

ERGONOMICS OF SLEEP POSITION

SLEEP SMART

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Start with the *Sleep Position Rules Summary* and keep at it until you “own” your sleep position. Review the *Twelve Keys toward Safe and Efficient Sleep Position* for additional tips.

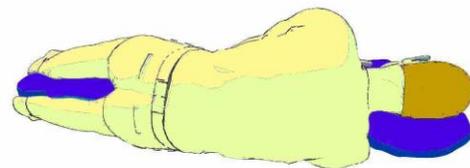
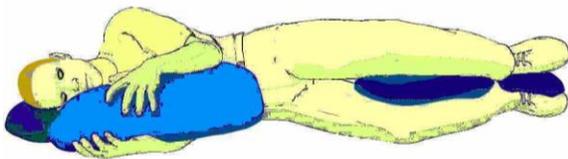
SLEEP POSITION RULES: SUMMARY

Keep separate support under head (contour pillow or bolster), never under shoulder. Hug a pillow (one arm over, one under).

SIDE SLEEPING

The arms are in front of the torso above and below a pillow. **NEVER** let the arms over the head. Keep the upper arm supported from dropping across the body and pulling on the shoulder muscles.

Use a squared-off, contour-like pillow only under the head that supports the neck and cradles the face, ear and head. It may cover the eyes or face with another soft cloth.



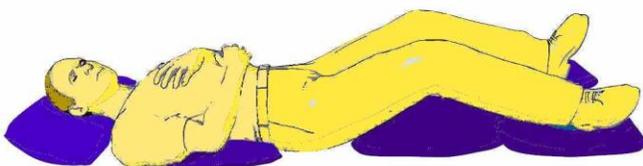
CORRECT SIDE SLEEPING

Always keep elbows (and arms) below the neck/ head pillow(s) between the knees.

Head support pillow or bolster shoulder high and only under head and neck

BACK SLEEPING

NEVER let the arms over the head, or flat at sides. The elbow height must be elevated higher than the back, along the sides, to mid-chest level during back sleeping. Keep the elbows below the chin. Keep hands on the chest-stomach or hugging a pillow.



CORRECT BACK SLEEPING

PILLOW AND PILLOW HEIGHT FOR BACK SLEEPING is usually different from that for side sleeping.

The pillow needs to:

- Prevent (cradle) the head from rolling or twisting;
- Support under the neck;
- Gently support the back of the head (above and behind the ears); and
- Sometimes support the upper shoulders (depending upon the sleeper's anatomy) forward curved upper back.

TABLE 2	
SLEEP POSITION RULES: STOMACH, BACK AND/OR SIDE	
STOMACH	
NEVER ever sleep on the STOMACH! To break stomach sleeping:	
<ul style="list-style-type: none"> • Keep chest and shoulders warm with a light sweatshirt all night. Do not rely on the covers. • Use a soft separate coverlet to shield the face and eyes. 	
ALWAYS sleep on your SIDE or BACK.	
SIDE	
ALWAYS place a support pillow under the head. Never pull under the shoulder. (Pillow supports the head mid-shoulder high. Never kink the neck. A squared-off or contour pillow is usually best.)	
Support the upper arm and forearm on a pillow or cushion, when sleeping on the side.	
NEVER place arms under or above the head. Elbows must remain below chin-level and must be supported up off the mattress.	
Position pillows or bolsters under the knees/legs and/or between the knees.	
Position bolsters under the elbows. If sleeping on your back, keep hands on the chest and/or stomach, never overhead and not flat at sides.	
Sleep in "sleep-bites." Wake up when changing position and get into best position for optimal comfort.	
BOTH	
Keep your shoulders and neck warm, independent of the bed covers. Wear a loose, comfortable sweatshirt or other clothing above the waist. Different pillow heights for SIDE and BACK positions. Support the neck, cradle the head.	

TWELVE KEYS TOWARD SAFE AND EFFICIENT SLEEP POSITION

1. NEVER SLEEP ON THE STOMACH!

2. PROPER SLEEP POSITIONS ARE ON THE SIDE OR ON THE BACK.

- **ALWAYS** with use of a properly-sized, contoured pillow to cradle the head and with attention to arm and shoulder position.
- Sleeping in a recliner is also okay with attention to similar head and arm-shoulder positions.



Figure 5-13. Relaxed postures assumed under water (with permission from Lehmann, 1962).

3. WHEN SLEEPING ON THE SIDE: KEEP THE SPINE STRAIGHT AND UNTWISTED.

- **NEVER** pull a pillow under the shoulder.
- **ALWAYS** use a pillow which cradles the head and cannot be pulled under the shoulder.
- **ALWAYS** have the chin and nose straight forward.
- **ALWAYS** keep the neck and head straight-aligned with the rest of the spine.
- Use a pillow between the knees, under the side or hips as indicated.
- Have a soft enough bed for the down-shoulder to be comfortable.
- Wrap the arms around a large pillow.
- **ALWAYS** keep the elbows lower than the chin.
- **NEVER** put the arms overhead.

4. WHEN SLEEPING ON THE BACK: KEEP THE SPINE STRAIGHT AND UNTWISTED.

- **ALWAYS** keep pillows or cushions under the knees and lower legs.
- **ALWAYS** support the elbows with cushions (or small pillows) so they don't drop to the bed level.
- **NEVER** put arms overhead.
- Use a pillow that cradles the head (higher under the neck than the back of the head).
- **NEVER** kink the head to one side.

