Healthy Bowels, Healthy YOU!

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Healthy Bowels, Healthy YOU!

• You’ve been taught not to bring it up in polite conversation
• Many people feel uncomfortable discussing it
• Certainly we never discuss it at the dinner table
• It is the butt (excuse the pun!) of many jokes
• But understanding (and, yes, talking about) your bathroom habits is an important first step in maintaining healthy bowels.
Healthy Bowels

- After food passes through your stomach and small intestine, the remaining material, mostly waste products in liquid form, move on to the your colon, which is the first part of your large intestine.
- Your colon is approximately six feet long and serves primarily to dehydrate liquid waste material.
- Your colon travels up the right side of your abdomen, where it's called your ascending colon. When it reaches your lower right ribs (just below your liver), it turns to travel across your abdomen to just below your lower left ribs; here, it's called your transverse colon.
Healthy Bowels

• Just below your lower left ribs, it makes another turn and travels down the left side of your abdomen - this portion is called your **descending colon**.
• Your colon then makes one last turn toward the middle of your lower abdomen, forming an "S" shaped segment that's called your **sigmoid colon**.
• Your sigmoid colon empties waste materials into your **rectum**, which is like a storage pouch that retains your feces until contractions in your large intestine stimulate a bowel movement.

Healthy Bowels

• After you eat a substantial meal, your stomach expands enough to **trigger a reflex that causes a contractile wave** (called a **peristaltic wave**) to travel through your small intestine and push any liquid waste material (chyme) that is sitting in the last part of your small intestine into your large intestine.
• Chyme: semifluid mass of partly digested food that is expelled by the stomach into the small intestine and moves through the intestines during digestion
• Once enough liquid waste material accumulates in your cecum (the first part of your large intestine), the waste material begins to move up your **ascending colon**.
Healthy Bowels

- Movement of waste material through your colon is facilitated by something called "**haustral churning**."
- Your colon is divided along its length into small pouches called haustra.
- When a haustrum is filled with substantial waste material, its muscular walls contract and push the waste material into the next haustrum.
- The contractile reflex that allows haustral churning is regulated by your **enteric nervous system**, which is a division of your autonomic nervous system.

Your autonomic nervous system is regulated **involuntarily** (without regular conscious input on your part), and is intertwined with your **emotional health**. This is why bowel movements and colon health are intricately tied to emotional states like feeling calm or anxious or fearful.
• “Butterflies in my stomach”
• “Felt sick to my stomach” in response to an emotional or fearful event
• “Scared the sh**t out of me”
• Stressful situation – diarrhea
• “Stomach in a knot” – stressful situation

Healthy Bowels

• On average, your colon experiences anywhere from three to twelve moderate waves of contractions every minute.
• After every substantial meal, your colon experiences a much larger contractile wave, called "mass peristalsis."
• Mass peristalsis serves to push waste materials from your transverse colon all the way to your rectum.
• In most people, mass peristalsis occurs about three times a day.
Healthy Bowels

- It takes anywhere between **3-10 hours** for your large intestine to absorb enough water from waste material to turn it into solid or partially solid stools.
- Your stools consist mainly of **water, mucous, fiber, old cells from your intestinal lining, millions of microorganisms, and small amounts of inorganic salts.**
- When your rectal pouch is distended with enough feces to trigger a contractile reflex, your feces are pushed out through your anus.
Healthy Bowels

• When you consciously contract your abdominal wall, your diaphragm moves downward and helps open up muscles that line your anal sphincter.
• Try to contract the muscles of the abdomen and bear down while releasing the stool.
• You may find it helpful to bend forward while bearing down.
• This increases the abdominal pressure and helps empty the bowel.

Healthy Bowels

• If you choose not to release stools when you experience the urge to do so, your reflex contractions may stop, in which case you likely won't have a significant bowel movement until the next mass peristalsis occurs.
Healthy Bowels

• Your colon, also known as your large intestine, plays an essential role in your health.
• As part of your digestive system, your colon helps to remove water, salt and certain nutrients from indigestible food matter, and helps to form and eliminate solid waste from your body.
• Though your bowels help rid your body of waste, there’s so much more to them than that.
• They are an important part of your immune system, and they help your body regulate fluids and produce vitamins.
• Your colon, in particular, houses trillions of bacteria that affect metabolism and digestion.

