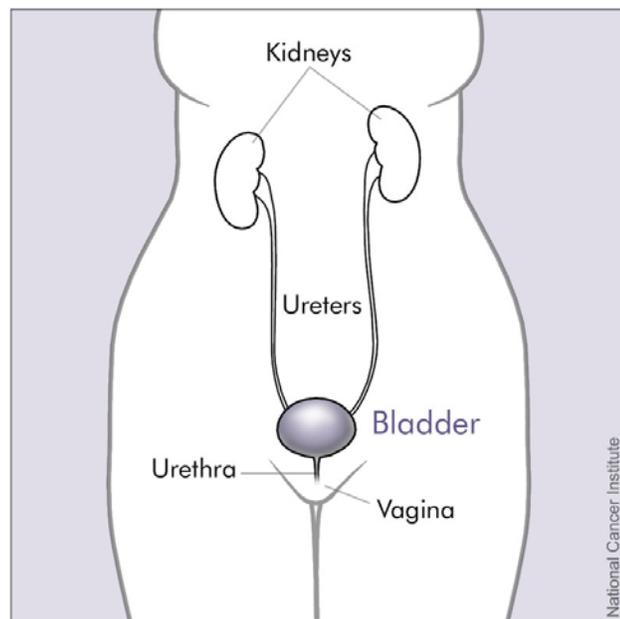


## Overview: Pelvic Floor Anatomy and Function

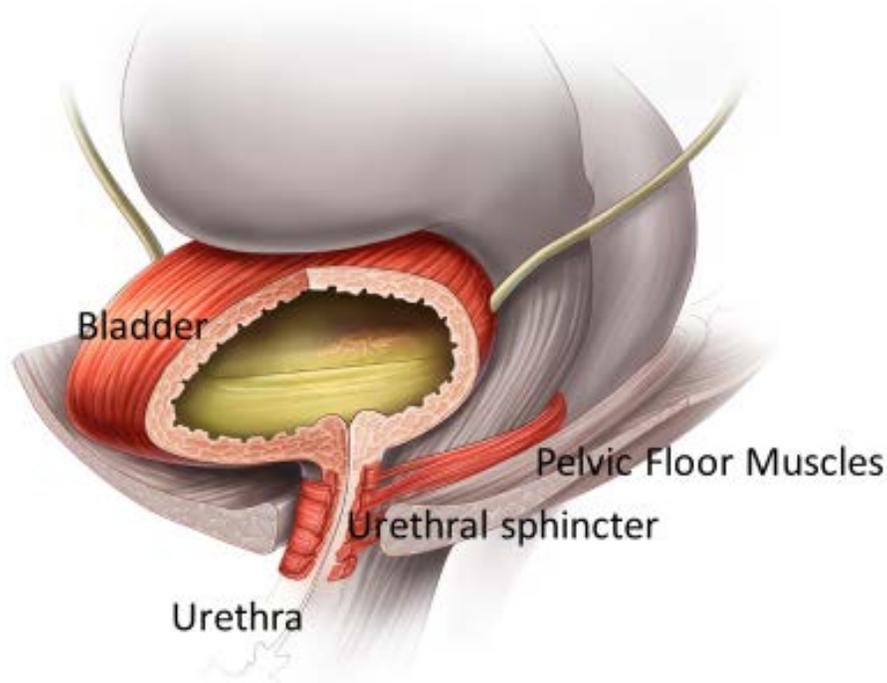
Before talking about a problematic bladder, let's first talk about how a healthy bladder works. The bladder's purpose is to store and release urine, which is made in the kidneys.

The kidneys filter toxins from the blood and release them into the urine, which travels down two tubes called the ureters to the bladder, which stores the urine until you are ready to empty it.

The bladder is actually a muscle that is shaped like a balloon. The bladder is actually a muscle that is shaped like a balloon. Urine leaves the bladder through a small tube called the urethra.



As your bladder fills with urine, it stretches like a balloon being blown up. Two sets of muscles prevent the urine from leaving the bladder until you are ready; the urethral sphincter and the pelvic floor muscles.



When the bladder is storing urine, the muscle in the bladder wall, the body of the “balloon”, is relaxed, and the muscles of the urethral sphincter and the pelvic floor are tight, keeping the gate shut.

As your bladder fills, nerves in the bladder tell your brain that the bladder is filling.

