Vagal Nerve Exercises:

- Vagus nerve facilitates the constant balance between sympathetic and parasympathetic states
- Vagus nerve is the longest nerve in the body, originating in the brain and wraps through almost every organ of the body
- Book: "Accessing the Healing Power of the Vagal Nerve" – Stanley Rosenburg – explains the poly vagal nerve theory and gives you simple, at home daily exercises that can help to calm this response and regulate the autonomic nervous system.
- See attached photo copy from the book for these healing exercises or purchase your own copy on Amazon.
- **Recommended Practice:** 5-15 minutes 2-3 daily
- **Power Practice:** Combine breathing exercises with vagal nerve exercises to better results.

Diaphragmatic Breathing Exercises:

1. Inhale through your nose, sending the air into your belly and watching it pooch out.
2. Exhale out your mouth very slowly, pulling your belly inward and upward, BUT slow down the exhale to twice as long as you inhale. This slower exhale is what engages the parasympathetic state so that is an important piece.
    a. **For Example:** Inhale for 3 seconds and exhale for 6 seconds.
    b. **Good Goal to Work Up To:** Inhale for 6-8 seconds and exhale for 12-16 seconds.
3. Repeat these exercises for 2-10 minutes. Set a timer on your phone next to you to keep track of time.

Sample Practice Schedules To Combine These Exercises:

- **Beginner:** 10 minute practice, 2-3 times/daily (5 minutes of vagal nerve exercises followed by 5 minutes of breathing exercises)
- **Intermediate:** 20 minute practice twice daily (10 minutes of vagal nerve exercises followed by 10 minutes of breathing exercises)
- **Advanced:** 30 minute practice twice daily or 20 minutes 3 times/daily (10-15 minutes of vagal nerve exercises followed by 10-15 minutes of breathing exercises)
- **For All Levels:** Commit to taking at least 10 minutes twice daily with the ideal goal being 20 minutes, 3 times daily or 30 minutes twice daily.
- **Very Important:** Daily practice is key, it will take daily repetition of these exercises, consistently to retrain and reset your nervous system and support the Parasympathetic state which will help you reduce your MCAS symptoms!

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

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).