Healthy Bowels

• Undigested polysaccharides (fiber) from the food we eat are metabolized in the colon to produce short-chain fatty acids by the residing bacteria and these are then absorbed by diffusion.
• A small amount of vitamin K is also produced and absorbed.
GALT

- 70% of your immune system is in your gastrointestinal tract!
- 70% of your immune system is located in the gut as a vast network of lymph tissue referred to as GALT (gut associated lymphatic tissue)

Healthy Bowels

- Digestion begins in your mouth and stomach and ends in your bowels — the lower parts of your digestive tract.
- When the food you eat reaches your bowels, the water and salts that remain are absorbed.
- The digested food that is left becomes more solid and exits as bowel movements.
Healthy Bowels

• When your colon is healthy, you will have **regular bowel movements** that are well shaped, soft and easy to pass; subsequently, this means **toxins and waste are being effectively eliminated from your system**.

• However, your digestive system, including your colon, is easily impacted by a number of factors, from your diet to environmental chemicals, and as a result can easily become imbalanced.

Healthy Bowels

• For instance, if the walls of your colon become damaged, **toxins from your food can be absorbed into your bloodstream instead of eliminated**.

• It’s also common for **disease-causing bacteria and yeast to proliferate in an unhealthy colon**, leading to an extensive array of mental and physical conditions.

• While **constipation, diarrhea, gas, and bloating** are the most common symptoms of trouble in your colon, small growths known as **polyps** can also develop.
Healthy Bowels

- Many colon polyps are benign and carry no symptoms, but some can slowly develop into colon cancer.
- Colon Cancer is the 2nd Most Common Cancer in the United States – lung is 1st
- As a leading cause of cancer and cancer deaths, knowing what you can do to lower your risk of this disease is important.
- Each year over 50,000 people die of colon cancer
- The majority of these deaths are preventable with lifestyle changes and proper screening

Healthy Bowels

- **What you see in the toilet can give you clues** about how your gastrointestinal tract is functioning and even signal serious disease processes that could be occurring, like infections, digestive problems, and even cancer
- Bowel movements are the end result of your body taking the nutrients it needs from the food you eat and eliminating what’s left.
- Bowel movements are important for your health because they are the body’s **natural way of excreting waste from the body**
What's Normal?

• "Normal" in a stool can actually vary quite dramatically.
• One of the most common questions relates to frequency, although there is no one right answer for this; normal bowel habits vary.
• When we talk about regularity, what we're really talking about is what's regular for you.
• Three bowel movements per day to three per week is considered the normal range.
• What's more important than frequency is the ease with which you move your bowels.
• If you need to push or strain, something is off – moving your bowels should take no more effort than urinating or passing gas.

Your intestines are swarming with trillions upon trillions of bacteria that enhance digestive and metabolic processes.
• They are also the reason why poop smells -- a direct result of the bacterial activity in your GI tract.
• So although it's no bed of roses, it is normal for your bowel movements to stink.
### What’s Normal?

#### Healthy Stool
- Medium to light brown
- Smooth and soft, formed into **one long shape and not a bunch of pieces**
- About one to two inches in diameter and up to 18 inches long
- **S-shaped**, which comes from the shape of your lower intestine
- Quiet and gentle dive into the water... it should fall into the bowl with the slightest little “whoosh” sound – not a loud, wet cannonball splash that leaves your toosh in need of a shower

#### Unhealthy Stool
- Stool that is **hard to pass**, painful, or requires straining
- **Hard lumps and pieces**, or mushy and watery, or even pasty and difficult to clean off
- **Narrow, pencil-like or ribbon-like stools**: can indicate a bowel obstruction or tumor – or worst case, colon cancer; narrow stools on an infrequent basis are not so concerning, but if they persist, definitely warrant a call to your physician

### What’s Normal?

#### Healthy Stool
- Natural smell, not repulsive
- Uniform texture
- Sinks slowly

#### Unhealthy Stool
- **Black, tarry stools or bright red stools** may indicate **bleeding** in the GI tract; black stools can also come from certain medications, supplements, or consuming black licorice; if you have black, tarry stools, it's best to be evaluated by your healthcare provider
- **White, pale, or gray stools** may indicate a **lack of bile**, which may suggest a serious problem (hepatitis, cirrhosis, pancreatic disorders, or possibly a blocked bile duct), so this warrants a call to your physician; antacids may also produce white stool
What’s Normal?