The sensation that you have to pee becomes gradually stronger as the bladder continues to fill. The brain sends a signal down to the bladder telling it to keep the gate closed.

When the bladder reaches its limit, nerves from the bladder send a message to the brain that the bladder is full and your urge to pee gets stronger. At this point, you head for the bathroom.

Once you are in the bathroom and seated on the toilet, the brain signals the gate of the urethral sphincter and pelvic floor muscles to relax and tells the bladder muscle to tighten, thus squeezing urine out of the bladder and emptying the balloon.

When all the signals occur in the correct order, normal urination occurs.

But... if the brain sends the signal to the muscles in the urethra, pelvic floor, and bladder before you are in the bathroom and seated on the toilet, you may have a leak or an accident -- and that is called urge incontinence.

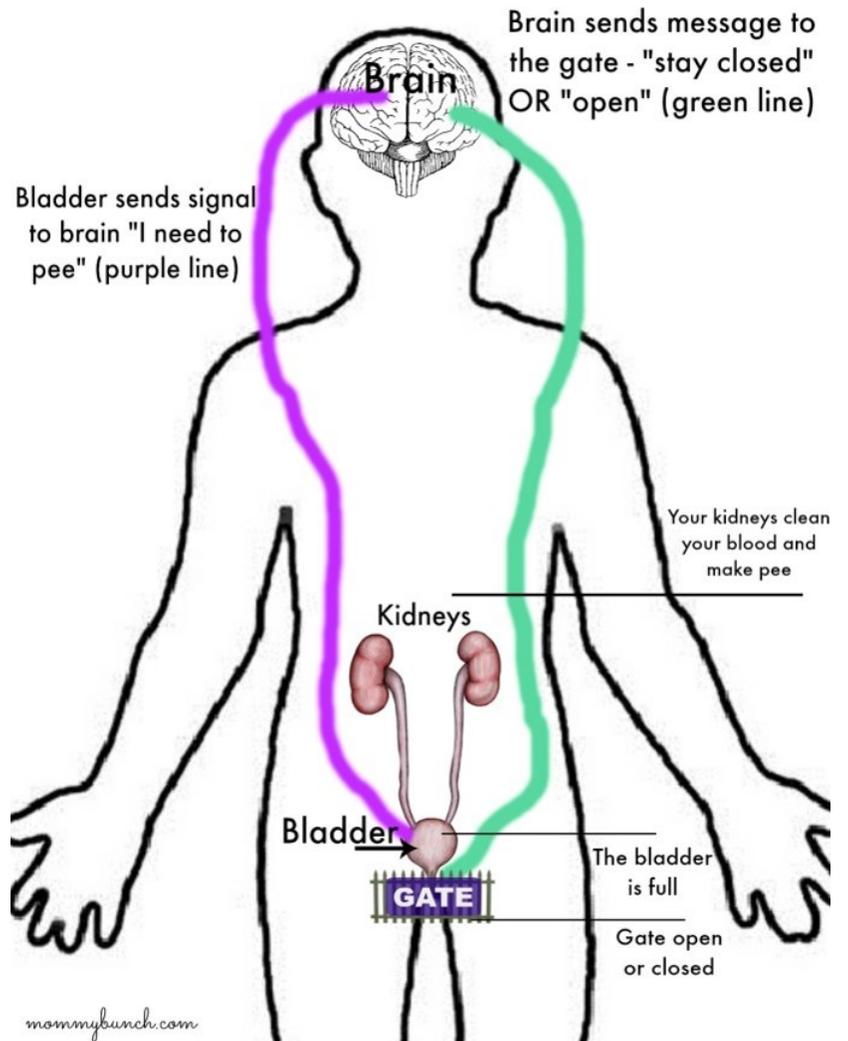
Sometimes, to prevent urge incontinence, we get in the habit of emptying our bladder more often, to prevent a leak or an accident.

That strategy can be helpful, but if we empty the bladder TOO frequently, like every 20 or 30 minutes, then we can actually make our urgency worse.

Over time, the balloon of the bladder will get smaller, and may send signals to the brain that it is full when in fact it only has a few drops of urine in it.

