

# Brain Gym's Midline Movements

Focus on two-sided (left-right) movement across the midline of the body. Development and/or properly functioning bilateral movement skills are important for crawling, walking, seeing depth, and are a prerequisite for whole-body coordination and ease of learning in the near-visual area. The Midline Movements help integrate binocular vision, binaural hearing, and the left and right sides of the brain. Over the last century, crawling has been used in neurological patterning to maximize learning potential.

## Cross Crawl

Cross Crawl accesses both brain hemispheres simultaneously, and stimulates receptive as well as expressive hemispheres of the brain, facilitating integration.

**Instructions-** In this contralateral exercise, similar to walking in place, the participant alternately moves one arm and its opposite leg and the other arm and its opposite leg.

### Variations:

Cross Crawl as you sit, moving opposite arm and leg together.

Activate kinesthetic sense (touch), alternately touch each hand to the opposite knee.

To improve focus, do a slow-motion Cross Crawl.

To improve balance, Cross Crawl with your eyes closed.

To alleviate visual stress, skip or bounce lightly between each Cross Crawl.

### Activates the Brain for:

Crossing the visual, auditory, kinesthetic, tactile midline.

Left-to-right, right-to-left eye movements.

Improved binocular(both eyes together) vision.

### Behavioral / Postural Correlates:

Improved left / right coordination.

Enhanced breathing and stamina.

Greater coordination and spatial awareness.

Enhanced hearing and vision.

## Belly Breathing

Belly Breathing reminds the participant to breathe instead of holding his/her breath during focused mental activity or physical exertion. The breath should expand the rib cage front to back, left to right, and top to bottom, including the abdomen. When breathing is shallow, lifting only the rib cage, the oxygen supply to the brain is limited. When one breathes correctly, there is abundant oxygen for higher brain function.

**Instructions-** Inhale through the nose and initially cleanse the lungs with one long exhalation, released in short puffs through pursed lips (as though keeping a feather afloat). Thereafter, breath out through the nose. Rest the hands on the lower abdomen, rising on inhalation and falling on exhalation. Inhale to a count of three, hold for three, exhale for three, hold for three. Repeat. When doing activities like lifting, kicking, or pushing, remember to exhale on the exertion.

### Variations:

For an alternate rhythm, inhale for two, and exhale for four with no holding.

Lie flat with a book on the belly. The abdomen should rise on inhalation and lower on exhalation.

3-D breathing 8s: If you are able, squat with hands flat on the floor, between your knees, to experience the diaphragm as you breathe. Paint an imaginary 8 between your left and right ribs, feeling both spheres of the 8 as you inhale and contract as you exhale. Now turn the 8 so that it expands between your stomach and spine; now turn it top to bottom, expanding your chest and lower abdomen. Can you activate all three 8's at once?

Walk and Belly Breath at the same time.

**Activates the Brain for:**

Ability to cross the midline.  
Centering and grounding.  
Relaxation of the central nervous system.  
Cranial rhythms.

**Behavioral / Postural Correlates:**

Improved reflection and expression  
A heightened energy level.  
Diaphragmatic breathing.  
An improved attention span.

## Brain Gym's Energy Exercises

Energy Exercises help to re-establish neural connections between body and brain, thus facilitating the flow of electromagnetic energy throughout the body. These activities support electrical and chemical changes that occur during all mental and physical events. Left-to-right/right-to-left, head-to-foot/foot-to-head, and back-to-front/front-to-back circuitries establish and support our sense of directionality, of sidedness, of centeredness, and of focus, as well as our awareness of where we are in space and in relation to objects in our environment.

The human body is one of the most complex of all electrical systems. All visual, auditory, or kinesthetic input (in fact, all sensory information) is changed into electrical signals and relayed to the brain along nerve fibers. The brain then sends out electrical signals along other nerve fibers to tell the visual, auditory, and muscular systems how to respond. These currents travel at speeds of up to 248 miles per hour – faster than the fastest electric trains in use!

