



he human body is built for motion. Our bodies have more than 640

named muscles, 206 bones and 360 joints, which make for an enormous number of possible configurations of movement. More and more it is being recognized that some of the most potent mechanisms at the root cause of chronic disease are caused by inactivity, because the body needs frequent muscle activity to optimize blood flow, hormone secretions and the millions of other functions that keep us healthy.¹¹ Prolonged sitting is a health risk independent of physical activity.¹² In other words, if they sit for long periods of time, even people who are avid exercisers may still demonstrate the same negative effects—what has been labeled “active couch potatoes.”¹³

Standing for many hours with little movement, including standing at a work station, can also stress the body in ways that can have negative consequences.¹⁴ It’s not the position, such as sitting or standing, but rather the lack of motion and variability of movement that’s the real culprit.

The necessary muscle activity, including while we sit, does not happen at the muscle level alone. It is the brain—with its 100 billion neurons, its estimated trillion glial cells and trillions of connections between neurons—that organizes and executes all movements. And it is the wakefulness of the brain that determines, to a great extent, the level of activity of the muscles and, thus, our health and experience of wellbeing.

In one 2010 experiment, ageing rats that were no longer able to figure out a maze (even though they were still eager to get the food at the end of the maze), and too weak to run on a treadmill, were rewarded when they noticed specific changes in auditory stimulus.¹⁵

The task of noticing these changes in auditory stimulus focused on brain activity, promoting brain differentiation—a central function of the healthy brain—rather than trying to get them to exercise their muscles in an attempt to make them stronger. After a month of this new brain differentiation

training, there was nearly a complete reversal of the previously observed physical and cognitive impairments.

We derive from this research that it’s not sitting in its own right that is so detrimental to our muscle activity and our health. It is inactivity in the brain that leads to inactivity of the muscles, resulting in negative metabolic, physical and cognitive changes. Think of it as though the brain ‘goes to sleep’, to some extent, once a person sits down for a long stretch of time. For example, when sitting at a computer, the focus is on the screen and on the fingers that are typing. The rest of the body ‘disappears’ from the brain, and stops participating dynamically with the movements of the hands and fingers.

Another culprit contributing to the brain’s reduced wakefulness, which leads to reduced muscle activity in sitting, is the way many chairs are designed. The

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front of the chair seat is often higher than the back, so the slope pulls the sitter backwards; this encourages slouching, and makes it difficult to use the back and pelvic muscles. People then tend to lean into the back of the

chair, essentially telling their brain they’re probably not going to be moving much, so the brain stops activating muscles in large areas of the body.

A few years back, I was asked to work with musicians in a world-renowned orchestra. I was told that over a short period of time, a large number of these musicians were unable to play due to a variety of injuries and debilitating pain.

In my first session with the orchestra members, I noticed that their chairs had a pronounced backwards slant. As a result, many musicians were leaning into the backs of their chairs as they played. Their arms were moving a lot while the rest of their body hardly moved at all. When I pointed this out to the music director, I learned that they had just purchased those chairs. I suggested they return the chairs and buy different ones with a seat parallel to the ground, which they did.

I also learned that their conductor did

Dynamic sitting

In this third installment on NeuroMovement®, Anat Baniel offers three exercises to keep your brain and body awake while you sit



not like his musicians to sway in their seats or move their bodies much while playing. He had instructed them to try and sit still as they played. They obeyed.

What the conductor didn't know is that it's not only the arms, hands and fingers that need to move while playing an instrument. The brain needs to account for and organize the whole body at all times for every action we do. Often the pain and limitation people experience while sitting, as these musicians did, is due to insufficient differentiation and insufficient mapping of the body to the brain.

Very quickly, as the musicians learned how to bring their back, pelvis, chest, legs, feet and head into their sitting and playing, their pain stopped and they experienced greater ease and comfort while playing, and the quality of their performance improved.

For sitting to be healthy, it needs to be what I call dynamic sitting. The brain has to stay awake and manage the whole body as we sit, whatever the activity may be. It's not about doing large movements or stretching; it's about creating a fuller map of the body in the brain while in a sitting position. This leads to an ongoing sense of presence and increased wellbeing.

The three NeuroMovement lessons below promote increased differentiation and greater representation of the body in the brain. You can do these exercises at work or at home, at your desk or away from it. The first lesson is done in a standing position, while the second and third lessons are done while sitting.