5. USE A MULTITUDE OF PILLOWS AND BOLSTERS TO TRAIN AND TO MAINTAIN EFFECTIVE SLEEPING POSITION

- Three to four pillows below the waist will make it harder to turn to the stomach and will provide pillows for under or between the knees and legs.
- Head pillows must be nearly impossible to pull under the shoulder (i.e., squared off foam pillow or bolster with a soft topper if comfortable).
- The head pillow should be at a comfortable, relaxed level under the head. It must support the head and neck, discourage the neck from side-twisting, and should keep the weight of the head from putting excessive weight strain on the down shoulder.

6. CONTROL SLEEP BREATHING ALLERGIES (SNIFFING, COUGHING)

- This will improve the quality and efficiency of sleep and keep air passages open (eases breathing and decreases noise-making).
- All mattresses, pillows and carpets harbor allergens (dust mites, cockroach dust, molds, pet dander). Decrease the allergens.
- Use appropriate anti-allergy medicines (non-sedating antihistamines and nasal – topical steroids). Any sniffing or coughing is too much.
- Clean bedding (in hot 130 degree water) allergy bag all pillows and mattresses.

7. USE SLEEP TIME SHOULD BE RECOVERY AND RECHARGING TIME.

- Ergonomic (behavior, position, habit) injuries are aggravated or caused by sleep position than any other single activity.

8. PROTECT THE NECK MUSCLES FROM TIGHTNESS, STRAIN AND NERVE PINCHING BY AWARENESS OF SLEEP POSITION.

When changing positions:

- Wake-up, access current position, and elect new position.
- Move into new position, set pillows and cushions.
- Go back to sleep.

9. ALWAYS WARMLY CLOTHE THE NECK, SHOULDERS AND UPPER CHEST SO THAT THEY ARE WARM WITHOUT NEED FOR COVERS.

10. GAIN CONTROL AND STAY IN CONTROL OF YOUR SLEEPING POSITIONS. The body will only change sleep habits if forced by persistence. (It must become easier to keep proper position than not to.)

- Learn the restful, non-injurious sleep positions.
- Sleep in "sleep-bites": awaken and control repositioning for more efficient sleep.
- Enforce the positions with cushions and/or pillows.
- If a person can modify and/or contain a teen's activities or an animal's activities then (s)he is capable of controlling his/her own sleep position.
- If one notes pain or numbness at night or wakes up stiff or sore (s)he does not control a proper sleep position.
- Sleep is for recovery and rest.
- The body will only maintain restorative sleep positions with persistent attention.

11. CAREFULLY CHOOSE BED AND MATTRESS

- More time is spent in bed than in any other single place (>45 hours/week).
- Hard or firm doesn't mean better, pressure points must be avoided.
- More expensive does not mean better.
- Individualize, and don't be afraid to test and change.
- There is no single "best." It must be individualized to each person.
- Consider "soft, but supportive."

12. GAIN AWARENESS OF OTHER CAUSES FOR HIP AND BACK PAIN

Before changing a platform for hip pain, do all of the following:

- Control sleep position and nest.
- Remove wallet from the back pocket.
- Get and wear fitting arch supports.
- Balance leg lengths and sitting hemi-pelvis heights.
- Stop driving the stick-shift.
- (See [Back Pain Puzzle](#) on the web site.)

ADDITIONAL SLEEP POSITION CONSIDERATIONS

EYES

Eye abrasions and pterygium can be caused from stomach sleeping with the face in the pillow.

Placing the hand under the eye with pressure causes floaters (detached vitreous debris); blurring (loss of pressure) in the mornings; optic nerve injury from prolonged pressure; tics from trauma to the infraorbital, supraorbital and lateral orbital nerves.

FROZEN SHOULDER: SUDDEN-ONSET OR EPISODIC

Frozen shoulder is from stomach sleeping or arms overhead sleeping or unsupported upper arm with side sleeping can cause stretch or shortening of the infraspinatus muscle.

TMJ

Idiopathic (unknown onset = 85+%). TMJ is most frequently caused or aggravated by upward jaw torque (displacement) due to stomach sleeping (this cause is also not suspected or reported).

THORACIC SPINE, CHEST CAGE, CHEST WALL PAIN

Twisted chest-pelvis, usually side-twisted down is a powerful cause and and aggravator of thoracic vertebral facet and costochondral (Tietze's) dysfunction/disease. It is a major precursor and frequent trigger of thoracic facet dysfunction. The usual cause of non-cardiac chest pain (usually happens on the body's 'long side'). This is also a result of prolonged sitting with balancing the short hemipelvis and prolonged standing/walking without balancing functional leg-length discrepancies of >1-2 mm. Sleeping twisted or badly extended aggravates the thoracic spine joints nightly and the arthritic spur markers frequently confirm the damage on x-rays.

ARM NUMBNESS, CTS – DOUBLE CRUSH

Numbness, tingling, radiculitis of the shoulders, arms and hands comes from and are aggravated by sleeping with the neck kinked by side sleeping with the pillow under the shoulder; arm overhead sleeping; stomach sleeping with the head turned; arm pulled way back with back sleeping and arms flat; or with arms overhead with back sleeping; scalenius anticus syndrome and costoclavicular syndrome (see [Shoulder Neck Strain Syndrome](#)).

