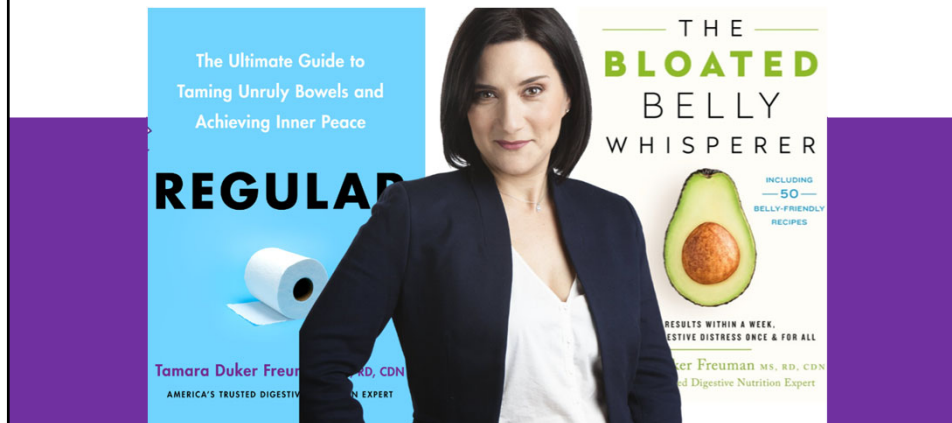


## Your Gut in its Golden Years

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### What is gut health?

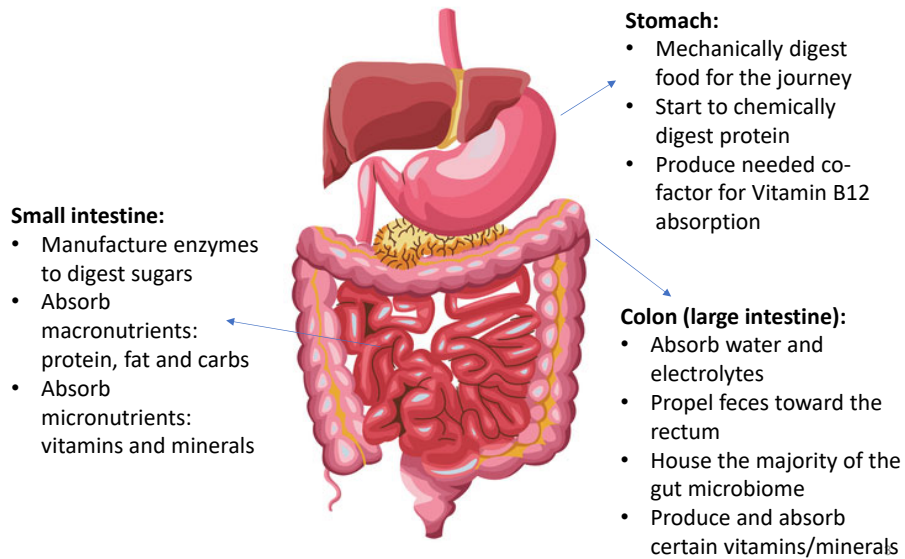
1. **Effective digestion and absorption of nutrients**
2. **No active gastrointestinal disease**
3. **Favorable balance of gut microbiota**

Source: Kate Scarlata, RD, MPH

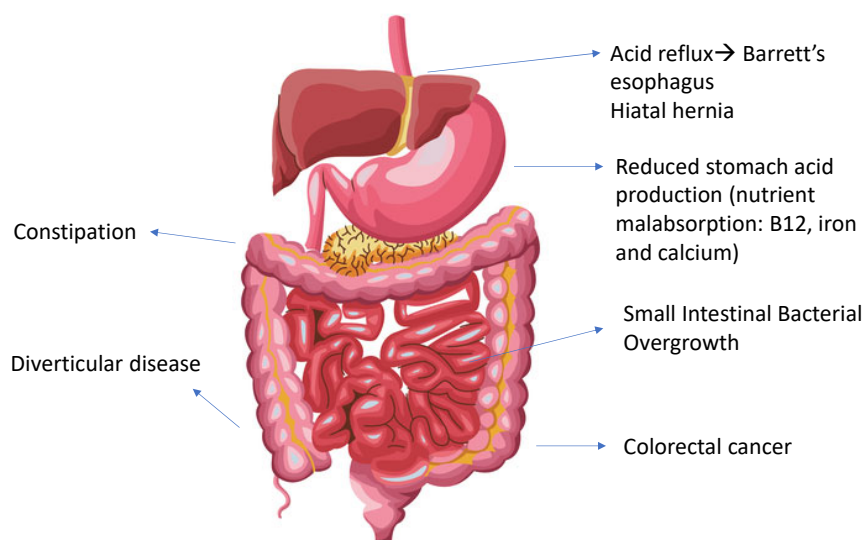


As we age, physiologic and lifestyle changes can affect gut health along all three of these dimensions

