Natural Treatments for Digestive Disorders

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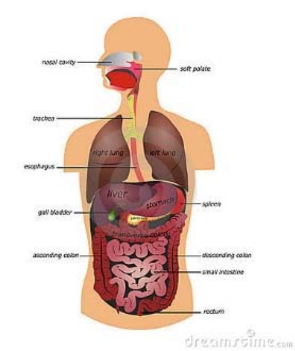
nasal cavity
soft palate
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right lung
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rectum
dreamstime.com

Guard Your Gut!

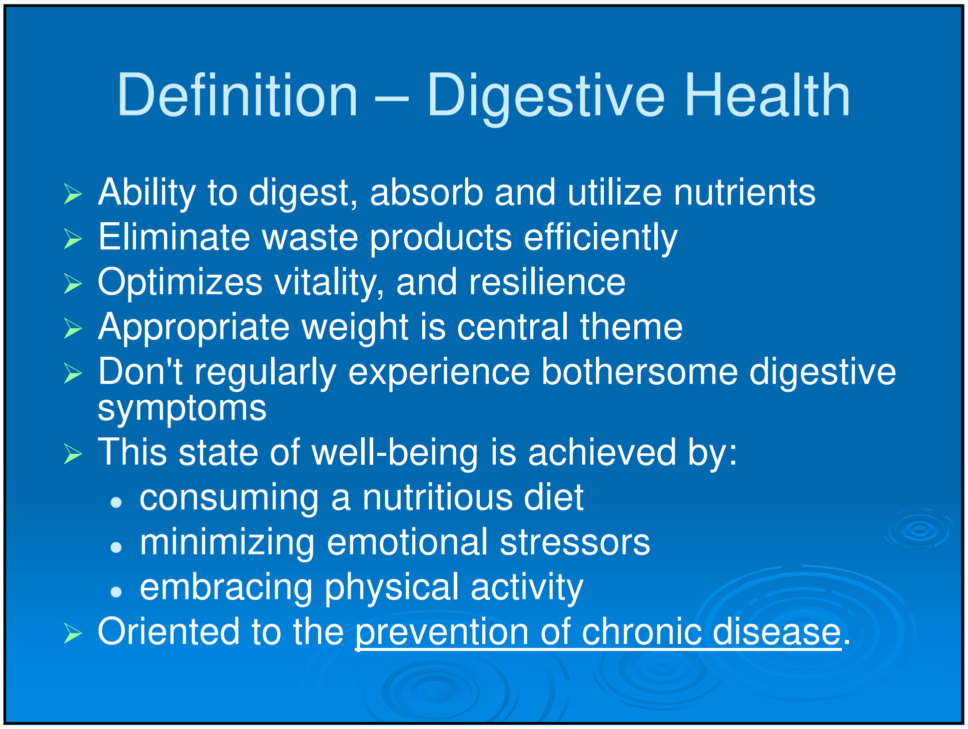
- Americans spend more than *$942 million dollars on over-the-counter antacids, and a whopping $13.6 billion dollars on prescription acid suppressants each year*
- $725 million is spent on laxative products each year in America
- The cost of irritable bowel syndrome in the United States has been estimated at $1.7-$10 billion in direct medical costs, with an additional $20 billion in indirect costs, for a total of $21.7-$30 billion
- Constipation is the *most common gastrointestinal complaint in the United States!*

- Do You Think We Have Gut Issues?

Defining Digestive Health

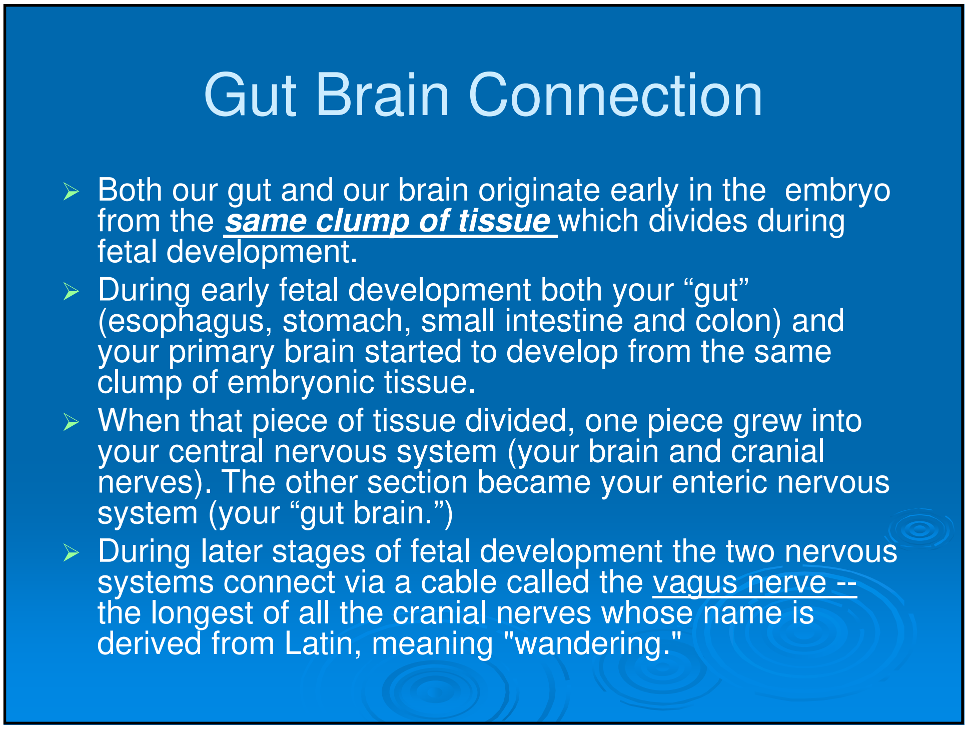
- ***Good digestive health*** *indicates an ability to process nutrients through properly functioning gastrointestinal organs, including the stomach, intestines, liver, pancreas, esophagus and gallbladder. Most people who are in good digestive health are of appropriate weight and don't regularly experience symptoms like heartburn, gas, constipation, diarrhea, nausea or stomach pain.*

American Gastroenterology Gastroenterology Association



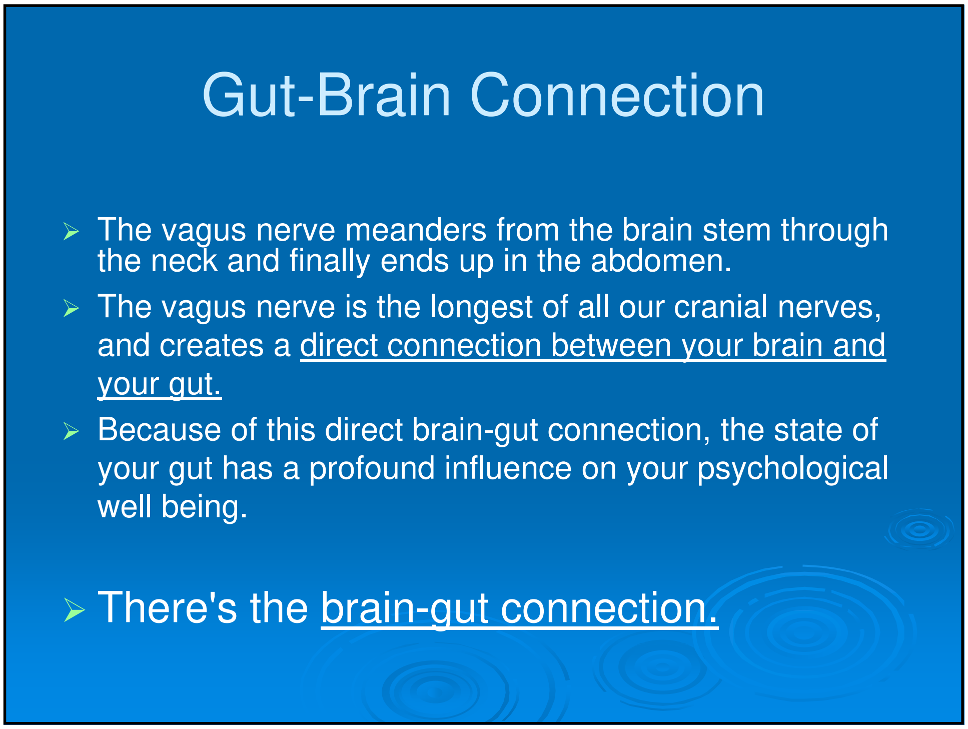
Definition – Digestive Health

- Ability to digest, absorb and utilize nutrients
- Eliminate waste products efficiently
- Optimizes vitality, and resilience
- Appropriate weight is central theme
- Don't regularly experience bothersome digestive symptoms
- This state of well-being is achieved by:
  - consuming a nutritious diet
  - minimizing emotional stressors
  - embracing physical activity
- Oriented to the prevention of chronic disease.