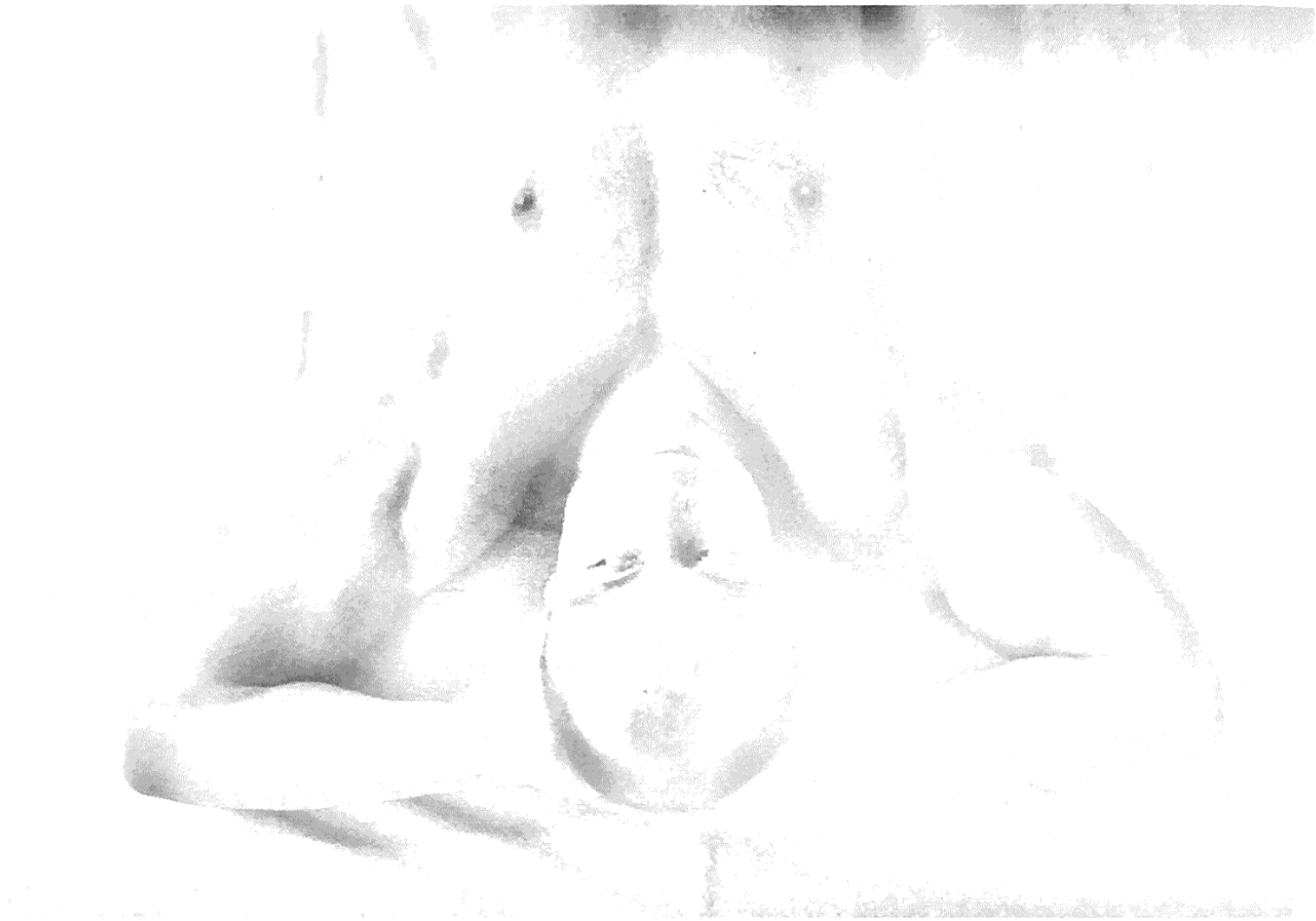

Figure 8. Looking to the left

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?

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).