**Unhealthy Stool**
- Floaters or splashers
- **Very bad odor:** If your stool has an extraordinarily bad odor, it should not be ignored. This is odor **above and beyond** the normally objectionable stool odor. Stinky stool can be associated with a number of health problems, such as a malabsorptive disorder, Celiac disease, Crohn’s disease, parasites and chronic pancreatitis

**Unhealthy Stool**
- **Yellow stools** may indicate giardia infection, a gallbladder problem, or a condition known as Gilbert’s syndrome – if you see this, call your doctor
- **Presence of undigested food** (more of a concern if accompanied by diarrhea, weight loss, or other changes in bowel habits)
- **Increased mucus in stool:** This can be associated with inflammatory bowel disease like Crohn’s disease, or ulcerative colitis, or even colon cancer, especially if accompanied by blood or abdominal pain

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**BRISTOL STOOL CHART**

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<thead>
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<th>Type</th>
<th>Description</th>
<th>Status</th>
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<td>Separate hard lumps</td>
<td>Very constipated</td>
</tr>
<tr>
<td>2</td>
<td>Lumpy and sausage like</td>
<td>Slightly constipated</td>
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<tr>
<td>3</td>
<td>A sausage shape with cracks in the surface</td>
<td>Normal</td>
</tr>
<tr>
<td>4</td>
<td>Like a smooth, soft sausage or snake</td>
<td>Normal</td>
</tr>
<tr>
<td>5</td>
<td>Soft blobs with clear-cut edges</td>
<td>Lacking fibre</td>
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<tr>
<td>6</td>
<td>Mushy consistency with ragged edges</td>
<td>Inflammation</td>
</tr>
<tr>
<td>7</td>
<td>Liquid consistency with no solid pieces</td>
<td>Inflammation</td>
</tr>
</tbody>
</table>
Healthy Bowels

• Bowel movements are generally brown in color because of bile, which is produced in the liver and important to the digestion process.
• The food you eat typically takes three days from the time you eat it until it finishes its journey in your toilet.
• If it takes a shorter time, the result may be greener stool because green is one of the first colors in the rainbow of the digestive process.
• Color can be a red flag when it’s a drastic change.
• If stool is black, it can mean that you are bleeding internally, possibly as a result of an ulcer or cancer.
• Stool that is black due to bleeding is also "sticky" (tarry) and smells bad. However, black stools are common when taking a vitamin that contains iron or medications that contain bismut subsalicylate.

Healthy Bowels

• According to Dr. Sheth on his web site Dr.Stool.com, the average American man excretes 150 grams (about one-third of a pound) of stool every day, or the equivalent of 5 tons in a lifetime!
• Anish Sheth, M.D., holds a medical degree from Brown University and is a gastroenterologist and Assistant Professor of Medicine at Yale University School of Medicine.
Constipation

- Constipation is one of the most common gastrointestinal complaints in the United States.
- More than 4 million Americans have frequent constipation, accounting for 2.5 million physician visits a year.
- Around $725 million is spent on laxative products each year in America.

Chronic Constipation

- CC is defined as infrequent stools, difficult stool passage, incomplete evacuation, and prolonged time to pass stool for at least 3 months.
- Prevalence of ~15% of adults in America.
- Female predominance.
- Can be caused by medications, medical conditions as well as diet.
Constipation

• Constipation is a concern when you normally have a bowel movement once or twice a day, and that changes -- maybe you haven’t gone in three days, or more.
• However long it’s been, you now feel gassy, bloated, and generally uncomfortable.
• When you try to go, you have to push and strain, and what comes out is not much
• When waste material travels through your colon more slowly than it should, enough water is extracted from your waste material to cause your stools to become uncomfortably hard.

Constipation

• Constipation can have many causes.
• It might be that you’ve had a shift in your diet, such as a drop in fiber intake, or maybe because you’re not drinking enough water each day, or because your physical activity level has decreased, slowing your metabolic processes down, including digestion.
• Certain medications (such as narcotic pain medicines and iron supplements) can also cause constipation problems.
Constipation

• Try gentle exercise. Take a short walk each day. Gradually increase your walking time until you are walking for at least 20 minutes.
• Make sure you drink enough fluids. Most adults should try to drink between 8 and 10 glasses of water each day.
• Avoid alcoholic beverages, which can increase dehydration.
• Include fruits, vegetables, and fiber in your diet each day – 35 to 40 grams/day. Have a bran cereal for breakfast, and try eating a piece of fruit for a mid-afternoon snack.
• Add 2 tablespoons ground flaxseed to your diet.
• Try psyllium (Metamucil) or Skinny Gut Fiber.
• Have some prunes or prune juice.

**Squatty Potty**

- **Schedule time** each day for a bowel movement (after breakfast, for example).
- **Establishing a daily routine may help. Take your time. Do not be in a hurry.**
- Support your feet with a small step stool about 6 in. when you sit on the toilet. This will help flex your hips and place your pelvis in a more normal "squatting" position for having a bowel movement. “Squatty Potty.”
Diarrhea

• Although constipation causes one set of problems, diarrhea can also mean digestive disaster.
• When waste material travels through your digestive tract too quickly for sufficient water absorption to occur, your stools will be runny and more frequent than normal.
• Whether it’s caused by a meal that just didn’t sit right, or a harmful bacterium or virus, it's categorized by loose stool, and another hallmark of GI trouble -- discomfort.