In the same way that electrical circuits in a house can become overloaded, neurological and physiological signals can become jammed and switch off, blocking the normal flow of brain-body communication. Both Western and Eastern medical authorities recognize the need to keep the electromagnetic circuits of the body (described as meridians in the Chinese system of acupuncture) flowing freely.

During periods of increased stress, as adrenalin levels rise, a lowering of electrical potential across the nerve membrane occurs, preparing the body of fight or flee. In this state, the body reacts in order to survive, focusing electrical energy away from the neocortex and to the sympathetic nervous system. Energy Exercises stimulate parasympathetic function and decrease the release of adrenalin. By increasing the electrical threshold across the nerve membrane, thought and action are again coordinated.

Additionally, the semicircular canals of the inner ear are stimulated by electrical activity that occurs during movement. These canals, in turn, activate the brainstem's reticular formation, which screens distracting from relevant information and creates wakefulness, facilitating focus and attention in the rational centers of the brain. When the semicircular canals have been damaged or if they are not adequately stimulated by movement, a person may have difficulty concentrating. Energy Exercises provide a balanced stimulus to the semicircular canals, thus activating and focusing the higher brain centers for fine motor skills and new learning.

### BRAIN BUTTONS

The Brain Buttons (soft tissue under the collar bone to the left and right of the breastbone) are massaged deeply with one hand while holding the navel with the other hand.

**Instructions-**The participant stimulates these points for twenty to thirty seconds, or until any tenderness is released. The Brain Buttons may be tender at first; over a few days to a week, the tenderness subsides. Then, even holding the points will activate them.

**Variations:**

The participant may change hands to activate both brain hemispheres.  
Rather than holding the navel, massage the points to the left and right of it.

**Activates the Brain for:**

Sending messages from the right brain hemisphere to the left side of the body, and vice versa.  
Receiving increased oxygen.  
Stimulation of the carotid artery for increased blood supply to the brain.  
An increased flow of electromagnetic energy.

**Behavioral / Postural Correlates:**

Left-right body balance (hips not torqued, head not tilted).  
An enhanced energy level.  
Improved eye-teaming skills (may alleviate visual stress, squinting, or staring).  
Greater relaxation of neck and shoulder muscles.

**BALANCE BUTTONS**

The Balance Buttons provide a quick balance for all three dimensions: left/right, top/bottom, and back/front. Restoring balance to the occiput and the inner-ear area helps to normalize the whole body. The participant holds the Balance Buttons, located just above the indentation where the skull rests over the neck (about one and one-half to two inches to each side of the back midline) and just behind the mastoid area.

**Instructions-** The participant holds Balance Buttons while holding the navel with the other hand for about thirty seconds, then changes hands to hold the other Balance Button. The chin is tucked in; the head is level. Use two or more fingers to assure that the point is covered. Some people may experience a pulsation when the point is stimulated or held.

**Variations:**

Do the activity while standing, sitting, or lying down.  
Stimulate the points by massage before holding them.  
Press your head gently back into your fingers while holding the points, releasing neck tension or headache.

**Activates the Brain for:**

Alertness and focus by stimulating the semicircular canals and reticular system  
Decision-making, concentrating, and associative thinking  
Changing visual focus from point to point  
Increased proprioception for balance and equilibrium  
Relaxed jaw and cranial movement

**Behavioral / Postural Correlates:**

A sense of well being  
An open and receptive attitude  
Eyes, ears, and head more level on shoulders  
Relaxation of an over-focused posture or attitude  
Improved reflexes, including Cross Crawl ability

**POSITIVE POINTS**

The participant lightly touches the point above each eye with the fingertips of each hand. The points are on the frontal eminences, halfway between the hairline and the eyebrows.

**Instructions-** The participant thinks of something he would like to remember, such as the spelling of a word, or concentrates on a potentially stress-producing situation, such as a test, interview, etc... The participant closes his eyes and allows himself to experience the image, or to experience the associated tension and then its release.

