

*The Top 10 Must Know Basics*  
for  
*Improving*  
your  
*CoreHealth*

*Learn how to lead a stronger, centered life with less pain*



# Welcome

Welcome to the guide for Improving Core Health. It is our hope that this information will help you on your path to discovering a stronger center, which can lead to less pain and more ease of movement in your daily life.

Core is a major buzz word now and everyone wants to have a stronger, healthier core. But maybe you don't know where to start, or maybe you don't even know what that really means! Perhaps you have gone to physical therapy and they sent you home with some exercises but you aren't really sure how to do them.

This guide is designed to help you better understand the principles of strengthening your core muscles so that you can begin to engage in other activities. It demystifies what muscles are involved in the strengthening process and explains the correct positions you should be to get the most out of each movement.

Many times we have pain due to muscular imbalances, weakness and improper posture. There are countless articles written to support this and in my practice I have had many clients get off their pain medications and begin engaging in activities they would never have thought possible.

These explanations and beginner movements, if done slowly and with thought, will help you to start developing the core stability and strength needed to take you to the next level, where you can begin to engage in a fitness activity of choice. If you don't have a solid foundation, you can't build the house!

If you know someone who can benefit from this guide, please pass it on to them.

If you are looking for the next step and are in the Morgan Hill area, please contact us at [info@morganhillpilates.com](mailto:info@morganhillpilates.com) or through the website, and receive your first private session for \$49 (reg.\$75)

These movements are designed with safety in mind, but if you have an active injury anywhere in the back or neck, and are not sure of what you need to do for your specific circumstance, schedule a session with a qualified movement instructor to see if any modifications are needed for your specific condition.

# THE CORE Muscles

The diaphragm, pelvic floor, transverse abdominals and multifidi help us to have spinal/back/pelvic support, stability and strength. Knowing how the muscles, bones and joints of our core are intended to function, and increasing their stability and strength can help you move through life with more ease and confidence and less pain. (We will not delve into the pelvic floor muscles here as those muscles can be either over- or under- working and without a proper assessment, you may do more harm than good).

## The Basic Position

Since you will be on your back for many of the following exercises let's talk about proper posture when lying on your back with knees bent.

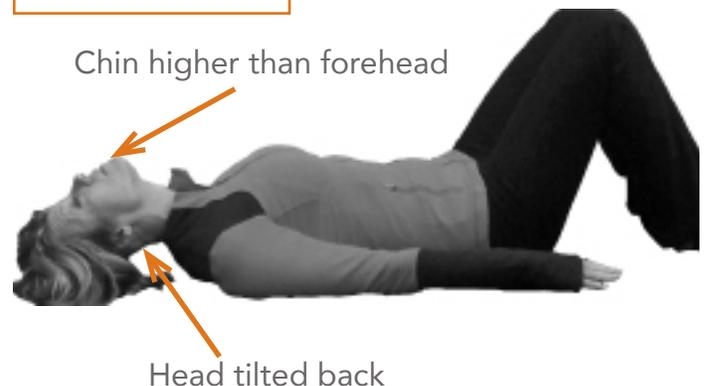
Take notice of your head and neck, you should be able to see your knees if you move just your eyes downward. If you find you are staring up and slightly behind you at the ceiling then you should try to tilt your chin toward your chest to lengthen the back of your neck. If that is difficult for you then prop your head on a pillow and start to think about doing something to help out those poor over-worked neck muscles!

Your feet should be parallel and only about 4-6" apart, your thighs should remain parallel as well, and your arms resting by your sides.