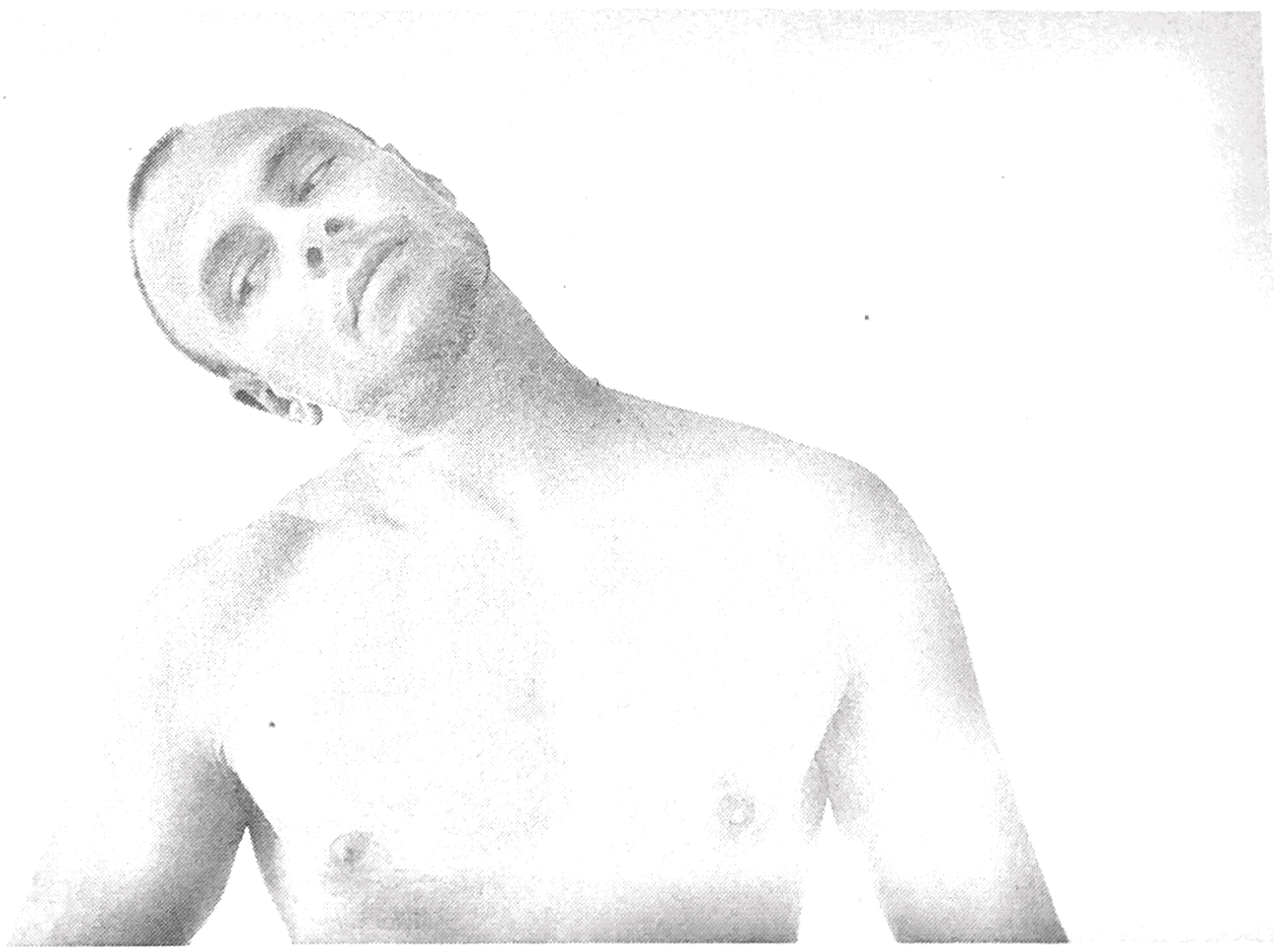

Figure 10. Half-Salamander with eyes to the right

3. Hold your head in this position for thirty to sixty seconds.

