

## PART TWO

# EXERCISES TO RESTORE SOCIAL ENGAGEMENT

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Part Two explores the healing power of the vagus nerve. Optimal health is possible only when we have a well-functioning ventral branch of the vagus nerve. The exercises and techniques in this part should help most people to move from a state of either chronic spinal sympathetic chain activity (stress) or dorsal vagal activity (shutdown) to a state of social engagement. These exercises can also be used to prevent problems in the autonomic nervous system from developing, and to maintain a general level of well-being.

When you begin to do these exercises for the first time, I suggest that you start a simple journal. Write down any symptoms or issues that bother you. Also, take a look at the many symptoms listed in the “Heads of the Hydra” list at the beginning of Part One. You might want to add one or more of these to your list.

Note how often a given symptom has appeared. For example, your symptom may present “all the time,” “every morning,” “once a week,” or “once a month.” If you have a migraine headache every day, your goal is certainly to be totally free of migraines; however, any improvement would be welcomed as a positive result.

Also note how strong your symptoms are. You might write that “They bother me, but I get through the day anyway,” “They require me to take medication,” “They are so strong that I cannot go to work or take part in normal social activities,” “I cannot sleep,” or “I cannot get out of bed in the morning.” You might prefer to evaluate the pain or symptom using a scale from one to ten.



After you have been doing the exercises, you can look back at your list and note any changes—for example, “The migraines are less frequent,” “The pain is less severe,” or “I spend less money on painkillers every month.” Focus on how the exercises have helped—that you do not have the symptom(s) so often, or that the problem is not so severe. Perhaps whatever symptoms remain will diminish or disappear as you keep doing the exercises.

You might also notice other positive changes—for example, are you sleeping better? Breathing better? Is your appetite more normal? All of these contribute to better health and resiliency.

## The Basic Exercise

The goal of this exercise is to enhance social engagement. It repositions the atlas (C1, the first cervical/neck vertebra) and the axis (C2) and increases mobility in the neck and the entire spine. (See “Axis” and “Atlas” in the Appendix.) It increases blood flow to the brainstem, where the five cranial nerves necessary for social engagement originate. This can have a positive effect on the ventral branch of the vagus nerve (CN X), as well as on cranial nerves V, VII, IX, and XI.

The Basic Exercise is effective, easy to learn, and easy to do, and takes less than two minutes to complete. I usually teach this exercise to my clients in their very first session.

### BEFORE AND AFTER DOING THE BASIC EXERCISE

Evaluate the relative freedom of movement of your head and neck. Rotate your head to the right as far as it goes comfortably. Then come back to the center, pause, and rotate your head to the left. How far do you rotate to each side? Is there any pain or stiffness?

After doing the exercise, make these same movements again. Is there any improvement in the range of your movement? If there was pain when you rotated your head, did the exercise reduce the level of the pain?



Most people I have treated are surprised to experience an improvement in the range of movement as they rotate their head to the right and left. Better movement of the neck often accompanies an improvement in the circulation of blood to the brainstem, which in turn improves the function of the ventral branch of the vagus nerve.

You or your client will probably want to repeat the exercise as needed.

### BASIC EXERCISE INSTRUCTIONS

The first few times that you do the exercise, you should lie on your back. After you are familiar with the exercise, you can do it sitting on a chair, standing, or lying on your back.

1. Lying comfortably on your back, weave the fingers of one hand together with the fingers of the other hand (Figure 4, 5, and 6).



Figure 4. Fingers interwoven

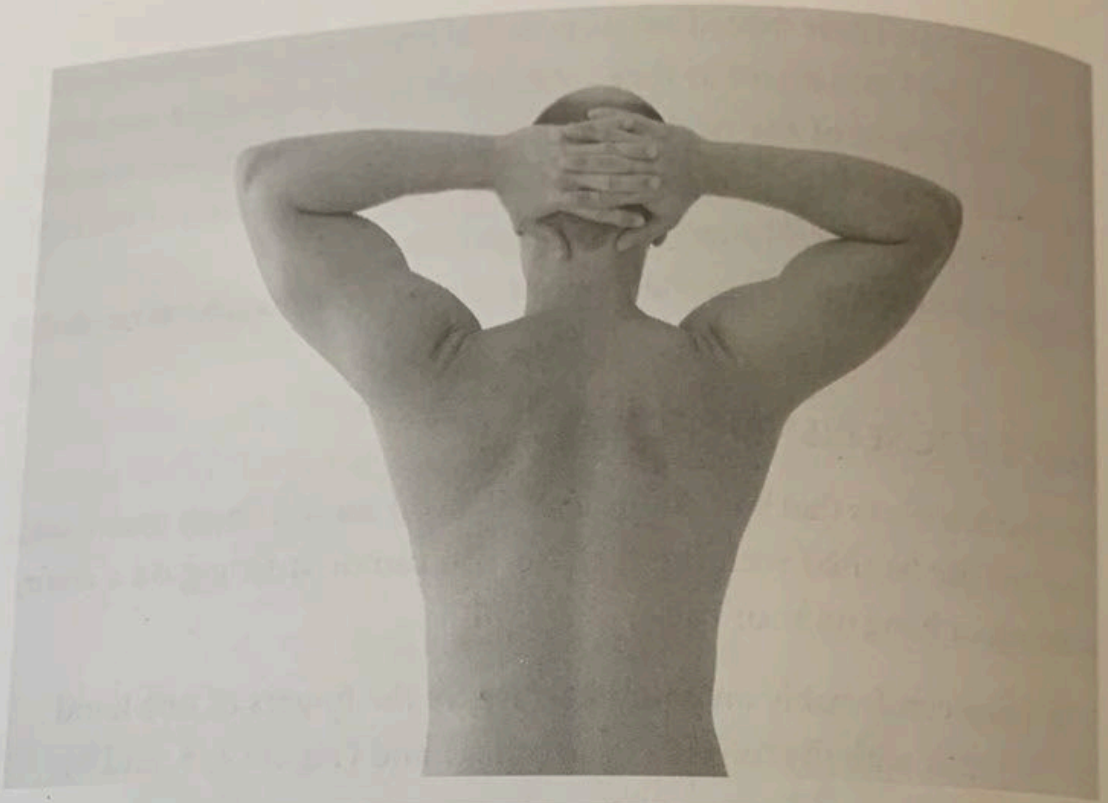


Figure 5. Hands behind the head

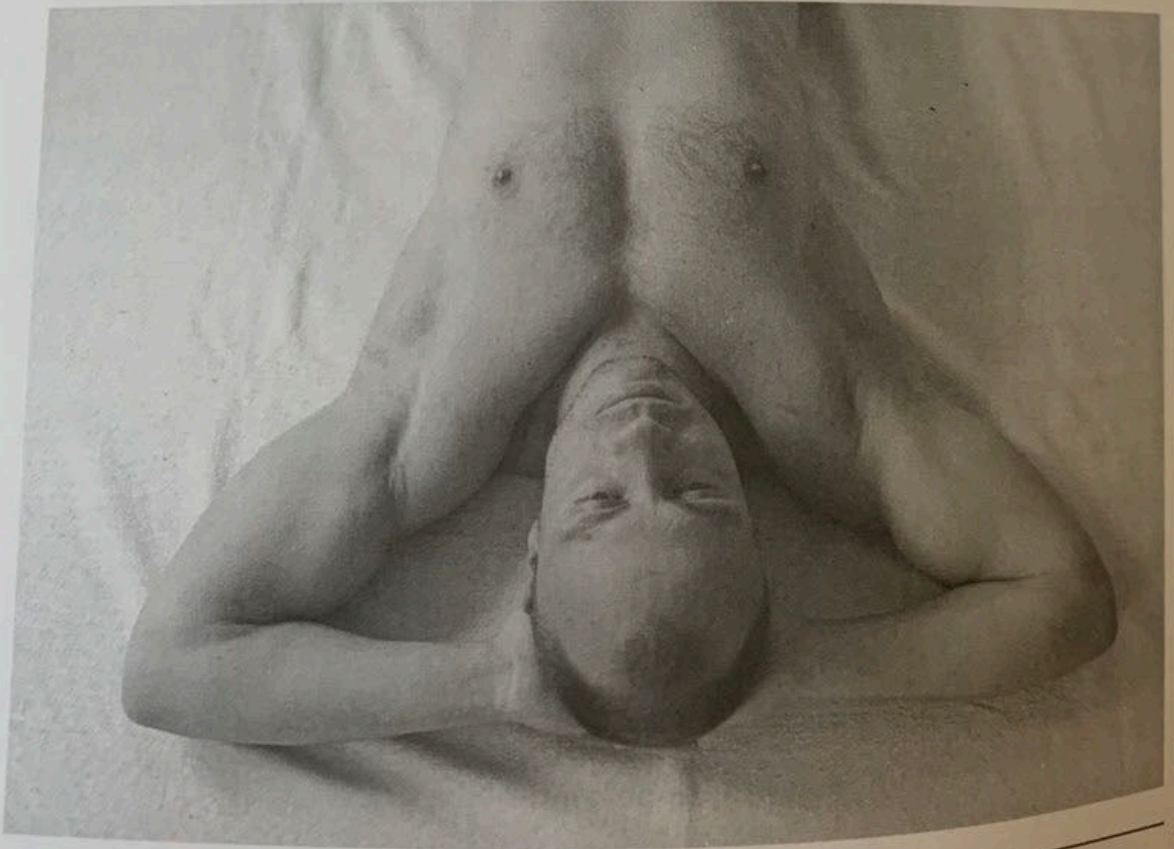


Figure 6. Lying on the back



2. Put your hands behind the back of your head, with the weight of your head resting comfortably on your interwoven fingers. You should feel the hardness of your cranium with your fingers, and you should feel the bones of your fingers on the back of your head. If you have a stiff shoulder and cannot bring both of your hands up behind the back of your head, it is sufficient to use one hand, with the fingers and palm contacting both sides of the back of your head.
3. Keeping your head in place, look to the right, moving only your eyes, as far as you comfortably can. Do not turn your head; just move your eyes. Keep looking to the right (Figure 7).
4. After a short period of time—up to thirty or even sixty seconds—you will swallow, yawn, or sigh. This is a sign of relaxation in your autonomic nervous system. (A normal inbreath is followed by an outbreath, but a sigh is different—after you breathe in, a second inbreath follows on top of the first inbreath, before the outbreath.)