Correct Position

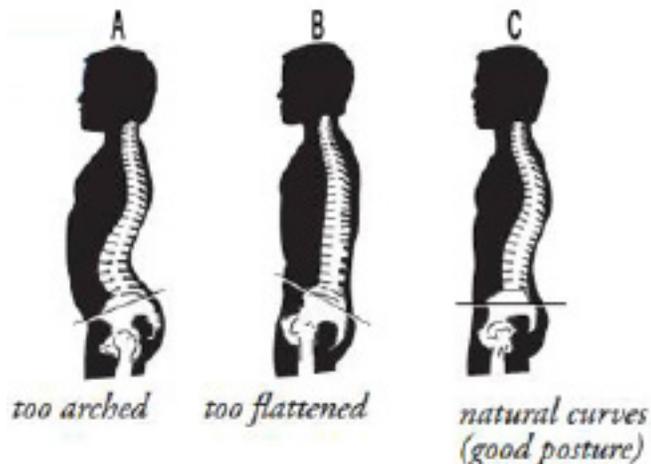


Incorrect Position



# The Pelvis and Neutral Spine

Why is knowing neutral spine so important? If you have **back pain**, not living in your physical neutral can be one of the reasons. Also if you are exercising and targeting your abdominals, you will want to know if your back is staying still or if you are over-using it. You may think you are targeting your abs, when in fact you are using other muscles to get the job done.



In Layman's terms, your pelvis consists of 3 bones: 2 halves (Ilium) which are connected in the back by the 3rd bone (sacrum). The sacrum lies above the tailbone and below the lumbar spine.

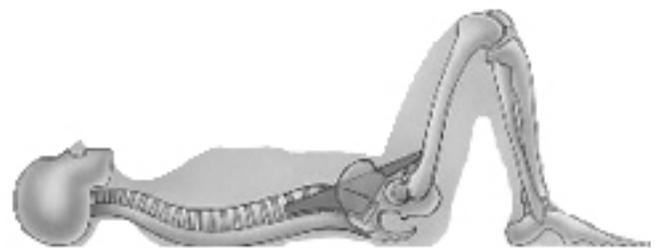
When you put your hands on your "hips" you are usually putting them on the front, highest portion of the 2 halves (ASIS). When we talk about tilting your pelvis we refer to the top.

Looking at the picture to the left –

A) This shows an anterior tilt, meaning that the hip bones (ASIS) have tilted toward the front of body (or away from the ground if you are lying down) and the spine is arched. This moves you past a neutral place and may cause pain in the low back.

B) This shows a posterior tilt, meaning that the top of the pelvis (ASIS) has tilted backward and the tailbone has curled under. If you were lying down your back has become flattened into the ground. This could also cause pain in the low back as well as other issues.

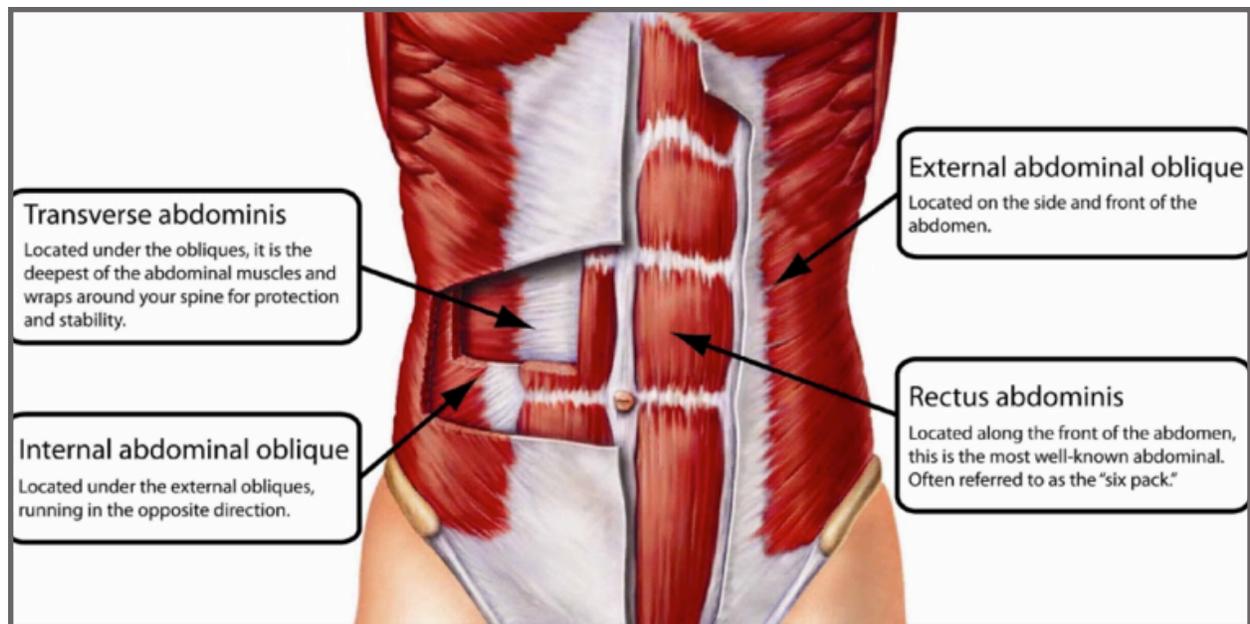
C) This shows anatomical neutral, meaning his pelvis is in a position as intended by design. This is where you would ultimately like to be, but you may not be to start out.