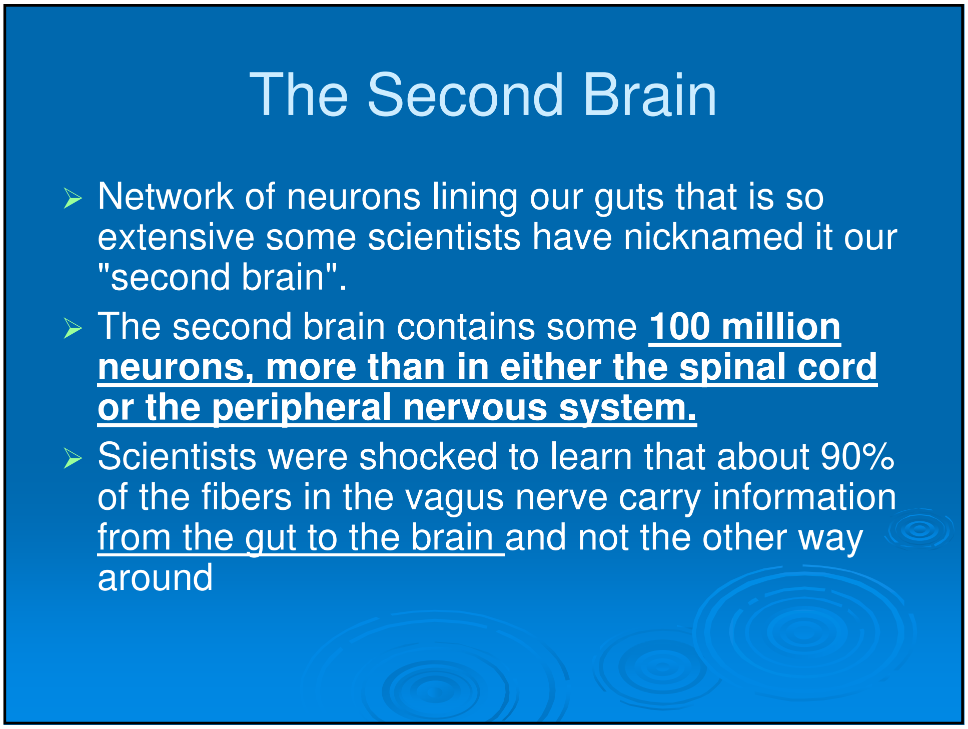
Gut Brain Connection

- Both our gut and our brain originate early in the embryo from the ***same clump of tissue*** which divides during fetal development.
- During early fetal development both your “gut” (esophagus, stomach, small intestine and colon) and your primary brain started to develop from the same clump of embryonic tissue.
- When that piece of tissue divided, one piece grew into your central nervous system (your brain and cranial nerves). The other section became your enteric nervous system (your “gut brain.”)
- During later stages of fetal development the two nervous systems connect via a cable called the vagus nerve -- the longest of all the cranial nerves whose name is derived from Latin, meaning "wandering."



Gut-Brain Connection

- The vagus nerve meanders from the brain stem through the neck and finally ends up in the abdomen.
- The vagus nerve is the longest of all our cranial nerves, and creates a direct connection between your brain and your gut.
- Because of this direct brain-gut connection, the state of your gut has a profound influence on your psychological well being.
- There's the brain-gut connection.



The Second Brain

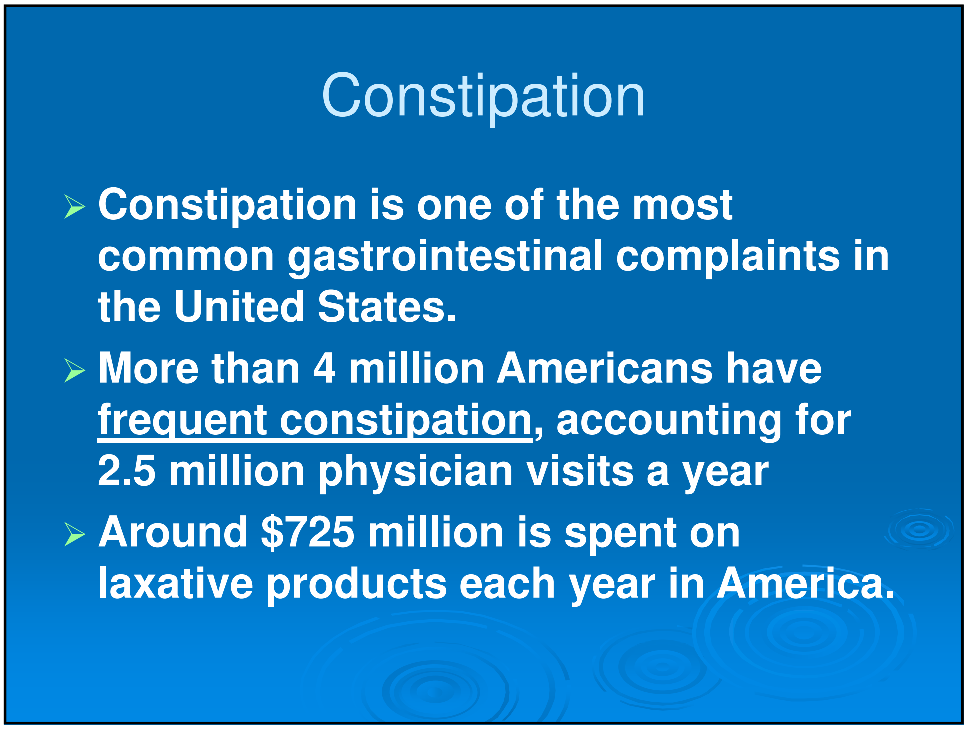
- Network of neurons lining our guts that is so extensive some scientists have nicknamed it our "second brain".
- The second brain contains some **100 million neurons, more than in either the spinal cord or the peripheral nervous system.**
- Scientists were shocked to learn that about 90% of the fibers in the vagus nerve carry information from the gut to the brain and not the other way around

The Second Brain

- A big part of our emotions are probably influenced by the nerves in our gut
- "A gut feeling" "Butterflies in the stomach" "Sick to my stomach" when we hear emotionally troubling news
- 95% of the body's serotonin is found *in the bowels, not the brain*
- ***70% of our immune system*** **is aimed at the gut to expel and kill foreign invaders.**

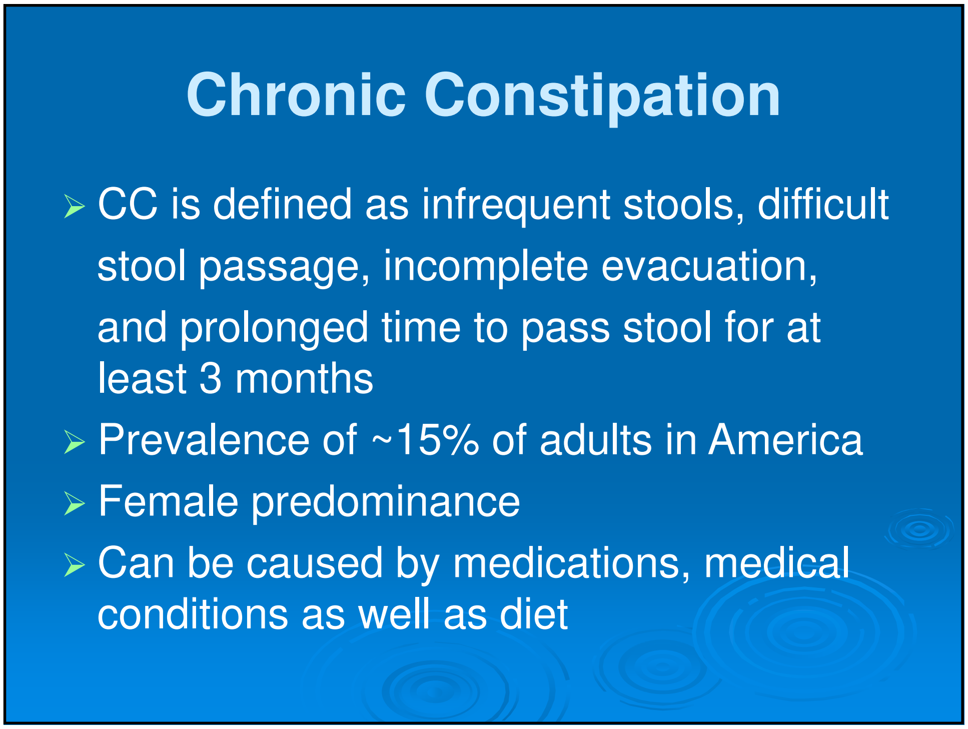
Gut Complaints

- Constipation
- Diarrhea
- Irritable Bowel Syndrome
- Gastroesophageal Reflux Disease – GERD, Heartburn
- Gas/Bloating



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

- Fiber: 25-40 grams per day. Try for 2 cups of fruit and 2 ½ cups vegetables per day
- Add Fiber *slowly!*
- *Vegetables, Fruits, Legumes, Whole Grains*
- Psyllium, Glucomannan, Acacia, Guar Gum increase stool frequency
- Water: 6-8 8oz. Glasses per day
- 4-5 Prunes/day
- 1-2 Tablespoons ground flaxseed
- Tea can be constipating
- Exercise often – very helpful in prevention
- Limit foods high in fat/sugar

Fiber

- **What is Fiber Anyway?**
- •**Dietary fiber** or sometimes called **roughage** is the indigestible portion of plant foods having two main components:
- **• Insoluble fiber: helps bowels move – whole grains, wheat and corn bran, nuts and seeds, flaxseed green beans, cauliflower, avocado, bananas, tomatoes**
- **• Soluble fiber: helps reduce cholesterol and control blood sugar – peas and beans, oats rye, barley, prunes, plums, berries, apples, broccoli, carrots, root vegetables like sweet potatoes, onions, psyllium**

How Much Fiber?