CERVICAL ARTHRITIS, SPURS, DDD

Cause is side chest-twisted down sleeping with neck twisted hard to breather with badly torqued (twisted vertebral bodies. This weakens the capsule and causes facet arthrosis (spondylosis) degenerative discs, which is also a major cause of lumbar facet and disc injury.

HEADACHE

Twisting of the neck muscles, particularly the SCM and the levator scapulae muscles by twisted neck and arm overhead sleeping with pinching of the cervical plexus between the scalenes at night are the most common night-time triggers for headache, especially migraines.

BACK PAIN, GROIN PAIN, AND LEG WEAKNESS

Ilio-psoas strain with groin, testicle or labial pain, temporary leg paralysis, numbness of the lateral thigh (meralgia paresthetica) is from sleeping with the knees bent up to the chest, especially stomach sleeping with shortening of the I-P muscle and entrapment of nerves in the groin area. (See [Ilio-psoas](#) and [Back Pain Puzzle](#) on the web site).

This back pain is long acting yet very fixable. For this to get better, the leg on the effected side must be mostly straight at the knee through the night.

LUMBAR SPINE

While twisted chest to pelvis also torques the lumbar spine as well as the thoracic and cervical. The more powerful influences on acute back spasm, facet arthropathy, is the L5-S1 long-body-side vulnerability to acute facet rubbing. This vulnerability is due to years of gradual height loss from compression with prolonged sitting and unbalanced standing. It is just a matter of balance and torque pressures.

This is very different from the usual muscular chronic back pain (90%) from psoas muscle spasm. Recovery position for the facet spasm when triggered is on the back with a small pillow under the buttock causing some pelvic upward tilt along with pillows under the knees and ankles.

THREE COMMON PAIN CONDITIONS WORSENERD AND/OR CAUSED BY SLEEP POSITION

1. BACK STRAIN

- Stomach sleeping:
 - Hyper-extension causes back muscle bunching with cramping.
Remedy: never sleep on the stomach.
- Flat back sleeping:
 - Mild sway in back leads to back pain and spasm.
Remedy: keep pillows and cushions under the knees and lower legs,
- Side sleeping:
 - Twisting in the upper, mid and lower back can cause spasm and pain.
Remedy: limit twisting by placement of pillow between the legs



2. TINGLING, NUMBNESS AND PAIN OF THE NECK, SHOULDER, ARM AND/OR HAND

- Stomach sleeping:
 - The chin is turned toward one or the other shoulder, kinking nerves in the neck. This causes numbness, tingling and pain in the neck, shoulder, arm and hand. It may also cause shoulder damage.
Remedy: never sleep on the stomach.
- Back sleeping:
 - Numbness and pain occur when the arms are flat by the sides. (Nerves are pinched where they run under the collar bone at the base of the neck causing shoulder and arm pain, and numbness in the small and ring fingers.)
Remedy: place cushions under the elbows.
 - Numbness and pain occur when the arms are put over the head. (Nerves in the neck and shoulders are twisted between muscles and stretched and/or pinched under the chest to shoulder muscles causing numb arms and hands, especially the thumb and index fingers.) This is called scalenus anticus syndrome. It is

called costoclavicular syndrome when the nerves are trapped between the clavicle and the first rib when the shoulders are braced back against the bed.

Remedy: Use of cushions under the elbows during back sleeping, otherwise the arms will wind up overhead.

- Numbness and pain occur when the chin is turned side and down toward one shoulder or another. (This causes twisting of neck muscles, which pinch the nerves to the shoulder, arm and hand, causing numbness and pain. May also include numbness and pain in the thumb and index finger).

Remedy: use a contoured pillow with neck support. If necessary use one with an oval depression for the head. Don't twist the neck.

- Side sleeping:

- When the pillow is pulled under the shoulder or no pillow is used, the nerves in the side and/or front of the neck are twisted (bruised, deprived of blood supply) resulting in tingling, numbness and pain particularly in the shoulder, arm and the hand, especially the thumb side.

Remedy: get and use a pillow which supports (cradles) the head and the neck so that the upper spine and neck are in a straight line, and the nose and chin look directly forward without twisting.

- When the pillow or head support is too high, the nerves are kinked on the up side of the neck. **Remedy:** Same as above.

3. SHOULDER JOINT PAIN AND DAMAGE

- Stomach sleeping:

- This is probably the most common cause of shoulder joint damage. (Trauma damage or repeated overhead misuse injury is obvious when it occurs.) Sleep-position damage is silent and may be severely debilitating. (The cause is stretching of the arm backward, against or out of the joint during the night while the protective muscles are all relaxed.)

Remedy: no stomach sleeping.

