



INE | INSTITUTE OF
NUTRITIONAL
ENDOCRINOLOGY

Digestion: Optimizing Digestive Function

Dr. Ritamarie Loscalzo



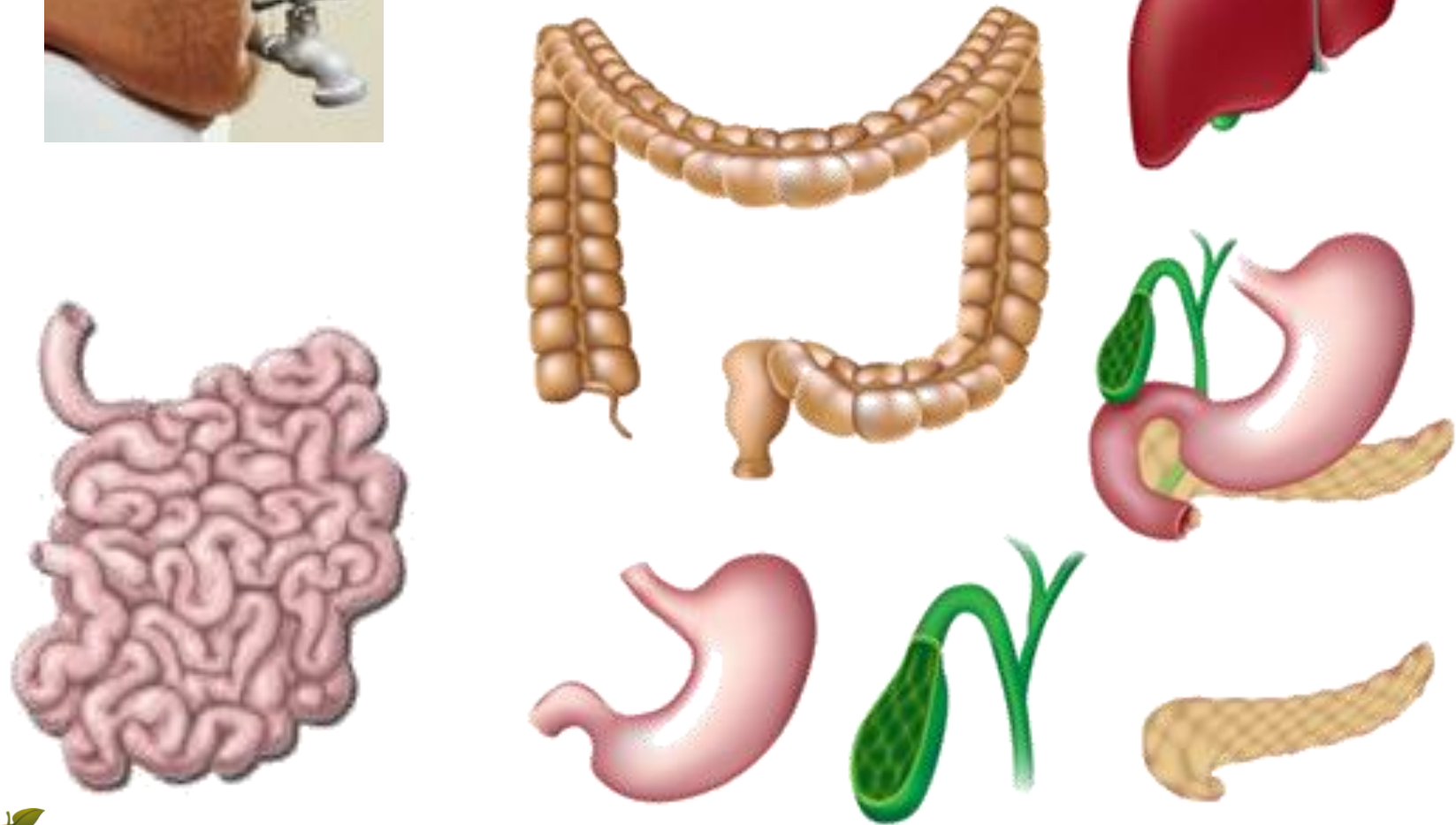
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What Can Go Wrong With Digestion



Digestive organs



3 Main Functions of Digestive System

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graph TD; A[3 Main Functions of Digestive System] --> B[Digestion]; A --> C[Absorption]; A --> D[Elimination];
```

Digestion

Breaks down food into molecules your body can use

Absorption

Molecules absorbed into blood and carried through body

Elimination

Wastes eliminated from body



Assessing the Digestive Tract



- ✓ **Symptoms:** Online assessment scores
- ✓ **Transit time**
- ✓ **Lab:** Markers of malabsorption
- ✓ **Physical signs** of nutrient deficiencies due to malabsorption
- ✓ **Inflammation** and allergic reactions
- ✓ **Symptoms outside digestive tract:** Skin, gums, nails, lips, tongue, joints, and bones



Main Indications of Digestion Issues

Obvious:

- ✓ Bloating
- ✓ Gas
- ✓ Flatulence
- ✓ Burping
- ✓ Pain
- ✓ Hemorrhoids