- • 25-40 grams per day of total fiber
- Americans consume a daily average of 15 grams of dietary fiber (17 g for males and 13 g for females)
- RDI for dietary fiber for most groups **– at least** 25 grams of fiber per day
- INCREASE YOUR FIBER !!!!!!

Other Benefits of Dietary Fiber

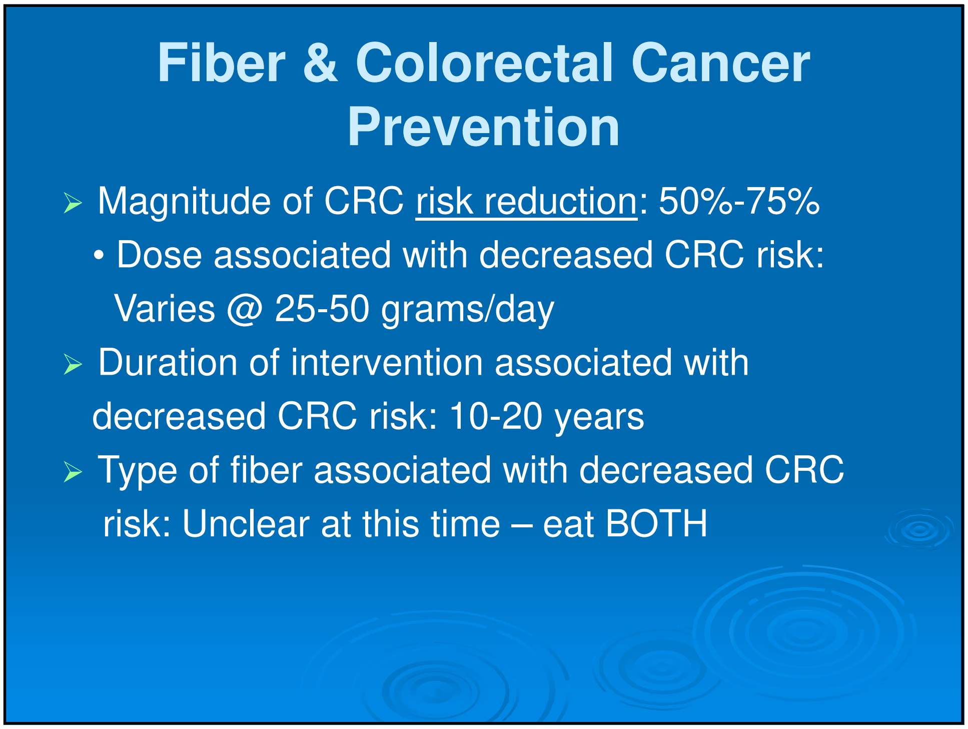
- Reduces total & LDL cholesterol
- Improves glycemic control in type 2 diabetes
- May protect against type 2 diabetes
- May help prevent colorectal cancer

Fiber & Cholesterol Reduction

- High fiber intake is associated with a 40%-50% reduction in the risk of CHD and stroke compared with low fiber intake
- Each 10 gram increase in fiber intake/day is associated with:
- 14% relative risk reduction for *all coronary events*
- 27% reduction for coronary death

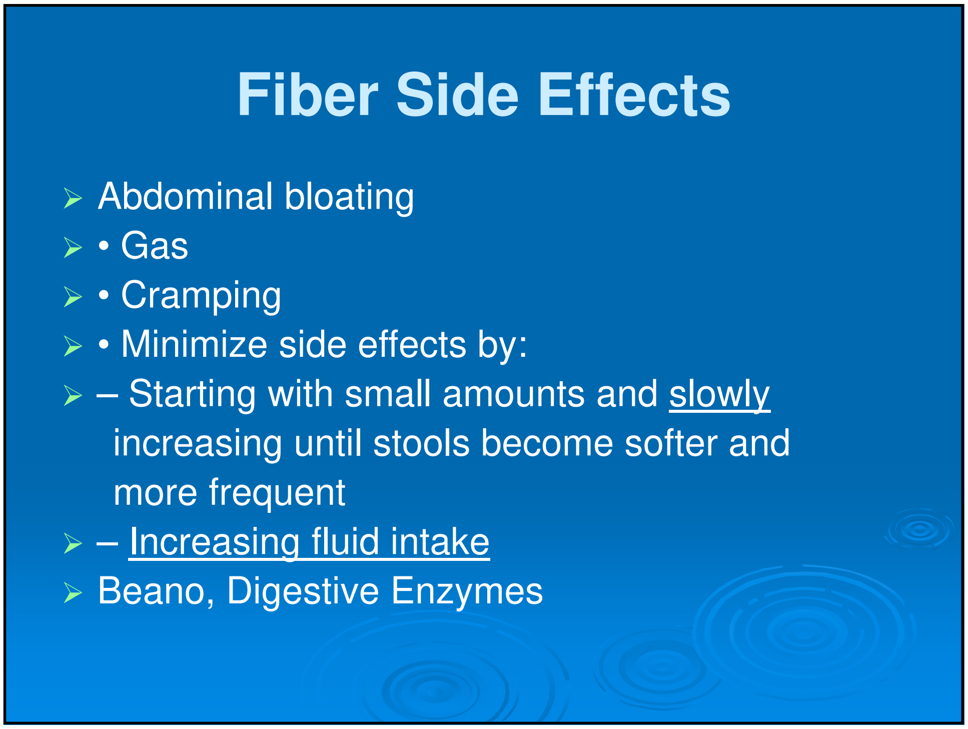
Fiber and Diabetes

- High glycemic load diets and a low cereal fiber content diet increase risk of type 2 diabetes
- • Randomized, crossover study
  • 2 diets: 24 grams vs. 50 grams fiber/day with same macronutrient & energy content
- • High-fiber diet associated with:
  – Improved glycemic control
  – Improved lipid profile



Fiber & Colorectal Cancer Prevention

- Magnitude of CRC risk reduction: 50%-75%
  - • Dose associated with decreased CRC risk: Varies @ 25-50 grams/day
- Duration of intervention associated with decreased CRC risk: 10-20 years
- Type of fiber associated with decreased CRC risk: Unclear at this time – eat BOTH

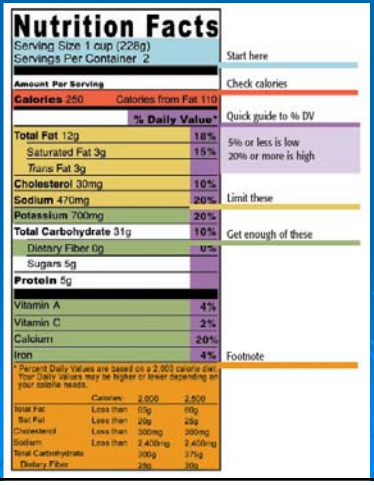


Fiber Side Effects

- 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

Food Label

- Total Fiber is listed under “Carbohydrates” on the food label



Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 250 Calories from Fat 110

	% Daily Value*
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Potassium 700mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Start here
Check calories
Quick guide to % DV
5% or less is low
20% or more is high
Limit these
Get enough of these
Footnote

