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## What is Pilates

Pilates is a physical fitness system developed in the early 20th century by Joseph Pilates in Germany, the UK and the USA.

Pilates called his method Contrology (from control and Greek -λογία, -logia), because he believed that his method uses the mind to control the muscles. The Pilates method seeks to increase the strength, flexibility and control of the body.

## History of Pilates

Pilates was designed by Joseph Pilates, a Greek physical-culturist born in Germany in 1883. He developed a system of exercises during the first half of the 20th century which were intended to strengthen the human mind and body. Joseph Pilates believed that mental and physical health are inter-related.[citation needed]

The method was originally confined to the few and normally practiced in a specialized studio, but with time this has changed and pilates can now be found in community centers, gyms and physiotherapy. The "traditional" form still survives and there are also a variety of "contemporary" schools, such as Stott Pilates, which have adapted the system in different ways.

## The Pilates Method and Apparatus

The Pilates method seeks to develop controlled movement from a strong core and it does this using a range of apparatuses to guide and train the body. Pilates originally developed his method as mat exercises, but, in common with many other physical culture systems from the first part of the twentieth century, he used several pieces of apparatus to help people "get the method in their bodies". Each piece of apparatus has its own repertoire of exercises and most of the exercises done on the various pieces of Pilates apparatus are resistance training since they make use of springs to provide additional resistance. Using springs results in "progressive resistance", meaning the resistance increases as the spring is stretched.

In contemporary Pilates other props are used, including small weighted balls, foam rollers, large exercise balls, rotating disks, and resistance bands.

## Concentration

Pilates demands intense focus: "You have to concentrate on what you're doing. All the time. And you must concentrate on your entire body".<sup>1</sup> This is not easy, but in Pilates the way that exercises are done is more important than the exercises themselves.

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## Control

"Contrology" was Joseph Pilates preferred name for his method and it is based on the idea of muscle control. "Nothing about the Pilates Method is haphazard. The reason you need to concentrate so thoroughly is so you can be in control of every aspect of every moment". All exercises are done with control with the muscles working to lift against gravity and the resistance of the springs and thereby control the movement of the body and the apparatus. "The Pilates Method teaches you to be in control of your body and not at its mercy".

## Centering

In order to attain control of your body you must have a starting place: the center. The center is the focal point of the Pilates Method. Many Pilates teachers refer to the group of muscles in the center of the body – encompassing the abdomen, lower and upper back, hips, buttocks and inner thighs – the "powerhouse." All movement in Pilates should begin from the powerhouse and flow outward to the limbs.

## Flow or efficiency of movement

Pilates aims for elegant sufficiency of movement, creating flow through the use of appropriate transitions. Once precision has been achieved, the exercises are intended to flow within and into each other in order to build strength and stamina. In other words, the Pilates technique asserts that physical energy exerted from the center should coordinate movements of the extremities: Pilates is flowing movement outward from a strong core.

## Power Engine or Powerhouse

The power engine is a muscular network which provides the basic control and stability in the lumbopelvic region, which furthermore consists of the Pelvic floor muscles, the Transversus, the Multifidus, the diaphragm, the muscles of the inner thigh, and the muscles encircling the sitting bone area.

You activate the power engine effectively by hollowing of the deep abdominals and pelvic floor muscles ("Deep muscle corset"), by drawing the navel back into the spine in a zipping-up motion, from the pubic bone to the breast bone thereby engaging the heels, the back of the inner thighs, the deep lower back muscles, and the muscles surrounding the sitting bones and tailbone area without inhibiting the natural function of the diaphragm – that is without holding your breath either from lifting the chest upwards or contracting the chest.

Apart from providing core control and stability to the lumbopelvic region; in the sitting position, the power engine elevates the torso and places the centre of gravity at its highest and most efficient position; in prone position, it elongates the body bi-directionally to reduce weight in the upper body; in supine position, it elongates the body bi-directionally and places the centre of gravity again at its highest and most efficient position. The Power Engine opens up the vertical dimension of the body by grounding the pelvis to the earth and by elevating the spine towards the sky, much like a tree; the pelvis being the root and the branches being the spine.