- ✓ Irritable bowel
- ✓ Diarrhea
- ✓ Constipation
- ✓ Crohn's
- ✓ Diverticulitis
- ✓ Colitis

Not So Obvious:

- ✓ Acne
- ✓ Eczema
- ✓ Brain fog
- ✓ Depression and anxiety
- ✓ Joint pain
- ✓ Frequent illness
- ✓ Hormone swings
- ✓ Thyroid imbalance
- ✓ Headaches
- ✓ Autoimmune disease
- ✓ Allergies
- ✓ ADD
- ✓ Asthma
- ✓ Fatigue
- ✓ Fibromyalgia



Assessment Interpretation

Assessment / Desired Score	Score At Start Date: _____	Priority V High, High, Med, Low	Protocols Started Date:	Protocols Completed Date:	Score After Protocols
Low stomach acid / <10					
Excess stomach acid / <10					
Pancreas/small intestine / <10					
Large intestine / <10					
Liver/gallbladder / <10					
Candida/dysbiosis / <40					
Leaky gut / 0					
SIBO					

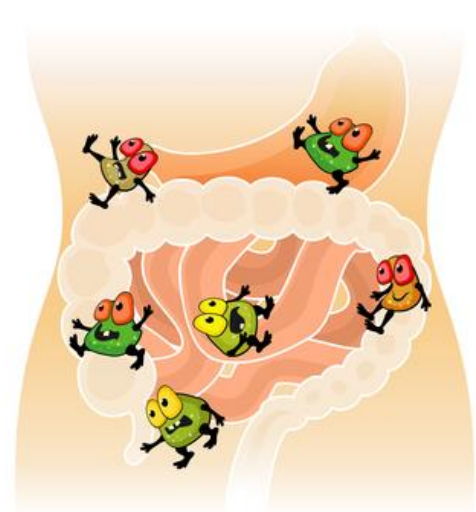


	Low Stomach Acid	Excess Stomach Acid	Small Intestine and Pancreas	Large Intestine	Liver / Gall Bladder	Candida/ Dysbiosis	Leaky Gut and Inflammatory Bowel Disease	FODMAP /Specific Carbohydrate Sensitivity (SCD)	SIBO
Gut Rejuvenator		Monitor – remove citrus or ACV if it aggravates							