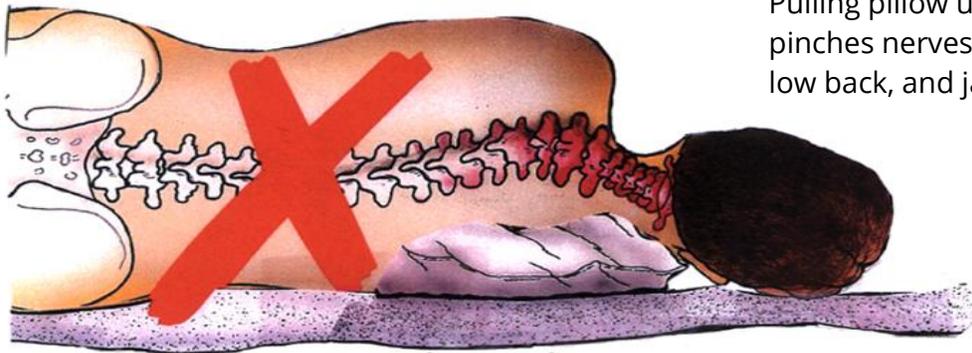
- Back sleeping

- If the elbows are allowed to drop to the bed, the shoulder joints are turned outward and the arms fall back toward the bed stretching-straining the joint capsules out of the safe neutral position and causing gradual, nightly joint capsule damage.

Remedy: place cushions under the elbows

- Shoulder pain occurs with the arms pulled overhead. Usually this causes numbness, which makes the person change position the shoulders in front.
Remedy: place cushions under the elbows. This allows the arms to comfortably relax on the chest which prevents overhead movement. If this doesn't work, place pillows above the head and the shoulders to make it uncomfortable to keep the arms in that place.
- It also may occur in an adult who supports a spouse's or child's head on the shoulder for more than several minutes while relaxed lying on the back.
Remedy: keep the support arm on to a cushion or pillow. Don't support another's head and neck weight on the shoulder or chest.
- Side sleeping
 - The arm underneath is pushed up under the head or the pillow and the shoulder capsule is strained causing micro-trauma and tears nightly in the shoulder capsule.
Remedy: use a contoured head-neck pillow to keep the neck neutral.
 - The upper arm pulls down across the chest. This is usually only a problem if there has been a previous yank-strain like a fall-catch strain of the involved shoulder.
Remedy: hug a large pillow in order to keep the arm up and out from the body. Preferably, keep the lower arm in front of the body around the hug pillow.

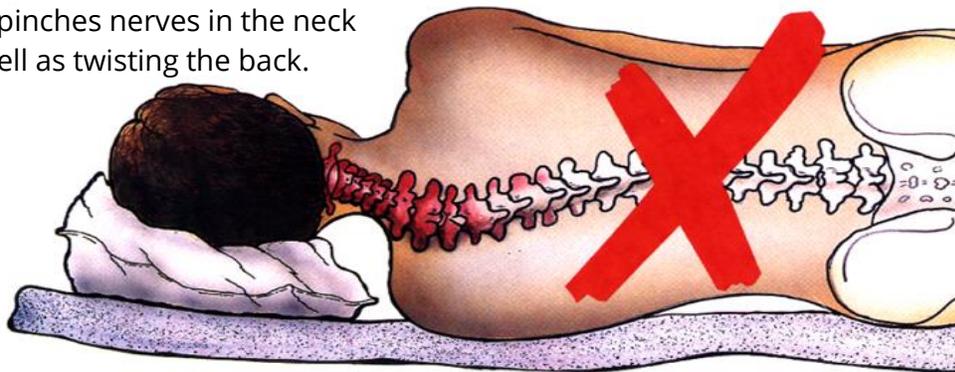
PILLOW POSITIONING



Pulling pillow under the shoulder pinches nerves to the arm, twists the low back, and jams the shoulder joint.

Incorrect

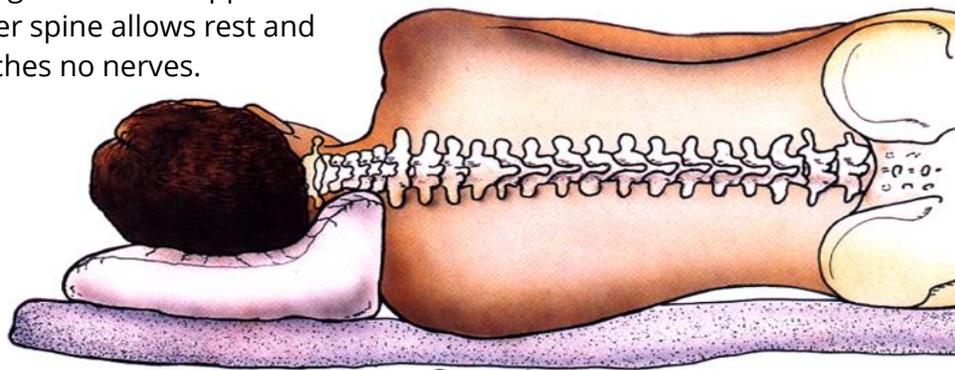
High pillow twists the neck up and pinches nerves in the neck as well as twisting the back.



Incorrect

Make sure the mattress or foam are thick and soft enough to allow the shoulder and hip bones to sink in without twisting the shoulders or hips.

Straight neck and upper and lower spine allows rest and pinches no nerves.



Correct

Placing a soft pillow onto a hard, squared-off cushion will also accomplish the task, especially for those with broad shoulders.

OR: Make your own cervical pillow. Use a regular pillow case with a small soft pillow inside and a rolled terry cloth towel or foam cylinder (round cervical pillow on the side pulled under the neck).

I prefer buckwheat hull pillows emptied into larger zippered polyester or cotton pillow protectors. The buckwheat hull pillows need modification under head, and on both sides of the sleeper. More conventional pillows are okay for under and between the legs, knees and ankles.