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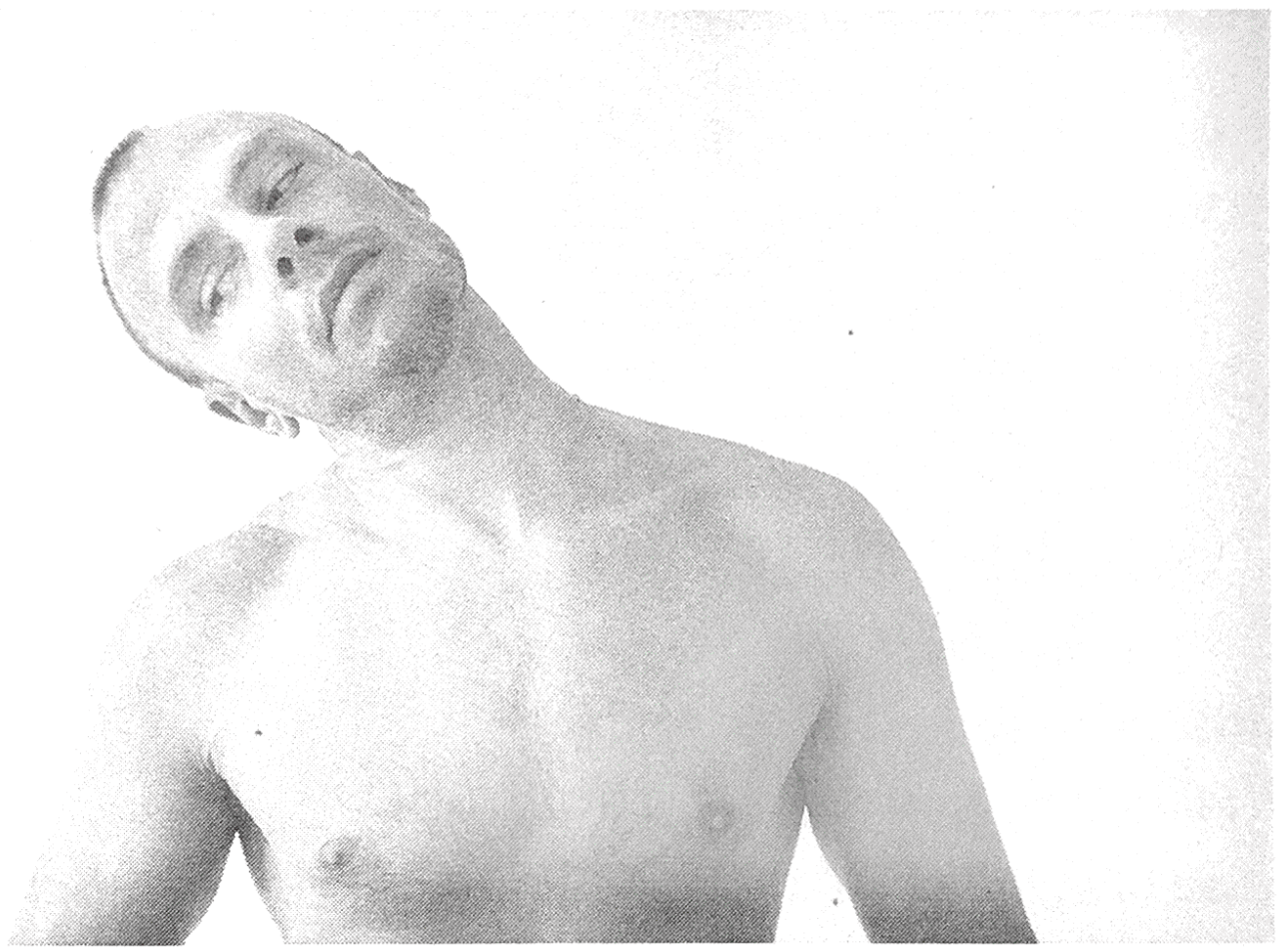

Figure 10. Half-Salamander with eyes to the right

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.