Lying in neutral

# Abdominals

Quick Abdominal Lesson: More than likely you are familiar with the Calvin Klein underwear models and their “6-packs”. Those abdominals are known as the Rectus Abdominis, and they run straight up and down the front of our body. The Obliques (Internal & External) run diagonally across us like a sash. The Transverse Abdominis (TvA) run underneath both the Obliques and Rectus Abdominis and wrap around us like a wide belt. These TvA are the abdominals that we are trying to focus on when told that our core needs to be stronger. Without getting too technical, they work in conjunction with musculature in the back of our bodies to help protect and stabilize our spines.



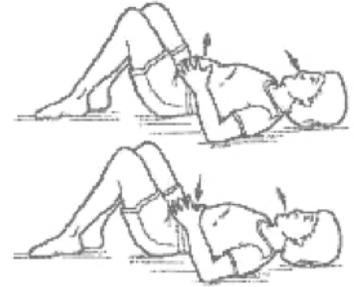
# Diaphragm

If you’ve ever watched a baby breathe, you have seen pure diaphragmatic belly breathing. But at some point, generally when school starts and we start having running races and gasp for air, we stop using our diaphragm to breathe and start shortening our breathe, taking shallow breathes into our upper chests. Not only does this stop your diaphragm from working properly, it starts to overuse other muscles whose primary functions are not breathing! An improperly functioning diaphragm can lead to back pain.

# The Basics

## 1. Diaphragmatic breathing

Lie on your back in the correct posture: Breathe into the abdomen letting the belly expand upward, (yes you may have a hard time doing this because you hear voices in your head telling you to “pull the belly in”!) On the exhale, let the abdomen fall back in toward the spine naturally letting out the air (use your mouth to exhale), and letting all your muscles and organs head back to their original places. Some of you may need to place a hand on your upper chest to press gently and remind yourself not to let the upper chest move.



## 2. Fingertip Abdominals to locate TvA

Lie on your back and return to Diaphragm Breathing. Place your fingertips just inside your hip bones and when you are about to finish your exhale, contract the abdominals without changing the position of the spine (do not move your pelvis or flatten your back into the ground). Imagine that you are just slightly increasing the tension between the hip bones rather than popping the muscles up to meet your fingers. This sounds easy but may be a difficult concept to grasp as there are years of belly thrusting moves etched into our brains. Pulling the belly button into the body is not the movement you are looking for, think more of a cinching of the belt, or a gentle squeeze of a sponge.



## Lumbopelvic Mobility

Our pelvis should be able to move freely without pain and stiffness. To help you identify neutral spine and release tension in the spine and hips you can try pelvic circles. You should only be moving your pelvis and lumbar spine during this movement and if you find you are moving all the way up to your neck, chest and head, make the movement smaller until you start to loosen up and find you can move just your pelvis.