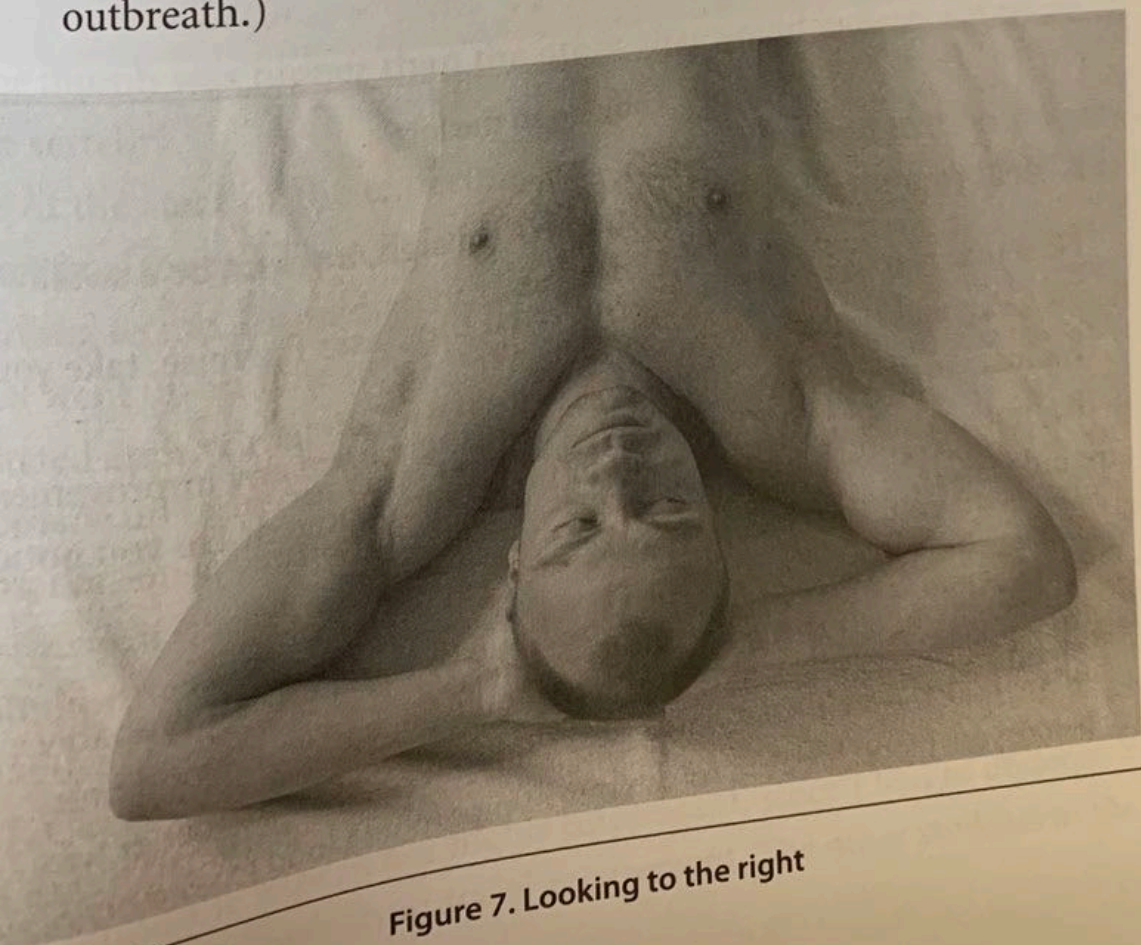


Figure 7. Looking to the right



5. Bring your eyes back to looking straight ahead.
6. Leave your hands in place, and keep your head still. This time, move your eyes to the left (Figure 8).

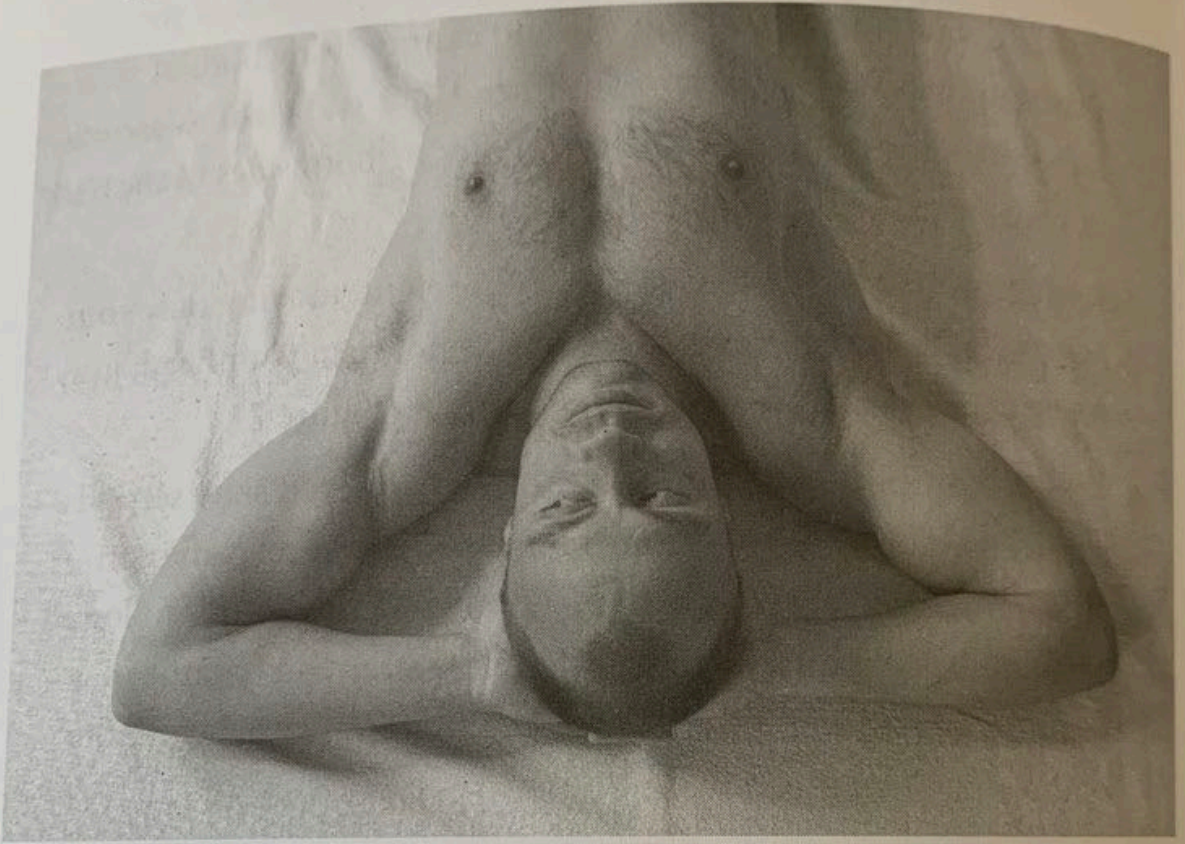


Figure 8. Looking to the left

7. Hold your eyes there until you notice a sigh, a yawn, or a swallow.

Now that you have you have completed the Basic Exercise, take your hands away, and sit up or stand up.

Evaluate what you have experienced. Has there been any improvement in the mobility of your neck? Has your breathing changed? Do you notice anything else?

NOTE: If you become dizzy when you sit up or stand up, it is probably because you relaxed when you were lying down, and your blood pressure dropped. This is a normal reaction. It usually takes a minute or two before your blood pressure adjusts and pumps more blood to your brain.



## CERVICAL VERTEBRAE AND VENTRAL VAGAL DYSFUNCTION

When I test clients and find that they have ventral vagal dysfunction, I also observe that they have an upper cervical misalignment—i.e., a rotation of the vertebrae C1 (the atlas) and a tipping of C2 (the axis) away from their optimal positions. Using the Basic Exercise almost always brings my clients back into a better alignment of C1 and C2, and when I test them again I find that they have proper ventral vagal function.

A rotation of C1 and C2 can put pressure on the vertebral artery, which supplies the frontal lobes and the brainstem, where the five nerves necessary for social engagement originate. From my clinical observations, I believe that it only takes one negative thought to bring C1 and C2 out of joint, affecting our posture and physiology.

I demonstrated this a few times in my advanced craniosacral classes. First, I had the students observe the position of my C1. I lay on my back, and my students could determine the position of my C1 by gently placing the pads of their thumbs on its transverse processes. If there was no rotation of C1, their thumbs would be close to horizontal. However, if one thumb was higher than the other, that would indicate a rotation of the vertebra.