Diarrhea

• Three main causes of diarrhea are: Undesirable microorganisms, Food intolerances (like lactose intolerance), Stress
• The problem with diarrhea, in addition to the obvious, is that it can cause other health problems, like dehydration, if you’re living with it for more than 2 or 3 days
• Generally, you recoup from a bout of diarrhea or constipation in a day or two. If not, it’s probably worth a trip to the doctor for further GI troubleshooting.
Diarrhea

• Many things can cause diarrhea including diet, medications, IBS and IBD, bacterial infections, food sensitivities
• Mediator Release Test - blood test for food sensitivities – inflammation
• Elimination diet
• Drink 8-10 glasses of fluid everyday to avoid dehydration
• If lasts more than 2 days see doctor

Mediator Release Test

• Patient specific
• Week 1: 20-25 least reactive of the Non-reactive foods
• Weeks 2-4: Slowly introduce new Non-reactive foods
• Test for oral tolerance
Diarrhea

- Limit foods and drinks that contain caffeine: coffee, strong tea and cola
- Eliminate milk and milk products for a time. Use lactose free milk or soy or almond milk
- Limit high fat foods: fatty meats, desserts, butter, margarine and greasy snacks
- Reduce fiber for a short time
- Eat several small meals rather than 1 or 2 large meals

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Diarrhea

- If you have gas or cramping, avoid foods that increase gas like dried beans and beans, broccoli, cabbage, onions, Brussels sprouts, carbonated beverages, beer and chewing gum
- BRAT diet: Banana, Rice, Applesauce, Tea
- When diarrhea is no longer problem, resume normal diet
Diarrhea and Celiac Disease

- Loose Stools may mean you have celiac disease.
- Although it only affects about 1% of the population, it’s estimated that 83% of Americans who have celiac disease don’t know they have it, according to the National Foundation for Celiac Awareness.
- Signs in your stool may be one of the major—and possibly the only—indications you have it.
- With celiac disease, your body is unable to tolerate gluten, a protein in wheat, rye, and barley.
- Eating gluten destroys villi (the tiny, fingerlike protrusions lining your small intestines) and you’re unable to absorb nutrients from the foods you eat.
- This contributes to the loose stools you could experience several times a day.
- Switching to a gluten-free diet can aid absorption, firm up your stools, and address any other related symptoms such as fatigue, pain, bloating, depression, or rashes.

Diarrhea

- Anti-diarrhea medicines are often overused
- Some people take them much longer than recommended as they try to end their diarrhea problems themselves, when they really should go to their doctor to find out what’s causing the trouble.
- The active ingredient in the most often used OTC diarrhea remedies is loperamide hydrochloride.
- These medications should not be used for more than two days.
Irritable Bowel Syndrome

- Irritable bowel syndrome (IBS or spastic colon) is a diagnosis of exclusion.
- It is a functional bowel disorder characterized by chronic abdominal pain, discomfort, bloating, and alteration of bowel habits in the absence of any detectable organic cause.
- In some cases, the symptoms are relieved by bowel movements.
- Diarrhea or constipation may predominate, or they may alternate (classified as IBS-D, IBS-C or IBS-A, respectively).
- IBS may begin after an infection (post-infectious, IBS-PI), a stressful life event, or onset of maturity without any other medical indicators.

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Irritable Bowel Syndrome

- Affects 5%-11% of the population
- Peaks in the 3rd and 4th decades of life
- Female predominance
- Not associated with serious disease or excess mortality
- Health care cost is significant
- Reduced quality of life!
IBS

• Very often associated with food sensitivities
• Blood Test – MRT Testing
• Increase soluble fiber
• Probiotics can be helpful

Blood in the Stool

• One of the most significant warning signs when it comes to bowel movements is blood in the stool
• Blood in your stool could be a symptom of something as significant as cancer and warrants a call to your doctor right away -- even if you think it could be hemorrhoids, or tiny tears in the anal tissue, as a result of constipation and straining, he says.
• Other warning signs to watch for when your bowel movements have taken a turn for the worse are fever, abdominal pain, or dehydration -- any one of which could be tied to GI trouble, such as a virus, appendicitis, or food poisoning.
Floaters

- If your poop floats instead of sinks, it may mean you have excess gas in your digestive tract.
- If you’ve been eating lots of beans, sprouts, cabbage, or very large meals, it’s perfectly normal for stool to float because of gas, and it’s not a cause for concern.
- However, if floaters become more common for you or you spot an oil-slick appearance, it could mean something is preventing your body’s ability to absorb fats from food.
- For instance, inflammation or an infection in your pancreas could prevent you from producing enough digestive enzymes.
- A food allergy or infection could be damaging the lining of your intestines that’s affecting absorption, too.
- Ask your doctor for a stool sample test to see if there’s fat that shouldn’t be there.