## Functions of the gut



## Digestive issues with increased prevalence as we age

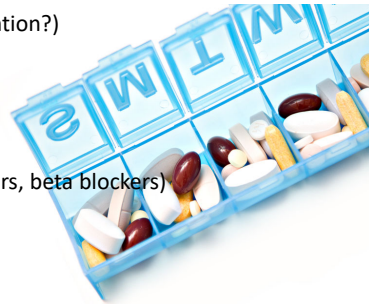


## Changes to GI function can be organic or secondary to common medications

- Proton Pump Inhibitors (PPI) medications for acid reflux (nutrient absorption, SIBO)
- Metformin (diarrhea)
- NSAID painkillers (gastritis, ulcers, ileitis; CRC prevention?)

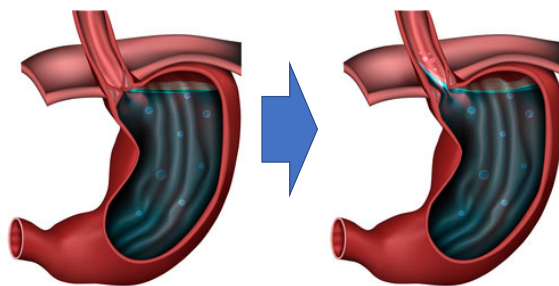
Potentially constipating medications:

- Opioid painkillers
- Blood pressure medications (calcium channel blockers, beta blockers)
- Antidepressants
- Antipsychotics
- Antihistamines
- Supplements containing calcium, iron or aluminum (including antacids)



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## Acid reflux



**Normal:**  
Lower esophageal sphincter closes after food arrives in stomach, and stays closed during digestion

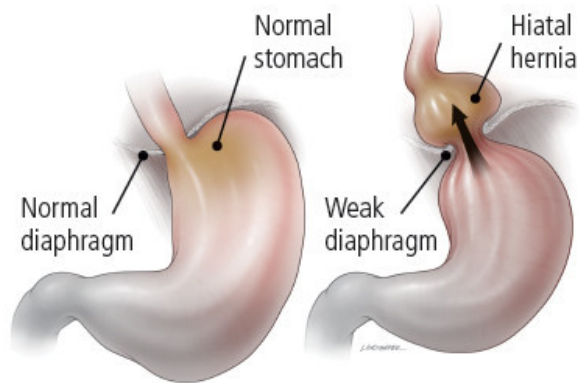
**GERD:**  
Lower esophageal sphincter relaxes after food arrives in stomach/during digestion, allowing gastric contents to reflux back up into esophagus

Things that relax the lower esophageal sphincter and/or may contribute to acid reflux:

High fat foods/meals  
Alcohol  
Smoking  
Mint  
Chocolate  
Coffee  
Onions/garlic  
Nitrites (food additive)

Belly fat  
Tight fitting clothes (waist/midsection)  
Large portions

## Hiatal Hernia is another cause of acid reflux



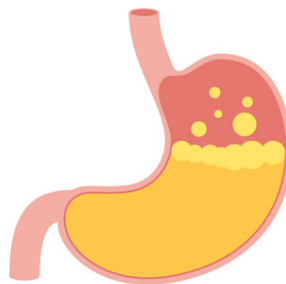
Small meals every 3-4 hours;  
staying upright after eating;  
leave 3-4 hours between dinner and bedtime

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## Reduced stomach acid levels can impact nutrition status

### Stomach acid needed for:

- Killing excess oral and foodborne bacteria
- Cleaving B12 from protein to be absorbed later on
- Modifying form of iron for absorbability
- Converting calcium to a more absorbable (salt) form



### Stomach acid may decline with age due to:

- Higher prevalence of a condition called atrophic gastritis with age
- Use of acid reducing medications for reflux (PPIs)
- *H. pylori* infection

You CANNOT acidify the pH of your stomach through food choices or supplements  
(Betaine Hcl, Apple Cider Vinegar)

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## There are many ways to be constipated!

