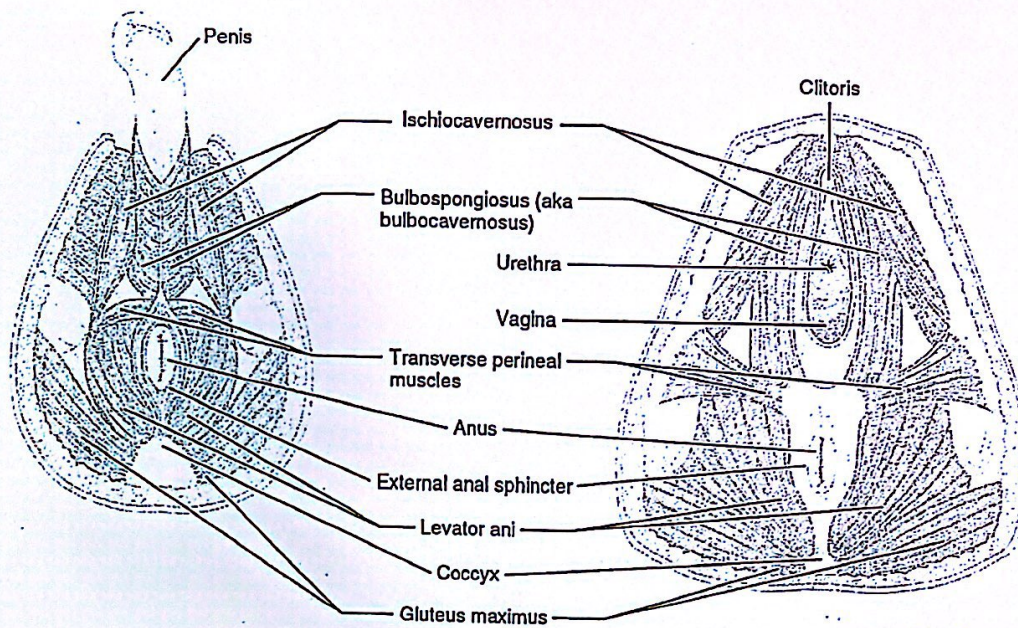


## Functions of the Pelvic Floor

The pelvic floor is a hammock of muscles suspended between the front of your pelvis (pubic bone) and back of your pelvis (sacrum). Both women and men have a urethra and rectum. Women have an additional opening called the vagina which is important for sexual intercourse and child birth.



Male perineal muscles: inferior view

Female perineal muscles: inferior view

### The 5 functions of the pelvic floor are:

#### 1.) **Sphincter control**

A sphincter closes or opens a tube. The pelvic floor muscles relax and open the tube to urinate and defecate. You can purposely close it to prevent "breaking wind" for example. Some tone is always present in the pelvic floor to maintain continence.

#### 2.) **Support**

The pelvic floor forms a shelf holding up the internal organs.

#### 3.) **Stabilization**

These 'core' muscles work to support you during movement.

#### 4.) **Sexual appreciation**

The pelvic floor muscles in women must relax to receive comfortable penetration & deliver babies. They are very important for arousal and orgasm in men and women.

#### 5.) **Sump pump**

Functional use of these muscles throughout the day helps pump venous and lymphatic fluid around the legs and abdomen back to the heart for circulation.