Green Drinks							juices or cooked and blended greens if severe	Replace restricted greens with allowed	Replace restricted greens
Pre Meal Ritual, Chewing, Calm									
Remove Gut Hurting Foods									
Elimination diet – food sensitivities									
Add Gut healing foods							May need to restrict to cooked/ pureed	Modify to only include the allowed foods	FODMAP and SCD, consider elemental diet
HCl Challenge		NO					caution		
Bitters plus zinc		caution							
Enzymes		caution							
Gut Soothing Herbs - Mucilaginous								Some herbs may not be tolerated –Modified SCD chart	Some herbs may not be tolerated – Modified SCD chart
Antispasmodic Herbs									
Carminative Herbs									
Candida/parasite cleanse									
Leaky Gut									
Liver/gall bladder									
Probiotics									Not in early stages
Prebiotics								Caution	Caution
Cholagogues (some also stimulate HCl)		Caution- HCl							



Digestive Issues We Covered

- ✓ Low stomach acid
- ✓ H. pylori, ulcers, gastritis
- ✓ Reflux
- ✓ Irritable bowel
- ✓ Leaky gut and celiac
- ✓ Gall bladder congestion and surgical removal
- ✓ Digestive enzyme insufficiency
- ✓ SIBO: Small Intestinal Bacterial Overgrowth