WHY CORRECT SLEEP POSITION?

Many injuries, significant predispositions to injury and causations of background and chronic pain are directly related to specific common sleep positions.

SLEEP POSITION INJURIES:

Twisted or bent sleeping position is a potential harmful stress many muscle and nerve structures (neuro-muscular) and tendon, fascia, ligamentous structures (fascial). Persistence of twisted and/or bent postures (as in twisted sleep) results in background or overtly apparent damage in a large portion of the population.

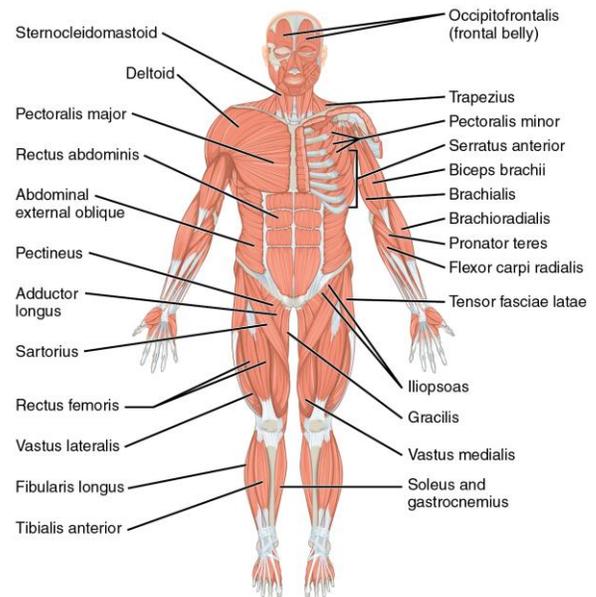
Over time these twisted posture induce persistent background damage with pain (neuro-myo-fascial pain). Deep and persistent ischemic muscle spasm (such as nightly) results in persistent, long-standing knots within muscles that may act as a nidus for pain, and dysfunction as well as a triggers for neurogenic pain cascades such as headache syndromes, tics, cramping, syncope and arrhythmias. (The onset, intensity or persistence of these pains and dysfunctions may be bypassed or diminished by persistent daily, daytime active loosening and release with recovery.)

Unfortunately, twisted body sleep positions are the most frequently, and usually unidentified causes of or contributors to the vast majority neuro-myo-fascial stresses. These stressed cause pain syndromes as well as directly traumatize t other body structures such as joints, bones, cartilage, tendons, eye orbit, bladder, etc. Over time, this results in degenerative changes, calcium deposits and spurs (calcium deposition is the body's glue reaction to inflammation), torn cartilages (knee, shoulder), tendon sheath ruptures (ganglions).

TWISTED BODY SLEEP POSITIONS CAUSE:

Bunching muscles:

- During the night muscles become bunched up after a day of usage, and tend to spasm up into large and small knotted spasm areas ("Charlie horses"). This is much worse with time as the small nerve supply and capillary blood supply cannot function due to the pressure.
- This leaves the muscles injured, spastic and sore in the morning. These also fatigued much more rapidly when in use. Muscle fiber groups stay in repeated or perpetual spasms.



Major muscles of the body.
Right side: superficial; left side: deep (anterior view)

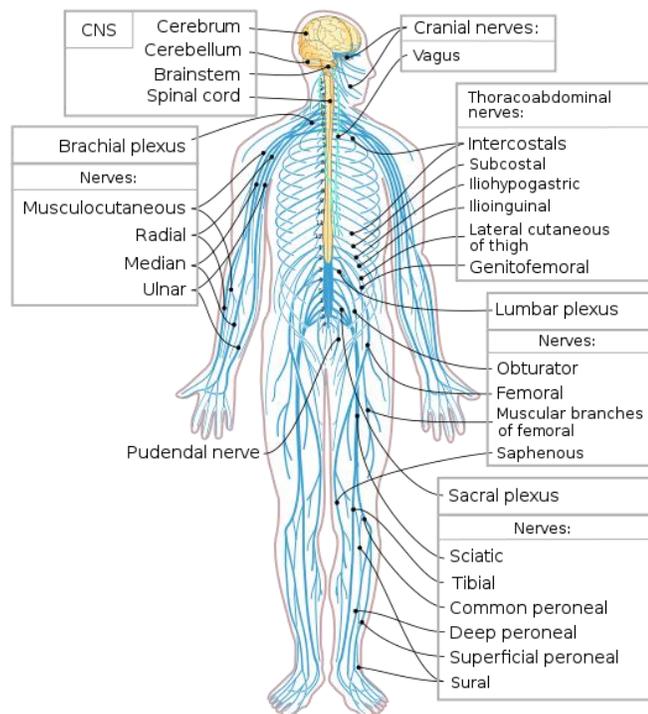
Small muscle areas only get circulation (fresh oxygen and removal of lactic acid and other products) during release of contractions. Spasm or sustained contraction results in lack of oxygen (ischemia) and progressive damage (fibrosis and weakened tissues) and accompanying pain.