Do the movements gently, slowly, with minimum force, always seeking comfort, and—very importantly—pay close attention to what you feel in yourself as you move; this helps to wake up your brain and gain enhanced freedom of movement, greater ease in sitting, fewer aches and pain, and enhanced wellbeing—both physically and mentally.

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Lesson 1

How to wake up your lower back

In this lesson, you will wake up your lower back and chest to help you sit tall and move freely while sitting. You will also get a few minutes break from sitting that, by itself, is very useful. As a bonus, bending down will become much easier for you.

1 Stand up with your feet spread comfortably, then gently bend down and let your hands drop toward your feet. Notice how far you can go without forcing, and come back to standing.

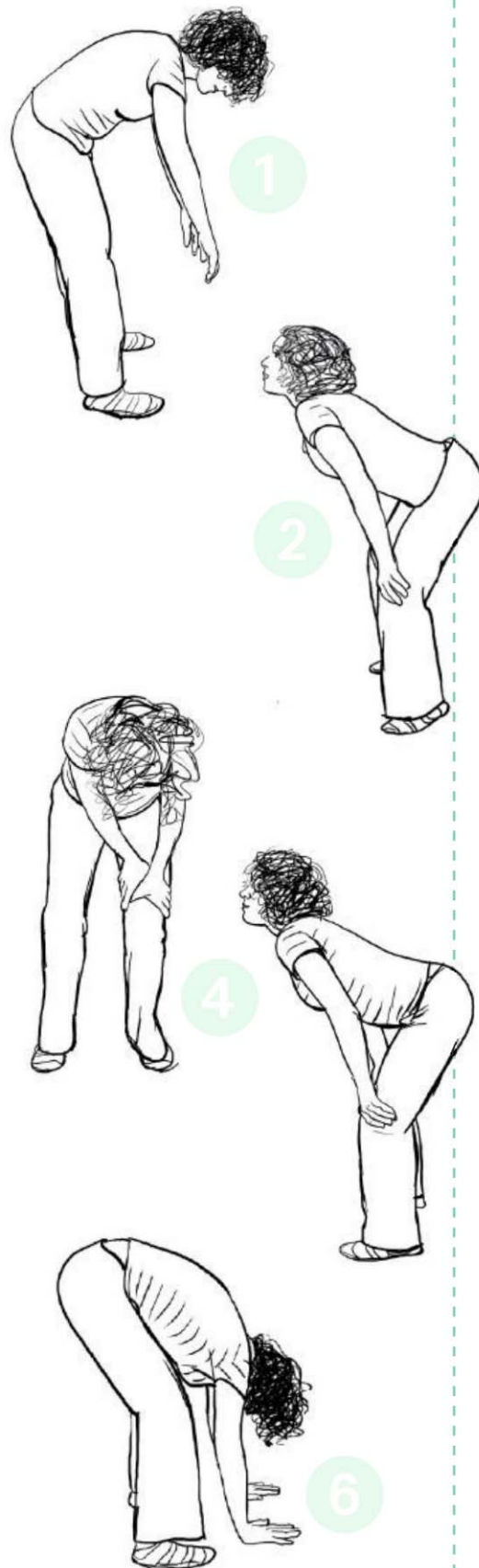
2 While standing with your legs spread comfortably, bend your knees a little, and place your right hand just above your right knee on your thigh and your left hand just above your left knee. Now lean on your legs with the weight of your upper body resting on your hands. Begin to round your back and, at the same time, pull your belly in and look down at your belly. Then gently arch your back, push your belly out, lift your head and look up. Do this back and forth four or five times.

3 Come back to standing, then simply bend forward and drop your hands down towards your feet. Is there some change already?

4 Stand with your feet spread apart and your knees slightly bent, but this time lean with both hands on your left leg just above the knee as before. Very gently and slowly, round your back and look down, then arch your back, free the belly muscles and push them out, and look up. Do this back and forth four or five times, then stand and rest for a moment. Feel how you're standing.

5 Stand with your feet spread apart and your knees slightly bent, but this time lean with both hands on your right leg just above the knee as before. Very gently and slowly, round your back and look down, then arch your back, free the belly muscles and push them out, and look up. Do this back and forth four or five times.