At the start of the experiment, a student observed that his thumbs were horizontal. Then I simply thought about something that was disturbing to me. Immediately, the transverse processes of C1 moved; one side went up and the other went down. The position of C1 felt like it had rotated approximately forty-five degrees away from the horizontal, with one side up (anterior) and the other side down (posterior). (Though this observation is counter to the actual anatomical possibilities for C1 alone to rotate, it is what it feels like under your thumbs if you have them lightly monitoring the transverse processes of C1. The only explanation I have is that the rotation must be a complex combination of the repositioning of C1, C2, and C3 taken together. C1 must somehow slide out of the joint so that it can turn even further.)

I found the experience highly unpleasant, since I had to undergo a change of state away from social engagement. The other students in the



class could see a change in my breathing, and a loss of color in my face. Then I had my student perform our hands-on technique for myofascial release (see “Neuro-Fascial Release Technique,” on page 195) to realign my C1 and C2. These vertebrae did not come back into place as quickly as they had come out of position. He had to repeat the technique several times until C1 was again horizontal. Finally, I felt more like myself.

The rotation of C1 and C2 has evolutionary survival value; it puts pressure on the vertebral artery, reducing blood flow to the brainstem, which affects the function of the five nerves necessary for social engagement. This puts us into a non-ventral vagal state, which in cases of danger can help our survival by shutting off the higher functions when we have to fight or to flee, or when we cannot face the present situation physically or emotionally.

If our neuroception suddenly registers signals from the environment indicating that we are threatened or in danger, this change in our physiology should be instantaneous—and it is. Interestingly enough, although our nervous system is quick to be upset, it takes a longer time to settle down when we are safe again.

It does not require a trauma to affect C1 and C2; the memory of a past event can do the same thing. Brain-scan studies in women with post-traumatic stress disorder show a reduction in blood flow to their brains’ frontal lobes when they hear a re-telling of the traumatic events.<sup>94</sup>

Why would a trauma, the memory of a trauma, or even just a negative thought lead to a structural change such as a rotation of C1 and C2? Ten small muscles connect the occipital bone at the base of the skull with C1 and C2. Eight of these muscles are called the suboccipital muscles, and lie on the posterior (back) surface of the vertebrae. Two other muscles, the *rectus capitis lateralis* and the *rectus capitis anterior*, lie on the anterior (front) surface of these same two vertebrae. They are innervated by the occipital nerve, located on the scalp at the back of the head. (See “Suboccipital muscles,” “Vertebral arteries,” “Suboccipital muscles with vertebra,” and “Suboccipital nerve” in the Appendix.) Inappropriate tensions in any of these ten muscles are enough to shift and hold C1 and C2 out of joint.



The transverse processes of each cervical vertebra have openings (called *foramens*, or *foramina*) to accommodate passage of the vertebral arteries. Rotation or tipping of the vertebrae can twist or put pressure on these arteries, reducing the flow of blood, as in a plastic garden hose; if you put a bend in it, you reduce or shut off the flow of water. The amount of blood passing through these vertebral arteries depends on the position of the upper cervical vertebrae in the neck.

When we do the Basic Exercise, we lie with the weight of our head on our fingers. This pressure is enough to stimulate the occipital nerve, causing these muscles to relax and to come into balance with each other. When we do the Basic Exercise, the first two cervical vertebrae move into a better position relative to each other.

When C1 and C2 come back into place, it relieves tension on the vertebral arteries, providing better blood flow to the brain and brainstem, and allows us to return to social engagement. Adequate blood supply to the cranial nerves, brainstem, and brain is necessary for proper function of the social nervous system as well as other bodily functions.

Concurrently, therefore, with realignment of C1 and C2, there is relief of many of the symptoms that we earlier described as the "Heads of the Hydra."

### WHY DO WE MOVE OUR EYES IN THE BASIC EXERCISE?

The Basic Exercise involves movement of the eyes because there is a direct neurological connection between the eight suboccipital muscles and the muscles that move our eyeballs.

We can directly experience this connection between eye movement and changes in tension of the suboccipital muscles if we place a finger across the back of the head, just under and parallel to the lower edge of the skull. Leaving the head in place, if we move our eyes right or left, up or down, or diagonally, a light finger pressure should detect a slight movement of the upper cervical vertebrae, or a change in the levels of tension in the muscles of the neck under our finger along with every movement of our eyes.



In my clinic I have observed that people who are socially engaged have a well-positioned C1 and C2. They also have a well-functioning autonomic nervous system that is flexible and able to respond appropriately to a variety of situations and internal states.

Social engagement is not a fixed state, nor should the position of C1 and C2 stay fixed after doing the Basic Exercise. These bones move the instant that our psychological state shifts in moments of happiness, satisfaction, fear, anger, or withdrawal, or when our physiological state shifts among social engagement, dorsal vagus activation, or spinal sympathetic chain activation.

Our autonomic nervous system is constantly scanning both our external and internal environments. When everything is good, C1 and C2 come into place, and we get adequate blood flow to the brainstem. When there is a dorsal vagal state, or activity of the spinal sympathetic chain, C1 and C2 rotate out of position, reducing blood flow to the origin of the five cranial nerves in the brainstem and to some areas of the brain. This physiological mechanism takes us away from social engagement, but it also enables us to react when we are challenged or endangered. This mechanism is instinctive, immediate, and bypasses conscious thought. Usually we are not aware of the change.

One of the cornerstones of my treatment of stress and depression is to realign C1 and C2 using the Basic Exercise, or with a hands-on myofascial release technique (see "Neuro-Fascial Release Technique" on page 195). These interventions release imbalances in the tension of the small muscles that hold the skull and the first two vertebrae in relation to each other, and this repositions the atlas and the occiput. Improved alignment of the vertebrae, especially C1 and C2, improves blood flow to the brain and usually brings a rapid improvement in the function of the five nerves necessary for the state of social engagement.

There are other forms of manual therapy that use short-thrust, high-velocity manipulative techniques designed put C1 in place. However, I prefer to use a gentle technique. If I can give the body the right information with a soft touch at the right place, the body will balance itself. Because we cannot put C1 and C2 into place and expect them to stay that way



permanently, we should repeat balancing techniques frequently, or as needed. Since there is no such thing as a fixed state of balance, it is more useful to think of *balancing*, an ongoing process.

## Neuro-Fascial Release Technique for Social Engagement

Before I ever heard of the Polyvagal Theory or treated a patient on the autism spectrum, I managed to develop a hands-on healing technique on the base of the cranium that I would fortuitously be able to use later to help many people improve their communication and social skills. Sometimes I choose to use this technique in my clinic rather than the Basic Exercise. I've named it the "Neuro-Fascial Release Technique."

I developed this technique based on my understanding of the principles of biomechanical craniosacral therapy, osteopathy, and connective-tissue release (Rolfing). I have used it with great success for at least twenty-five years, and I have taught it to a few thousand therapists.

This technique takes less than five minutes to perform, requires no physical effort, and is highly effective. You can use it on yourself, or to treat someone else.

### WHEN TO UTILIZE THE NEURO-FASCIAL RELEASE TECHNIQUE

The Basic Exercise is a simple self-help method, and an easy and effective way to achieve better function of the ventral vagus nerve. However, if you are a body therapist, you may prefer to use your own hands rather than give people exercises to do; or you may want to combine the self-help exercises with hands-on techniques.

The Neuro-Fascial Release Technique can serve as an alternative to the Basic Exercise. It is especially valuable for treating babies, children, and adults on the autism spectrum who lack the necessary verbal communication skills to absorb instruction about the Basic Exercise, when it might be difficult to communicate with them and have them follow your



instructions. Using your hands in this way gives you a nonverbal method for bringing about beneficial changes in another person's nervous system.

If you practice massage or other hands-on modalities, I suggest that you do this technique, or have your client do the Basic Exercise, when you start your sessions. This recommendation is in line with the research of Porges, Cottingham, and Lyon (see earlier section), and will ensure that your client's autonomic nervous system will be flexible and that he will gain the most he can from your treatment.

I also suggest that you end your sessions with this technique.

### NEURO-FASCIAL RELEASE TECHNIQUE INSTRUCTIONS

If you are used to doing massage, you will need to use your hands in a new way in order to have success with this technique. Practice this technique on yourself and learn how to achieve a release before you try it on someone else. To bring about social engagement with this technique, you need to stimulate reflexes in the nerves in the loose connective tissue just under the skin over the base of the skull. This balances the levels of tension in the small muscles between the base of the skull and the vertebrae of the neck.

It will be easier to learn this technique if the person is lying on his stomach, so that you can easily see your fingers. Start with one side of the back of his head.

1. Push gently at the base of the skull on one side, and feel the hardness of the occipital bone. Test the "slide-ability" of the skin on one side of the occiput. Gently slide the skin over the bone to the right. Then let it come back to neutral.
2. Then slide the skin to the left, and let it come back to neutral. In which direction was there more resistance?
3. Slide the skin in the direction of greater resistance. Go very slowly, and be ready to stop at the very first sign of resistance. It may only have moved an eighth of an inch or less. Stop there, and hold that position. Continue to feel the slight resistance. In the pause when



you are doing nothing, the person will sigh or swallow, and the resistance in the skin will melt away as it releases.

4. When you test again, the skin should slide easily in both directions.
5. Repeat the technique on the other side.

When you test the vagus nerve again (see Chapter 4), it should be functioning properly. Also, there should be greater freedom of movement when turning the head to the left and right.

## **TWO-HANDED NEURO-FASCIAL RELEASE TECHNIQUE INSTRUCTIONS**

Once you have practiced with one hand, you can use two hands.