**Variations:**

Positive Points may be used in conjunction with creative visualizations, such as imagining a pleasant scene, or creative thinking, such as imagining alternative outcomes to an event or story. Positive Points may be gently massaged to relieve visual stress.

**Activate the Brain for:**

Accessing the frontal lobe to balance stress around specific memories, situations, people, places, and skills  
Relaxing the reflex to act without thinking when under stress

**Behavior / Postural Correlates:**

Organizational abilities  
Study skills  
Test performance

## Brain Gym's Lengthening Activities

Lengthening Activities help the participant to develop and reinforce those neural pathways that enable them to make connections between what they already know in the back of the brain and the ability to express and process that information in the front of the brain.

One physiologic reflex to danger is to contract the muscles. This reflex has served over the centuries to protect people from real threats to their lives. It affects posture by shortening the tendons in the back of the body, from head to heels, thus confounding vestibular balance and the sense of spatial relationships. This contraction response, "tendon-guard reflex", can become a habit. What is perceived to constitute danger, thus activating the reflex, depends on patterned responses from infancy, and varies for different individuals. The frontal portion of the brain, especially the frontal lobe, is involved in comprehension, motor control, and rational behaviors necessary for participation in social situations. The Lengthening Activities have been found to relax those muscles and tendons that tighten and shorten by brainstem reflex when we are in unfamiliar learning situations. This resets proprioceptors, the "brain cells in the muscles" that give us information about where we are in space, enabling us to have better access to the whole brain-body system.

Each activity re-educates the body to make lasting changes in posture, restoring muscles to their natural length. Language used to facilitate these movements should describe "reaching, lengthening, expanding," or "opening," rather than "stretching" or "trying," which suggest efforting beyond natural capacity.

### Arm Activation

Arm Activation is an isometric self-help activity which lengthens the muscles of the chest and shoulders. Muscular control for both gross-motor and fine-motor activities originates in this area. If these muscles are shortened from tension, activities related to writing and control of tools are inhibited.

**Instructions-** Compare the two arms in terms of length, relaxation, and flexibility. Hold one arm next to your ear, and grasp that arm below the elbow with the opposite hand. The opposite arm should be positioned behind the head. Exhale gently through pursed lips, while activating muscles by pushing the arm against the other hand in four directions (front, back, in, and away). The participant should feel the arm activation all the way down to the ribcage. Exhale on activation, releasing the breath over eight or more counts. Upon completion of the movement, roll or shake shoulders, noticing the relaxation, and repeat movement on the opposite side.

**Variations:**

Take more than one complete breath in each position of activation.

While activating, reach up further to open diaphragm.

This can be done while sitting, standing or lying down.

**Activates the Brain for:**

Expressive speech and language ability.

Relaxed use of the diaphragm and increased respiration.

Eye-hand coordination and the manipulation of tools.

**Behavioral / Postural Correlates:**

Increased attention span for written work.

Improved focus and concentration without overfocus.

Improved breathing and a relaxed attitude.

Enhanced ability to express ideas, and increased energy in hands and fingers.

## **The Footflex**

The Footflex is a movement re-education process to restore the natural length of the tendons in the feet and lower legs. The tendons shorten to protect the individual from perceived danger, a response caused by the brain reflex to withdraw or to hold back (the tendon-guard reflex). By keeping the calf tendons in the lengthened position while simultaneously activating the foot, the reflex to hold back is relaxed.

**Instructions-** Sitting with one ankle resting on the opposite knee, place your fingertips at the beginning and end of calf muscle area. Search for tight spots at the beginning and end of these bands, and gently hold them apart until they “soften and melt.” While holding these spots apart, slowly and methodically point and flex foot, extending it farther up and down as this gets easier. Repeat movement on opposite side.