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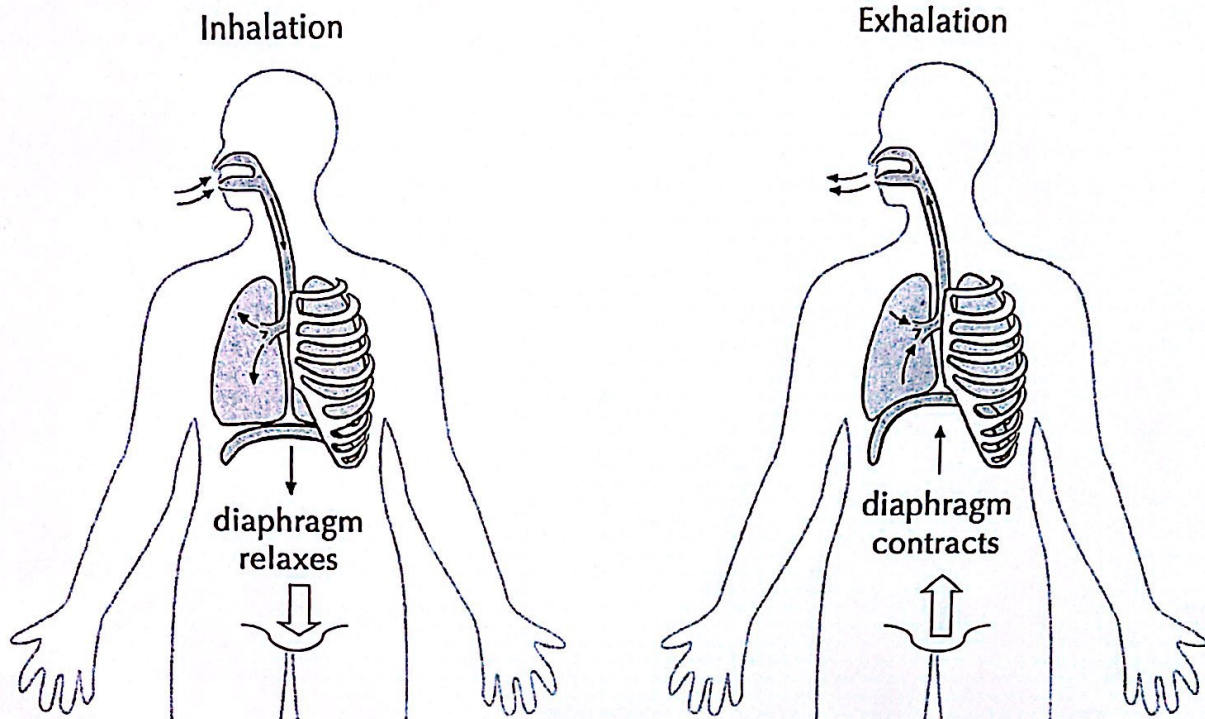
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## Coordination of the Pelvic Floor with Breathing

The pelvic floor and the respiratory diaphragm mirror each other. When you breathe in, the lungs fill with air, and the pelvic floor is pushed down a little. When you breathe out, the pelvic floor naturally rises.



Inhale = Pelvic floor drops

Exhale = Pelvic floor rises

Some people attempt to do a pelvic floor muscle contraction by holding their breath or breathing in. The pelvic floor contracts best when you blow out. That is why the safest way to lift a heavy object is to 'engage your core' and blow **out** as you stand.

**Exercise:** Practice gently exhaling (blowing out) while contracting the pelvic floor. If you are having trouble feeling these muscles, you may get useful feedback from the handout 'Tuning-In with your Pelvic Floor.'

**Progression:** Eventually you want to progress the length of time you can hold a pelvic floor muscle contraction. This will require you to breathe normally while contracting. Practice by blowing out as you engage the pelvic floor muscles. Breathe normally in and out for 1 breath while you keep the pelvic floor engaged. At the end of your last exhale, relax for one full breath.

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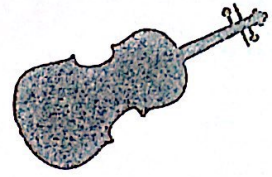
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## The 'Pee' Symphony

Urination is like a symphony; the bladder, spinal cord and pelvic floor muscles play in perfect harmony. The brain is the conductor. Now, imagine an electric guitar stepping in and playing out of time...it would confuse the entire piece! Suddenly, the timing is off and the production falls apart. Some of our 'peeing' habits are like the electric guitar creating neurological confusion leading to dysfunction.



There is a reflex to urinate called the 'micturition reflex.' This reflex loop (communication between the pelvic floor muscles and bladder) happens at the base of your spinal cord. The micturition reflex maintains continence and coordinates neural loops to help you urinate.

A reflex does not require awareness. When your bladder is filling, your pelvic floor muscles maintain some tone to shut the doors to the urethra (i.e when the pelvic floor muscles are turned on, the bladder relaxes to fill). When we decide it is time to urinate, the pelvic floor muscles relax and the bladder (or detrusor muscle) contracts to push urine out. After urination, the micturition reflex for bladder filling resumes and the pelvic floor turns on to maintain continence once again.