Overstretching muscles:

- Muscles stored in an over-stretched position for a prolonged period of time during the night, similarly cause structural and vascular injury to the muscle fibers and their nerves. This is much worse with time as the small nerve supply and capillary blood supply cannot function due to the pressure. These muscle fibers respond by becoming spastic and hypersensitive. They fatigue easily and often forming areas of marked knotting or tangled messes, spastic cramping spontaneously (i.e., infraspinatus) when they are fatigued (i.e., sternocleidomastoid, pterygoid, occipitofrontalis).
- It is probable that the reason the prolonged spasm occurs in the day after the storage was done so poorly at night, is that during a visit latent “the Titan spastic state” of the shortened muscles, or the “overstretched state” of the hyperextended muscle, both cause decreased blood supply to the muscles or within the muscles by the very tiny arterioles and capillaries that supply the muscle fibers. Therefore, in either state, the muscles become hypoxic at night and injured. They are therefore much more vulnerable to spasm and injury as well as fatigue later in the day. These are particularly vulnerable muscles.

Pinching Nerves:

- Nerve structures are easily pinched-off wherever tissues in a joint or a muscle grouping is twisted over their passage. The nerves to the arms run between the scalene muscles, under the pectoral and through the pronator, triceps and supinator muscles. Those to the lower extremities run within the psoas muscle and then through a kinked passage in the inguinal area.



- Nerves act like small and very fragile hoses. They are conduits of liquid electricity and can easily be pinched off, injured and swollen, or have their blood supply temporarily impaired. Pinched nerves swell and inflame and have occlusion to natural body electrical flow. They sustained damage that persists into the next day and often for many days – even weeks or months.
 - **Sensory nerves:** A pinched sensory nerve response varies from numbness, to decreased sensitivity, hypersensitivity, tingling, or burning.
 - **Motor nerves:** A motor nerve is a bit more resistant to the pinching than the sensory nerves. These nerves are thicker and are coated (myelinated). He pinched my own native motor of responds with decreased response, easy fatigue ability, paralysis, or transitory weakness.
 - **Combined nerves:** In combined nerves. Such as the median nerve within the carpal tunnel, the sensory is the earlier and more vulnerable to pressure. That is why pain usually comes and is felt before weakness.
- For a nerve to register damage in nerve conduction studies, it has to sustain permanent damage (areas of death). A positive study does not reflect subjective pain, only failure (death) of conduction tissue.
- Muscle and ligamentous injuries occur with prolonged ischemic insult from over stretching or bunching up with sustained contracture or twisting contracture.

Where are the most common areas that nerves and nerve bundles are damaged by prolonged entrapment between hard spastic muscle groups or between moving bone and joint structures?

The common areas for nerve and nerve bundles damaged by prolonged entrapment:

1. The sides of the neck with twisting, particularly between the scalenes.
2. The muscles connecting to the base of the skull and behind the ears.
3. The area between the neck and the thorax and into and below the shoulder area where both muscles and nerves suffer prolonged distortion.
4. The shoulder joints and shoulder girdle, scapular, muscles and structures.
5. The thorax: particularly the junctions of the ribs with the nerves running below them.
6. The bilateral inguinal and groin areas: particularly the nerves to the lower extremities to include the lateral, anterior and inner thighs and the inside of the legs down to the ankle and foot; also the nerves to the pubis, crotch and genital areas.
7. The muscles spastic deep in the mid back to pelvis and hip, with hip pain and weakness of the thigh muscles and associated leg weakness and knee buckling. Often the weakness and tingling is perceived as a temporary leg paralysis (monoparesis).
8. The knees and below: particularly when deep flexed in fetal position pinch the nerves to the feet, particularly dimming sensation to between the large and second toe and weakening the muscles that flex the foot up, causing drop-foot and ankle sprains. The internal knee joint is injured, weakening the ligaments, causing morning swelling, and pinching the return lymphatic and venous blood. There is an risks of blood clots, swollen lower legs and varicose veins below knees.

BAD SLEEP POSITIONS

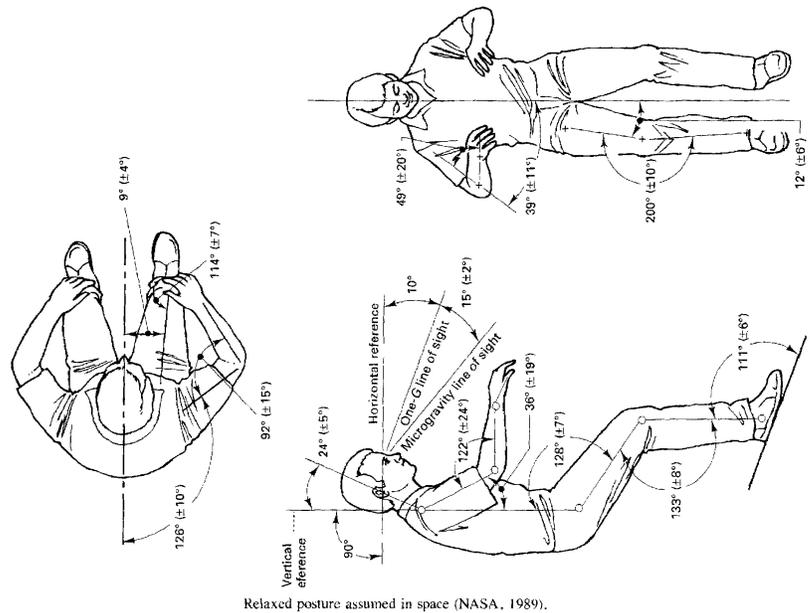
The most common sleep position is twisted and can be harmful. The most common sleep position is apparently partially downward chest, twisted neck, semi-side position with one or the other of the upper extremities up under the face or down behind the hip with one or the other or both knees flexed up into the pelvic area. (Affectionately this is dubbed a low-crawl-like –LoKu or LoKuOid— position).