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## Lateral Posterior Breathing

Posterior lateral breathing is a way of breathing that facilitates bibasal expansion of the ribcage. To understand this concept properly you have to first learn to expand and release the ribcage without deliberately breathing in or out. The in-breath (inhalation) and out-breath (exhalation) should occur instinctively as a result of the conscious expansion and release of the ribcage. This is how you would do this: You place your hands on your lower ribs with your thumbs facing the back of your ribcage, try not to think of breathing, relax your upper abdominals and expand your ribcage to the side against the soft resistance of your hands. Release the expansion of the ribcage by first melting away the area of the clavicles. You can also try this with a scarf around the lower ribcage. You will not be able to expand and release the ribcage effectively if you try to contract your abdominal muscles to expand the ribcage and if you try to contract the ribcage instead of first release it. Now you should try to duplicate this action with conscious breathing in and breathing out. The in-breath (let it come) widens the ribcage to the side, back and up ratio of 60:30:10. That is 60% to the side, 30 % back and 10% up. The out-breath (gradually let it out) exits the body first through the gradual and gentle release of tension (intention) in the upper chest and breastbone area, without collapsing the front of the ribcage, and terminates through the activation of the power engine.

## Precision

Precision is essential to correct pilates: "concentrate on the correct movements each time you exercise, lest you do them improperly and thus lose all the vital benefits of their value". The focus is on doing one precise and perfect movement, rather than many halfhearted ones. Pilates is here reflecting common physical culture wisdom: "You will gain more strength from a few energetic, concentrated efforts that from a thousand listless, sluggish movements". The goal is for this precision to eventually become second nature, and carry over into everyday life as grace and economy of movement.

## Breathing

Breathing is important in the Pilates method. In Return to Life, Pilates devotes a section of his introduction specifically to breathing "Bodily house-cleaning with blood circulation". He saw considerable value in increasing the intake of oxygen and the circulation of this oxygenated blood to every part of the body. This he saw as cleansing and invigorating. Proper full inhalation and complete exhalation were key to this. "Pilates saw forced exhalation as the key to full inhalation." He advised people to squeeze out the lungs as you would wring a wet towel dry. In Pilates exercises, you breathe in with the effort and out on the return. In order to keep the lower abdominals close to the spine; the breathing needs to be directed laterally, into the lower ribcage. Pilates breathing is described as a posterior lateral breathing, meaning that the practitioner is instructed to breathe deep into the back and sides of his or her rib cage. When practitioners exhale, they are instructed to note the engagement of their deep abdominal and pelvic floor muscles and maintain this engagement as they inhale. Pilates attempts to properly coordinate this breathing practice with movement, including breathing instructions with every exercise. "Above all, learn to breathe correctly."

## Precautions

Pilates during pregnancy has been claimed to be a highly valuable and beneficial form of exercise, but the use of Pilates in pregnancy should only be undertaken under guidance of a fully trained expert.

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Specific prenatal classes are available at the studio on a Tuesday night. Please notify your instructor if you do fall pregnant during the a course. Discretion will be maintained.

## Stott 5 Basic Principles

Proper breathing ensures that enough oxygen is flowing to the muscles you are using, and helps prevent unnecessary tension. A relaxed and full breath pattern encourages focus and concentration.

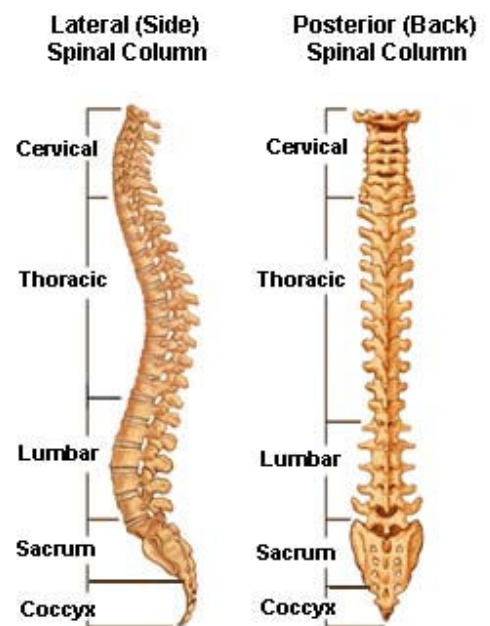
The STOTT PILATES breath pattern involves an expansion of the rib cage out to the sides and back without allowing the shoulders to lift. It is also important to breathe into the lower part of your lungs, because there is more efficient gas exchange.

The breath pattern used in STOTT PILATES will help engage your deep abdominal muscles and stabilize your torso.

### BREATHING PRINCIPLE EXERCISES

1. Notice Natural Breath Pattern - Lying on back, breathe smoothly, noticing natural breath pattern. Is breath going into abdominal cavity, upper chest, sides of rib cage, back of rib cage?

2. Breathing Flexed Forward - This encourages breathing into the sides and back of the rib cage.



#### STARTING POSITION

Sit in an upright position, arms relaxed.

To prepare inhale...