Let's identify some of the confusing habits which are like a guitar to our 'pee symphony.'

**Stopping the flow of urine** (a.k.a. practicing your 'kegels' on the toilet):

- Some people have been encouraged to strengthen their pelvic floor while urinating; when we purposely contract our pelvic floor muscles during a time when they are meant to relax (urination) we confuse the micturition reflex; this can also cause urine reflux. If you are unsure if you are doing your pelvic floor exercises correctly, try 1 contraction only during urination, then practice safer techniques such as feeling the closure of pelvic walls around an inserted finger or watching the pelvic floor lift in a mirror.

**'Power Peeing:'**

- The bladder wants to do the elimination for you. Pushing to urinate faster may impair the bladder's performance. So, just relax and enjoy the show!

**Going to the bathroom 'Just in Case':**

- Voiding before your bladder feels full can lead to increased bladder sensitivity, decreased bladder capacity and more frequent urination. Imagine a conductor motioned for an orchestra to play much more softly (this is like us going to the bathroom when urge isn't present) Eventually, the softer noise would become normal to the audience (the bladder would accommodate and become more sensitive). Then, the conductor had an orchestra play at a normal level...it would sound LOUD to the audience! This is like urgency. Going 'just in case' increases bladder sensitivity and frequency due to decreased bladder capacity.



**'Hovering':**

- Squatting turns on the pelvic floor muscles to stabilize, but, the pelvic floor muscles need to relax to urinate! If you have toilet phobia, build a nest of toilet paper, sit, and let it flow!

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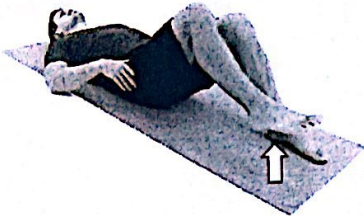
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**BRACE SUPINE MARCHING**

**Repeat** 10 Times  
**Complete** 1 Set  
**Perform** 1 Times a Day

While lying on your back with your knees bent, slowly raise up one foot a few inches and then set it back down. Next, perform on your other leg. Use your stomach muscles to keep your spine from moving.



Video # VVQK9AVP5

*exhale, contract pelvic floor : lift knee***BRIDGE - BRIDGING**

**Repeat** 10 Times  
**Complete** 1 Set  
**Perform** 1 Times a Day

While lying on your back with knees bent, tighten your lower abdominals, squeeze your buttocks and then raise your buttocks off the floor/bed as creating a "Bridge" with your body. Hold and then lower yourself and repeat.

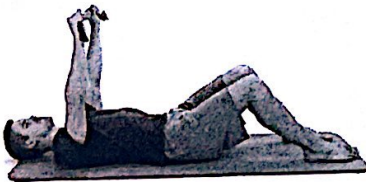


Video # VVTJZ7GYR

*exhale, contract pelvic floor : bridge***SUPINE ELASTIC BAND HORIZONTAL ABDUCTION**

**Repeat** 10 Times  
**Complete** 1 Set  
**Perform** 1 Times a Day

Lie on your back holding an elastic band up towards the ceiling. Next, pull your arms apart and towards the floor as shown.



Video # VVDDDSNS9

*exhale, contract pelvic floor : pull band apart*



## YOUR HOME PROGRAM

### PELVIC FLOOR EXERCISE GUIDELINES

- Challenge your muscles to do more than they are used to doing. The quality of the exercise is more important than the number you perform.
- Avoid straining, holding your breath or using buttock or leg muscles while you exercise the pelvic floor muscles. Count out loud to avoid straining.
- Relax your body and breathe during your exercises. Coordinate your breathing with your pelvic floor contraction by blowing out or exhaling while you contract your pelvic floor muscles.
- Concentrate on activating both the surface and deep layers of the pelvic floor muscles with each exercise.

### POSITION FOR THE EXERCISES

- Start lying down with your knees bent and supported with pillows.
- Once you've gained awareness and can feel the contractions you may perform the exercises either sitting or standing.