- ✓ Candida and other gut critter overgrowth
- ✓ Inflammatory bowel disease
 - Crohn's, colitis, diverticulitis



Optimizing Digestion

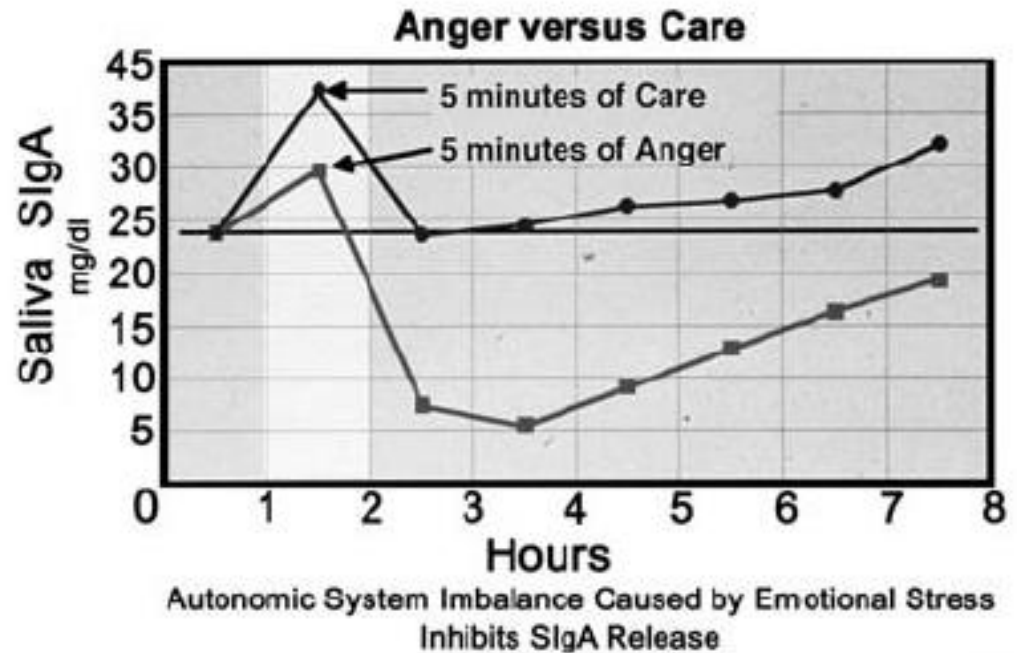
- ✓ Eat in a calm, relaxed state – deep breathing and appreciation
- ✓ Start the day with a cleansing beverage, i.e., warm or room temperature water, lemon, cayenne, and mint essential oil
- ✓ Drink a glass of lukewarm water ½ hour before meals
- ✓ Bitters 5 minutes before the meal
- ✓ Chew food thoroughly
- ✓ Eat slowly and focus on the meal
- ✓ Digestive enzymes with all cooked and complex raw meals
- ✓ Food combining or food sequencing
- ✓ Heal stomach
- ✓ Heal leaky gut
- ✓ Probiotics: eliminate pathogens and allergens – main culprit often gluten and casein (milk protein)
- ✓ Colon cleansing: toxic debris
- ✓ Liver/gallbladder support



Stress vs. Gut



Figure 6. Effect of Emotion on SIgA Release



HeartMath Institute



Pre-Meal Ritual to Optimize Digestion and Absorption

- Stop
- Look
- Tune into your heart
- Breathe fully and deeply
- Feel sincere appreciation



**DO This EVERY Time
You Put Food into Your Body**