**EXHALE** initiate from top of head and curve forward, relaxing over legs.



While flexed forward...  
**INHALE** through nose, feeling sides and back of rib cage expand.  
**EXHALE** through pursed lips, allowing rib cage to close.  
**Complete 3–5 repetitions**



**On last exhale...** initiate from tailbone and roll up to starting position.

STOTT PILATES emphasizes stabilization of the pelvis and lumbar spine (lower back) in either a neutral or an imprinted position:

**Neutral Placement:** Maintains the normal curve of the lower back. When lying on your back, front of hip bones and pubic bone should lie parallel to the mat, and your lower back should not be pressed into the mat. This is the most stable and optimal shock-absorbing position for your back.

Make sure you're not arching your back to achieve neutral alignment. While breathing and engaging abdominals in this position no strain should be felt through the lower back. If you feel muscle tension, shift the pelvis to a more comfortable position.

**Imprinted Position;** the lower back is moving toward the mat. Avoid pressing your lower back all the way into the mat or tilting the pelvis too far by overusing the abs or glutes. Note that the amount of contact between the lower back and the mat is different for everyone.

### PELVIC PLACEMENT PRINCIPLE EXERCISES

Starting Position for Exercises 1-3

Lying on back, pelvis and spine neutral. Knees bent, feet hip-distance apart on mat. Arms long by sides, palms down.

1. **Rocking Pelvis** - Rock pelvis, alternating arching lower back off floor and pressing lower back into floor. Neutral placement will be somewhere between the two.
2. **Neutral to Imprint** - Note: Arms are raised in photos to show spinal position.



**INHALE** stay.



**EXHALE** contract abs and imprint spine



**INHALE** maintain imprinted position while inhaling.



**EXHALE** return to neutral.

The rib cage position affects the alignment of the thoracic (upper) spine. When lying on your back in a neutral position, maintain the sense of the weight of the ribs resting gently on the mat (i.e. maintain the normal curve of the upper back). Don't lift off or push your rib cage into the mat. Pay particular attention to the placement of your rib cage when inhaling or while performing arm movements overhead.

Using the breath pattern described below and engaging your abs will help stabilize the rib cage. Emphasize breathing into the back and sides of your rib cage during inhalation. When you exhale, allow you ribs to soften, with the two sides gently closing in toward each other.

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Breath Pattern

**INHALE** through nose, feeling sides and back of rib cage expand.

**EXHALE** through pursed lips, allowing rib cage to close.

**RIB CAGE PLACEMENT PRINCIPLE EXERCISE**

Arm Raises



**STARTING POSITION**

Lying on back, pelvis and spine neutral.  
Knees bent, feet hip-distance apart on mat.  
Arms long by sides, palms down.

**INHALE** reach arms to ceiling

**EXHALE** reach arms overhead only as far as abdominal connection can be maintained and rib cage can remain in contact with mat.

**INHALE** reach arms to ceiling

**EXHALE** lower arms down by sides.

Stabilizing your scapulae [shoulder blades] on the back of the rib cage is as important as contracting your abs during the initiation of every exercise. This will help you avoid strain through your neck and upper shoulders.

To achieve proper placement, a sense of width should be maintained across the front and back of the shoulders. Make sure you neither allow your shoulders to round forward too much nor squeeze together toward the spine. Shoulders should not be lifted too far, or over-depressed. Placement should be somewhere between these two positions.

The shoulder blades have a large range of motion, so remember to maintain stability (but not rigidity) at all times: a) when the spine is neutral and the arms are resting; b) when the spine is moving, and; c) when the arms are moving in any direction.

**SHOULDER STABILITY PRINCIPLE EXERCISES**

1. Scapula Isolations (Protraction & Retraction) lying down

Your cervical spine [neck] should hold its natural curve with your head balanced directly above your shoulders when sitting, lying and standing. In some cases, a small pillow should be used when lying on your back to put your head and neck in a comfortable position.

Whenever you lift your head and upper body from the mat, lengthen the back of your neck and nod your head forward without jamming the chin into the chest. There should be enough room to fit your fist between your chin and chest. Once your head is in proper position and your shoulder blades are stabilized (Principle 4), the upper torso can be lifted by contracting the abs and sliding your rib cage toward your pelvis.

When lying on your stomach and lifting the upper torso, pay particular attention to maintaining an even line, from the upper back to the neck. Avoid lifting the head too high and crunching up the back of the neck.

## HEAD & CERVICAL PLACEMENT - PRINCIPLE EXERCISES

1. **Head Nods** - Practice doing Head Nods properly before lifting head and shoulders off the mat. Avoid jamming chin into chest, which results in too much compression of the neck.



