be used.
- ALL SISSEL® Neck Pillows are developed in Sweden and numerous hospitals in Sweden are equipped therewith.



## Neck problems and referred neck pain

Excerpts of a study by Hugh Smythe, MD, University of Toronto

**Pain arising in the neck is common, but often misdiagnosed because the symptoms are felt somewhere else. The pain that arises deep in your spine is referred, so that the brain is given wrong information about the site of injury. Twisting and crushing forces in the lower neck are the cause, and repeated injury, especially during sleep, delays recovery. Other factors may increase the severity of the pain, such as poor sleep, and loss of fitness.**

### The Vicious Cycles

If the neck is stressed during sleep, causing pain, then sleep may be nonrestorative, so that the patient wakes up tired and achy and consequently reluctant to or unable to do fitness activities, and rapidly becomes physically unfit which gradually increases sensitivity to pain, and depletes energy.

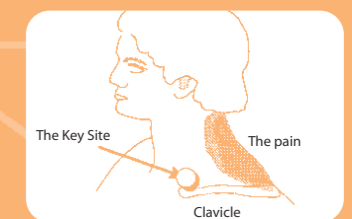
A complete treatment program will begin by correcting the mechanical problem in the neck (and low back, if involved) but must be completed by a properly graded but persistent program to return to a high level of physical fitness. Only then will there be a restoration of energy, better sleep, and a higher pain threshold.

### Referred pain

You can summon up an image of your index finger, because it is richly represented in your brain, and forms part of the "body image", that you are programmed to learn from birth. But deep structures, such as bones of the spine, are not represented in the conscious brain, and cannot be pictured in your imagination. When pain arises deeply, it must be referred; that is misrepresented as arising in some other structure that is represented in the "body image".

**Figure 1** shows the most common pain described by patients with a neck (cervical) problem; at the side and back. If one suggests that upper body pain has its origin in the neck, patients will accept this possibility. But if asked where in the neck, they will point to the side and back, where they feel the pain. But the massaging of this area "feels good". It hurts to massage a broken bone, if this characteristic, was relieved with massage, which indicates the pain is referred from elsewhere. On examination, extreme tenderness, unsuspected by the patient, is found in the vertebral bodies in the front of the lower neck. This is the first reason why we have called this the key site.

The patient may believe that anyone would be tender with this examination. But the tenderness is very real. Because it is unsuspected by the patient, it can be measured objectively, and compared to tenderness elsewhere, and in other individuals.



**Figure 1.** Referred pain in the cervical syndrome. The key site, The area of damage and tenderness deep in the front of the lower neck, from which the pain arises, is almost always free of local symptoms. This site lies just above the inner end of the clavicle (collar bone).