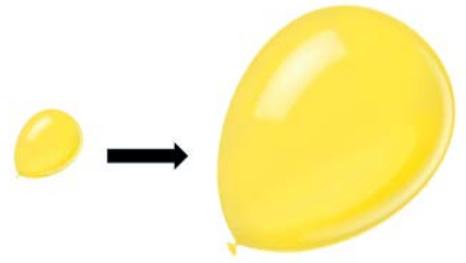
And that leaves us rushing to the bathroom even more frequently than we need to, and peeing only small amounts each time. On the flipside, sometimes we get busy and don't empty the bladder as often as we should, and that can cause trouble too.

## The Brain-Bladder Connection

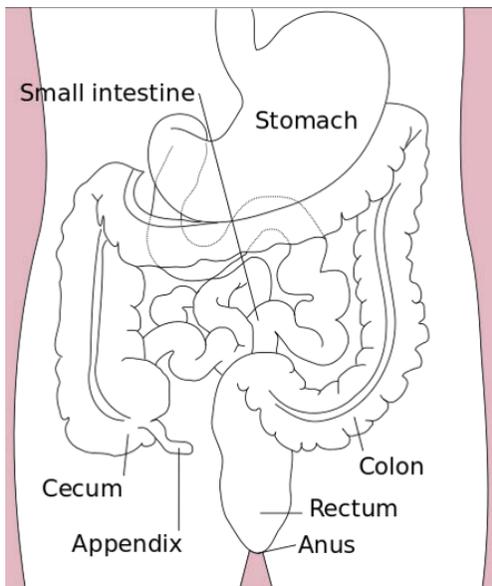


Over time, the balloon of the bladder can get stretched out and will not send a signal to the brain that it is full until it twice as full as it should be.

At that point, the brain may not be able to stop the bladder muscle from squeezing because it has been stretched too far, and we may leak or have an accident before we have time to make it to the toilet.



Now let's move on to the bowels.



When you eat food, it travels through your stomach and small intestine where it is digested and nutrients are absorbed.

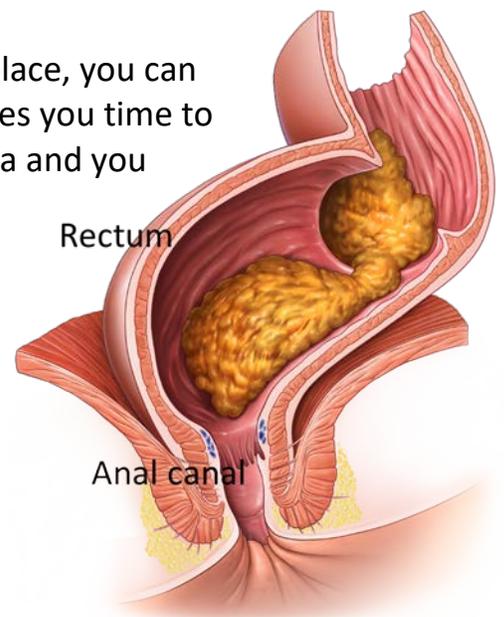
The waste travels through your colon and becomes stool, which is then stored in your rectum until you are ready to get rid of it.

When you are ready to have a bowel movement, or poop, the stool leaves your rectum through a tunnel called the anal canal.

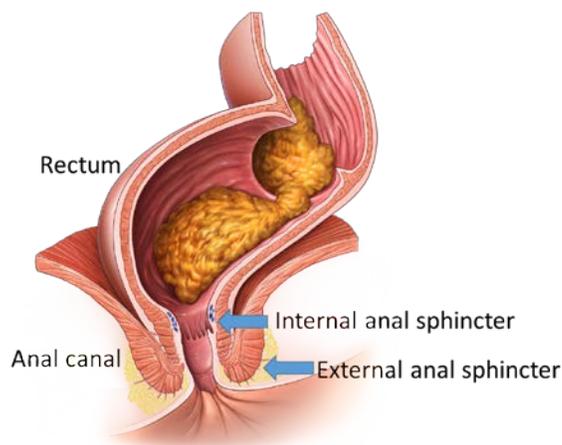
Whereas the bladder only needs to tell the brain that it is filling and then full, the rectum has to tell the brain not just when it's full but also what it is full of.

Sometimes it is just gas and if you are in a socially acceptable place, you can release it right then. Other times it is normal poop and that gives you time to get to the restroom, and other times it is loose stool or diarrhea and you need to get to the restroom right away!