How To Keep Your Bowels Healthy

- Most of us think very little for our large intestine, until something goes wrong.
- Poor nutrition can cause digestive problems and cancer of the colon is very common.
- There are ways you can keep your colon resistant to infection and cancer.
- Keeping colon healthy is not something to be overlooked.
Eat substantial meals; don't nibble on small amounts throughout the day

• Each time you eat a **substantial meal**, you **stimulate stretch receptors** in your stomach that are responsible for triggering normal and **mass peristaltic waves** throughout your small and large intestines, ensuring regular movement of waste material through your colon and rectum.

• Also, eating substantial meals allows significant "chunks" of waste materials to travel together through your colon, turn into well formed stools, and get eliminated from your body in an efficient manner.

Eliminate Processed Meats, Cut Back on Red Meat and Meats Cooked at High Temperatures

• **Processed meat consumption has repeatedly been linked to colon cancer.** As noted by the World Cancer Research Fund, it appears there is no safe level when it comes to processed meat, and you’re better off avoiding it entirely:

• Processed meats include **any meat prepared by smoking, curing or salting, adding chemical preservatives such as nitrates. This includes bacon, ham, salami, corned beef and some sausages.**

• Red meats, such as beef, have also been linked to colon cancer, and it’s recommended to limit your intake to just over 1 pound or less a week.

• No matter what type of meat you consume, pay attention to how it’s cooked. High-heat cooking methods such as frying, broiling or grilling contribute to the creation of **heterocyclic amines (HCAs)** and **polycyclic aromatic hydrocarbons (PAHs)**, chemicals that are linked to cancer, Healthier options for cooking meat include steaming and poaching.
Eat Veggies, Especially Cruciferous Veggies

- **Vegetables** are superfoods when it comes to protecting against cancer. Not only are they a natural source of fiber (foods that contain dietary fiber are known to decrease colon cancer risk), but many also contain specific cancer-fighting phytonutrients.
- Veggies in the **cruciferous family** of vegetables, such as broccoli, Brussels sprouts, kale, cauliflower and bok choy, appear to be particularly potent cancer fighters because of their sulfur-containing compounds known as glucosinolates.
- Consumption of cruciferous veggies is **linked to a lower risk of many types of cancer, including colon cancer**.
- Further, there’s also evidence that suggests consumption of cruciferous vegetables may **help reduce DNA damage** to your colorectal cells caused by eating meat cooked at high temperatures.

Consume Friendly Bacteria (Probiotics)

- Research shows that if your digestive system is overrun by bad bacteria, it may increase your risk of colon cancer by generating **waste products that harm colon tissues** and make them more vulnerable to malignancies.
- Researchers say it's possible that adenomas, benign tumors that may serve as a warning sign of colon cancer, could be triggering the production of bad bacteria too.
- In addition to **limiting your consumption of sugar**, which feed bad bacteria, you can help optimize your gut bacteria by consuming **probiotics**. These are available naturally in fermented foods such as yogurt, kefir, and traditionally made sauerkraut.
Make Sure You Have Healthy Vitamin D Levels

- Many people in the United States are vitamin D deficient, particularly those who live in the colder northern states, where sun exposure is minimal all winter long.
- Adequate vitamin D has been associated with healthy colon function and supports healthy immune function by helping the colon with its screening in protecting the body.
- The American Journal of Clinical Nutrition says that a steady intake of Vitamin D is advantageous when trying to prevent colon cancer and maintain a healthy colon.
- You can get Vitamin D from a variety of sources including the sun (15-20 minutes of daily exposure is sufficient) and foods like bread, fatty fish, milk and cereal. If your foods do not supply enough Vitamin D, taking a supplement may be warranted.

Don’t Hold It!

- If you feel a bowel movement coming, head for the bathroom and let it go.
- If you try to hold it in, built-up fecal matter can release toxins into your body, which has the potential to cause diverticulosis and IBS.
- Regular bowel movements is one of the ways your colon keeps itself clean and healthy.
Studies suggest that the more time you spend in the bathroom, specifically reading, the more likely you are to develop hemorrhoids, or swollen blood vessels in and around the anus.

It sounds like a strange correlation, but think about it: The longer you stay in the bathroom trying to go, the more pressure and stress you put down there.