6 Stand with your feet spread apart comfortably, then bend down and feel if you can bend more easily and farther than before. Are your toes closer to your hands?





Lesson 2

How to boost vitality in your chest, hips and spine

Sit comfortably on the edge of a chair with your feet flat on the floor and spread comfortably, your knees apart, and do the following movements.

1 Place both your arms between your knees and let them hang down towards the floor. In this position, bend your head so that your hands move closer to the floor, then come back up. Do the movement three or four times. Make sure to move gently and slowly, and notice how far down you can go without stretching or forcing. Sit up and stop for a moment.

2 Gently bend your head and shoulders sideways to the right a few times. Stop and rest for a moment.

3 Bend your head and shoulders to the left a few times. Stop and rest for a moment.

4 Gently twist your head, shoulders and back to the right, then round and straighten your back while twisted. Do the movement three to four times and rest.

5 Now twist your head, shoulders and back to the left, then round and straighten your spine. Repeat three to four times and rest.

6 Round your back and pull your belly in and, in this rounded position, gently turn your head and shoulders to the right and left, three or four times.

7 Sitting with your head and shoulders in a central position, lift your right shoulder to your right ear and lower it, then lift your left shoulder to your left ear and lower it. Alternate this movement a few times and then stop for a moment.

8 Round your back, pulling the belly in, then arch your back, rolling your pelvis forward and pushing your belly out. Repeat a few times. Feel whether your pelvis is now free to move forward and support your spine and head, and whether your breathing is freer.

9 Now simply bend down and see whether your hands come closer to the floor without forcing or stretching—and with less pain if you experienced pain earlier.





Lesson 3

How to free your shoulders, arms and wrists while sitting

1 Sit on the edge of your chair, buttocks well supported and feet flat on the floor at least a foot apart, with knees spread at about the same distance. Rest your hands palms down on the tops of your thighs. This is the neutral position for this lesson.

Take a moment to pay attention to your right shoulder, then your left one. Do they feel relaxed? Feel how far your right shoulder is from your right ear and your left shoulder is from your left ear.

2 Still sitting on the edge of the chair, lift your right arm up towards the ceiling without forcing it. Be aware of what it feels like and how far you can lift your arm easily, without strain or pain, so that you can later evaluate and compare any changes brought about by this exercise. Bring your right arm down and rest your hand on your thigh as before. Now lift your left arm and be aware of how far you can comfortably lift it.

3 Continue sitting on the edge of the chair. Now gently and slowly, move your left shoulder forward, then bring it back in place. Don't move your left arm or elbow, just your shoulder. Do this movement gently, without forcing, four or five times and stop. Be aware of any movement elsewhere in your body as you move your shoulder forward.

4 Now move that same left shoulder backward, very gently and slowly, and then come back to your neutral position. Do this four or five times—remembering to be aware of how your body is moving the entire time.

5 Still sitting on the edge of the chair, shift your weight slightly to the right buttock and slide your left hip forward and back. Note as you do this that your feet stay in place each time you move your left hip forward.

Your left knee moves forward as your left hip and buttock move, and you arch your lower back on that side. Do this movement four or five times, gently. Rest for a moment. Feel the contact of your right buttock with the chair and compare it with the left.

6 Now shift your weight to your right buttock again and move your left hip backward, then return to neutral; do this four or five times. Be aware of what happens throughout your back and spine as you do this movement. Rest for a moment.

7 This time, simultaneously move your left shoulder and left hip forward, then move them back to neutral at the same time. Become aware of your whole body as you move. Do this movement four or five times. Rest for a moment.

8 Still sitting on the edge of your chair, move your left shoulder and left hip in

opposite directions. When you move the left shoulder forward, move your left hip backward, and vice versa. Here you need to pay close attention to make sure you're doing what you think you're doing. Repeat the entire movement three or four times. Rest for a moment.

9 Now simply sit on the edge of the chair and be aware of how your left shoulder feels; is it lower than when you started this exercise? It is more relaxed? Compare your left and right shoulders. Lift your left arm up towards the ceiling; does it feel different? Does it lift higher? Better? Easier? Now lift your right arm toward the ceiling; you might feel how different it is compared with your left arm.

10 Repeat steps 8 and 9, but with your right shoulder and hip.



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