### Normal transit constipation (~59%)

- Not enough food
- Not enough fiber
- High stool burden (being super backed up)

### Slow transit constipation (~13%)

- Neuropathic (nerve dysfunction)
- Myopathic (muscle dysfunction)
- Many medications can induce slow transit constipation

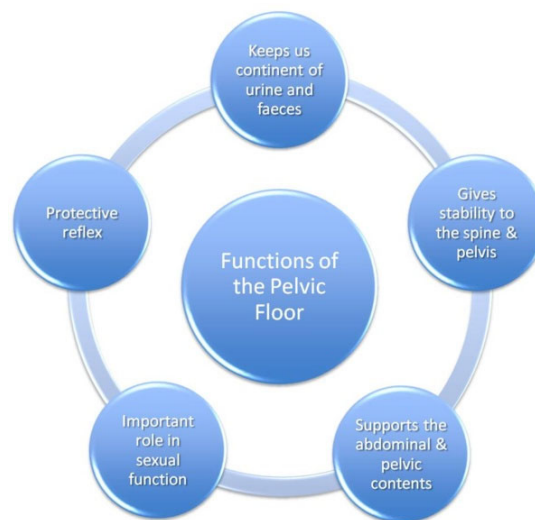
### Constipation by outlet dysfunction ~25%? (likely much higher)

- Weakness of pelvic floor or abdominal muscles
- Excessive tightness of anal sphincter
- "Dyssynergic defecation": uncoordinated/paradoxical muscle function



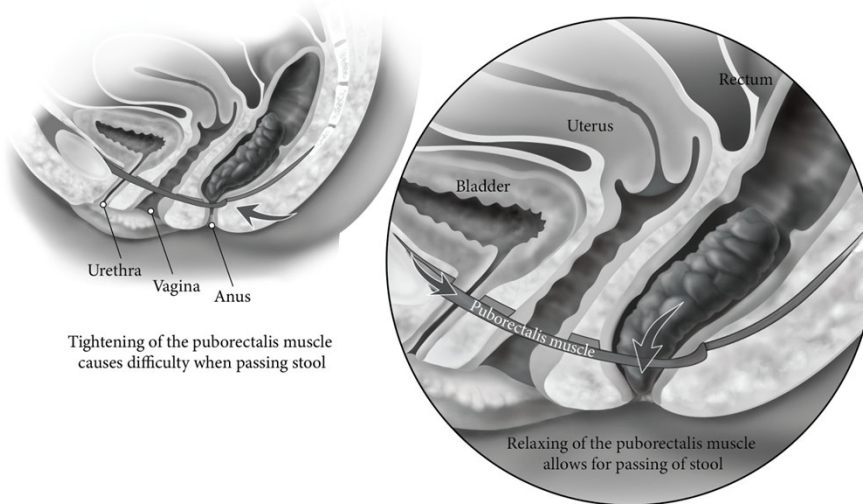
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## Meet your "pelvic floor"



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## Pelvic floor dysfunction



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## Pelvic floor dysfunction

**Prevalence of PFD in general population thought to be around 17% for women and 5% in men**

- Age one of the most prominent risk factors; prevalence increases drastically in cisgender women over the age of 40
- Risk also increases significantly in people who have given birth
- Chronic prostatitis is a common presentation of PFD in people with a prostate/assigned male at birth

### **PFD is diagnosed via:**

- Digital rectal exam
- Anorectal manometry
- MR defecography

### **PFD is treated via:**

- Pelvic floor physical therapy +/- biofeedback
- Pharmacological options for outlet dysfunction (suppositories, Botox)
- Surgery when indicated

*Good and Solomon et al 2019*  
*Yeo Keller DS, Silveira M. Pelvic Floor Dysfunction. In: Shackelford's Surgery of the Alimentary Tract. Vol 2. 8th ed.*  
*Philadelphia, PA: Elsevier; 2019:1750-1760.*  
*Rao and, Bharucha et al 2016*

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## Managing constipation

High fiber diet with a mix of fiber types (“soluble” and “insoluble”)

Over-the-counter bowel regimens

- Osmotic laxatives: Magnesium (400-1,000mg) or MiraLAX
- Stimulant laxatives: Senna or Dulcolax
- “Rectal Rx”: glycerin suppositories or enemas

Prescription laxatives when indicated

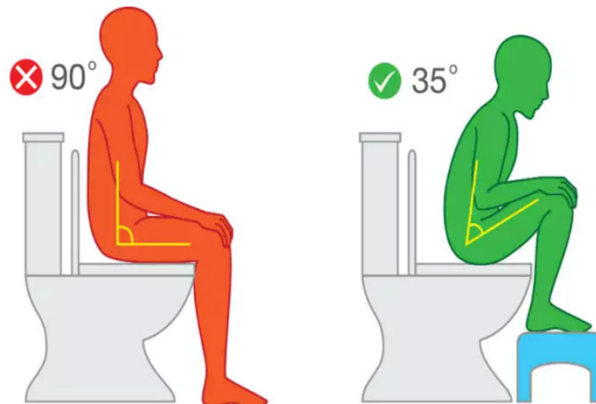
If none of the above work, or if eating more fiber makes you feel WORSE, not better...have your pelvic floor function evaluated by a gastroenterologist!