### QUICK CONTRACTIONS

- Repeat this exercise 10 times. Do the exercise 2 times per day.
- Rapidly contract your pelvic floor muscles and hold for 2 seconds relax for 2 seconds.
- Try to do the contraction on breathing exhalation.

### ENDURANCE CONTRACTIONS

- Repeat this 10 times. Do the exercise 2 times per day.
- Pull your pelvic floor muscles up and in and hold for 5 seconds then relax for 10 seconds.
- Count out loud while you are holding the contraction to make sure that you are breathing throughout the exercise and not straining.

### OTHER EXERCISES/INSTRUCTIONS

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## Stress and Constipation

Stress can be the cause of diarrhea and constipation; it influences your nervous system, diet habits and resting muscle tension, which can affect your bowels.

**Do you live more in a fight or flight state OR a rest and digest place?**

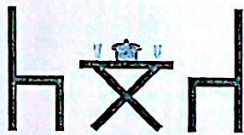


Our nervous system has two states: fight or flight (sympathetic) or rest and digest (parasympathetic). Digestion and defecation are driven by the parasympathetic system. Peristalsis (contractions of the colon which move fecal matter towards the anus) is a parasympathetic action. Eating and sleeping are parasympathetic (relaxing) activities; this explains why we feel urge more often upon waking or after a good meal.

People who live with chronic stress are more often in a sympathetic state. If you are under a lot of stress and leaning towards this 'fight or flight' state, your gut motility may be suppressed leading to constipation or you may experience diarrhea due to the stress hormones you are secreting,

*Tips:* Not only will physical activity release hormones that counteract stress, movement increases gut motility. During lunch, try taking a walk before sitting down to eat. Eat mindfully without distraction; just the act of chewing stimulates the gut.

**What is your diet like?**



Stressed people often eat on the run, but the diet and habits of a hectic lifestyle do not support bowel regularity. Fast food tends to be higher in fat which moves through the large intestine more slowly. Getting two things done at once (like eating in the car while fighting traffic) is not going to put you in the best state for digestion.

*Tips:* Plan ahead and prepare your meals. Aim to eat a fruit, vegetable and complex carbohydrate (like brown rice) at every meal. Eat regular meals and follow a daily routine to promote bowel regularity. Stay hydrated and drink water throughout the day.

**Do you hold too much tension in your pelvic floor?**



Have you ever been stressed, held tension in your shoulders, and given yourself a headache? Sometimes, people under stress hold tension in their pelvic floor muscles. Constant contraction of the pelvic floor muscles can dampen the defecation reflex which stimulates the urge to poop.

*Tip:* 'Check-in' with your pelvic floor muscles. Help yourself have a healthy bowel movement by tuning-in with your pelvic floor muscles and releasing any tension in them throughout the day.

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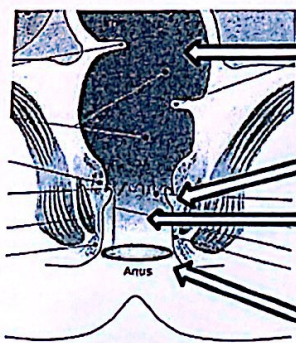
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## Constipation: Feel the urge? Don't Delay!

Do you realize we stop ourselves from passing gas all the time in public? We do this by contracting the pelvic floor muscles which shut the door to the anus. If our pelvic floor muscles have good endurance and strength we can even put off having a bowel movement! But, overusing this skill and delaying pooping too often can work against us and cause constipation.

### How we over-ride urge:



The **defecation reflex** will move stool down the **descending colon**.

The **internal anal sphincter** is the gate keeper. When stool is knocking at the door from the colon (without you knowing) it will let a sample into the rectum.

The **rectum** is a chamber between the internal & external anal sphincters. It is highly sensitive and will discriminate if the stool is solid, liquid or gas.

The **external anal sphincter** you consciously control. When you register that it is safe to pass gas or poop you relax this sphincter. If it is not safe to go, you shut the door by tightening the anus; this will cause the stool to move back up into the descending colon. This is called the **recto-anal inhibitory reflex**.

### Explain the recto-anal inhibitory reflex again?

You delay pooping by engaging the pelvic floor muscles which includes the external anal sphincter. When you contract the pelvic floor long enough and strong enough, the poop that was sampled into the rectum moves back up into the colon. This is called the recto-anal inhibitory reflex or RAIR response; it over-rides the defecation reflex which helps you poop.