### STARTING POSITION

Lying on back, pelvis and spine neutral. Knees bent, feet hip-distance apart on mat. Arms long by sides, palms down.



**INHALE** lengthen back of neck, leaving head on mat.



**EXHALE** bring head back to neutral position.

## 10 Exercises to Perform at Home

### 1. Cat Stretch



### STARTING POSITION

On hands and knees with arms under shoulders and knees under hips, knees hip-distance apart. Pelvis and spine neutral.



**EXHALE** curve spine up toward ceiling allowing head to drop and tailbone to tuck under.



**INHALE** keep abs engaged and expand back of rib cage, keeping head and shoulders relaxed.



**EXHALE** return spine to starting position.

**Complete 3–5 repetitions.**

## 2. Ab Prep

Practicing ab curls prepares you to safely do other more challenging abdominal exercises. Avoid jamming chin into chest, which results in too much compression of the neck.



### STARTING POSITION

Lying on back, pelvis and spine neutral. Knees bent, feet hip-distance apart on mat. Arms long by sides, palms down.

To prepare, inhale...



**EXHALE** lengthen back of neck, stabilize shoulder blades, contract abs to slide rib cage toward pelvis and lift head and shoulders off mat. Keep lower back in a neutral position; avoid pressing lower back into mat



**INHALE** return head and shoulders to mat, then return head and neck to starting position.



**EXHALE** return spine to starting position.

**Complete 3–5 repetitions.**

## Pilates Ab Prep



### STARTING POSITION

Pelvis and spine neutral, knees flexed, feet hip-distance apart on mat. Arms by side, palms down.



**INHALE** lengthen back of neck to create slight cranio-vertebral flexion.



**EXHALE** Maintain position as you contract abdominals to slide rib cage toward pelvis and flex thoracic spine, reach arms off mat level with shoulders. Inhale: hold position by maintaining abdominal contraction while breathing into rib cage.



**EXHALE** roll upper body down to mat, allowing cervical spine to return to neutral once head is on mat, simultaneously lower arms.

**Complete 5–10 repetitions.**

This exercise can be done with 2 breaths i.e. inhale to lengthen the neck, exhale to lift the head and shoulders up, in hale to return to the mat.

### 3. Modified Breast Stroke Prep

With this exercise, use upper back muscles to lift head and shoulders instead of pressing up with the arms. Keep abs contracted to protect lower spine.



**STARTING POSITION**  
 Lying on stomach, pelvis and spine neutral. Legs straight and together. Elbows bent, hands by shoulders.

To prepare inhale...



**EXHALE** initiate by gently sliding shoulder blades down and reach top of head away from tailbone to begin lifting upper back. Allow rib cage to open and maintain bottom ribs in contact with mat.



**INHALE** maintain position and breathe into sides of rib cage without losing abdominal contraction.



**EXHALE** lower upper torso to mat and return to starting position

**Complete 5–10 repetitions.**

### 4. Spine Twist

Exercise and Breath Pattern:

- Inhale to prepare. Exhale, rotate lower torso allowing both legs to lower toward the mat, keeping legs together. Inhale to stay. Exhale, rotate back to the start position.
- Repeat going in both directions 3-5 times.

Beneficial Cues:

- Keep the inner thighs engaged as you lower legs to one side—this will help with abdominal connection.
- Do not let your upper body rotate with the lower body.
- Maintain a lifted sensation in your pelvic floor muscles as you rotate your spine.



## 5. Single Leg Stretch



Prepare: Lie on your back with your knees bent and your shins parallel to the floor. This is tabletop position for the legs.

1. Inhale
2. Exhale: Pull your abs in, taking your bellybutton down toward your spine, as you curl your head and shoulders up to the tips of the shoulder blades. As you curl up, your left leg extends at a 45-degree angle.

The right leg remains in tabletop position with the right hand grasping the right ankle and the left hand moving to the right knee.

3. Inhale: Switch legs on a two-part inhale. Bring air in as the left knee comes in, and bring more air in as you gently pulse that knee toward you.

Now the left hand is at the left ankle and the right hand at the left knee.

4. Exhale: Switch legs. Bring the right leg in with a two-part exhale/pulse and extend the left leg.

The hand to leg coordination continues with the outside hand of the bent leg going to the ankle and the other hand moving to the inside of the knee.

5. Repeat: Switch legs up to 10 times. Release the exercise if you are finding tension in your shoulders and neck or if your lower back is taking the strain.

## 6. Obliques Preparation

Criss cross focuses on the abdominals with a special emphasis on the obliques. The obliques aid in posture stabilization to some degree, but they are more involved in flexion and rotation of the spine. One benefit of working the obliques is that they help define the waist.