1. Place one finger of one hand on the occiput at the base of the back of the head on one side. Test the slide-ability of the skin over the bone, as described above. The skin should slide more easily in one direction than the other over the bone.
2. Place a finger from the other hand at the top of the neck on the same side. If you push a little deeper, you should be able to feel the muscles. Use this finger to test the slide-ability of the skin over the muscles at the top of the neck. It should move more easily in the direction opposite to the direction that the other finger is sliding over the skull bone (Figure 9).
3. After you have tested, lighten your pressure. Let the fingers of your two hands slide the skin in opposite directions until you feel resistance.
4. Stop there, and hold that slight tension; wait until you get a sigh or a swallow.
5. Release your fingers, and allow the skin to return to its original position.



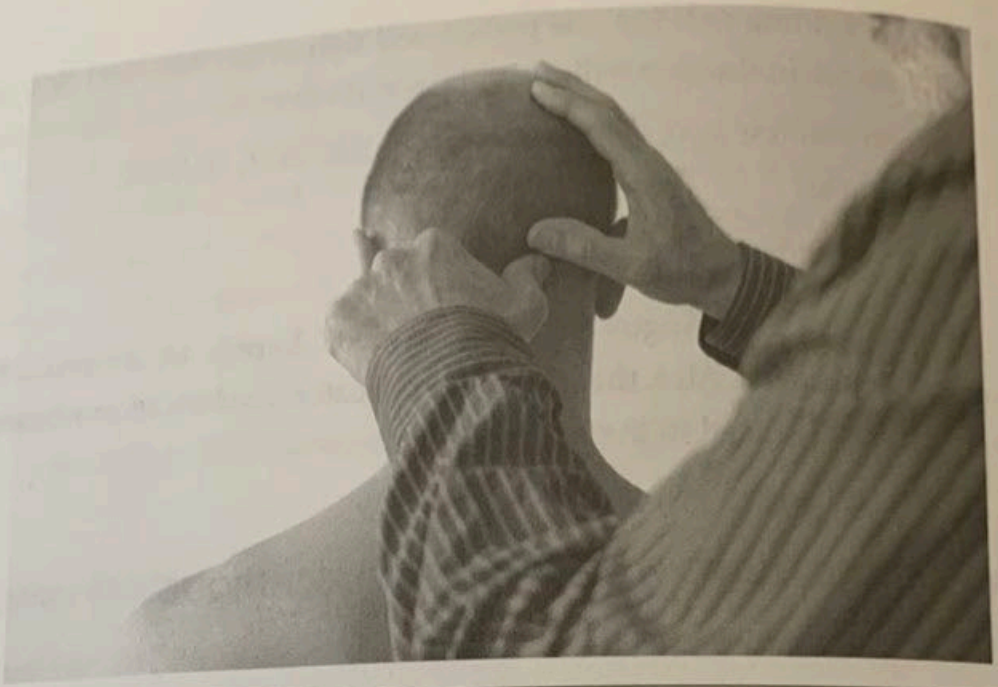


Figure 9. Sliding the skin over the occiput with two hands

6. Do the same thing on the skin on the opposite side of the skull and the neck.

When you test the vagus nerve again, it should now be functioning properly. There should also be greater freedom of movement when turning the head to the left and to the right.

### PROPER APPLICATION OF THE NEURO-FASCIAL RELEASE TECHNIQUE

The key to success with the Neuro-Fascial Release Technique is getting the skin to slide, and stopping at the first sign of resistance. Use your fingertips to connect with the skin using the lightest touch imaginable. Then slide the skin a very short distance over the underlying layers of muscles, bones, and tendons.

This technique differs from techniques used in other forms of massage, which primarily target the muscular system and therefore push into the body. Please take the time to read the step-by-step instructions so that you can learn to do it properly.



This hands-on technique stretches the loose connective tissue just under the skin. (To get an appreciation of how fine and delicate this tissue is, go to YouTube and search “Strolling under the Skin.”) This connective tissue is rich in proprioceptive nerve endings. When you gently slide the skin a very short distance over the muscles and bones, you create a slight traction in this loose tissue, which is enough to stimulate these nerves.

You slide the skin only a short distance, until you feel the very first sign of resistance, and because you are working directly on the proprioceptive nerves you do not need to use the force required by most forms of massage that focus on the muscles. If you use unnecessary force and keep pushing after the first sign of resistance, or if you slide the skin too rapidly, the muscles and the ligaments will actually tighten. You cannot cause any damage this way—the release just takes a longer time. At worst, you might not get the desired changes.

You may find that sometimes you are pushing so lightly that the other person reports that they cannot feel anything. That is good feedback!

As you progress with the treatment, you will notice palpable improvement in the slide-ability of the skin.

## The Salamander Exercises

The following “Salamander Exercises” progressively increase flexibility in the thoracic spine, freeing up movement in the joints between the individual ribs and the sternum. This will increase your breathing capacity, help reduce a forward head posture by bringing your head back into better alignment, and reduce a scoliosis (abnormal spine curvature).

Eighty percent of the fibers of the vagus nerve are afferent (sensory) fibers, which means that they bring information back from the body to the brain, while only 20 percent are efferent (motor) fibers that carry instructions from the brain to the body. Some of the afferent fibers from parts of CN IX and CN X monitor the amount of oxygen and carbon dioxide in the blood. By improving our pattern of breathing with these exercises, we tell the brain (via the afferent nerves) that we are safe and



that our visceral organs are functioning properly. This in turn facilitates ventral vagal activity.

But which comes first? Is a limited breathing pattern the result of a dysfunctional ventral vagus, or is a lack of ventral vagus function caused by feedback from a less than optimal breathing pattern? If there are tensions in the respiratory diaphragm and the muscles that move the ribs, feedback from the afferent vagal nerves monitoring those movements will report abnormal breathing, which may prevent a state of ventral vagal activity, just as restoring ventral vagal activity can improve the physiological condition; in practice, improving either one is helpful, no matter which came first.

A forward head posture reduces the space in the upper chest that is available for breathing. The Salamander Exercises can create more space in the upper chest for both the heart and the lungs. Reducing a forward head posture will also take pressure off of the nerves that reach from the spinal cord to the heart, lungs, and visceral organs. By improving the alignment of the cervical vertebrae, the Salamander Exercises also relieve pressure on vertebral arteries, and can relieve some back pains between the shoulders.

When you do the Salamander Exercises, you bring your head to the same level as the rest of your spine. This posture is similar to that of a salamander, which does not have a neck, so that its head is like an extra vertebra at the top of the spine. A salamander cannot flex, extend, rotate, or side-bend its head separately in relationship to the first vertebra of the spine, or lift its head above the level of the spinal vertebrae, as reptiles and mammals can. This exercise is done with the head in line with the spine.

In terms of your spinal movements, these exercises put your head in a position that is neither up nor down. The thoracic (chest portion of the spine) can now side-bend better, somewhat like a salamander. You can utilize side-bending movements in your thoracic vertebrae in order to release muscular tensions between your ribs and thoracic spine. This contributes to the freedom of movement of your ribs and promotes optimal breathing.



In the extension and flexion of the human spine, there is usually greater flexibility in the neck and lumbar vertebrae, and less flexibility in the thoracic spine. However, the flexibility of the thoracic spine increases dramatically with side-bending. The facet joints of the thoracic vertebrae are unlocked, allowing the thoracic spine to side-bend more freely.

### LEVEL 1: THE HALF-SALAMANDER EXERCISE

To do the first part of the Salamander Exercise to the right, sit or stand in a comfortable position.

1. Without turning your head, let your eyes look to the right.
2. Continuing to face straight forward, tilt your head to the right so that your right ear moves closer to your right shoulder, without lifting the shoulder to meet it (Figure 10).

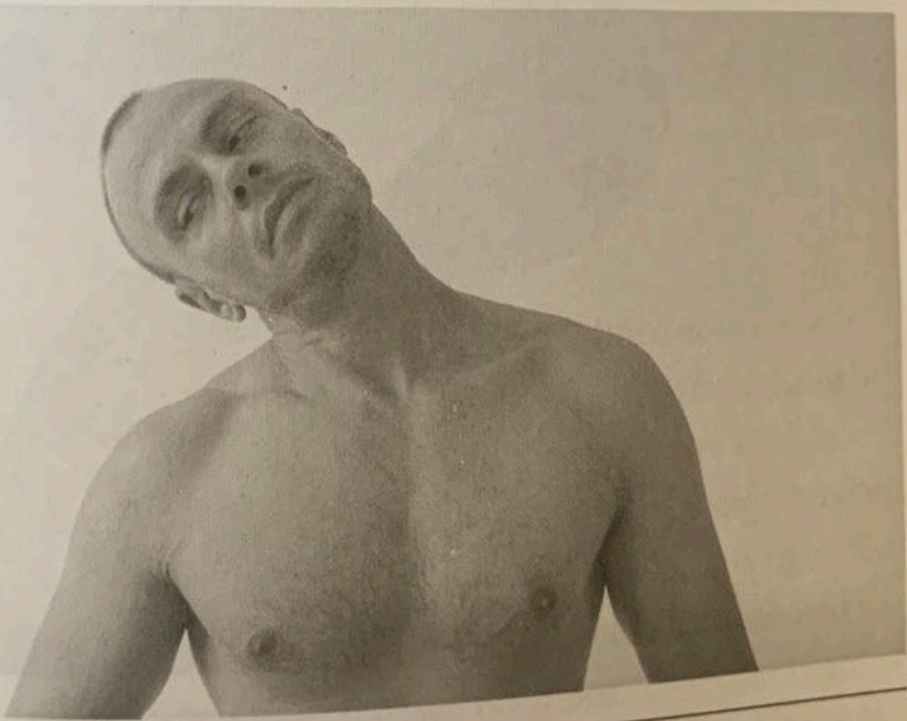


Figure 10. Half-Salamander with eyes to the right

3. Hold your head in this position for thirty to sixty seconds.
4. Then let your head come back up to neutral, and shift your eyes to look forward again.