### Why does delaying the urge to poop cause constipation?

When you go to the bathroom as soon as you feel the urge to poop you won't have to work as hard. Delayed pooping makes it more difficult the next time around because:

- 1.) the colon absorbs water. The longer your stool sits in the colon the longer it will dehydrate. Hard stools can be more difficult to pass.
- 2.) if you overuse the RAIR reflex this may dampen the defecation reflex.
- 3.) overuse of the RAIR reflex may increase colon filling. If too much poop sits at the door of the internal anal sphincter it can stretch the rectum leading to a loss of sensation. This may make it harder to tell if what you feel is a solid, liquid or gas.

### In summary:

- Go within 10 minutes of feeling the urge to defecate. We want to take advantage of the natural contractions of the colon as much as possible.
- If you have a fear of public toilets, make a 'nest' with toilet paper and sit. Squatting to poop will engage the pelvic floor muscles dampening the defecation reflex and making it harder to poop.
- Attempt to train your body to go at the same, convenient time every day.

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## Relieving Constipation with Diet

If you have fewer than 3 bowel movements a week and your stool is hard, dry or difficult to pass, consider looking at your diet. Fiber consumption helps move poop through the gut in a timely manner and creates a stool consistency that is easier to pass. **It is generally recommended that women eat 25 grams of fiber a day and men eat 38** (DeSalvo KB1, 2016). Most Americans eat half the daily recommendation of fiber. Constipation is also a growing global issue as more countries adopt a westernized fast-paced, high-fat, low-fiber diet.

Fiber can relieve constipation. A study showed that 77% of people improved their gut motility by increasing their fiber consumption (Christodoulides S1, 2016). It is important to note, however, that there are many factors that can cause constipation and the normal high-fiber recommendation may not help. For example, conditions such as irritable bowel syndrome may even worsen with a high-fiber diet. *This handout is a summary of general guidelines; it is important to consult with your physician and a nutritionist for personal assessment and intervention of chronic constipation.*

### **Eating habits that can cause constipation:**

- **High fat, low fiber foods** (dairy, baked goods, fried and processed foods) take longer to digest.
- **Dehydration:** Fluid balance is important. Your gut needs water to bulk stool. Frozen dinners and processed foods contain sodium which draws the water needed for digestion from your bowel. Many people also are dehydrated because they don't consume enough water (zero calorie diet drinks don't count). Furthermore, caffeine can stimulate the digestive tract, but can also cause constipation in people who are dehydrated.
- **Processed food** contains less fiber. For example, white rice is brown rice that is stripped of wheat, germ and husks where the fiber is stored. White flour (commonly found in bread, crackers and pretzels) has no fiber and contains a lot of starch.
- Red meat can be difficult to digest because it is high in fat, rich in iron and has tough fibers.
- Un-ripened bananas are more difficult to process than yellow bananas.
- Some people are sensitive to **gluten** which can cause constipation.

Fiber is the carbohydrates in plants that we can't digest and helps keep our stools soft and moving. Higher-fiber foods include fruits, vegetable and whole grains. There are two types of fiber; soluble and insoluble. **Soluble fiber** is absorbed in water helping bulk stool. It also helps lower cholesterol and regulate blood sugar (diabetes is also a risk factor for constipation.) **Insoluble fiber** does not absorb water and acts like a scrub brush for your intestines as stool passes through the colon. Insoluble fiber helps balance the pH within the intestines creating a happy gut microbiome. Fiber helps you feel full which can assist with weight loss.

### **Tips for including fiber in your diet:**

- Sprinkle 1-2 tablespoons of flax seed in your yogurt, soup or cereal.
- Prunes are a natural laxative and can also be consumed in liquid form as a warm or cold juice.
- Indulge in 1 oz. of dark chocolate (contains 3.1 grams of fiber).
- Eat your salad or veggies before a meal; it leads to a 23% increase in veggie consumption (Liane S. Roe, 2012).
- Snack on nuts, fruits, healthy trail mix, nut butters and vegetables like carrot sticks.
- Eat hummus and bean dips.
- Sprinkle lentils and beans on your salads.
- Keep the peel on cucumbers and sweet potatoes.