Sitting for too long on the toilet can also restrict blood flow around the anal area, which can make hemorrhoids worse.

Always respond quickly to your bathroom urges, since putting them off can cause constipation.

It may be useful for people with chronic constipation to create a routine time to use the bathroom.

For some, the ideal is 30 to 60 minutes after breakfast or lunch, when the intestines are in motion.

Don’t rush yourself, but try not to linger on the toilet too often either, as you may risk developing hemorrhoids.

Straining or pushing during a bowel movement can damage pelvic floor muscles; instead, try relaxing and opening your jaw and mouth, breathing deeply, putting your feet up on a stool or leaning forward and grasping your ankles.
Don’t Strain

• Generally it is not advisable to spend **longer than 2-3 minutes** on the toilet.
• Spending longer periods on the toilet reading the morning paper should be avoided as this **encourages the pelvic floor muscles to relax and any subsequent straining will allow the lining of the bowel to descend lower than normal.**
• This may make you more prone to rectal prolapse or prolapsing hemorrhoids (piles).
• In general excessive straining should be avoided for the same reason.

It’s OK to Pass Gas!

• The act of flatulence is embarrassing, at least for some, but this **result of harmless bacteria breaking down food in the large intestine is completely healthy.**
• Your colon is filled with **bacteria that release gas** as a byproduct of digesting the food you eat.
• Your body absorbs some of it into the bloodstream, which you breathe out through your lungs, and expels the rest out of your other end.
• It’s normal to pass gas anywhere from **10 to 18 times a day,** according to the American College of Gastroenterology.
Eat Breakfast!

• Breakfast is the most important meal involved in bowel stimulation.
• Make sure you eat breakfast every day, especially a high-fiber breakfast
• Usually the best time of day for a bowel movement will be a half hour to an hour after breakfast.
• For some people a half hour to an hour after lunch will work better.
• These times are best because the body uses the gastro-colic reflex, a stimulation of bowel motion that occurs with eating, to help produce a bowel movement.

Peristalsis

• When you eat a meal, the food moves through your gastrointestinal tract via a wave-like movement known as peristalsis
Peristalsis

• During this movement, your muscles contract and relax, allowing food and liquids to be mixed together and move through your digestive tract.
• Peristalsis acts much like ocean waves, and helps move fecal matter through your digestive tract for elimination.

Eat More Fiber

• Fiber moves through your digestive system, for the most part, as is.
• Once it makes it to your intestines, fiber gives stool a gel-like texture, as well as some bulk, helping it better form and pass more easily.
• Adults should aim for 25-40 grams of fiber each day, depending on calorie intake.
Eat More Fiber

- Fiber (also known as roughage) is the structural part of the plant, it is the framework that supports and holds the plant together and is therefore **only found in foods of plant origin**.
- Many research studies have shown the beneficial effects to our health of fiber in the diet.
- Fiber is extremely hardy, you can chew it, swallow it and subject it to stomach acids, yet **most of it passes through your body unchanged**.
- Fiber acts in the bowel to:
  - **Increase fecal weight**
  - **Increase colonic transit**
  - **Increase frequency of bowel evacuation**

Soluble Fiber

- Soluble fiber is effectively broken down by certain types of colonic bacteria producing energy and gas.
- The fiber forms a gel-like substance in the stool, which can bind to other substances in the gut having additional benefits such as **lowering cholesterol levels and lower blood sugar**.
- Food types, which are predominantly high in soluble fiber, are fruits, vegetables, legumes, oats and barley
Insoluble Fiber

- Insoluble fiber is less easily degraded by colonic bacteria but **holds water very effectively** (up to 15 times its weight in water) thus contributing to an **increase in stool weight and size**
- Acts like Nature’s Broom
- Foods predominantly high in insoluble fiber are:
  - Roughage foods with skins, husks and peels
  - Fruit and Vegetables with their skins
  - Wheat and wheat bran (bran cereals)
  - Nuts and some Legumes
  - All other cereals