Good Sources of Fiber

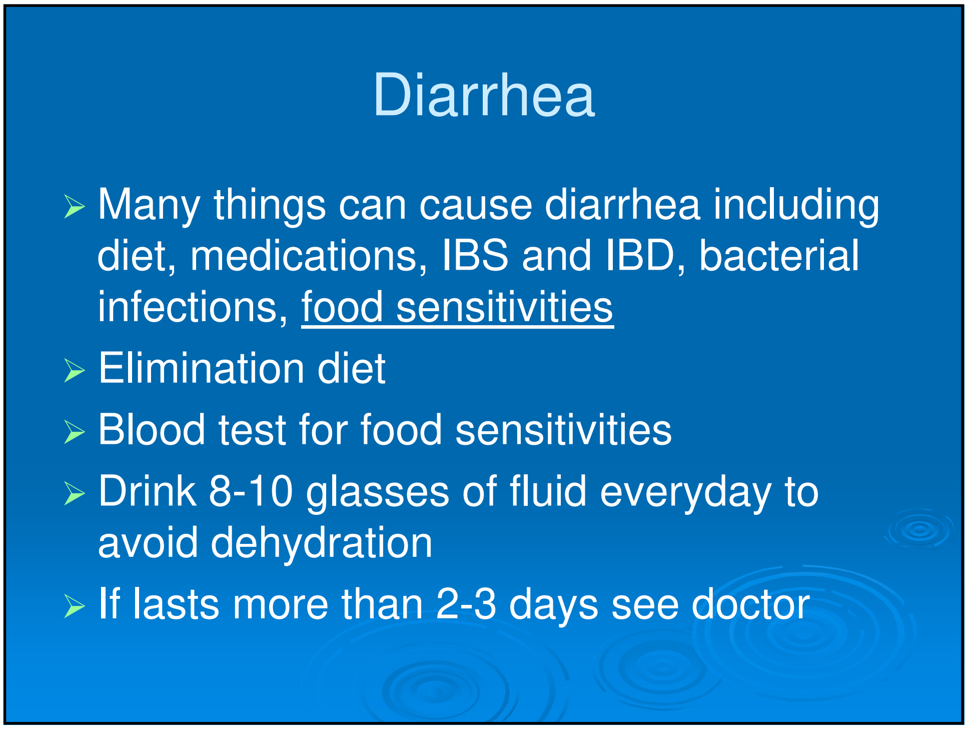
- Wheat Bran
- Unrefined breakfast cereal: All-Bran Buds (13 grams) , Fiber One (9-13 grams), Kashi Go Lean (10 grams), Simply Fiber (14 grams)
- Beans and legumes: 6-8 grams in ½ cup
- Prune/ prune juice
- Flaxseed
- Supplements: Metamucil, Benefiber, Konsyl, Organic Clear Fiber, PGX fiber

Laxatives

- OTC laxatives are available as pills, liquids, or fibrous powders that are mixed with water or juice.
- Some of the active ingredients in laxatives include bisacodyl, docusate, magnesium hydroxide, and senna, among others.
- Warning labels on these products caution users not to exceed the recommended dose and **not to use the products for more than a week at a time, unless told to do so by a doctor.**

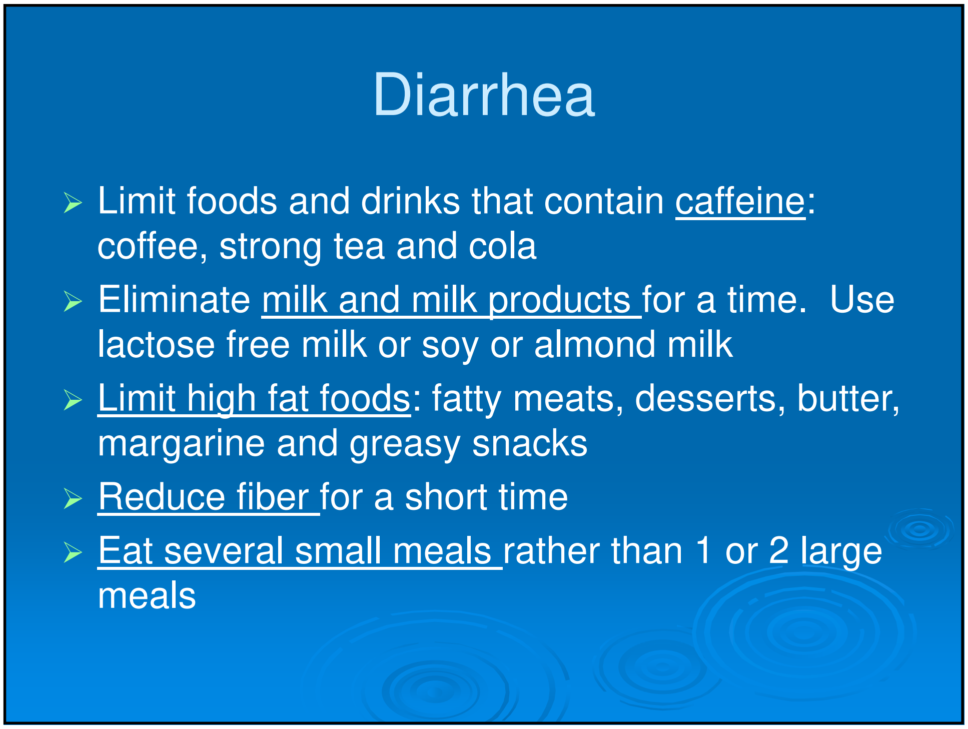
Laxatives

- Overdose or long-term use of laxatives can disrupt the body's chemistry and undermine the body's natural ability to eliminate waste.
- Laxatives are habit-forming if used daily and can be very dangerous in overdose.
- They can deplete the body's potassium supply, leading to an irregular heartbeat.
- At higher doses they frequently cause diarrhea, severe cramps, and **dehydration**.
- People using laxatives for occasional constipation are advised to drink plenty of water along with the medication.



Diarrhea

- Many things can cause diarrhea including diet, medications, IBS and IBD, bacterial infections, food sensitivities
- Elimination diet
- Blood test for food sensitivities
- Drink 8-10 glasses of fluid everyday to avoid dehydration
- If lasts more than 2-3 days see doctor



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

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
- When diarrhea is no longer problem, resume normal diet

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 - Imodium
- These medications should not be used for more than two days.

Diarrhea

- If diarrhea persists beyond that period, or if a fever or blood in the stool develops, a doctor should be consulted.
- Loperamide should not be used in cases of suspected food poisoning from bacteria such as *salmonella, e-coli*, or *shigella*.
- The pathogens that commonly cause sporadic diarrhea in adults in developed countries are Campylobacter, Salmonella and Shigella species; *Escherichia coli*; Yersinia species; protozoa; and viruses.

Irritable Bowel Syndrome

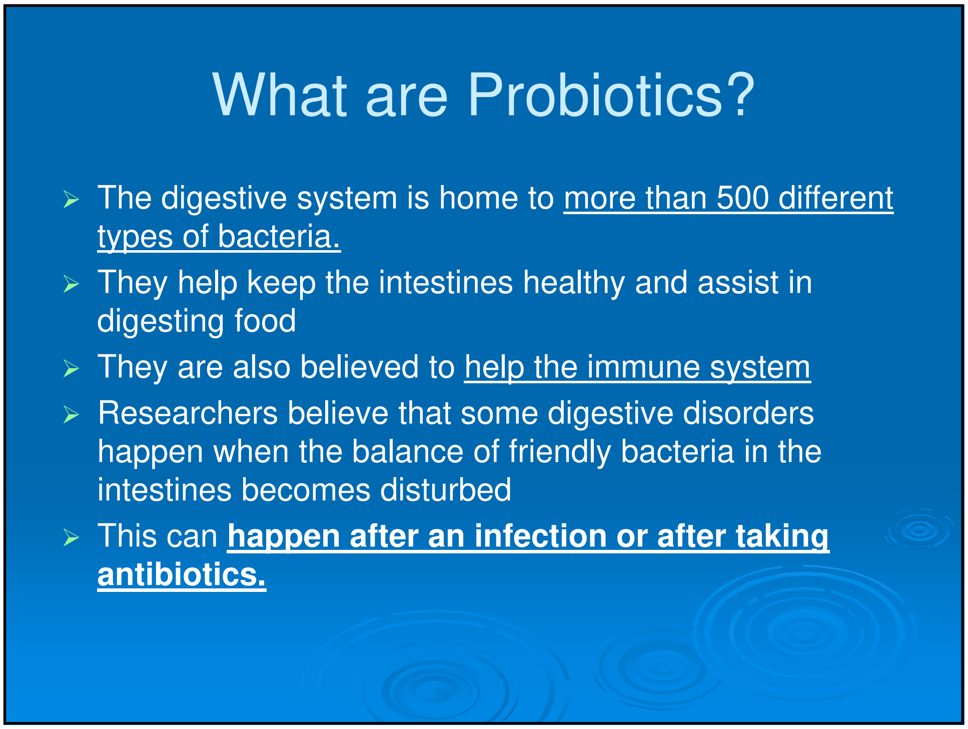
- **Irritable bowel syndrome** (**IBS** or **spastic colon**) is a diagnosis of exclusion.
- It is a functional bowel disorder characterized by chronic abdominal pain, discomfort, bloating, and alteration of bowel habits in the absence of any detectable organic cause.
- In some cases, the symptoms are 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.