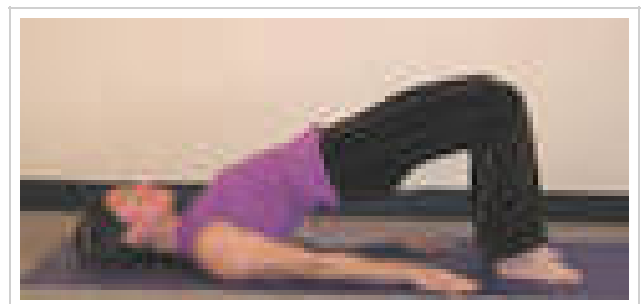
### Prepare

1. Lie on your back in neutral spine.
2. Bend your knees and bring your shins up so that they are parallel to the floor.
3. Place your hands behind your head, supporting the base of the skull. Keep the elbows wide.
4. Use an exhale to pull your abs into a deep scoop, and leaving the pelvis in a neutral position (not tucked or tipped), curl the chin and shoulders off the mat up to the base of the shoulder blades.
5. Extend 1 leg out on the exhale and twist towards the knee coming into the chest. Inhale return to your starting position [as in the diagram above] exhale repeat to the exercise to the other side.

## 6. Shoulder Bridge Prep

Lie on your back in neutral spine, with your knees bent and feet on the floor. Your arms are extended along your sides.

Inhale to prepare. Exhale to press down through your feet to lengthen your spine and press your hips up. You will come to a bridge position on your shoulders with your knees, hips and shoulders in one line. Your abs and hamstrings should be well engaged.



## 7. Swan Dive

Pilates Mat Exercise: Swan

1. Lie on the mat face down.
  - i. Keep your arms close to your body as you bend your elbows to bring your hands under your shoulders. Shoulders should be away from the ears.
  - ii. The legs are usually together, but it is acceptable to do this exercise with the legs shoulder-width apart.
2. Engage your abdominal muscles, lifting your belly button up away from the mat. The abdominals remain lifted throughout the exercise. Inhale to prepare.
3. Exhale to lengthen your spine, sending energy through the top of your head as you press your forearms and hands into the mat to support a long upward arc the upper body.



The elbows are close to the body, the head stays in line with the spine, and the hips stay on the mat.

Protect your lower back by sending your tail bone down toward the mat.

## 9. Swimming

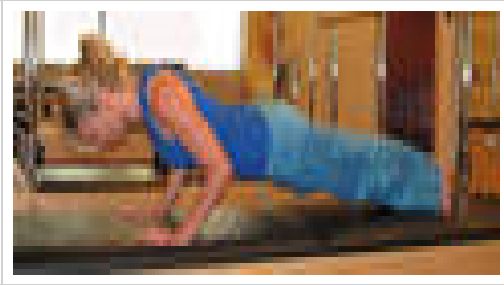
Swimming makes a great counter stretch for the many Pilates Mat exercises that require forward flexion.

- Lie on your stomach with the legs straight and together.
- Keeping your shoulder blades settled in your back and your shoulders away from your ears, stretch your arms straight overhead.
- Inhale to prepare.
- Exhale to lift one arm and the opposite leg.
- Inhale, return that arm and leg to the mat, exhale to lift the other side up.



## 10. Push up

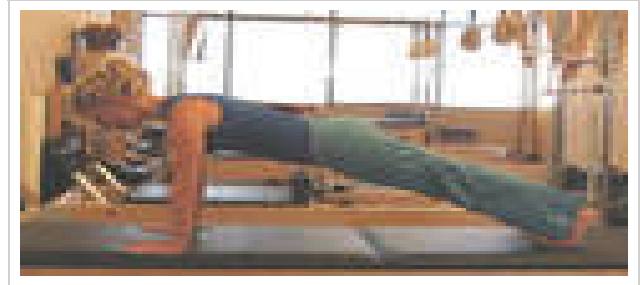
This can be done with the knees on the mat and the ankles crossed over. Keep the body weight over the arms.



### Lower Toward the Mat

**Inhale:** Bend your elbows straight back along your sides so that your arms brush your ribs. (This is different than some push-up styles where the elbows are allowed to splay outward.)

As you slowly lower yourself toward the mat, keep your shoulder blades settled in your back; they should not pop up or move together. This is an essential part of the exercise as it teaches you to stabilize your shoulders and torso.



**Exhale:** Keep your abs lifted and extend your elbows so that your body rises, in one long line, up away from the mat.

Many people find that keeping their inner thighs together, and imagining that their sit bones are pulling together, engages the lower body in a way that helps you get back up without collapsing.

## 6. Return to Plank