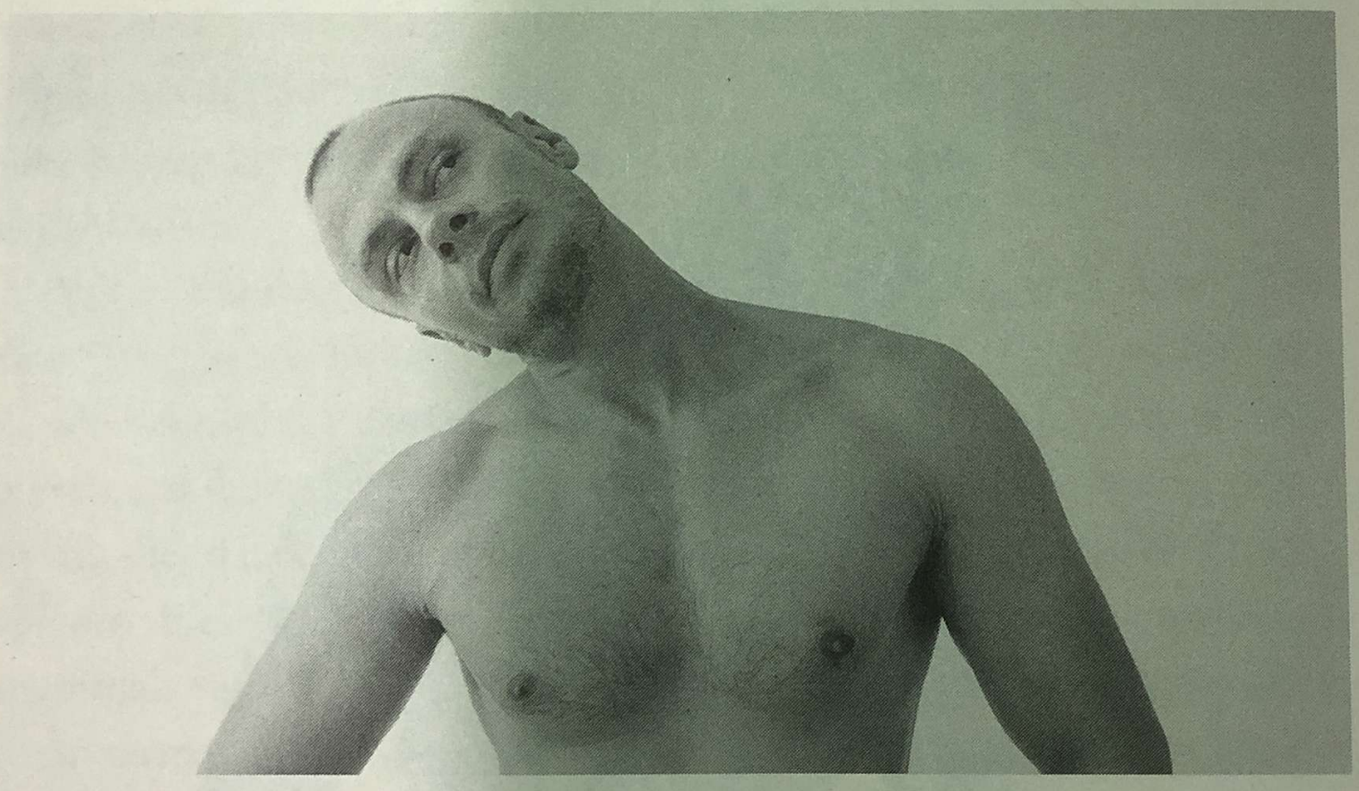

Figure 11. Half-Salamander with eyes to the left

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).