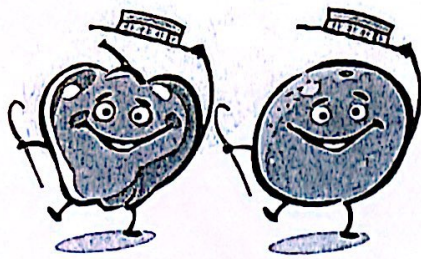
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## High-Fiber Food List



### **Fruits:**

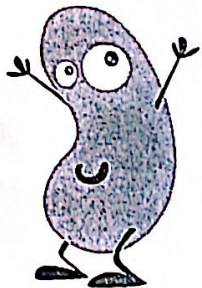
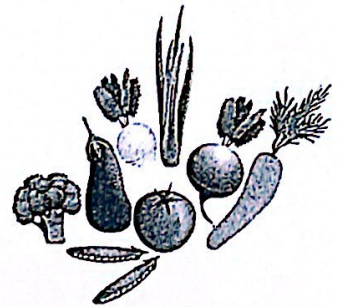
Strawberries = 3 grams per cup  
Blueberries = 4 grams per cup  
Pears = 6 grams per cup  
Raspberries = 8 grams per cup  
Blackberries = 8 grams per cup  
Avocado = 10 grams per cup  
Fig = 1 gram of fiber  
Oranges = 2.3 grams  
Kiwi = 2.5 grams of fiber  
Banana (medium) = 3.1 grams  
Apple (medium) = 4.4 grams

### **Dried fruit:**

Raisins = 7 grams per cup  
Dried apricots = 9 grams per cup  
Prunes = 12 grams 1 cup

### **Veggies:**

Carrots = 3.4 grams per cup  
Beets = 3.8 grams per cup  
Broccoli = 2.4 grams per cup  
Artichoke = 6.9 grams  
Brussels Sprouts = 3.3 grams / cup  
Sweet potato = 3.8 grams  
Baked potato = 3 grams



### **Beans:**

Lentils = 15.6 grams per cup  
Black beans = 15 grams per cup  
Black-eyed peas = 11 grams per cup  
Garbanzo beans = 12 grams per cup  
Kidney beans = 11.3 grams per cup  
Split peas = 16.3 grams per cup  
Chickpeas = 12.5 grams per cup  
Lima beans = 13 grams per cup

### **Grains:**

Quinoa = 1.6 grams per cup  
Brown rice = 3.5 grams of fiber per cup  
Amaranth = 5 grams per cup  
Barley (hulled) = 32 grams per cup  
Raw oats = 16.5 grams per cup  
Popcorn = 14.5 grams per cup

### **Nuts:**

Almonds = 3.5 grams per ounce  
Pistachios = 13 grams per cup  
Sunflower seeds = 12 grams per cup  
Chia seeds = 11 grams per ounce  
Sesame seeds = 1.1 grams per tablespoon

Pecans = 2.7 grams per ounce  
Walnuts = 1.9 grams per ounce  
Pumpkin seeds = 12 grams per cup  
Flaxseed = 2.8 grams per tablespoon



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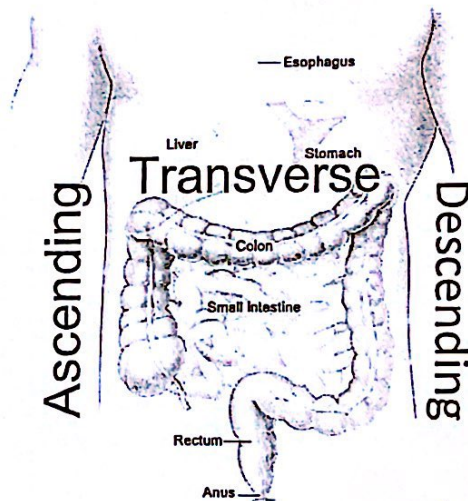
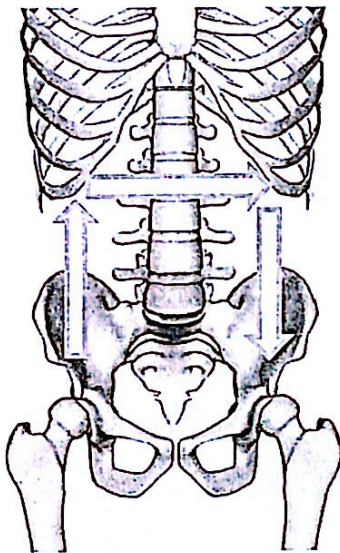