5. Now do the same on the other side: let your eyes look to the left, and then side-bend your head to the left. After thirty to sixty seconds, return your head to an upright position, and your eyes to a forward direction.

### THE HALF-SALAMANDER—A VARIATION

In this variation on the Half-Salamander Exercise, follow the same instructions above, but let your eyes look to the *right* while tipping your head to the *left* (Figure 11). This movement of your eyes in the opposite direction before you move your head increases your range of motion; you should be able to side-bend your head even further to the left. Hold this for thirty to sixty seconds, and then reverse to do the same thing on the other side.

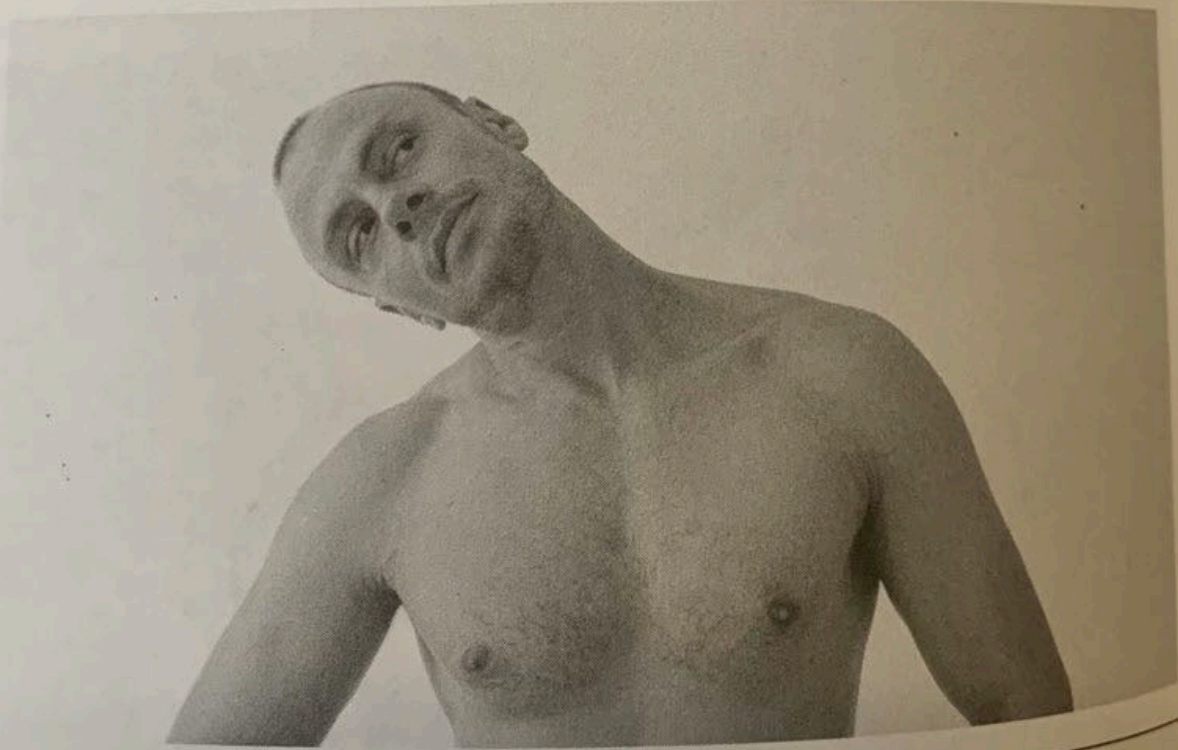


Figure 11. Half-Salamander with eyes to the left

### LEVEL 2: THE FULL SALAMANDER EXERCISE

The Full Salamander Exercise involves side-bending the entire spine rather than just the neck. Also, we use a different body position.



1. Get down on all fours, supporting your weight on your knees and the palms of your hands. You can rest your hands on the floor, but it is better if you place the palms of your hands on a desktop, a table, the seat of a chair, or the pillows of a sofa. Your head should be on the same plane as your spine (Figure 12).

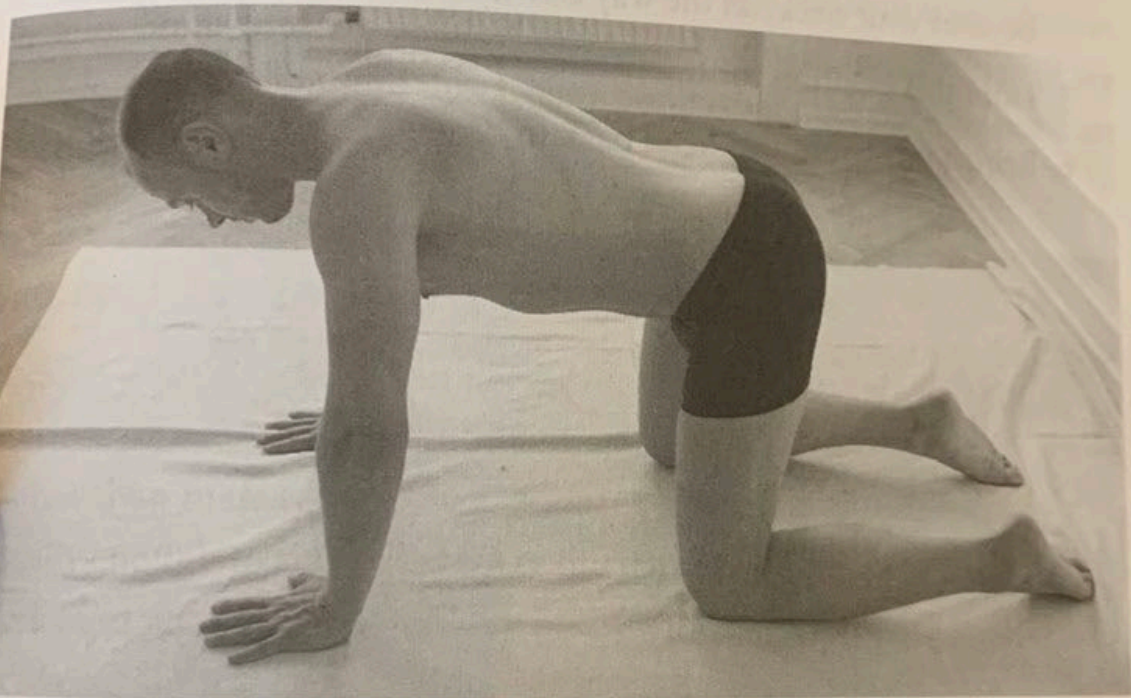


Figure 12. Salamander on all fours

2. In this exercise, your ears should be neither lifted above nor dropped below the level of your spine. In order to find the right head position, lift your head slightly above what you think is right. You should be able to sense that your head is slightly raised. Then lower your head slightly below what you think is right. You should be able to sense that your head is lower than it should be. Go back and forth between the two positions. Take your head up a little and then take it down a little. Try to find a position in the middle where your head does not feel too far up or down. Although you may never find this position exactly, you can begin to zero in on it.



3. Once you have found a good position for your head relative to your spine, look to the right with your eyes, hold them in that position, and side-bend your head to the right by moving your right ear toward your right shoulder.
4. Complete the movement by letting the bend in your side continue beyond your neck, all the way down to the base of your spine.
5. Hold this position for thirty to sixty seconds.
6. Bring your spine and head back to center.



Figure 13. Salamander with head to the left

7. Repeat all steps above, but on the left side (Figure 13).

### Massage for Migraines

In the Appendix you will find drawings of four different patterns of migraine headache pain, shown in red. (See "Headache" illustrations.) The X's in the drawings indicate the location of trigger points on the surface of the muscles that can be massaged in order to release tension in the affected muscles.



The four drawings show the four typical patterns of migraine pain. Find the pattern of pain that fits your symptoms. Once you identify the headache pattern, you can see which part of which muscle has been tight, and where to massage it.

The trigger points, each marked with an X in each drawing, are areas on the surface of a muscle where there is a high concentration of nerve endings. Some of them will feel more thick or hard than the rest of the muscle. People often find that trigger points that need to be released are painful when pressure is applied.

### FINDING AND DEFUSING TENSION IN TRIGGER POINTS

Because you are working on nerves on the surface of the muscle, a light touch is usually sufficient to release the tension in the entire muscle. Rather than massaging the entire muscle, as in ordinary massage, it is usually enough to simply massage the trigger points. You do not need to work hard or press deep into the body.

Massaging trigger points deeply or with a lot of force is usually painful, and can be counterproductive. Under excessive pressure, the body does not feel safe, and the autonomic nervous system is put into a state of sympathetic activation or dorsal vagal withdrawal. This is not harmful, but it is inefficient because it takes time for the body to settle down again.

Make a few small circles on the trigger point. Then stop and wait until you notice a nervous system reaction in the form of a sigh or a swallow. Within a few minutes, the intensity of the pain should start to diminish or disappear. You can repeat the treatment whenever relief from a migraine is needed.

Not all the X's on the drawing need to be treated. Even if an X indicates a trigger point for a particular pattern of pain, if you do not feel anything hard or painful at that particular spot on the surface of the muscle, that trigger point is not active. Don't waste time trying to release it, but focus on the trigger points that do feel hard, thick, or painful.



## SCM Exercise for a Stiff Neck

This exercise will extend your range of movement as you rotate your head, alleviate symptoms of a stiff neck, and help to prevent migraine headaches. It is similar to the very first movements that we made as infants lying on our stomachs, propped up on our elbows, with our heads free to move so that we could look around.