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!*

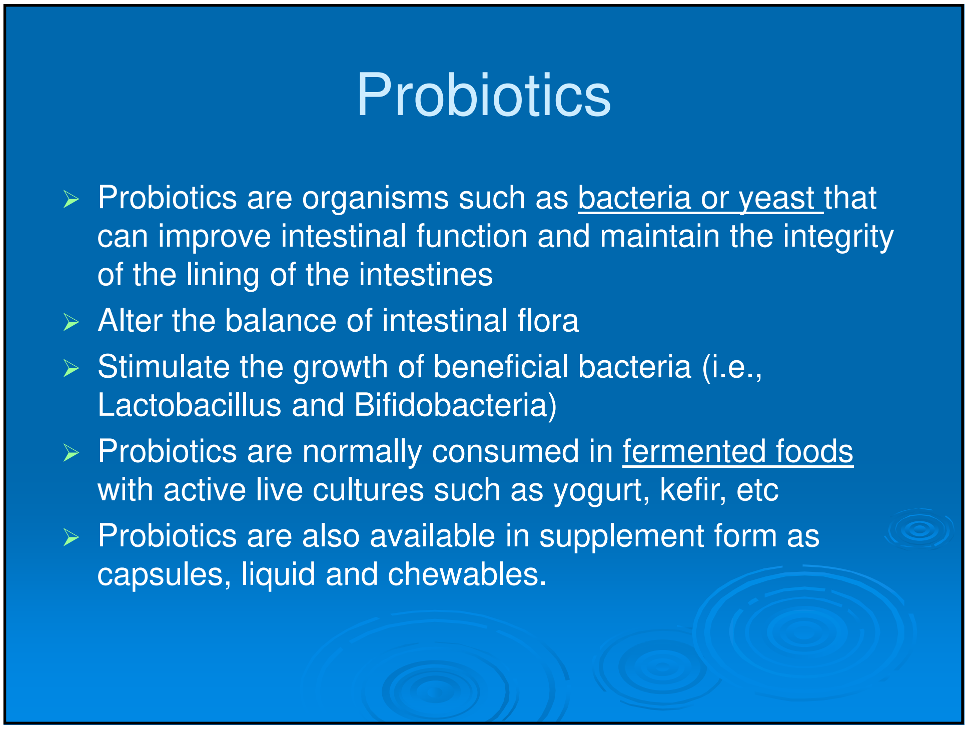
IBS

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



What are Probiotics?

- The digestive system is home to more than 500 different types of bacteria.
- They help keep the intestines healthy and assist in digesting food
- They are also believed to help the immune system
- Researchers believe that some digestive disorders happen when the balance of friendly bacteria in the intestines becomes disturbed
- This can **happen after an infection or after taking antibiotics.**



Probiotics

- Probiotics are organisms such as bacteria or yeast that can improve intestinal function and maintain the integrity of the lining of the intestines
- Alter the balance of intestinal flora
- Stimulate the growth of beneficial bacteria (i.e., Lactobacillus and Bifidobacteria)
- Probiotics are normally consumed in fermented foods with active live cultures such as yogurt, kefir, etc
- Probiotics are also available in supplement form as capsules, liquid and chewables.

Probiotics

- There are many different strains of probiotics, but the most common strains available today in are Lactobacillus and Bifidobacterium.

Probiotics

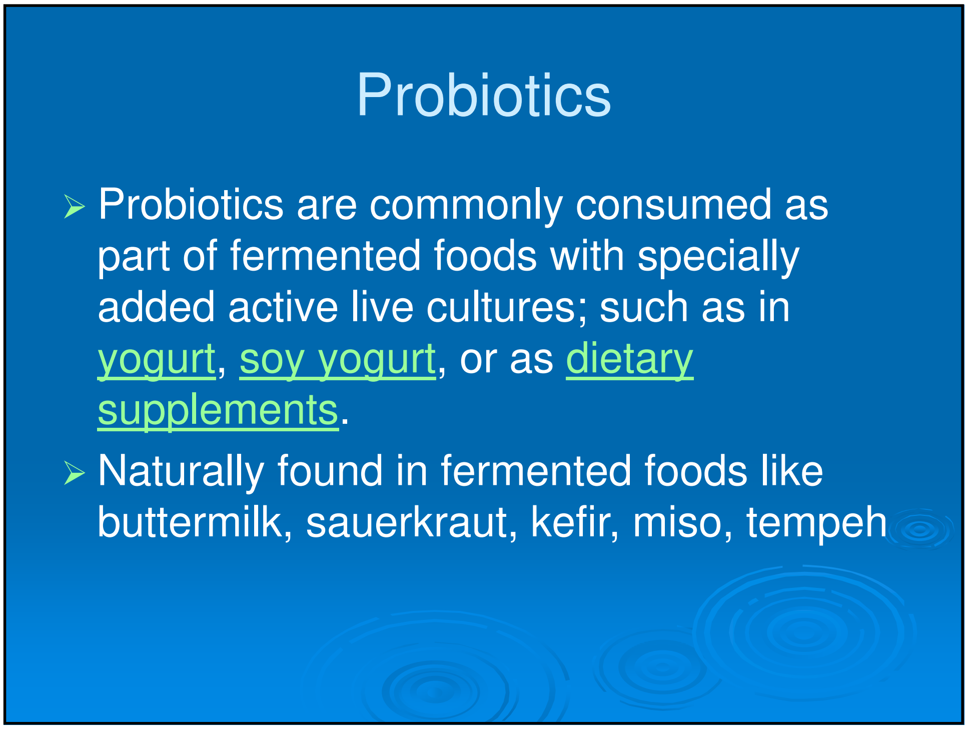
- Live microorganisms
- Help maintain natural balance in intestines
- Promote a healthy digestive system
- Sources: Yogurt, keifer, cultured milk products, sauerkraut, tempeh, miso

Health Benefits of Probiotics

- Can help prevent colon cancer
- ↓ LDL “Bad” Cholesterol - Cardioviva
- ↓ blood pressure
- Improve immune function & prevent infections
- Improve mineral absorption
- Prevent harmful bacterial growth in GI tract
- Improvement of intestinal barrier function
- Suppress pro-inflammatory cytokines
- Modulation of pain perception

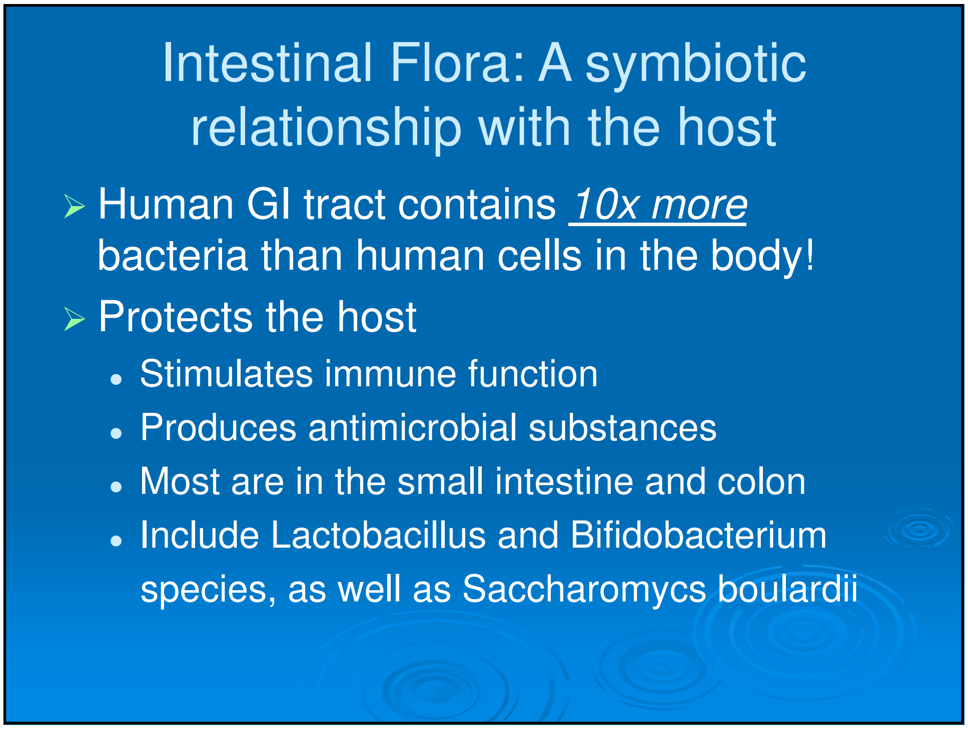
Potential Benefits of Probiotics

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



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 *10x more* bacteria than human cells in the body!
- Protects the host
  - Stimulates immune function
  - Produces antimicrobial substances
  - Most are in the small intestine and colon
  - Include Lactobacillus and Bifidobacterium species, as well as Saccharomycs boulardii

Definitions

Probiotic:

- **live microorganisms that when administered in adequate amounts confer a health benefit on the host**

Prebiotic:

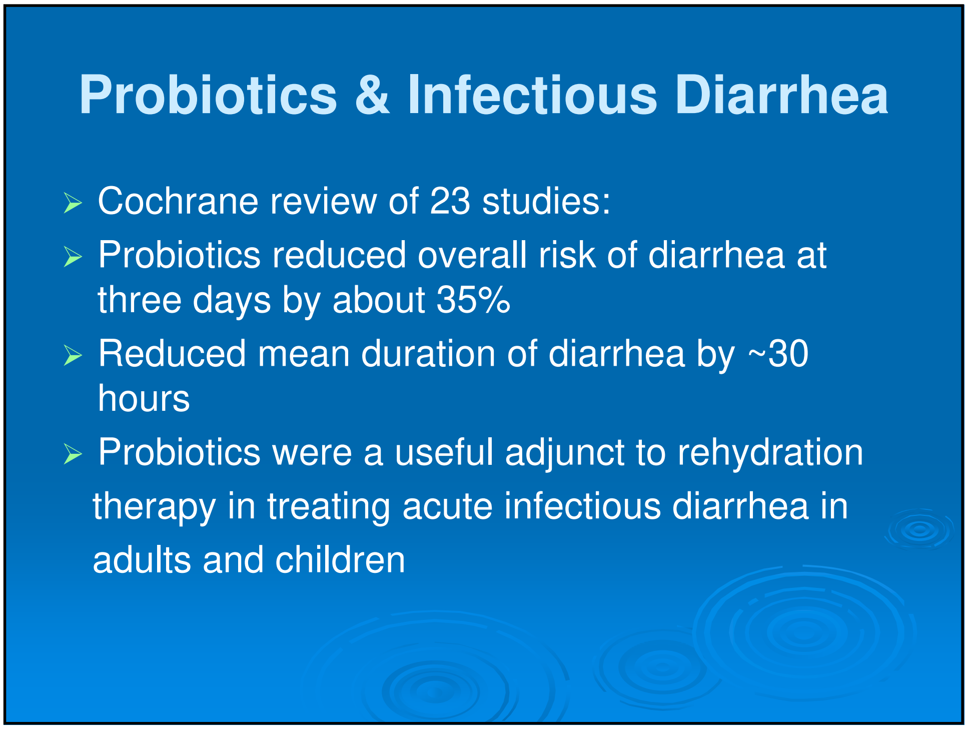
- **nondigestible food ingredients (e.g. oligasaccharides) that may beneficially affect the host by selectively stimulating the growth and/or the activity of a limited number of bacteria in the colon**

Synbiotics:

- combination nutritional supplements comprised of probiotics and prebiotics

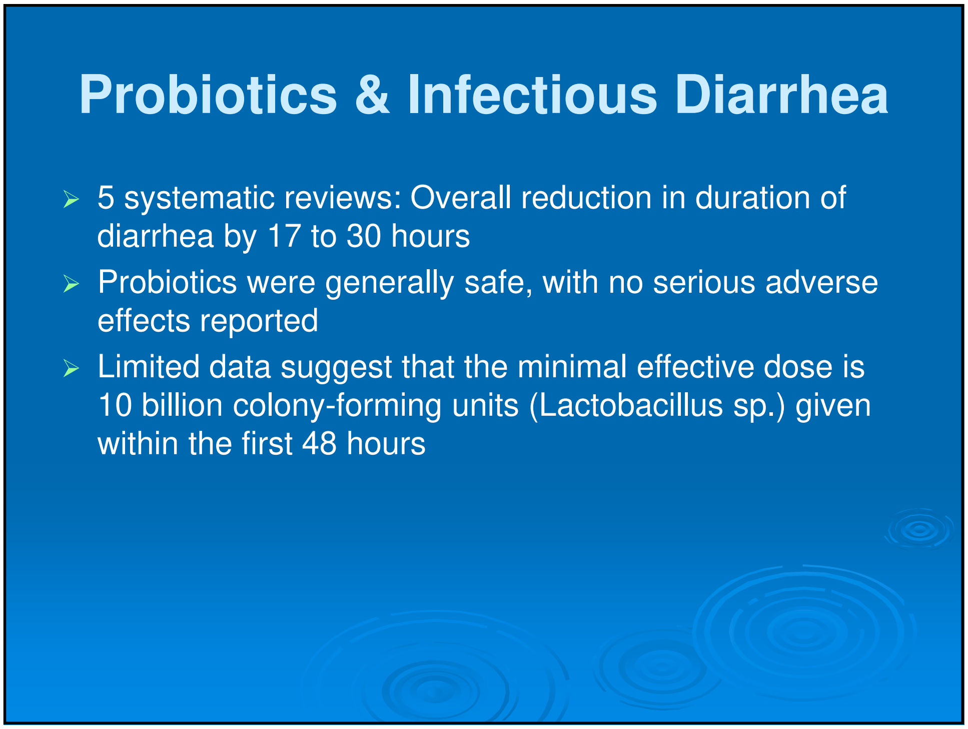
Probiotics & Antibiotic Related Diarrhea

- 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



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

- 5 systematic reviews: Overall reduction in duration of diarrhea by 17 to 30 hours
- 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 yogurt

Probiotics

❑ IBD (Inflamm. Bowel Disease)	VSL #3 – at pharmacy
❑ Antibiotic-associated diarrhea; C. difficile	Florastor, Cultruelle, Dan Activ Bio K
❑ Constipation	Activia, VSL #3, Yakult
❑ Lactose intolerance	All yogurts with live cultures
❑ Irritable Bowel Syndrome	Align, Good Belly, Activia
❑ Immune Support	Culturelle, Dan Active
❑ Vaginal applications	FemDophilus
❑ C.Diff	Florastor

❑ http://www.usprobioticguide.com

Probiotic Sources

- Supplemens
- 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**

Prebiotics in Digestive Health

- Examples: Inulin, Fructooligosaccharides, Fiber
- • Increase concentration of Bifidobacteria, and short chain fatty acids in the feces
- Many trials, most small, indicate possible GI health benefits (IBS, CC, ulcerative colitis, C. difficile, colitis)

Food Sources of Prebiotics

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

GERD

- Gastroesophageal reflux disease
- Commonly called “heartburn”
- A condition caused by the reflux of stomach acid into the esophagus
- GERD is a potentially serious medical condition that carries a significant risk of esophagitis and other complications

Gastroesophageal Reflux Disease - GERD

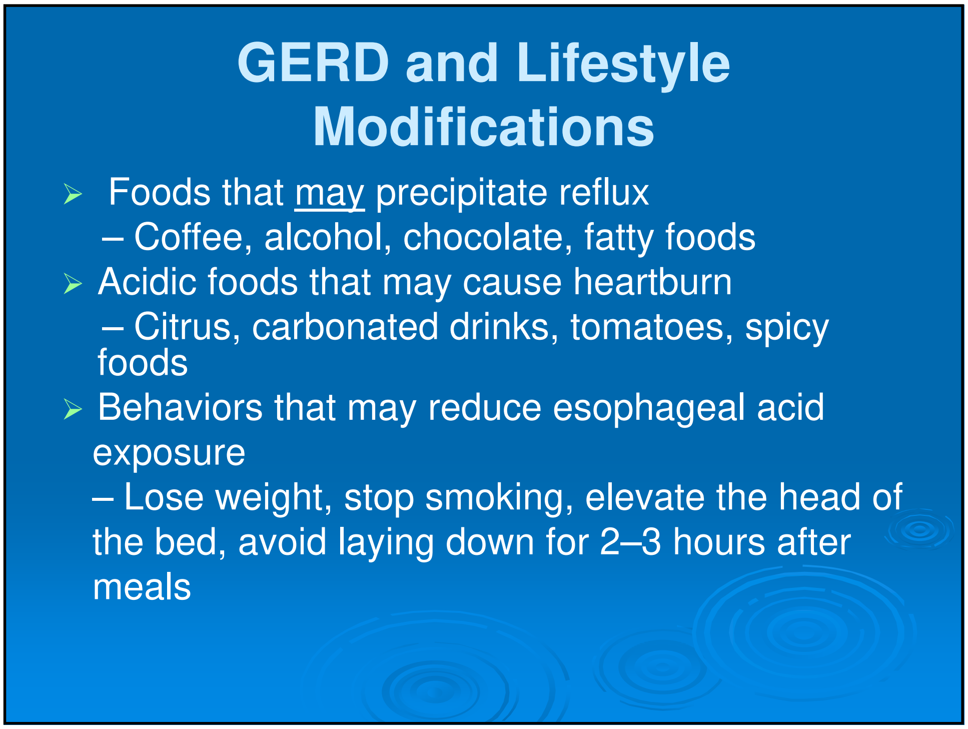
- Affects nearly 19 million Americans
- 18.1% - 27.8% of the population!
- Esophageal syndromes:
  - Heartburn, chest pain
  - Complications: Esophagitis, stricture, Barrett’s esophagus, adenocarcinoma
- Extra-esophageal syndromes:
  - Cough, laryngitis, asthma, dental erosions

Complications of untreated Reflux

- Esophageal strictures
- Barrett's esophagus
- Hoarseness
- Chronic laryngitis
- Asthma
- Chronic cough
- Insomnia
- Dental erosions