Daily AM Gut Rejuvenator



- ✓ 32 ounces pure water
- ✓ 1 lemon, juice of
- ✓ 2 drops peppermint oil
- ✓ 2 drops lemon oil

NOTES:

- *Adjust volume to client's size.*
- *Apple cider vinegar can be used instead of citrus.*
- *Cayenne can be added if tolerated.*
- *A pinch of sea salt can help, especially in adrenal fatigue.*
- *Other cleansing oils can substitute for lemon and/or peppermint when contraindicated.*



How Lemon Water Helps Digestion

- ✓ Loosens and flushes out toxins
- ✓ Encourages the liver to produce bile
- ✓ High in minerals and vitamins
- ✓ Known to relieve heartburn, belching, and bloating
- ✓ Contains limonene which supports phase 2 liver detoxification
- ✓ Citric acid helps maximize enzyme function
- ✓ Saponins and vitamin C support immune system and are antimicrobial
- ✓ Alkalizing



Lukewarm Water 30 Minutes Before Meals



- ✓ Can decrease appetite by filling the stomach
- ✓ Warms and relaxes stomach for enhanced digestion
- ✓ Raises temperature which improves immune system
- ✓ Softens stool and aids in elimination
- ✓ Ayurvedic remedy for heartburn and indigestion



Bitter Herbs to Stimulate Digestion

Actions of Bitters

- ✓ Stimulate HCl, pepsin, mucous in upper GI
- ✓ Can stimulate bile, pancreatic enzymes, and hormones
- ✓ Decongest portal vein and decrease varicosity
- ✓ Enhance immunity
- ✓ Calm the nervous system
- ✓ Stimulate the parasympathetic nervous system
- ✓ Lower blood glucose

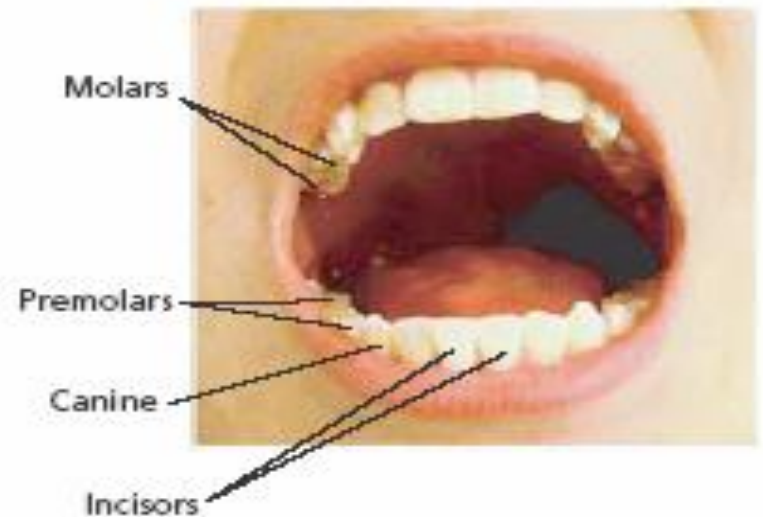
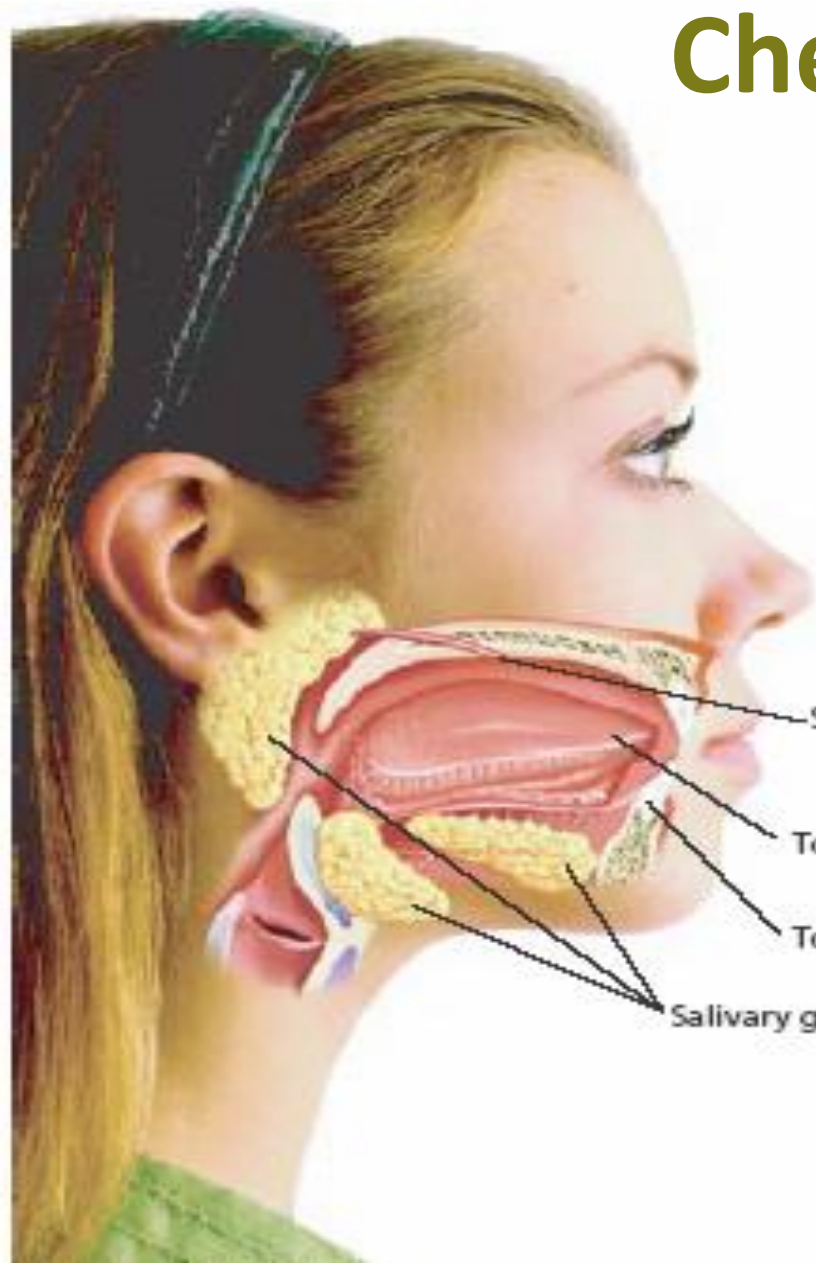
Some Common Bitters

- ✓ Licorice
- ✓ Hops
- ✓ Milk thistle
- ✓ Gentian
- ✓ Orange peel
- ✓ Dandelion
- ✓ Goldenseal
- ✓ Oregon grape
- ✓ Chicory
- ✓ Yarrow
- ✓ Mugwort



Chewing and the Mouth

- ✓ Saliva: moistens food
- ✓ Teeth mechanically break it down
- ✓ Gateway to the rest of the GI tract



Eating Habits For a Happy Belly and Optimized Digestion

- ✓ Eat in a calm, relaxed state – deep breathing and appreciation
- ✓ Chew food thoroughly
- ✓ Eat slowly and focus on the meal
- ✓ Stop between bites



Enzymes

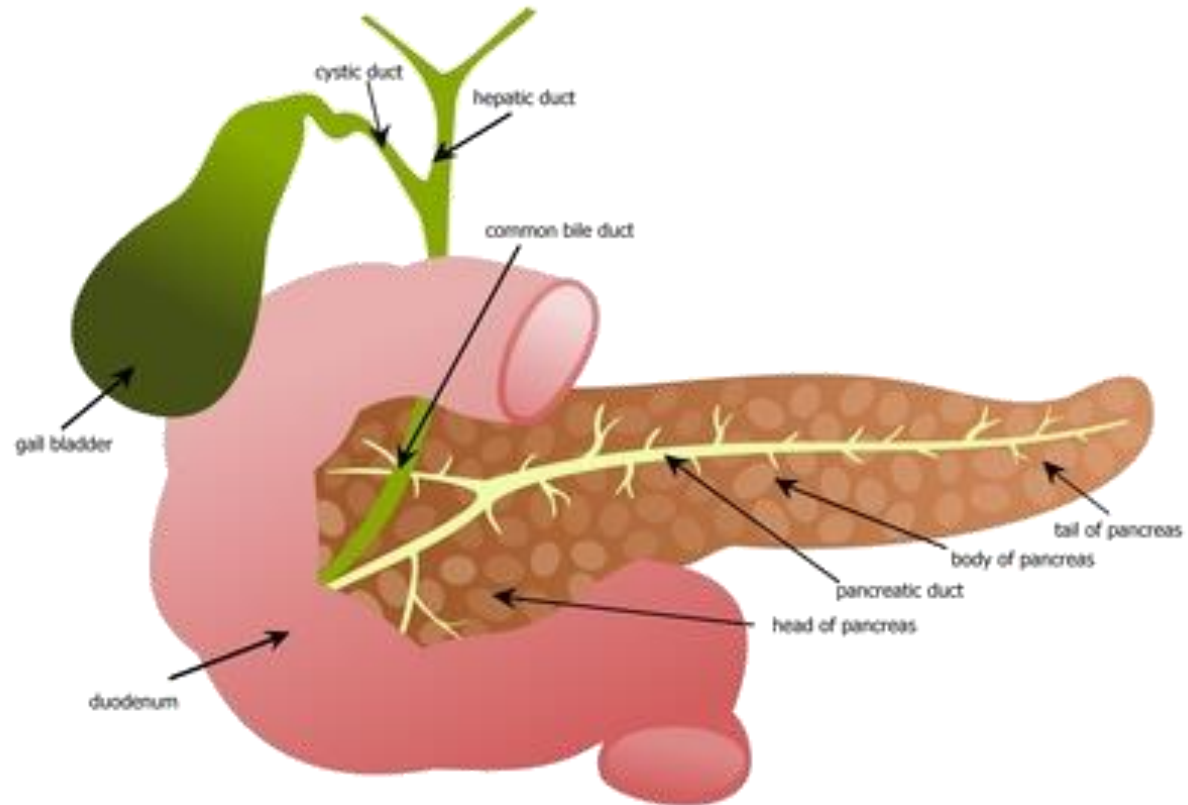
✓ Pancreas produces enzymes to chemically break down starches, proteins, fats, and help digest all fat-soluble vitamins (E,A,K, and D)