1. Lie on your stomach (Figure 14). Lift your head, and bring your arms under your chest. Rest the weight of your upper body on your elbows (Figure 15).

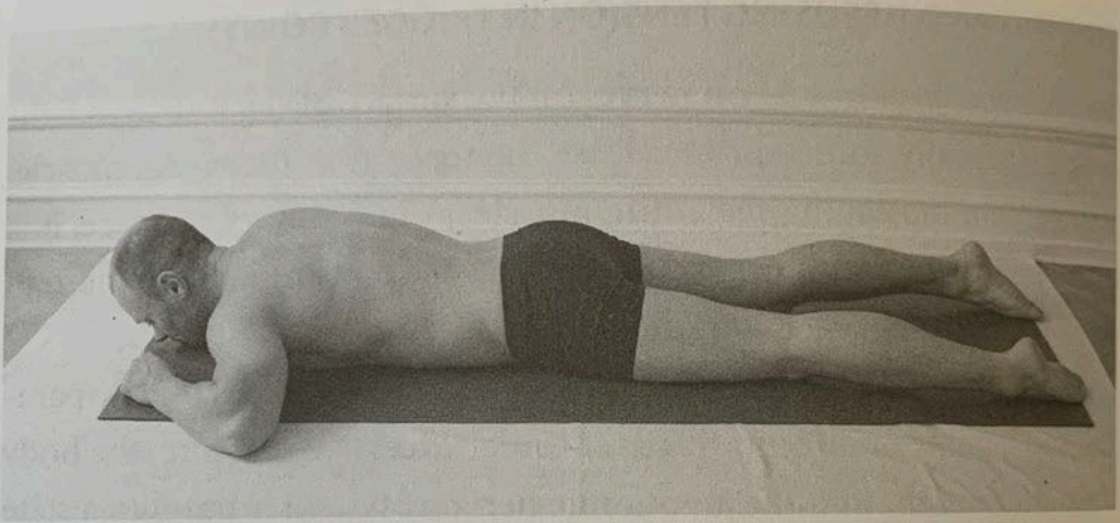


Figure 14. Lying on the stomach

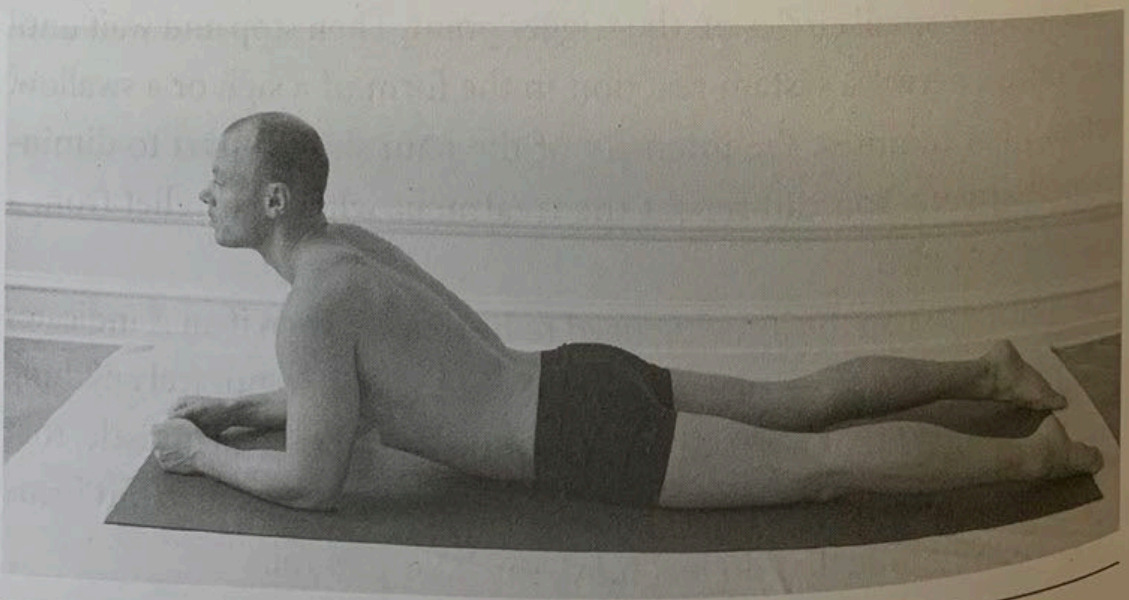


Figure 15. Lifting the head



## SCM Exercise for a Stiff Neck

2. Rotate your head to the right as far as it comfortably goes. Hold that position for sixty seconds.
3. Bring your head back to center.

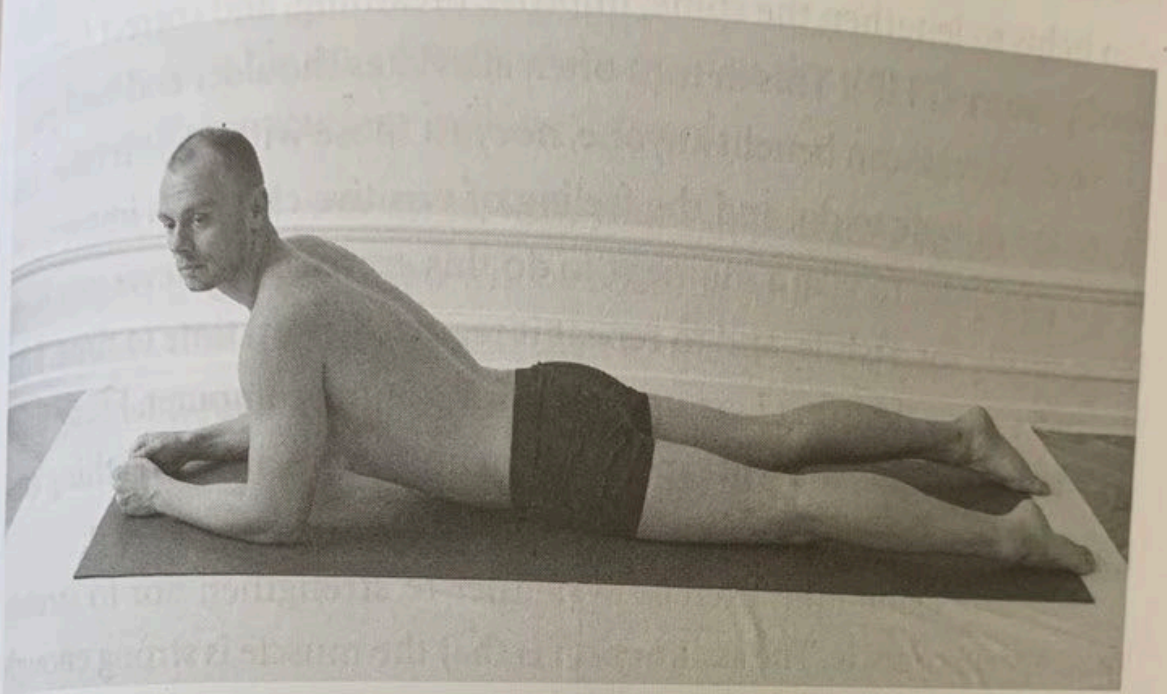


Figure 16. Turning the head to the left

4. Now rotate your head to the left as far as it comfortably goes, and hold that position for sixty seconds (Figure 16).

If you have improved the rotation of the head with this exercise but the movement is still not as good as you want it to be on one side, then the restriction is probably coming from another muscle, the *levator scapulae*, which is innervated by spinal nerves C3–C5. This kind of stiff neck will not be eliminated solely by improving the function of CN XI and the trapezius and sternocleidomastoid muscles. (See “The *Levator Scapulae* Muscle” on page 104).

Part of the stiffness may also come from a hiatal hernia and shortening of the esophagus, since the vagus nerve wraps around the esophagus. (See “Relieving COPD and Hiatal Hernia” on page 91.)



## Twist and Turn Exercise for the Trapezius

The Twist and Turn Exercise improves the tone of a flaccid trapezius muscle, and balances each of its three parts with the other two parts. It also helps to lengthen the spine, improve breathing, and correct forward head posture (FHP). This in turn often alleviates shoulder and back pain.

This exercise can benefit anyone, not just those with FHP. It takes less than one minute to do, and the feeling of positive change is immediate. It is a good idea to take a moment to do this exercise whenever you have been sitting for a while, and to repeat it regularly from time to time. I do it almost every time that I get up from sitting at my computer. Every time you do the exercise, you will experience an improvement in breathing and posture, and its positive effects are cumulative.

The idea behind this exercise is neither to strengthen nor to stretch the trapezius muscle. The assumption is that the muscle is strong enough and just needs stimulation of the nerves to flaccid muscle fibers. You are waking them up so that they can take over their share of the work, as they did when we were babies and crawled on all fours.

When a baby is lying on its stomach, it uses all the fibers of the three parts of the trapezius muscle to keep the shoulder blades together, lift the head, and turn the head to look around. Later, the baby also uses all these muscle fibers when raising itself up on all fours to crawl and to look around.

However, when a baby stands up, all the fibers of the trapezius are no longer used evenly. Some become more tense, while the energy goes out of other fibers so that they become flaccid. The head is no longer supported in the same way by all three parts of the trapezius muscle. Over time, the head tends to glide further forward, so that the centers of the ears are in front of the center of the shoulders. The shoulders then exhibit a tendency to pull forward and down toward the midline.

After doing this exercise, you will have a more even tone in all the muscle fibers of the three parts of your trapezius. Then, when you stand or sit, your head will glide back and up naturally by itself, reducing FHP and improving your posture.