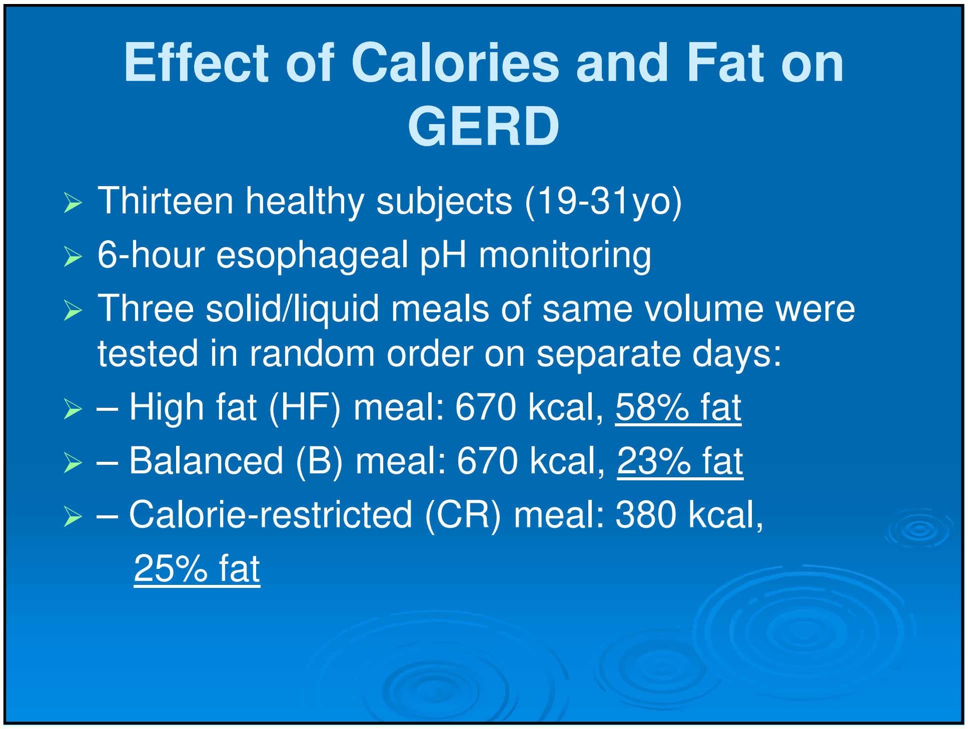
GERD and Lifestyle Modifications

- Multiple recommendations that include dietary factors and management of GERD
- Broadly fall into 4 categories:
  _ Check for food sensitivities!
  _ Avoid foods that may precipitate reflux
  _ Avoid acidic food that may cause heartburn
  _ Adopt behaviors that may reduce acid exposure



GERD and Lifestyle Modifications

- Foods that may precipitate reflux
  - – Coffee, alcohol, chocolate, fatty foods
- Acidic foods that may cause heartburn
  - – Citrus, carbonated drinks, tomatoes, spicy foods
- Behaviors that may reduce esophageal acid exposure
  - – Lose weight, stop smoking, elevate the head of the bed, avoid laying down for 2–3 hours after meals



Effect of Calories and Fat on GERD

- Thirteen healthy subjects (19-31yo)
- 6-hour esophageal pH monitoring
- Three solid/liquid meals of same volume were tested in random order on separate days:
- – High fat (HF) meal: 670 kcal, 58% fat
- – Balanced (B) meal: 670 kcal, 23% fat
- – Calorie-restricted (CR) meal: 380 kcal, 25% fat

Effect of Calories and Fat on GERD

- Esophageal acid exposure (% time pH <4) was lowest with the CR meal
- Reflux episodes were lower in the CR meal
- There is good evidence that GERD is associated with obesity
- The Nurse’s Health Study found a dose dependent relationship between BMI and symptoms
- A large meta-analysis reports similar results in both men and women

GERD

- Acid reflux is increased because obesity:
- Increases intragastric pressure
- Increases episodes of LES relaxation
- Weight loss can be EXTREMELY effective for reducing/eliminating GERD symptoms

Proton Pump Inhibitors

- **Proton pump inhibitors** (PPIs) used regularly for a year or longer may lead to low levels of circulating magnesium, which may increase the risk of leg spasms, arrhythmias, and seizures, according to an FDA warning
- The FDA noted that PPI-associated hypomagnesemia was generally reversed with magnesium supplements, but in about 25% of cases "magnesium supplementation alone did not improve low serum magnesium levels and the PPI had to be discontinued."
- $11 billion annually in the USA!

Proton Pump Inhibitors

- The FDA's notice included the prescription drugs: esomeprazole magnesium (Nexium), dexlansoprazole (Dexilant), omeprazole (Prilosec), omeprazole and sodium bicarbonate (Zegerid), lansoprazole (Prevacid), pantoprazole sodium (Protonix), rabeprazole sodium (AcipHex) and the combination product esomeprazole magnesium/naproxen (Vimovo)
- Also included were OTC formulations of the drugs: Prilosec OTC, Zegerid OTC, and Prevacid 24-hour. The latest alert from the FDA says physicians "should consider obtaining serum magnesium levels prior to initiation of prescription PPI treatment in patients expected to be on these drugs for long periods of time."

Proton Pump Inhibitors

- The risk of hypomagnesemia (low magnesium) may be greater when PPIs are given to patients who are already taking drugs that are known to deplete magnesium, including digoxin and diuretics.

Proton Pump Inhibitors

- Both PPI and H2 blockers significantly increase the risk of vitamin B12 deficiency in elderly patients.
- B12 requires adequate gastric acid for absorption.
- This population is already prone to deficiency in intrinsic factor, necessary for B12 absorption.
- This lack of stomach acid also decreases the absorption of folic acid, iron and zinc.
- H2 blockers (*Tagamet, Pepcid, Axid* and *Zantac*) decrease acid secretion by blocking histamine.

Proton Pump Inhibitors

- One study showed that high doses of PPIs, used for a year or more, could make people 2.5 more times susceptible to **hip fracture** than control subjects.
- Lower doses decreased the risk factor to 1.5 times that of nonusers.
- The longer these drugs are used, the higher the fracture risk.
- This **heightened risk of osteoporosis** is probably due to the drastic drop in calcium and vitamin D absorption that occurs with these drugs.
- Some experts believe the drugs themselves may hamper the body's ability to build new bone

Risk of PPI Therapy

- Increased infections (Clostridium difficile, community-acquired pneumonia)
- SIBO (small intestinal bacterial overgrowth)
- Bone fractures
- Rebound acid hypersecretion and hypergastrinemia
- Nutritional deficiencies (B12, Mg, Ca, Iron, etc.)
- Interference with metabolism of medication (CYP2C19)

Remove

- Bothersome foods (gluten, dairy); alternative diets including elimination, low FODMAPs
- Chocolate, peppermint, spicy foods, and caffeinated beverages
- Acidic beverages, including colas and orange juice
- High fat and high simple carbohydrate foods
- Organisms (bacteria, fungi, and parasites)

Replace

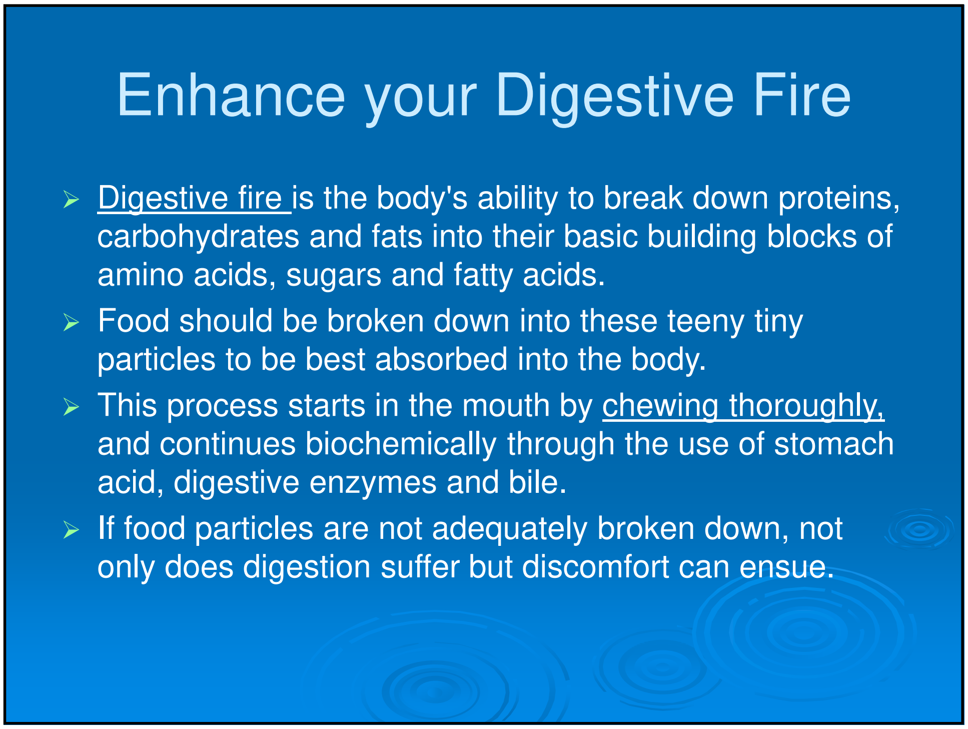
- Digestive enzymes
- HCl – stomach too low!
- Fiber
- Phytonutrients
- Vitamins, minerals, AAs

Reflux

- Avoid laying down after eating
- Avoid eating late at night
- Avoid alcohol and tobacco
- Promote salivation (lozenges, gum)

Melatonin

- The use of melatonin as a treatment for acid reflux was reported by Polish researchers who published their findings in March 2007 in the *Journal of Clinical Gastroenterology*.
- They recruited 60 patients with the disorder and divided them into two groups.
- Half of the patients took 5 mg of melatonin every evening; the others received a placebo.
- After 12 weeks, more than half the patients in the melatonin group no longer had reflux symptoms and 30 percent of the rest of the group reported partial improvement.
- Less than 10% of the patients taking the placebo reported any improvement in their symptoms.