➤ Protease

➤ Amylase

➤ Lipase

✓ Secreted into duodenum



Optimizing Digestive Enzyme Activity

- ✓ Breathe and relax before eating
- ✓ Take bitters 5-15 minutes before each meal
- ✓ Chew thoroughly
- ✓ Drink warm water ½ hour before meals
- ✓ Eat in a calm, relaxed state
- ✓ Eat slowly and focus on the meal
- ✓ Eat living foods that supply enzymes
- ✓ Avoid gluten and dairy
- ✓ Eat probiotic foods (sauerkraut, kimchi, cultured veggies, kombucha, coconut kefir, and non-dairy yogurt)
- ✓ Avoid sugar, refined carbohydrates, and alcohol
- ✓ Take digestive enzymes with each meal – away from any stomach acid supplementation



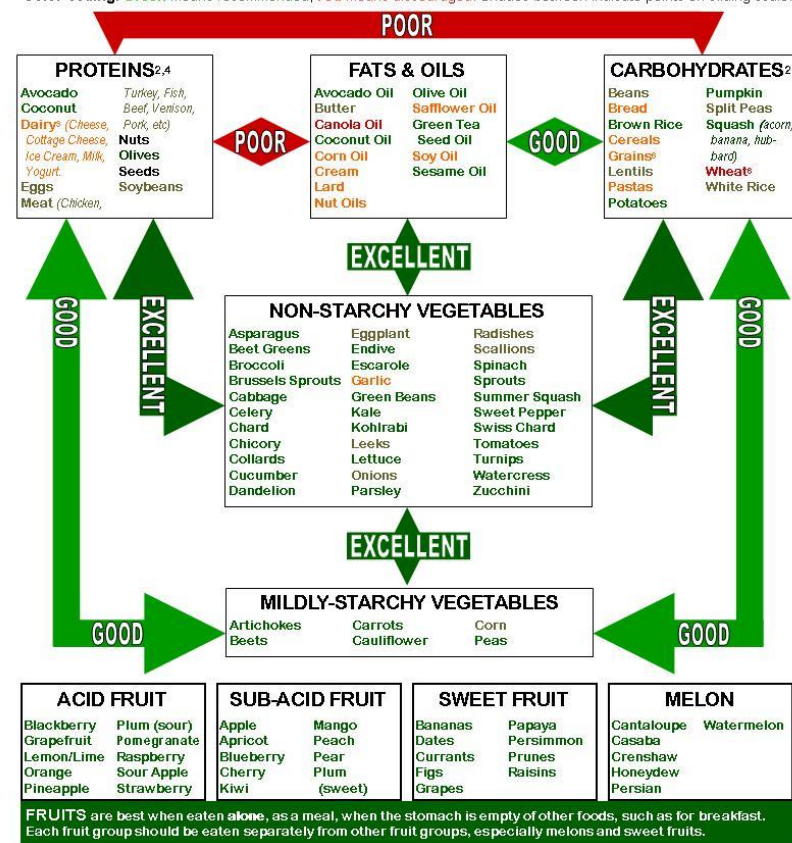
Food Combining

✓ Bad Combinations:

- Dried sweet fruit, honey, maple syrup, or bananas with nuts or seeds
- Starchy foods with acid foods or fruits
- Starches with animal protein
- Dried sweet fruits with or after concentrated proteins
- Raw, fresh, or dried fruits after any cooked food

Food Combinations & Choices

Color-coding: Green means recommended, red means discouraged. Shades between indicate points on sliding scale.