The nerves that tell the brain what is in the rectum live in the anal canal. When stool arrives in the rectum, the internal anal sphincter relaxes so that the anal canal can sense whether it is solid, liquid, or gas and send that message up to the brain.



When the internal anal sphincter relaxes, the external anal sphincter should contract to push the stool back up into the rectum until you are ready to release it.



If the nerves that sense what is in the rectum get damaged, your brain can be fooled into thinking there is gas in the rectum when it is actually poop, or you may not know there is anything at all in the rectum.

If your external anal sphincter or pelvic floor muscles are weak or injured, contents may slip from the rectum into the anal canal and then slip right out of the anus.

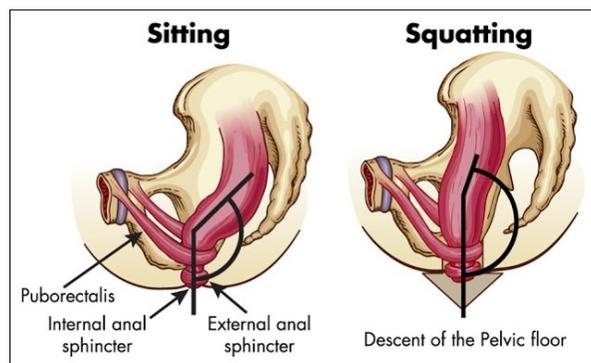
When you are ready to have a bowel movement, the pelvic floor muscles and anal sphincters should relax to allow the poop to leave the rectum.

Squatting helps the pelvic floor muscles to relax, which is why it is easier to poop in a squatting position.

The consistency of stool can also make it easier or harder to control. “Watery” poop, like type 6 or 7 on this chart, can slip out more easily than solid poop, just like it is harder to hold water than clay in your cupped hand.

On the other hand, if your poop is too firm, like Type 1 on this Stool Chart, it can form little pebbles that can slip out without your permission, or it can build up into a big clump in the rectum like Type 2.

If the rectum is full of stool, there is no place for new stool to be stored, and it can be pushed out without your permission, like trying to over-stuff an already full drawer.



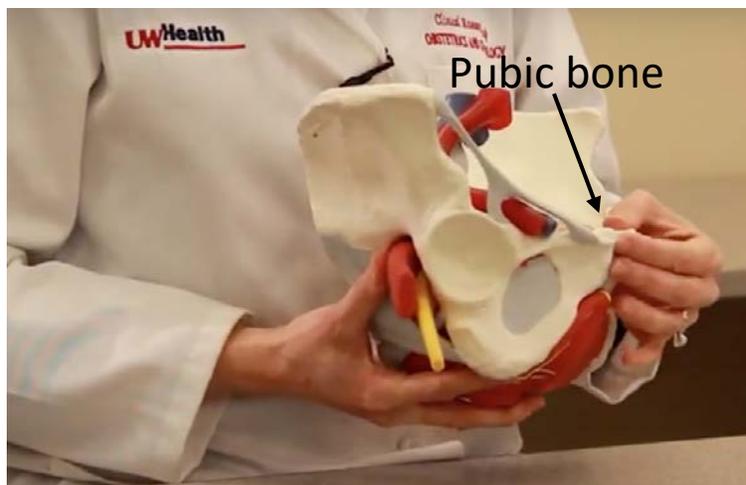
## Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid

Just like with the bladder and urethral sphincter, the pelvic floor muscles also help hold the gate of the anal canal closed, so that you can hold the stool in until you are ready to get rid of it.

Now let's talk about the bladder and bowels together, using a model of the pelvic floor.

Around the back here is your tailbone and to make it easier to see, I'm actually going to rotate. So, here's the pubic bone in the front and the tailbone in the back.