### 3. Pelvic Movement Exercise

Lie on your back with knees bent and spine in neutral. Imagine that you have a bowl of water balanced on your lower stomach between the belly button and pubic bones (the front of your pelvis).

1. Vertical: Imagine you were going to spill the water toward your belly button. Inhale, and as you exhale gently contract your TvA and sink your back into the ground. When you do this, you should feel your pubic bones and tailbone rise gently toward the ceiling.

As you inhale again slowly come back toward your starting position and then continue past neutral as if you wanted to spill the water toward your legs. As you exhale start the process all over again until you feel slightly looser in the spine and hips.

2. Horizontal: Now tilt the bowl as if you are trying to pour the water out on to the left hip and then to the right hip and back again. Looking to establish that you are feeling equal pressure on both buttocks.

3. Full Circles: Finish by combining the above two moves into making circles. Try to find a smooth and make as round a circle as possible. You should not feel lower back pain or discomfort with this.

Once you perform the tilts and circles, you should be able to identify your neutral by being balanced on the center of the pelvis and feeling minimal effort of the abdomen and lower back muscles.

Start

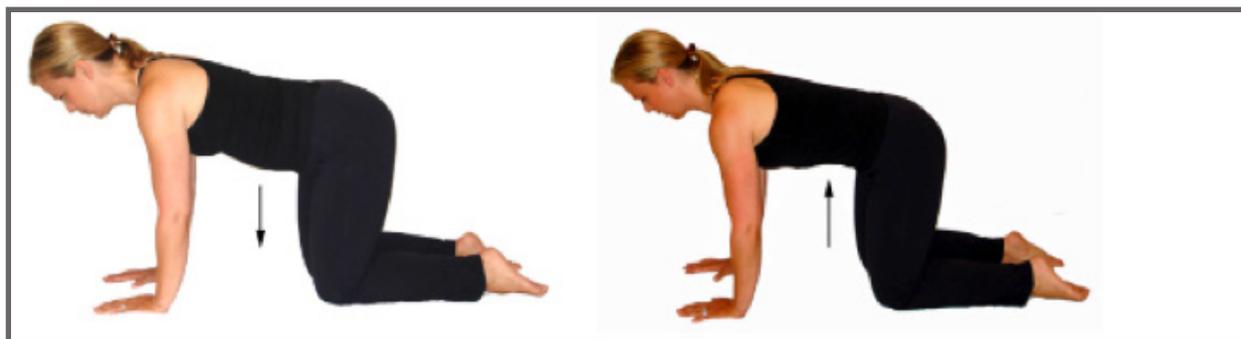


Finish



## 4. All Fours Abdominals Breathing (Combining Ab work with Neutral Pelvis)

In a neutral, all fours position, inhale as you did in diaphragm breathing and allow the abdominals to expand down towards the ground – ALL the way. On the exhale, pull the abdominals up and in toward the spine without changing the position of the back. You do not have the ground to help maintain a neutral pelvis/spine with this one. Placing a dowel or a roller on your back from head to tailbone will help you be aware of, and maintain, your neutral both in the neck and lumbar spine.