Twisted or torqued sleeping is particularly damaging to the body's muscles and nerves. It is the 'unidentified' source of a large percentage of idiopathic or cryptogenic pain disorders that cause great angst and cost individuals and industry thousands of productive hours and billions of dollars yearly.

What can be done?

Neutral Balanced Posture (NBP) sleeping can be very protective and resting of the nerves and muscles. NBP sleep position can improve, and often reverse, most of the injuries precipitated and/or maintained by twisted, low-crawl-knee-up (LoKu), or clam-like sleep positions.

An individual with ongoing injuries from a twisted sleeping position quickly sees fairly obvious improvement with nesting into a NBP position.



This is followed by a slow resolution of many associated painful conditions. These include headache, jaw pain, shoulder pain and spasm, arm and hand numbness, non-cardiac chest pain, gastric reflux, upper abdominal pain, lower abdominal pain, deepened back and hip pain, hip clicking, numbness in the size, growing pain, knee buckling, sleep disturbances, and lightheadedness.

Changing the position in which an individual sleeps is actually much easier than imagined once the process is looked at and thought through.

NEUTRAL-BALANCED POSTURE (NBP) SLEEP POSITION

Neutral Balanced Posture (NBP) sleep position is restful and is the least damaging for body muscles, nerves and bones. The body is to be “stored and re-stored.” A neutral, balanced sleep position is one in which skeletal muscles are neutral and balanced and the nerves are not pinched. This does not permit bending with hyperflexion, hyperextension, or twisting. It requires that there is no more than a 20° bend of the central torso from the top of the head down to the feet.

While a NBP sleeping position is the most restorative and non-damaging, its implementation requires a re-thinking of the sleep area. Chimpanzees, our closest animal brethren, require “nesting” materials, by law, when in captivity. Our usual Western sleep accommodations are not nests and discourage “nesting,” so we twist and curl up into our own self-nest-like twisted sleep positions. We need “nests” to fit us, not to curl ourselves into a makeshift clam-shape to accommodate a flat surface.

Making the interface between the human and his environment fit with efficiency, safety and ease is called “ergonomics.” The ergonomics of sleep position has been “lost in plain sight” along with the twisted-sleep position cause for a multitude of common pain syndromes.

An answer lies in “nesting” into a Neutral Balanced Posture (NBP) sleep position.

Imagine a Neutral Balanced Posture sleep position:

INITIAL FOCUS: TORSO

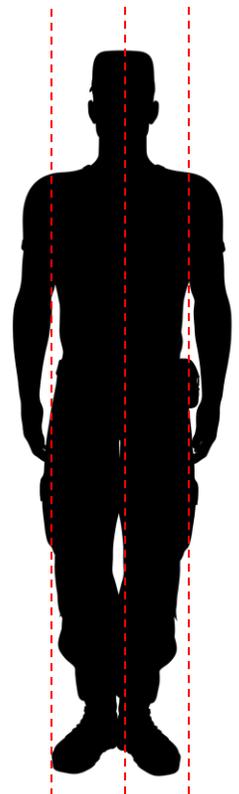
There are three parallel lines of balance and alignment. The full torso parallel lines of balance, not bent, torques or twisted. In consideration of neutral-balanced sleep position the torso, from head to foot, is the initial focus.

Picture a standing person standing at attention:

When the person is stands reasonably straight, there are three parallel lines of balance. These perpendicular lines of balance are parallel.

The first is the military “gig line” that runs through the top of the head and face, down to the center of the chest and abdomen and pelvis directly to the ground.

The second and third lines run from the shoulders through the hips and knees in the ankles. These torso lines of balance must always be kept parallel and not bent more than 20°. This means that they had is not to be flexed forward backward right or left more than 20° it is not to be twisted more than 20°. The thorax to the waist is not to be twisted more than 10 to



20° the hips and the knees are not to be flexed more than 20°, or at the very most 30° degrees, off neutral-balanced thorax. This very definitely does not allow a fetal or modified-fetal position.

SECOND FOCUS: ARMS

- Elbows should be in alignment with the chest. Elbows should never be behind, above the or across the chest.
- Arm positions are determined by the elbows.
- Shoulder injury, nerve pinching and muscle spasm occurs with the upper arms out of neutral-balanced alignment.
- The elbows must never be “stored” below or behind the chest. The backbone is behind the chest. Elbows should not reach that far back. When sleep is on the back, the elbows should be elevated above the flat of the back or buttock by 4-5 cm (1½-2 inches).
- The elbows must never be above the chest, neither above the clavicle nor above the shoulder.
- The elbows must not cross into the mid torso.

HOW DOES ONE ASSUME AND MAINTAIN A NEUTRAL-BALANCED SLEEP POSITION?

Prepare and use a nest.

A NEST?