## TWIST AND TURN EXERCISE INSTRUCTIONS

There are three parts to this exercise. The difference between the three parts is the position of your arms.

1. Sit comfortably on a firm surface, such as the seat of a chair or a bench. Keep your face looking forward.
2. Fold and cross your arms, with your hands resting lightly on your elbows (Figure 17). You will be rotating your shoulder girdle briskly, first to one side and then to the other, without stopping, and without shifting the hips.

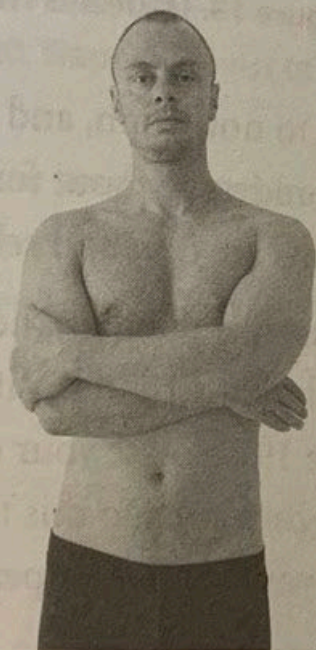


Figure 17. Hands on elbows

3. For the first part of the exercise, let your elbows drop and rest just in front of your body. Rotate your shoulders so that your elbows move, first to one side and then back to the other side. When you rotate your shoulders from side to side, your arms glide lightly over your stomach. This activates the fibers of your upper trapezius (Figure 18).





**Figure 18. Trapezius twist**

4. Do this three times. Do not strain, and do not stop your movement. Move your shoulders without forcing them or holding them; your movements are easy and relaxed.
5. The second part is just like the first; the only difference is that you lift your elbows and hold them in front of your chest, at the level of your heart (Figure 19). Rotate your elbows first to one side and then to the other (Figure 20). Do this three times. This activates the muscle fibers of your middle trapezius.



**Figure 19. Trapezius twist with elbows lifted**



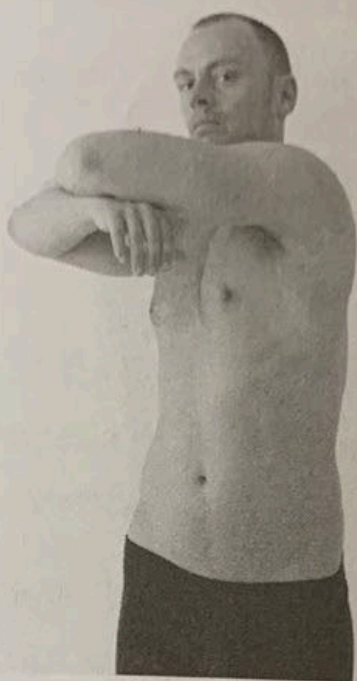


Figure 20. Trapezius twist to the right

6. For the third part, raise your elbows as high as you comfortably can, and repeat the exercise above (Figure 21). Rotate your elbows from side to side, three times (Figure 22). This activates the muscle fibers of your lower trapezius.



Figure 21. Elbows raised high



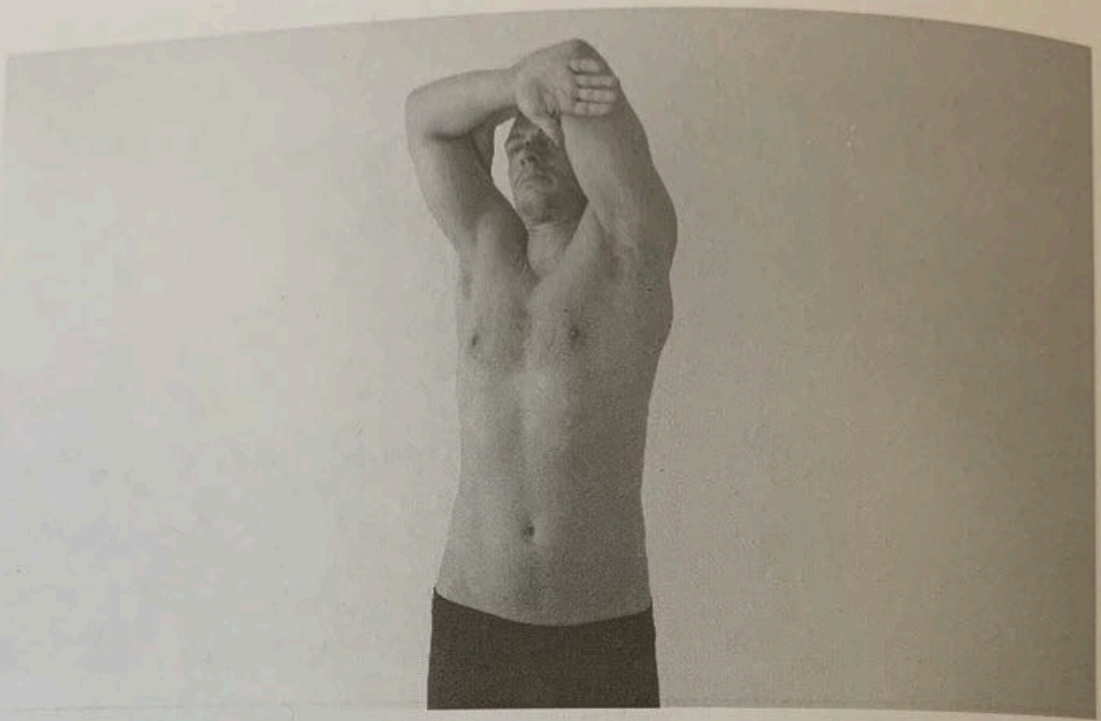


Figure 22. Trapezius twist with arms lifted

After you have done the exercise, you might notice that your head feels lighter and has moved back and up, away from the forward head posture. It is not uncommon for someone with significant FHP to become an inch or two taller the first time they do the exercise. If someone has been looking at you from the side, she will see that your head has moved partway back from its original forward position, if you had that tendency.

### **A Four-Minute Natural Facelift, Part 1**

Benefits of this gentle and pleasant treatment include relaxing the facial muscles and leaving a more natural smile in place by improving the function of cranial nerves V and VII. You can do it for yourself and share it with others. This exercise:

- improves the circulation to your skin
- puts life into the muscles of expression of the middle third of your face, in the area between the corners of the mouth and the corners of the eyes



- improves blood circulation to the skin of your face
- brings a youthful quality of liveliness that you can feel and others can see
- helps you smile more naturally and more often
- makes your face more responsive to interactions with others, and thereby increases your sense of empathy
- makes flat cheekbones a little more prominent and makes very high cheeks a little flatter.

Before you do this technique, look at your face in a mirror. If you are doing the technique on someone else, give him a hand-held mirror so he can watch his face and follow the changes. Look especially at the area of the skin around the cheekbones.

Do one side of the face first. Then check whether you can see or feel a difference between the two sides. The differences are usually obvious when you talk or smile. Then do the other side. There should be more symmetry again.

## WHERE TO DO THE TECHNIQUE

There is a point on the face that is the endpoint of the Large Intestine acupuncture meridian, called LI 20. (See "Acupuncture points" in the Appendix.) It is a beauty point in Chinese, Japanese, and Thai Massage. In Classical Thai Massage, this point is called "Golden Bamboo." In Traditional Chinese Medicine, this point is called "Welcoming Fragrance," and it opens the nostrils, improving the breathing.

This point in Chinese medicine is interesting in terms of Western anatomy. It lies directly over a joint between two bones of the face, the maxilla and the pre-maxilla. The two bones were separate entities long ago in the evolutionary development of our species, but they calcified together into a single bone at an early stage. In modern anatomy, the maxilla/pre-maxilla is referred to as one bone, called the maxilla.



The endpoint of the Large Intestine meridian is easy to find. Just lightly touch the skin about an eighth of an inch to the side of the top of the supra-alar crease (the fold between the cheek and upper lip), near the outer edge of the nostril. If you explore the area with your finger, you will find this point easily because it is more sensitive than the rest of the surrounding skin (Figure 23).

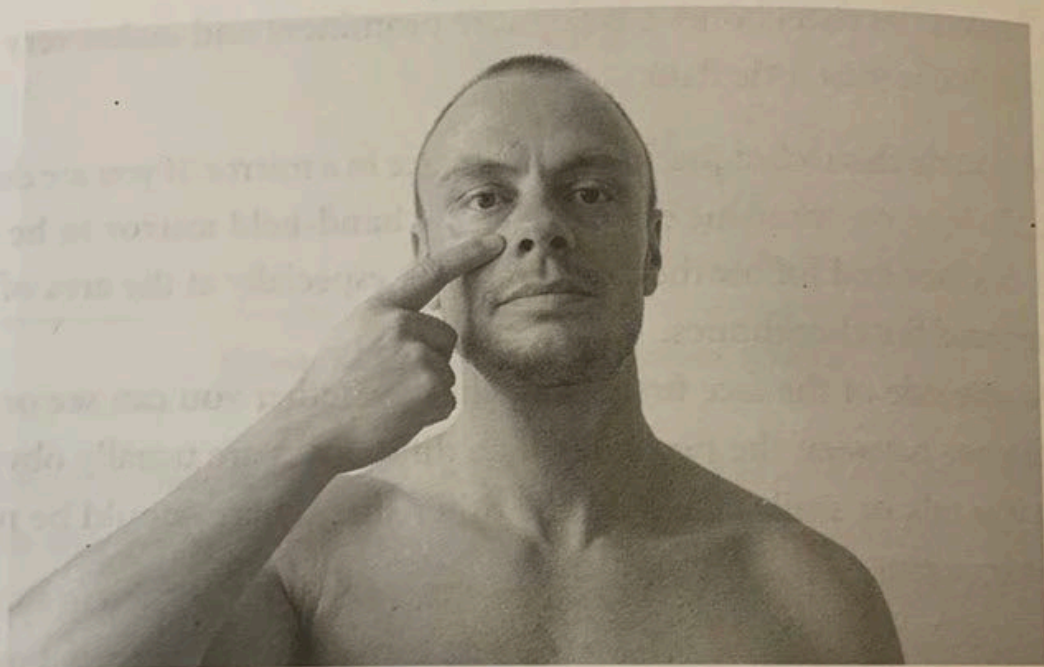


Figure 23. Massage at LI 20

## HOW AND WHY TO DO THE TECHNIQUE

The surface of the facial skin is innervated by branches of the fifth cranial nerve. Lightly touching the skin of your face stimulates these nerve endings.