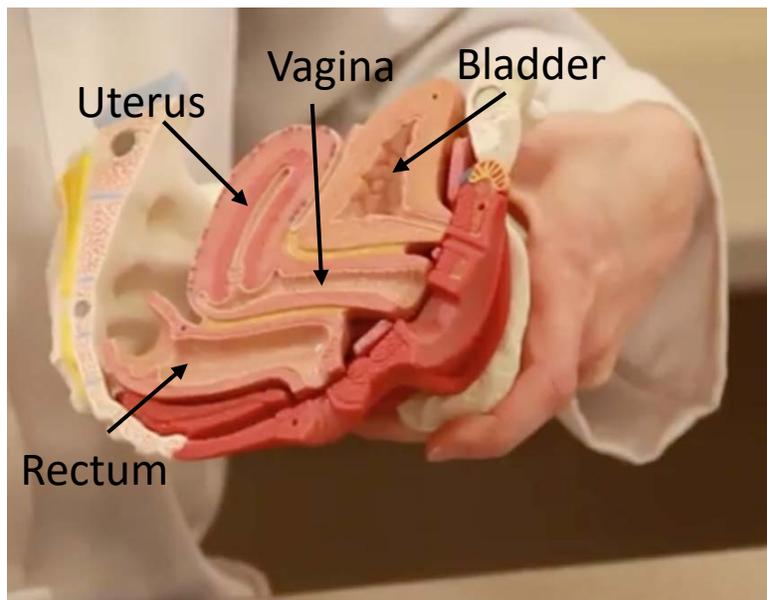


What I am going to do is open this so you can see the internal organs. So in this picture, you can see the bowl of pelvic floor muscles, with the pubic bone in the front and the tailbone in the back, supports the bladder, the vagina, the uterus, and the rectum, and the openings of these organs come through the pelvic floor muscles.

You can appreciate, in this view how these organs are roommates in a very small apartment (share quite a small space in the pelvis). You can imagine how a rectum full of constipated stool would make it harder for the bladder to expand to store urine.

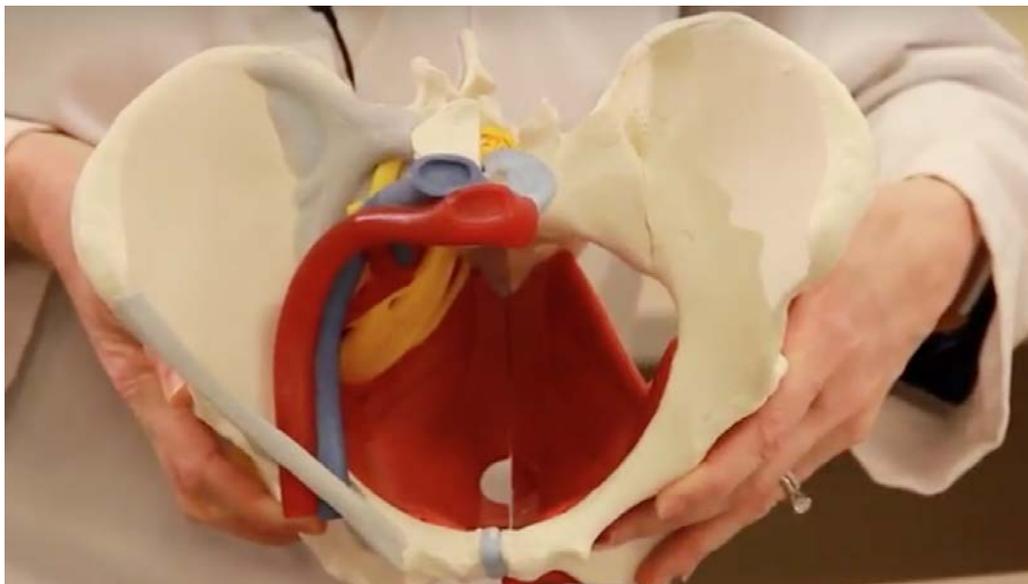
That might result in you needing to empty your bladder more frequently or not being able to make it to the bathroom in time and leaking.