### **Activates the Brain for:**

Back brain-Front brain integration  
Expressive speech and language skills.

### **Behavioral / Postural Correlates**

Improved social behavior  
Improved attention span.  
Increased ability to communicate and respond.  
Knees no longer locked.

## **The Calf Pump**

The Calf Pump, like the Footflex, is a movement re-education process to restore the natural length of the tendons in the feet and lower legs. At times of perceived danger, these tendons shorten to prepare for the act of running. By pressing down the heel and lengthening the tendon in the calf, one discharges this fear reflex, and the muscles can return to a normal tonus. The Calf Pump was developed to bring a person’s awareness to the calf area, where the instinct to “hold back” originates. People often become more active participants and are able to access language abilities as soon as the brain reflex to hold back is released.

**Instructions-** Stand and support yourself with hands on a wall or on the back of a chair. Place one leg behind yourself and lean forward, and bend the knee of the forward leg. The straight leg and the back should be in the same plane (straight line). In the initial position, the heel at the back is off of the floor and the weight is on the forward leg. In the second position, weight is shifted to the back leg as the heel is pressed to the floor. Exhale while pressing the heel down and hold for a count of ten, and release with inhalation. Repeat three times on each side.

### **Activates the Brain for:**

Back brain-Front brain integration  
Expressive speech and language skills.

### **Behavioral / Postural Correlates**

Improved social behavior  
Improved attention span.  
Increased ability to communicate and respond.  
Knees no longer locked.

## **The Gravity Glider**

The Gravity Glider is a movement re-education process to restore the integrity of the hamstrings, hips and pelvic area. The movement uses balance and gravity to release tension in the hips and pelvis, allowing the participant to discover comfortable standing and sitting postures.

**Instructions-** Sit comfortably on a chair, crossing one leg over the other at the ankles, and keeping knees relaxed. Bend forward and reach out in front of you, letting your arms glide down as you exhale(allowing gravity to take over) and up as you inhale. Reaching forward from the rib cage allows the legs and the back muscles to lengthen and relax. Repeat three times and then change legs.

**Variations:**

When ready, do the Gravity Glider with the eyes closed.

Do Gravity Glider while standing. Cross the legs at the ankles and establish a comfortable balance. Bending from the hips with the head relaxed down, exhale as you reach slightly out and down with the arms, keeping the knees unlocked and the low back flat.

**Activates the Brain for:**

A sense of balance and coordination.

A sense of grounding and centering.

Increased visual attention (back-front brain integration).

Deeper respiration and increased energy.

**Behavioral / Postural Correlates**

Self-assuredness, confidence, stability.

Self-expression.

The upper and the lower body move as a unified whole.

Relaxed posture during extended periods of sitting.

**The Grounder**

The Grounder is a lengthening activity that relaxes the iliopsoas muscle group. These muscles tighten in response to excessive sitting or to stress in the pelvic area, and have the effect of restricting movement and flexibility. This inhibition at the hips locks the sacrum, shortens the breath, and interferes with cranial movement. The iliopsoas muscle group is one of the most important in the body. It is the stabilizing and grounding muscle group for the body, and its flexibility is essential for balance, whole-body coordination, and body focus.

**Instructions-** Place feet approximately one leg length apart. Point your right foot to the right and the left foot pointed directly in front of you. The heel of the right foot should be aligned with the instep of the left foot. Bend the right knee and glide in a straight line out over the foot (no further than the arch). The torso and pelvis sit squarely, facing forward, while the head, bending knee and right foot face to the right. Lengthening occurs in the muscles along the inner hip and thigh of the straight leg.

**Activates the Brain for:**

Centering and grounding.

Organization.

Increased respiration.

Spatial awareness.

Whole-body relaxation.

Relaxed vision.

**Behavioral / Postural Correlates:**

Greater stability and balance.

Improved concentration and attention.

The upper and the lower body move as a unified whole.

Hips level (not torqued).

Attitude more grounded and relaxed.