1. With a very light contact, brush the surface of the skin at acupuncture point LI 20. Then let your fingertip melt together with the skin.
2. Slide the skin up and down to find which direction presents greater resistance. Push lightly into that resistance. Stop.
3. Hold at that point, and wait to feel it release.



4. Slide the skin inward toward the midline of the face, and out toward the side to find the direction of greater resistance.
5. Stop there, and push lightly. Hold and wait for the release.

The muscles of the face are innervated by branches of the seventh cranial nerve (VII). There are two layers of facial muscles just below the skin.

6. Let your fingertip sink gently into the muscle layers beneath the skin at the same point. Let the first muscle layer adhere to your fingertip as if it were Velcro.
7. If you are careful not to push too hard, and if you feel what is happening under your fingertips, you can slide these layers of muscles; first slide one layer on top of the other, making a small circle.
8. As you go around the circle, you may notice that there is more resistance to sliding the skin in one direction. Keep pushing lightly in that direction, and hold until there is a release in the form of a sigh or a swallow.
9. Next, push slightly deeper. Now the deeper layer of muscles sticks together with the top muscle layer and the skin. You can slide both layers together over the surface of the bone.
10. As you go around the circle, you may notice that there is more resistance to sliding the skin in one direction. Keep pushing lightly in that direction, and hold until there is a release in the form of a sigh or a swallow.

All bones have a connective-tissue covering called a periosteum (*peri-* means “around,” and *osteum* means “bone”). This tissue is very rich in nerve endings from spinal nerves or, in this case, cranial nerves.

11. Let your fingertip sink even deeper into the face until you rest lightly on the surface of the bone.
12. Massage on the surface of the periosteum has a profound effect on the autonomic nervous system. Press lightly, but hard enough



## EXERCISES TO RESTORE SOCIAL ENGAGEMENT

to reach the surface of the bone at Large Intestine 20. Let your fingertip move from side to side on the surface of the bone, then hold a light pressure on the bone and wait until you get a release.

In the embryo, this bone was two bones, the maxilla and the pre-maxilla. Even though these have fused into one bone, it is still possible for most people to sense that there were once two separate bones.

This massage of cranial nerves V and VII stimulates the nerves to the skin and muscles of the face. It does not erase all the wrinkles, but it relaxes the muscles of the face, reduces some wrinkles, and leaves the face looking younger and more refreshed. And there are no negative side-effects such as scar tissue from a face-lift operation or toxic accumulations of Botox.

More importantly, this massage helps the face to be more expressive, communicative, and responsive—more socially engaged. Our face should be flexible and able to express different emotional responses in various situations. Facial expressions are a vital part of our communication with other people.

In addition to expressing our own emotions, facial flexibility is important for social engagement. When our face is relaxed and we look at someone else's face, our own face automatically makes micro-movements that mirror the other's facial expression. These movements are very small, and change very quickly.

These changes in tension in our skin and our facial muscles then feed back to the brain via the afferent pathways of cranial nerves V and VII, to give us immediate subconscious information about what others are feeling. This is a prerequisite for us to have empathy for another person.

If facial muscles under the skin are generally relaxed, a person usually has a smooth, pleasant, and what is seen as a beautiful or handsome face. Unfortunately, many people get stuck in the same emotional and facial pattern for years. Their facial muscles pull on the skin, creating wrinkles or a double chin. If the person stays in the same emotional state and does not relax his or her facial muscles, these wrinkles become deeper with time.



In addition to this technique, a light stroking of the skin of the face stimulates CN V and reduces tension in all the facial muscles.

## A Four-Minute Natural Facelift, Part 2

Part 1 is focused on LI20, an acupuncture point on the Large Intestine meridian at the side of the nostril. Stimulating this point improves the balance and tone of the muscles of the lower face around the mouth and the nose. Part 2, in turn, focuses on the eyes. The actual technique is similar in many ways to the first facelifting technique that you did at Large Intestine 20. You will find acupuncture point B2 on the inside corner of the eyebrow. People often rub this point naturally, without thinking about it, when they are tired. Massaging the skin and muscles of the face here is often self-soothing (Figure 24).

Using your thumb or one finger, connect to B2. At B2, work your way down each of the layers: the skin, two layers of muscles, and the periosteum.

This point is also a trigger point for the orbicularis oculi muscle, a thin, flat muscle that surrounds the opening of the eye. The eyes are

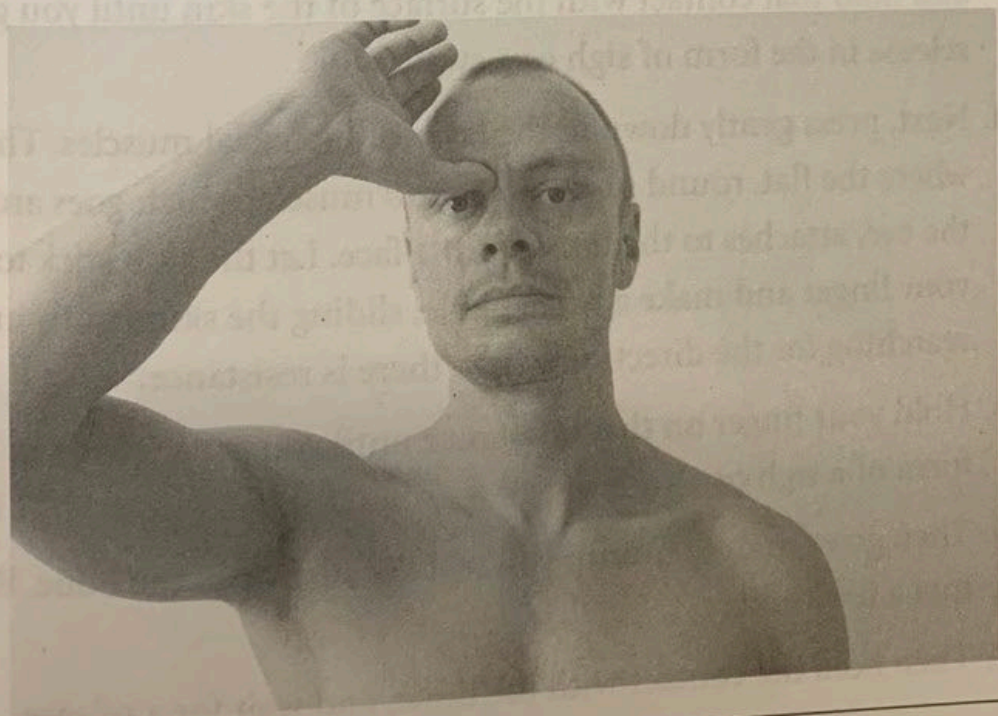


Figure 24. Massage at B2



sometimes called the mirror of the soul. Before we work on B2, the muscle might be too tight, leaving the eye somewhat closed or it might be under-toned, leaving the eye too open. When we finish, there will be an improved balance between looking outwards and looking in. You will see another person more clearly, and this person in turn will have an easier time making eye contact with you and will experience seeing you differently.

At a deeper level, this acupuncture point is at the edge of a tiny facial bone called the lacrimal bone. The word "lacrimal" refers to tears. Sometimes a person's eyes can be dry and appear lifeless. Someone can also experience an annoying flow of tears

By touching this bone at B2 and holding your contact on the lacrimal bone, you will balance the flow of moisture to the eyes and leave them bright and sparkling. The goal of the facelifting massage is leave a smile on your lips and a twinkle in your eyes.

1. Find the place at the inner corner of the eyebrow that is more sensitive than the surrounding areas.
2. First use your fingertip to brush the skin lightly a few times.
3. Let your fingertip rest lightly on the skin at point B2 (see above), and hold that contact with the surface of the skin until you get a release in the form of a sigh or a swallow.
4. Next, press gently down to the layer of the facial muscles. This is where the flat, round *orbicularis oculi* muscle, which goes around the eye, attaches to the bones of the face. Let the skin stick to your finger and make a small circle, sliding the skin lightly and searching for the direction where there is resistance.
5. Hold your finger on that resistance until you get a release in the form of a sigh or a swallow.
6. Then go even deeper until you feel the surface of the bone. Rub that a few times.
7. Then hold the contact with the bone, and wait for a release.



## Severing all the Heads of the Hydra

If the *orbicularis oculi* muscle is too tight, closing the eyelids into a squint, this should open the eye more normally. If the eye was too wide-open, this technique should firm it down a bit but still leave it open. This is the second of two beauty points in Classical Thai Massage.

## Severing all the Heads of the Hydra

The purpose of all of these self-help exercises and hands-on techniques is to help bring people out of a dorsal vagal state, or help them out of chronic activation of the sympathetic chain, and bring them home to a ventral vagal state. Only in this way can we sever all the heads of the Hydra and restore our capability for physical and emotional health.