When you have weakened pelvic floor muscles, they impact not just the bladder or



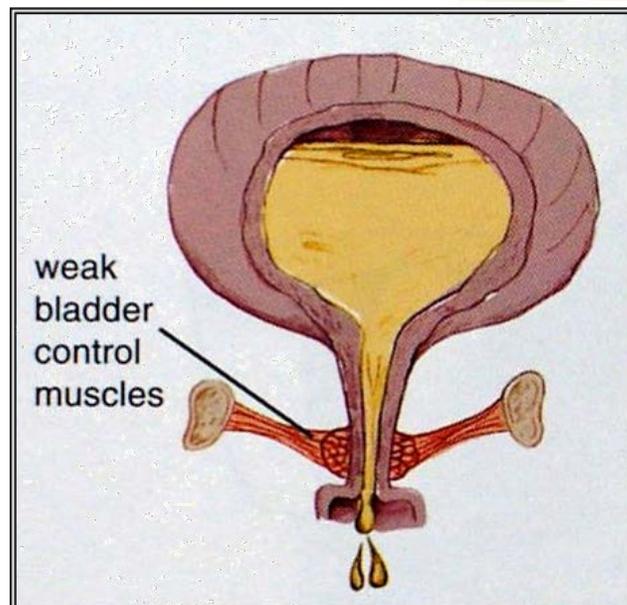
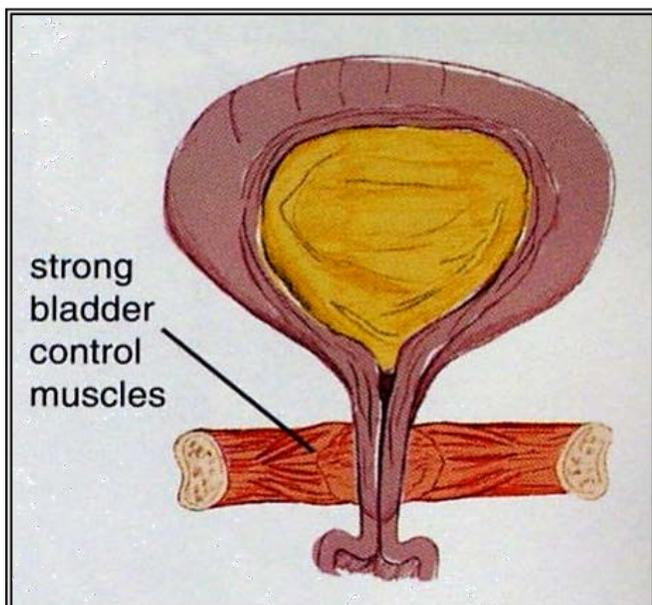
the bowels, but often both. And now I am going to remove the organs so that you can see the muscles in a better picture.

So, like I said earlier, the pelvic floor muscles go from the pubic bone in the front to the tailbone in the back, and they also wrap side to side. This bowl of muscles spans across the pelvis, creating a hammock that supports our internal organs.



Like a hammock, you want the pelvic floor muscles to have a relaxed curve; not too tight, not too loose.

If the pelvic floor muscles are too tight, they can narrow the openings for the bladder and rectum, make it difficult to empty the bladder or bowels. If the pelvic floor muscles are too relaxed or weak, there is not enough support