## Bowel Massage

Bowel massage is an effective way to promote peristalsis (contractions of the large intestine which move fecal matter through the gut). It is a slow, rhythmical massage of the large intestine in the direction of digestion.

### How to perform:

- Lie on your back with your knees bent or supported.
- Locate the beginning of the **ascending colon** by touching the bony knob on the front of your right hip. Bring your fingers inside that bone dropping into the soft tissue of the belly.
- Begin the massage with a gentle scooping motion over the ascending colon in the direction of lower right ribs. Strokes should be slow, comfortably deep, and rhythmical. Spend about 5 minutes massaging the ascending colon from the inside of the right hip to your lower right ribs.
- Next, you will massage the **transverse colon** from your lower right ribs straight across to your lower left ribs. Perform the same gentle, rhythmical 'scooping' massage from the right to left ribs for 5 minutes (it's easiest to use your left hand to scoop and pull to the left).
- The **descending colon** runs down from the left rib to the inside your left hip bone. Massage with the same strokes in a downward direction for 5 minutes.



### When to perform:

- If you wish to promote regular bowel movements, try a bowel massage prior to your most regular time of day. For example, if you tend to be a 'morning pooper,' you may do your bowel massage before you get out of bed.
- You can try a shortened bowel massage on the toilet to assist with evacuation of stool (it is not recommended to sit on the toilet more than 5 minutes at a time to poop).

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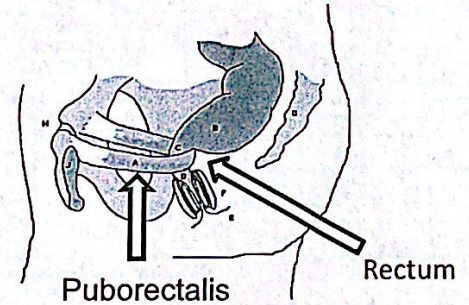
## Helpful Bathroom Habits

### **Go when you feel the urge.**

Don't fight the feeling! When your body cues you to poop, the intestines are contracting to move stool towards the rectum for defecation. Delaying urge can lead to constipation & straining.

### **Toilet Positioning**

Until the invention of the western toilet, humans squat to poop. Squatting is an easier position for most people to have a bowel movement. The reason for this comes down to the angle of the rectum. The puborectalis (A) is a muscle in the pelvic floor that slings around the rectum (C). When puborectalis is tight, it pulls the rectum forward, bending it and making it harder to poop. When we squat, puborectalis lengthens and the rectum straightens.



To simulate squatting on the toilet, place a stool under your feet; this will elevate the knees above your hips. Lean forward and place your elbows on your knees. Support your chin on your hands. Relax your jaw and throat.

### **Let go of the pelvic floor.**

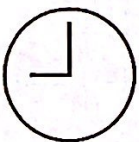
Hmmmm...

Relaxing the pelvic floor muscles will: 1.) increase the angle of the puborectalis muscle and 2.) open the sphincters to the anus. If you have trouble relaxing the pelvic floor, try a low-level hum (I know, this sounds crazy, but making this sound relaxes the pelvic floor in some people).

### **Don't Strain!**

Look at the angle of the rectum above. Can you see how straining forces the colon down and can kink off the 'poop shoot?' To make matters worse, some people contract their pelvic floor when they bear down which would close the doors to the anus. Instead of straining, relax your abdomen and let the belly be big. Give a gentle nudge to the colon, by thinking 'belly hard;' this will encourage the abdominals to engage creating a safe amount of intra-abdominal pressure to push stool out.

### **Limit to toilet time.**



If you have trouble pooping, abort mission and try again later. Sitting on the toilet for too long can cause more trouble for the pelvic floor. Make 5 minutes your limit sitting on the toilet.

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