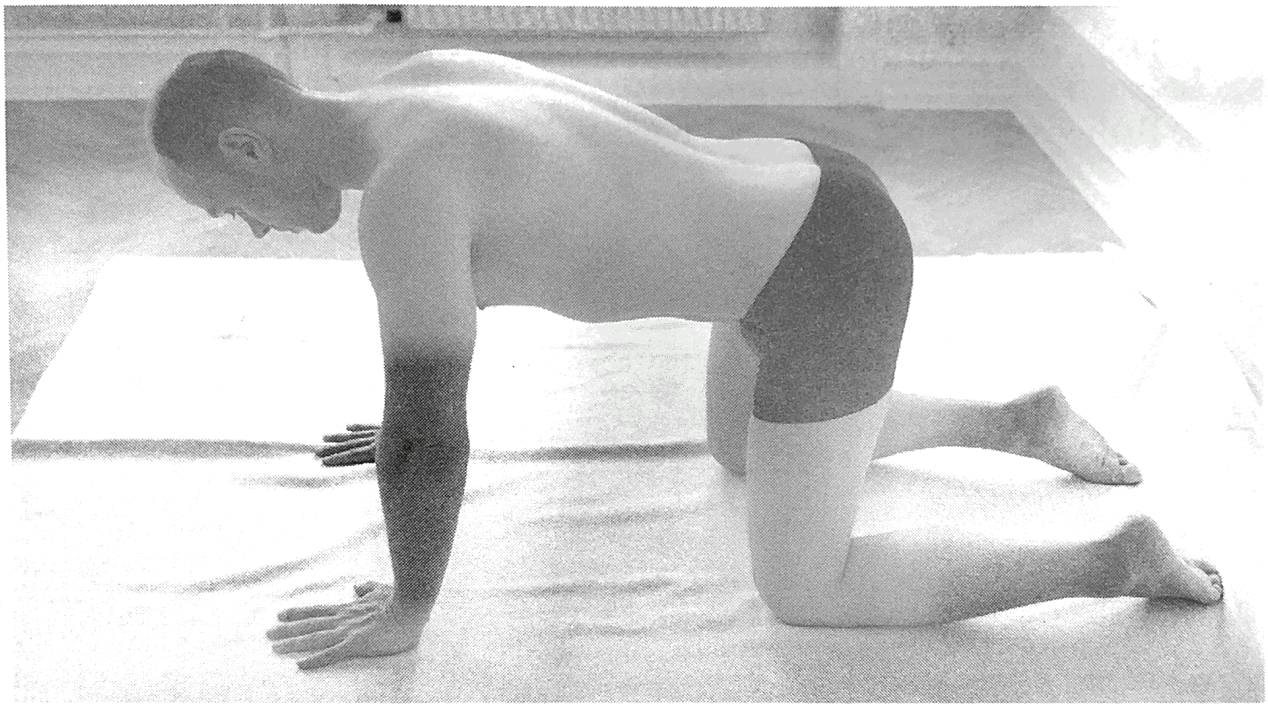

Figure 12. Salamander on all fours

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

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.

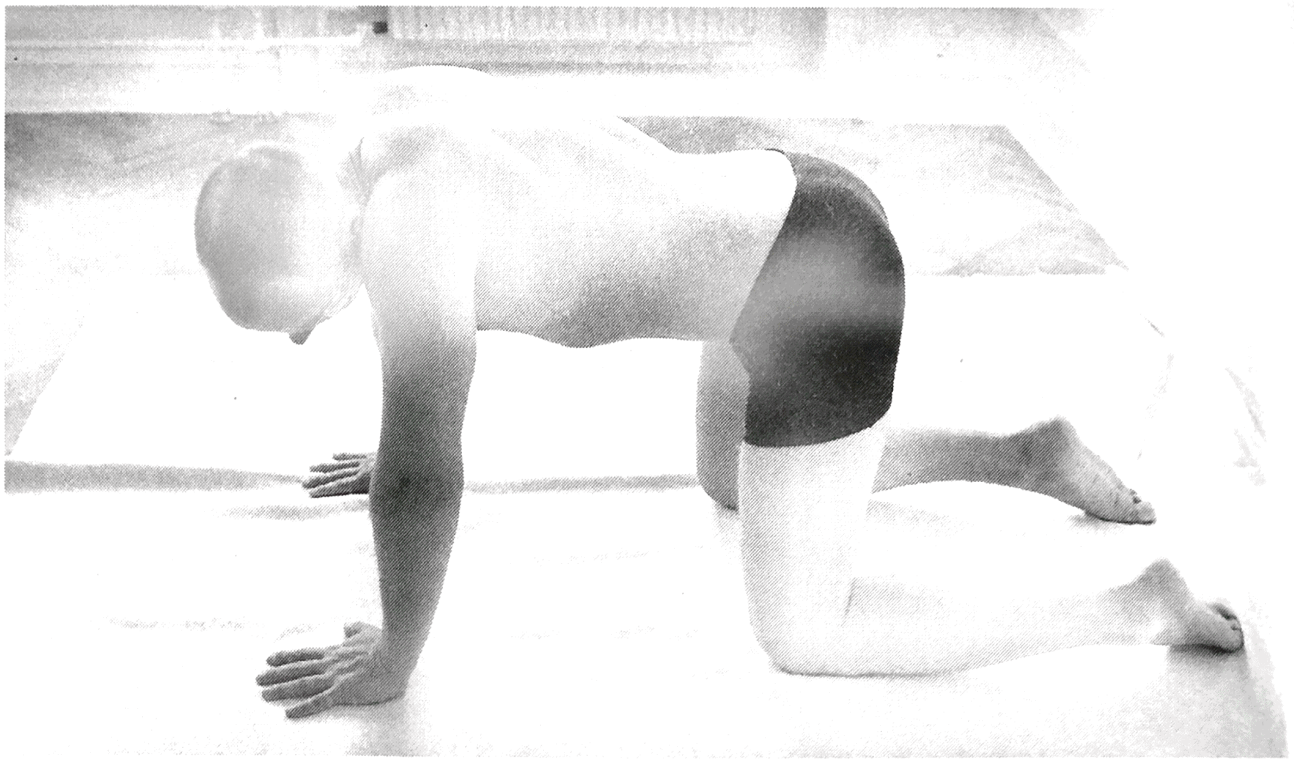

Figure 13. Salamander with head to the left

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