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<td>Potato, with skin</td>
<td>100g</td>
<td>5.5</td>
</tr>
<tr>
<td>Sweet potato, cooked</td>
<td>100g</td>
<td>3.0</td>
</tr>
<tr>
<td>Tomato</td>
<td>1 medium</td>
<td>1.3</td>
</tr>
</tbody>
</table>
### High Fiber Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Serving size</th>
<th>Total fiber (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raspberries</td>
<td>1 cup</td>
<td>8.0</td>
</tr>
<tr>
<td>Pear, with skin</td>
<td>1 medium</td>
<td>5.5</td>
</tr>
<tr>
<td>Apple, with skin</td>
<td>1 medium</td>
<td>4.4</td>
</tr>
<tr>
<td>Bran flakes</td>
<td>¾ cup</td>
<td>5.3</td>
</tr>
<tr>
<td>Oatmeal, instant, cooked</td>
<td>1 cup</td>
<td>4.0</td>
</tr>
<tr>
<td>Popcorn, air-popped</td>
<td>3 cups</td>
<td>3.5</td>
</tr>
<tr>
<td>Split peas, cooked</td>
<td>1 cup</td>
<td>16.3</td>
</tr>
<tr>
<td>Lentils, cooked</td>
<td>1 cup</td>
<td>15.6</td>
</tr>
<tr>
<td>Black beans, cooked</td>
<td>1 cup</td>
<td>15.0</td>
</tr>
<tr>
<td>Lima beans, cooked</td>
<td>1 cup</td>
<td>13.2</td>
</tr>
<tr>
<td>Artichoke, cooked</td>
<td>1 medium</td>
<td>10.3</td>
</tr>
<tr>
<td>Green peas, cooked</td>
<td>1 cup</td>
<td>8.8</td>
</tr>
<tr>
<td>Broccoli, boiled</td>
<td>1 cup</td>
<td>5.1</td>
</tr>
</tbody>
</table>

### Fiber Side Effects

- Abdominal bloating
- Gas
- Cramping
- Minimize side effects by:
  - Starting with small amounts and slowly increasing until stools become softer and more frequent
  - Increasing fluid intake
- Beano, Digestive Enzymes
Choose OTC Remedies Wisely

- Laxatives, stool softeners or other over-the-counter products may help with constipation occasionally, but overuse can actually **worsen** your condition or lead to dependence.
- Instead try bulk-forming fiber substitutes, such as psyllium (**Metamucil or Konsyl**), and **Skinny Gut** (**acacia fiber**)
- These may be used daily and could be especially helpful if your diet lacks proper amounts of dietary fiber.

Drink UP!

- Inadequate hydration can lead to a **build-up of toxins in the body**.
- As those toxins accumulate, the risk for constipation, bloating, gas, IBS and fatigue increases.
- Water helps to **move waste materials along**, and is absorbed throughout the entire length of your colon.
- Insufficient water intake can cause **stools to form far before waste materials reach your rectal pouch**, which can cause constipation.
Drink UP!

- Staying hydrated also helps *soften stool*, making bowel movements easier to pass.
- The average adult should aim for a **minimum of 64 ounces** (about eight glasses) of fluids each day—that can come from *water, tea, coffee and even water-rich fruits, such as oranges and grapes.*
- Naturally-sweetened juices are also good choices, just be mindful of the calories and sugar.
- In Ayurvedic medicine, practitioners recommend *drinking warm water to promote healthy bowel movements, which you may want to try.*
- Some people experience variations in bowel movements based on their caffeine and alcohol consumption, so just be aware of that possibility if you choose to drink either.

Add Probiotics

- Large populations of *friendly bacteria* can keep your digestive tract clean and healthy by:
  * Promoting **optimal digestion**, thereby **preventing build-up of toxic waste materials**
  * Taking up space and resources, thereby **helping to prevent infection by harmful bacteria, fungi, and parasites**

The easiest way to build and maintain healthy colonies of friendly bacteria in your digestive tract is to take a *high quality probiotic.*
Probiotics

- Probiotics are commonly consumed as part of fermented foods with specially added active live cultures; such as in yogurt, soy yogurt, or as dietary supplements.
- Naturally found in fermented foods like buttermilk, sauerkraut, kefir, miso, tempeh

Intestinal Flora: A symbiotic relationship with the host

- Human GI tract contains \textit{10x more} bacteria than human cells in the body!
- Protects the host
  - Stimulates immune function
  - Produces antimicrobial substances
  - \textbf{Most are in the small intestine and colon}
  - Include Lactobacillus and Bifidobacterium species, as well as Saccharomycs boulardii
Probiotics

- Probiotics help you digest and assimilate food, balance your immune system, optimize body composition, balance high blood sugar and cholesterol, protect against lactose intolerance, environmental allergies and even spruce up your mood!
- Diets low in fiber and high in processed sugar, alcohol and grain, antibiotics, acid-blocking drugs combined with chronic stress all greatly impact our gut flora in a negative way.
- Taking probiotics, which are the supplemental form of beneficial bacteria, can greatly normalize digestive function (especially ones with Lactobacillus and Bifidobacter strains, as these are the predominant types that also live in your gut).
- Eating vegetables daily helps to nourish your little friends as well. The healthy bugs in your gut feed off the prebiotic fibers found in veggies and in turn help keep your gastrointestinal health and wellness on track.