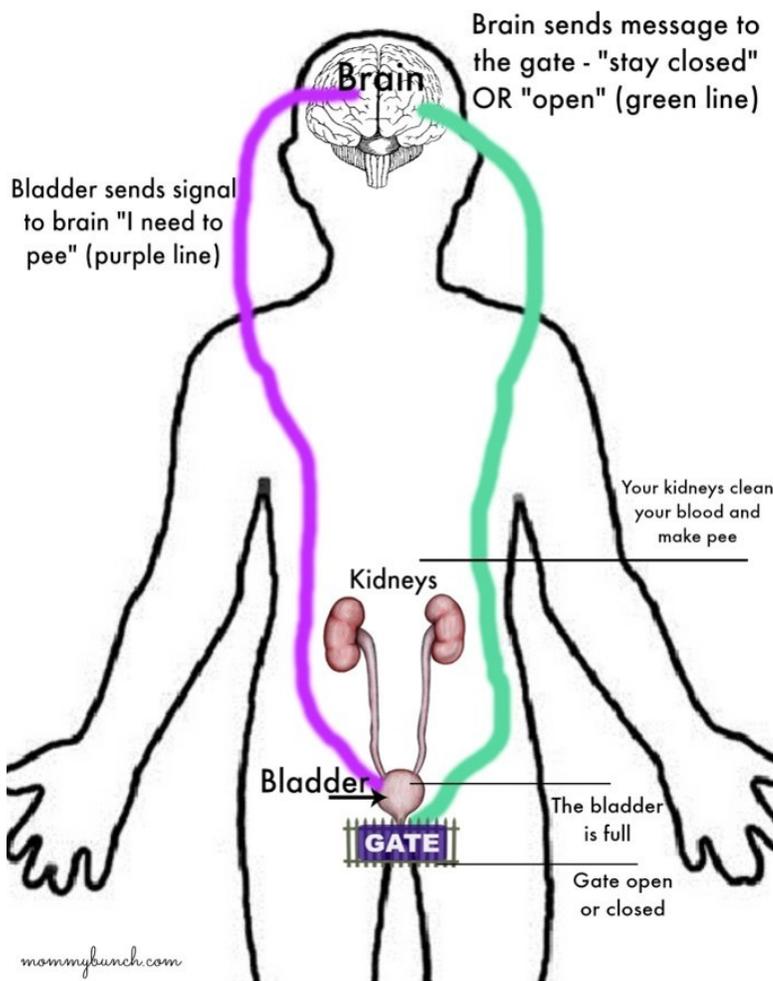


around the openings of the bladder and rectum, and we may pee or poop without meaning to, or get prolapse of the walls of the vagina.

That was a lot of information, so let's summarize.

The bladder stores urine made by the kidneys, and releases it through the tube called the urethra.

## The Brain-Bladder Connection



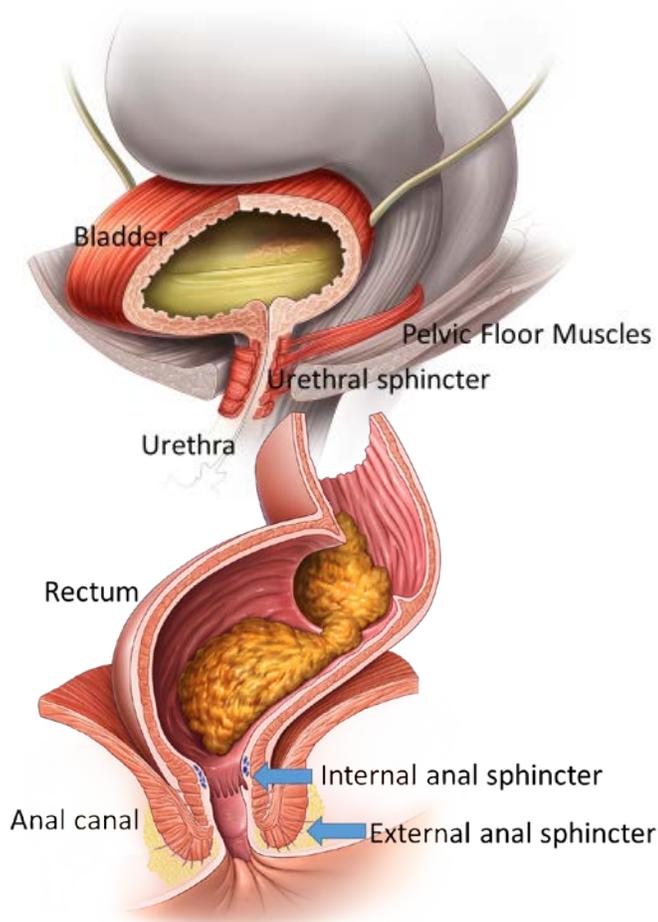
The bladder tells the brain how full it is, and the brain controls the muscles that open and close the gate of the urethra.

When the bladder is filling, the pelvic floor muscles and urethral sphincter stay tight to prevent urine from spilling, and the bladder muscle stays relaxed.

To empty the bladder, the pelvic floor muscles and urethral sphincter relax, and the bladder muscle squeezes. If the muscles of the pelvic floor and urethra

don't relax, it can be hard to empty the bladder. If the muscles are too relaxed, the bladder may leak when it's not supposed to.

Right next door, the rectum is holding stool. If the rectum is chock full of stool, there's less space for the bladder to hold urine.





Stool leaves the rectum through the anal canal, which has special nerves that tell the brain what is there (gas, formed poop, or diarrhea).

To empty the rectum, the pelvic floor muscles and anal sphincter should relax. If the muscles are too tight, it's hard to empty the rectum, and you may experience constipation.

If the muscles are too loose or weak, stool can slip out without your permission.

Learning how to relax and strengthen our pelvic floor muscles can help us hold and release urine and stool when we want to – putting mind over matter to promote healthy bowels and bladder.

Learning how to improve our stool consistency helps both bladder and bowel symptoms by improving use of space in the small apartment of the pelvic floor. Now let's get started!