Enhance your Digestive Fire

- Digestive fire is the body's ability to break down proteins, carbohydrates and fats into their basic building blocks of amino acids, sugars and fatty acids.
- Food should be broken down into these teeny tiny particles to be best absorbed into the body.
- This process starts in the mouth by chewing thoroughly, and continues biochemically through the use of stomach acid, digestive enzymes and bile.
- If food particles are not adequately broken down, not only does digestion suffer but discomfort can ensue.

Enhance your Digestive Fire

- **Gas, bloating, indigestion and pain are the most prominent symptoms of unbroken and partially undigested food molecules in the system.**
- If we are unable to adequately produce the factors that perform this function, even the healthiest of diets will cause distress.
- Chewing food well and supplementing with a digestive enzyme at mealtimes is a surefire way to aid the body in its breakdown of food, thus ensuring a comfortable passage through the digestive tract.

Heal the lining of the digestive tract from top to bottom

- Ulcers, leaky gut, Celiac disease, diverticulitis, inflammatory bowel disease (IBD) and other conditions related to the lining of the digestive tract can create symptoms of inflammation, pain, indigestion, gas and bloating, and over time create issues of malabsorption, nutrient insufficiencies and potentially autoimmune disease.
- Luckily, there are several things you can do that are nourishing to the lining of the digestive system.

Ways to Support Healthy Digestion

- Ensure adequate amounts of digestive factors.
- After chewing, the food's next stop is the stomach, where an adequate amount of stomach acid (hydrochloric acid) is the next necessity.
- Stomach acid is required for adequate breakdown of proteins.
- Without adequate stomach acid, not only is protein digestion ineffective, but also digestion of vitamin B12 is seriously affected.
- Vitamin B12 digestion and absorption requires that it be liberated from protein.

Ways to Support Healthy Digestion

- In addition, intrinsic factor, the protein that is necessary for vitamin B12 absorption, is low when stomach acid is low.
- Low stomach acid (hypochlorhydria) is common, especially in older people since as we age, we make less stomach acid.
- Research suggests that as many as half of the people over 60 years old have hypochlorhydria.
- A variety of factors can inhibit sufficient stomach acid production including the pathogenic bacteria, Helicobacter pylori, and frequent use of antacids.

Ways to Support Healthy Digestion

- Low stomach acid is also associated with many diseases, such as asthma, celiac sprue, hepatitis, rheumatoid arthritis, osteoporosis, and diabetes mellitus.
- Signs of hypochlorhydria (low stomach acid) include a sense of fullness after eating, bloating, excessive belching, indigestion, multiple food allergies, undigested food in the stool, and peeling and cracked fingernails.
- In addition to hydrochloric acid, the production of pancreatic enzymes and bicarbonate is also compromised in some people.
- If necessary, these digestive factors can be replaced with appropriate supplementation.

Ways to Support Healthy Digestion

- Digestive enzyme support can also be obtained from fresh pineapple or papaya, which contain the enzyme bromelain, and other fresh vegetables and herbs.
- Digestive enzymes in supplement form: Digest Gold
- Processed foods, like canned pineapple, contain little enzyme activity since digestive enzymes are proteins, which are destroyed by heating, such as in the sterilization process.
- So beginning a meal with fresh fruits or salad can provide support for healthy digestion.

Ways to Support Healthy Digestion

- Support the gastrointestinal barrier.
- The gastrointestinal cell wall is the barrier between what you ingest and the inside of your body; therefore, the integrity of this barrier is vital to your health.
- Support for the mucus that covers the cells in the gastrointestinal tract is very important, especially in the stomach.
- The mucus layer is one way the stomach and upper small intestine protect themselves against the damaging effects of stomach acid.

Ways to Support Healthy Digestion

- Alcohol, over-the-counter anti-inflammatory drugs, called NSAIDS (e.g. aspirin, etc), and the pathogenic bacteria, Helicobacter pylori can reduce the mucous layer, leading to lesions in the stomach and small intestinal tract walls.

Ways to Support Healthy Digestion

- Research studies have shown that the small intestinal tract barrier can become leaky under some conditions.
- Cells loose their attachments to each other, resulting in a wall with holes between the cells instead of the cells forming a strong, connected and continuous surface.
- When this "leaky gut" happens, molecules can get inside the body that normally wouldn't be transported through the intestinal cell wall.
- With leaky gut, the things that shouldn't get in do, and those that should can't get where they need to be for adequate transport through the body.
- The result is the body doesn't get the nutrition it needs.

Ways to Support Healthy Digestion

- Anything that irritates the lining of the gastrointestinal tract can cause leaky gut, but a major contributor is inflammation (e.g., food allergies)
- Eliminating foods to which you are intolerant or allergic can help provide a healing environment in the small intestine
- Glutathione, a small peptide found in the highest concentrations in fresh vegetables, fruits, and lean meats is also beneficial to the small intestine, since it can directly act as an antioxidant in the intestinal tract and help decrease damaging molecules that may be produced during inflammation.

Ways to Support Healthy Digestion

- Vitamin C, from citrus fruits, and vitamin E, found in whole grain cereals and nut oils, are important antioxidants for the small intestine and work with glutathione to support intestinal healing.
- The cells that line the intestinal tract need fuel to continue their process of nutrient uptake.
- The preferred fuel for these cells is the amino acid glutamine, which can be obtained from proteins.

Ways to Support Healthy Digestion

- Support the growth of probiotic bacteria
- Foods that will supply probiotic bacteria include some yogurts, kefir, and other foods that have been fermented with Lactobacillus or contain Bifidobacteria, the beneficial types of bacteria.
- Foods that will nourish probiotic bacteria include foods that contain soy fiber, inulin (from chicory or Jerusalem artichoke), and rice fiber.

Ways to Support Healthy Digestion

- Provide for healthy intestinal transit
- Fiber, in general, supports overall transit of the food and healthy elimination.
- Some fibers, like those found in rye, wheat and flax, also can bind to environmental toxins, such as pesticides, and carry them through the digestive tract for direct elimination, decreasing the amount that is absorbed into your body.

Ways to Support Healthy Digestion

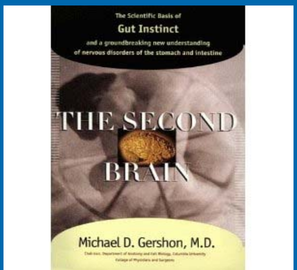
- Learn how to deal with stress effectively.
- Research has shown that the intestine responds negatively to stress, during which the intestinal lining becomes leaky, absorption is less effective, and your body is unable to selectively take up the nutrients it needs.
- Foods with a calming effect include herb teas, like chamomile.
- Alcohol, caffeine, and refined carbohydrates, like table sugar, should be avoided when under stress
- Eating meals at regular times and in a relaxed environment can also help decrease stress.

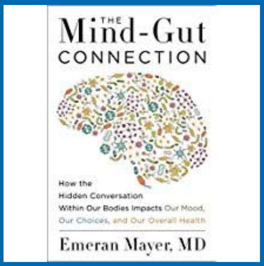
Summary

- Take care of your gut and it will take care of you!
- You are what you eat
- You are what you digest
- You are what you assimilate!
- Get lots of fiber, fruits, vegetables, whole grains, lean proteins, good fats and beans and legumes in your diet
- Drink lots of water
- Get probiotics and prebiotics on a regular basis

Remember

- Make meal times relaxed
- Take time to eat
- Allow time for food to digest
- Eat at regular intervals
- Eat smaller amounts at any given eating episode
- Take small bites
- Focus on eating, not everything else


The Scientific Basis of
Gut Instinct
and a groundbreaking new understanding of nervous disorders of the stomach and intestine
THE SECOND BRAIN
Michael D. Gershon, M.D.


THE Mind-Gut CONNECTION
How the Hidden Conversation Within Our Bodies Impacts Our Mood, Our Choices, and Our Overall Health
Emeran Mayer, MD