## 5. Marching (Pelvic Stability, Abdominals)

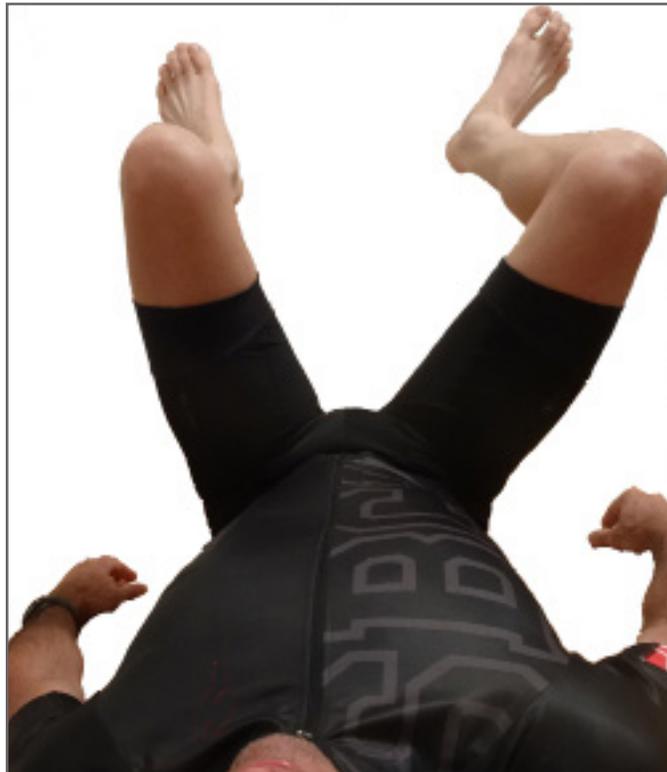
Lie on your back with knees bent and spine in neutral. Begin with an inhale, and as you exhale feel the engagement of the transverse abdominals. Once that has happened lift one foot off the floor folding the knee into a 90° angle (tabletop). Do not change the position of your back and pelvis, nor let the hip dip from side to side. As you inhale lower the foot. Alternate legs.

It is very easy to do this exercise without engaging the TvA, letting the hips wiggle side to side, but that is not what you want to do. To help feel if there is movement you can place your hands on your hips and pay particular attention to the buttocks and sacrum staying perfectly still.



## 6. Bent knee drop outs (Pelvic Stability, Abdominals)

Continue lying on your back as you did in the Marching Exercise, after you lift the 1st leg into tabletop, hold it there, inhale again and as you exhale bring the 2nd leg up to join the first. On your next inhale, let the right knee open to the right side without rotating or dropping the pelvis to that side. As you exhale, brace the abdominals and bring the knee back up to center. Place hands on hips to monitor for movement. Perform several on each leg. Pay attention to your back and pelvis not moving, and using your abdominals to help with stability.



## Scapular Mobility (Shoulder Blades)

### 7. Sternum Drop

Begin in the all fours position. Keeping the arms straight, drop the sternum down towards the mat as the shoulder blades slide together. Press into the hands and slide the shoulder blades apart until the upper spine is pressed up toward the ceiling. Try to keep the ribs from dropping and also from moving the low back too much.

Blades Farther Apart  
(look at the tattoo)

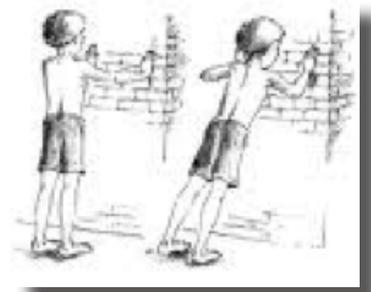


Blades Closer Together  
(less tattoo shows)