## Are you pooping properly?

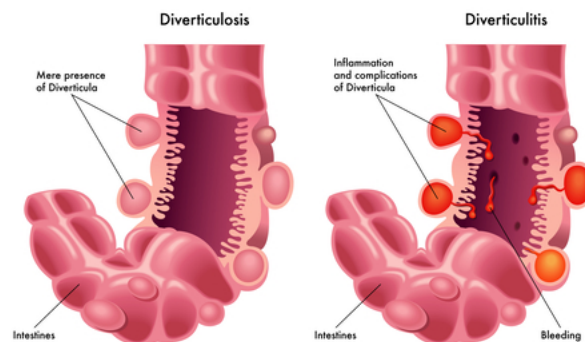
How to “squat” on a toilet for optimal stool evacuation

- Use a stepstool or “squatty potty”
- Your knees should be higher than your hips
- Rest your hands or elbows on your thighs
- Lean forward at a 35 degree angle.
- As you lean forward, make sure your spine is straight
- Bulge your stomach
- Relax



## Diverticular disease: Prevalence increases with age

- Diverticula are abnormal herniations (Pouch-like protrusions) along the gastrointestinal tract, most commonly in the colon
- Affects up to half of Americans aged 60 and older
- Affects two-thirds of those 85 years of age and older
- Infection of the diverticula (diverticulitis) affects about 10-25% of people with diverticulosis (asymptomatic presence of diverticula)



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## Colorectal cancer (CRC)

CRC is the 3<sup>rd</sup> leading cause of cancer in Americans... but it is PREVENTABLE with routine screenings after age 45!

Incidence among OLDER adults and death rates overall have been dropping for years due to increased level of screening

### Decrease risk



- Daily physical activity
- High fiber diet (whole grains in particular)
- Higher calcium intake (from dairy foods and supplements)
- Adequate Vitamin D levels

### Increase risk



- Red meat and processed meats
- Alcohol intake ( $\geq 2$  drinks/d)
- Higher amount of body fat
- Low intake of fruits and vegetables

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## Medications and/or decline in dietary diversity with age can adversely impact the gut microbiome

A less diverse, aging gut microbiome is associated with increased risk of frailty and cognitive decline

In medical settings, **frailty** is typically defined by some combination of:

- Muscle wasting and an associated loss of strength.
- Reduced tolerance for physical exertion and feelings of excess tiredness/exhaustion.
- Low levels of physical activity.
- A slower pace of walking.
- Unintended weight loss.
- A decline in cognitive function.



## But it's never too late to improve your gut microbiome!

Mediterranean diet intervention alters the gut microbiome in older people reducing frailty and improving health status: the NU-AGE 1-year dietary intervention across five European countries



- 600 individuals aged 65-79 followed for one year
- One group followed their usual diet, another group educated on a diverse, high fiber Mediterranean diet
- Close adherence to the Mediterranean diet protected participants from loss of gut microbial diversity over time compared to people with less stringent adherence to the Med diet and the control group
- Beneficial bacterial species/metabolites increased in guts of strict Med dieters compared to their representation in guts of those who didn't follow a Med diet closely/ at all
- Majority of these species have previously been associated with anti-inflammatory benefits, reduced risk of frailty, improved cognitive functioning and reduced risk of developing Type 2 diabetes and colon cancer
- Larger group of people participated in a different arm of this same yearlong study. The Med diet was also associated with greater improvements in cognition and episodic memory after one year compared to people who did not follow this diet closely/ at all.

## Effects of aging on the gut can be mitigated with diet, lifestyle choices and preventive care!

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## Healthcare maintenance and preventive health habits after age 50

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- Annual monitoring of key nutrition labs: iron panel, Vitamin B12, Vitamin D
- Regular colorectal cancer screenings per guidelines
- Baseline DEXA scan for at-risk people to monitor bone mineral density, e.g.
  - Family history of osteoporosis
  - Long term use of acid reducing medications
  - Low body weight
  - Dairy avoidance (low calcium intake)
  - Malabsorptive conditions (Crohn's disease and celiac)
- Diverse, high fiber diet: beans, vegetables and fruits especially!
- Vitamin D supplements (for many/most)
- When calcium supplements needed, use calcium citrate form instead of carbonate (more absorbable with lower stomach acid)
- Daily physical activity

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Questions?