Sleep is usually a recumbent storage activity, in other words, lying down. This is usually done on a platform (bed, bunk, couch, floor, hammock, ground, etc.). A lot of money and effort is spent on purchase of, advertising for, and discussion of sleep platforms, particularly commercial beds.

There is not a magic bed (i.e., sleep platform). The sleep platform is a bottom part of the nest. It may be hard, stiff, soft or concave, often with one or a variety of stuffed pillows. Without other nesting support, the person sleeping must himself “nestle” onto the platform for sleep-body storage during recumbent recovery time.

A “nestle” position onto a very firm or hard surface is usually a clam, chest-down, curled-up position or a low-crawl-like (LoKu-oid) position. A softer, more compliant platform, yet still needs more, becomes an easier basis for a nest, as does a couch with stable back.

An efficient and effective nest uses materials specifically designated and gathered, or designed to make Neutral Balanced Posture sleep position protective and comfortable.

Also, it should strongly encourage, as well as strongly discourage, twisted, damaging sleep positions.

The nest construction must be thought out in advance of bedtime and set up in advance before every sleep encounter. The simpler, more reproducible, and more practical, the better it is. It needs to be rechecked nightly.

A nest is built on a platform and has four primary component concerns.

The Platform:

A platform is preferably a surface that the torso (shoulder through knee) can lie without distortion, sore spots, or hard spot pressure points. If the torso sinks into the platform and the elbows float up above the back to the chest with back-sleeping. That is a minor advantage. With appropriate padding, most beds are adaptable. It must be wide enough to accommodate the number of nests that it supports.

FOUR CONCERNS FOR THE NEST

1. Head and Neck Support

A neutral head and neck position must be supported in line without twisting or bending. This may require a two separate pillow accommodations:

Back-positions: A small (often stocking-sized) neck support is usually most supportive for back sleeping when the back of the head must be neutral-balance, not elevated. The head should lightly settle on the platform with the neck supported. (Extra elevation may be needed with certain arthritic or anatomical variations.) The head and face should be kept from rolling out of alignment with the chest. A neck roll may be made by partially filling a long sock with buckwheat hull, then tying-off.

Side positions: For any side or partial-side sleep position, the head still needs good support and still must securely be supported aligned perpendicular to the chest with the face and mouth free pointing the same direction as the center chest and pelvis. A separate, larger, more supportive pillow and/or support is needed. This can be a bolster or pre-molded foam or small to moderate size buckwheat-hull pillow loosely packed in a zippered pillow cover may suffice and be flexible in multiple positions.

2. Arm and Elbow Support

The neutral arm position is governed by the position of the elbow in relationship to the chest. The elbows may never be stored down at or behind the backbone, up at or above the upper chest, near or across the chest midline.

Back positions: The elbows must be at or above chest level and not allowed to drop to or behind the backbone. They may “float-up” in a very soft platform. They may be held up by an edge of pillow, folded towel or part of side-riding buckwheat hull body rolls.

Side positions: In a side sleeping position or partial side sleeping, pillows, cushions, and/or bolsters (i.e., buckwheat hull or other) separate the arms-elbows. The forearms are not to cross the body, go above the shoulders, or drop behind the back. Side pillows or bolsters may be used to stabilize fore and aft tilt positions in the nest. This will support a 30 to 120 degree side tilt. They will also support the back as well as the arms in a fully side position with the legs extended into a semi-neutral position.

3. Hip Leg and Knee Support

A neutral hip-leg-knee position is managed by the position of the knees. They must be predominantly in a straight alignment with the shoulders, hips and knees without more than a 20 degree bend or flexion and with no twist or torque. Several pillows below the waist will assist the nesting. The upper body should have its own balance bolsters in a proper nest without need for the knees to balance or support it.

Back positions: The hips and the knees must really not be kept flexed more than 20-30 degrees in sleep. Several pillows or the like below the waist will help, whether the legs are straight or a little bent.

Side positions: Something is necessary between the legs, knees and ankles when turned to the side. The pillows work to prevent torque to keep waist and knees mostly straight, and the tissues and joints protected.

4. Torso

The entire central torso (top of head to the feet) should rotate as unit without flex or bend of over 20 degrees.

Downward: facing from 0-30 degrees or from 270 to 360 degrees is not compatible with breathing and absolutely requires injury positions that include the complete torso.

Back or Side: Use nesting materials (such as cushions, buckwheat hull pillows, bolsters, couch backs, bed rails or any other reliable bulk items that can maintain stable, safe recumbent storage position

There is no one, single way to build the nest.

- A nest is necessary to Neutral Balance Posture (NBP) sleeping.
- Because the injury of twisting, sleep positions are in the background, below a conscious level.
- Most of an individual's basic pain burden is in the background, the behavioral component is unrecognized. That underlying pain burden prevents recovery from what should be recognized as ongoing trauma.

CHRONIC PAIN

If an individual's "cushion" is eroded, whether through stress, disease, infection, or trauma, that individual needs all that can be salvaged in order to continue function. Wasted background cushion is needed. The majority of narcotic dependent, non-malignant pain conditions continue to perpetuate, because of the multitude of strong, hidden, daily-ongoing ergonomic behavioral biomechanical traumas (i.e., sleep position).

The lack of appropriate nesting leaves more than two thirds of the population with some identifiable and documentable sleep-position induced trauma. It is the most common cause for significant background pain, and for undiagnosed pain disorders.

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