Probiotics & Antibiotic Related Diarrhea

- Meta-analysis of 34 placebo-controlled trials
- • Probiotics reduced the risk of antibiotic-related diarrhea by 52%
- • The benefit was greatest when the probiotics were started within 72 hours of the onset of antibiotic treatment
- • There is little detailed information regarding the optimal dose or timing of supplementation
Probiotics & Infectious Diarrhea

- Cochrane review of 23 studies:
- Probiotics **reduced overall risk of diarrhea at three days by about 35%**
- Reduced mean **duration of diarrhea by ~30 hours**
- Probiotics were a **useful adjunct to rehydration** therapy in treating **acute infectious diarrhea in adults and children**

Probiotics & Infectious Diarrhea

- Probiotics were generally safe, with no serious adverse effects reported
- Limited data suggest that the minimal effective dose is 10 billion colony-forming units (Lactobacillus sp.) given within the first 48 hours
Contraindications/Side Effects

• No known absolute contraindications to Lactobacillus sp., Bifidobacterium sp., S. thermophilus or S. boulardii
• Avoid in severely ill or immunocompromised people, or in children with short-gut syndrome or pancreatitis
• Occasional adverse effects: Flatulence, mild abdominal discomfort, usually self-limited
• No known interactions with medications or other supplements

Probiotic Dosage

• Dose varies according to organism, indication and delivery method
• Limited data suggest that the minimal effective dose is 10 billion colony-forming units (Lactobacillus sp.) given within the first 48 hours
• The dosages of S. boulardii in most studies range from 250 mg to 500 mg per day
Probiotic Dosage

- Some labels are unreliable and have been found to overstate the number of live microorganisms.
- No current evidence that higher dosages are unsafe; however, they may be more expensive and unnecessary.
- Generally hard to find in sufficient quantities in yogurt.

Probiotics

- IBD (Inflamm. Bowel Disease): VSL #3
- Antibiotic-associated diarrhea; C. difficile: Florastor, Cultruelle, Dan Activ
- Gut Transit Time: Bio K
- Lactose intolerance: Activia
- Irritable Bowel Syndrome: All yogurts with live cultures
- Immune Support: Align
- Vaginal applications: Culturelle, Dan Active
- FemDophilus
Probiotic Sources

- Supplements
- Yogurt
- Keifer
- Attune Bars
- Sauerkraut - but all sauerkraut is not equal and modern processing has created canned and jarred sauerkraut that have been heat treated and pasteurized, destroying the fragile bacteria that are the main reason for eating sauerkraut in the first place

Prebiotics

- Fuels used by bacteria in digestive tract
- Non-digestible carbohydrates that stimulate growth of beneficial probiotics
- Naturally occur in plants, such as garlic, asparagus, and onion
- Other sources: oatmeal, barley, beans, whole grains, leafy green vegetables, berries, yogurt, and milk
Food Sources of Prebiotics

- Jerusalem artichoke
- Asparagus
- Garlic
- Soybeans
- Barley
- Leeks and onions
- Banana
- Oats
- Inulin
- Soluble fiber
- Raisins

Potential Benefits of Probiotics

- Manage Lactose Intolerance
- Reduce Bladder and Urinary Tract Infections
- Improve Symptoms of Irritable Bowel Syndrome
- Treat Diarrhea
- Shorten Duration of Intestinal Infections
Find Your Trigger Foods

- Try keeping a food journal to track any uncomfortable digestive symptoms and the foods that may trigger them.
- Common culprits include gluten, dairy, cabbage or coleslaw, fructose (a type of sugar), sorbitol (an artificial sweetener) and carbonated beverages.
- Once you determine which foods you react to, you can avoid them or indulge in them sparingly.

Exercise

- When you're trying to keep your colon healthy, exercise is a huge part of the equation.
- By increasing blood flow and circulation through exercise, your colon (and entire gastrointestinal system) gets more oxygen.
- This may help ward off colon cancer and other diseases.
- Your fitness routine doesn't need to be extreme. Stretching, doing yoga or walking for 10-15 minutes a day is sufficient to help keep your colon healthy.
Stress Reduction/Sleep

- **Neurotransmitters**, chemicals that transport messages throughout the body, are found in your intestines, just as they are in your brain.
- As a matter of fact, you have **MORE neurotransmitters in your intestines than you do in your brain**!
- It makes sense, then, that anxiety and stress can play critical roles in bowel problems.
- **Getting plenty of sleep and practicing stress management** and relaxation techniques—such as deep breathing, meditation and massage—are good strategies for both a sound mind and a calm, peaceful digestive system.