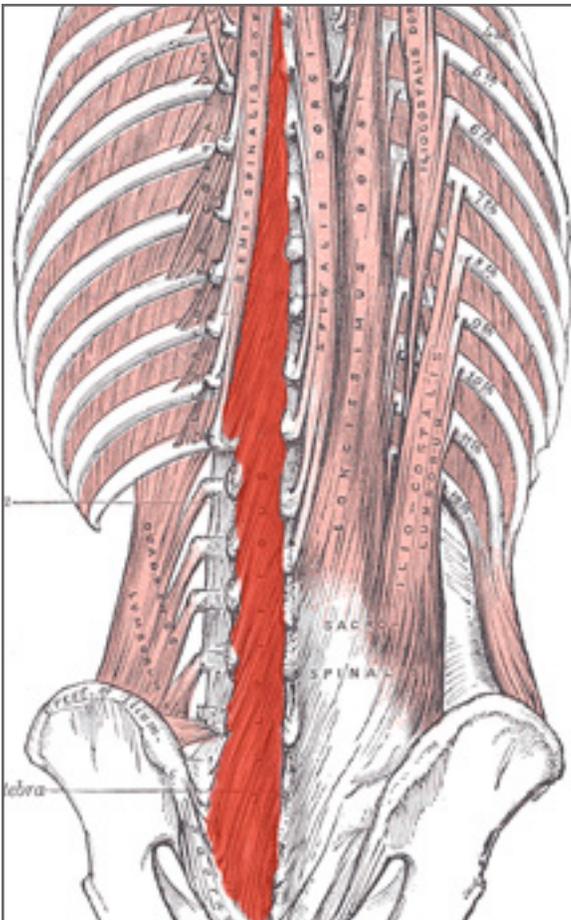


## 8. Wall Push Ups

Begin standing in front of a wall with the nose and toes touching the wall and the hands placed just wider than the shoulders with the elbows bent. Step away from the wall until the arms are straight and the torso is parallel to the wall. Maintaining a straight torso and without moving the scapula, bend the elbows and lower the torso toward the wall. This differs from the Sternum Drops in that with the drops you are trying to get the shoulder blades to move and with wall push ups you are trying to keep them still so that you can start to add load in the future (i.e., getting down onto the ground).



## Multifidus



wikipedia photo

The multifidus is a series of muscles that starts at the sacrum bone at the base of the spine and extends up to the second cervical vertebra. It is small but powerful muscle that provides stiffness, stability, and support to the spinal column. Since the column is part of the central nervous system, support is all the more necessary.

The multifidus is working during our daily life in activities such as bending to pick up your children and reaching around to grab the seatbelt. It should activate prior to activity and in many back pain cases, it has been shown to be underdeveloped.

## Locate the Multifidus

Stand in a doorway facing sideways with a neutral spine and your knees slightly bent. Place one hand on the door frame and the fingers of your other hand along side your spine about waist level. Gently press on the door frame and you should feel a slight bulging under your fingers. You may find that one side fires easily and the other doesn't. Once you are able to find your multifidus, then you will be more aware of them in many other movements.

## 9. All Fours Opposite Arm/ Leg Reach (Multifidi)

In a neutral, all fours position, continue with your diaphragm breathing and this time when you exhale and tighten the abdominals, keep your shoulder blades still (like in the above left side photo) and extend your right arm forward as if you were going to bring it overhead. Bring the arm down on the inhale and on the next exhale lift the left arm. If your shoulders do not allow for this only go as high as you can without letting the shoulders creep toward the ears.

Once this is mastered and you are ready to do the legs, keep the breathing pattern the same. Add the legs by sliding one leg along the floor and then lifting it by engaging the muscles along the back of the leg to the level of the hips without changing the position of the pelvis or letting the lower back dip.

If your hip turns out and your back bows like the picture on the left, you will need to lower the leg until you can keep the back neutral and the hip bones facing down. The final step is to reach one arm and the opposite leg away from the center of the body at the same time while maintaining the position of the spine, working up to a hold time of 60 seconds without wiggling and wobbling.

Incorrect Position



Correct Position



## 10. Single Leg Stance

In order for us to walk, we need to have muscles in our buttocks, hips, and legs. Just as important but often overlooked is the ability to stand and balance on one leg. In order for us to take a step that isn't a shuffle, there is a point during the gait cycle where we are on one leg. To prepare for walking, hiking, squatting and other lower body activity - start with the single leg stance.

Correct Position



Stand with your feet underneath you anywhere from 0-6 inches apart. If the feet get too wide you will have no center of balance and will have to lean to the side to get a foot off the ground.

Imagine that there is a line of energy going up through the center of your body and right out the crown of the head.

When you feel ready lift one foot up off the floor and let it hover there. You would like the foot that remains on the ground to be as still as possible. If you have never done this, you may want to be close to a wall or have a pole to help you out.

As you get better and better (and you will), begin to lift the thigh higher until it becomes parallel to the floor. Ultimately you should be able to maintain this for a minute with tipping over.

Torso should not tilt



Hips should not tilt