NOTES

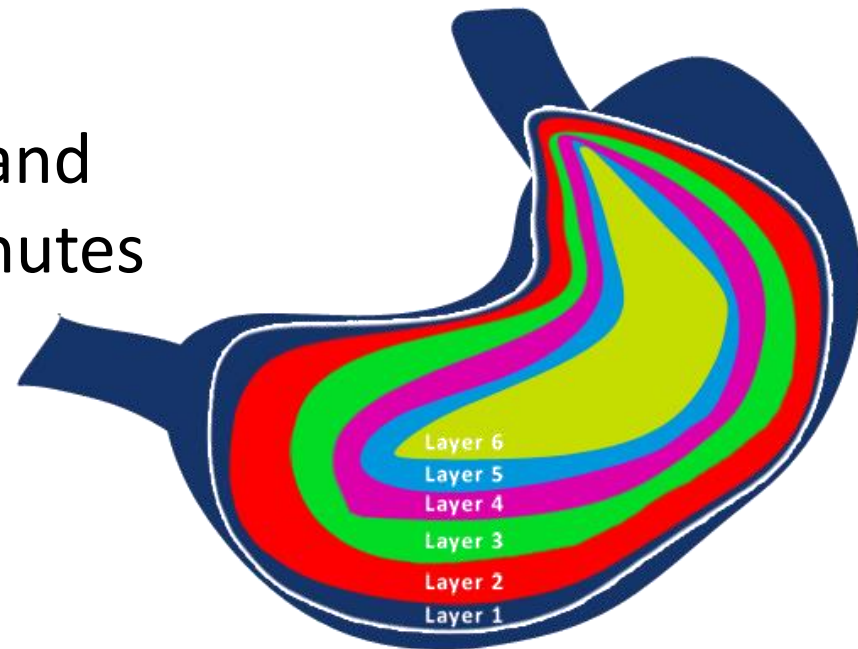
1. ALSO REFER TO ALKALINE/ACID FOODS CHART
2. Carbohydrates and Proteins should never be eaten together, or during the same meal period.
3. Milk and other dairy products are discouraged for human consumption (Exception: mother's breast milk is highly recommended for babies of the same species)

4. Concentrated proteins are unnecessary. Use as a condiment, not as main course. In any case, eat **no more than** one each meal.
5. Garlic has been reported to produce adverse side effects, and should be considered for medicinal use only.
6. **Good** when sprouted to vegetable state before consumption.
7. "All things in moderation, including moderation." Socrates
8. This information may be copied and distributed freely.



Food Sequencing

- ✓ Water 30 minutes before meal, not during
- ✓ Eat the most watery food first
 - Fruits
 - Salads (blended salads are absorbed more efficiently and leave stomach in 15-20 minutes instead of 30-60 minutes)
- ✓ Eat raw foods before cooked
- ✓ Eat proteins last

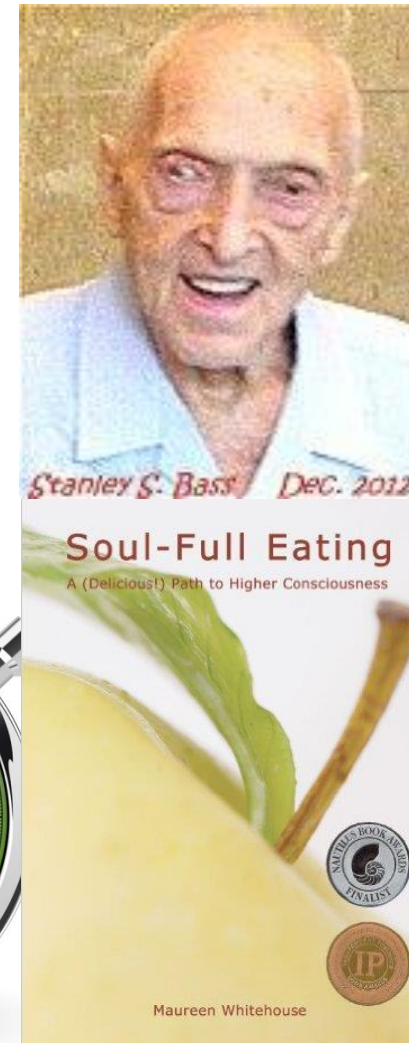


<http://www.drritamarie.com/go/SequentialEating>



Approximate Time in Stomach Before Leaving for Food Groups

- ✓ **Water:** immediate when stomach is empty
- ✓ **Juices and broth:** 15 - 20 minutes
- ✓ **Blended soups or smoothies:** 20 - 30 minutes
- ✓ **Fruits:** 20 - 40 minutes
- ✓ **Raw vegetables:** 30 - 45 minutes
- ✓ **Cooked vegetables:** 40 - 45 minutes
- ✓ **Root vegetables:** 50 - 60 minutes
- ✓ **Grains:** 1 ½ - 3 hours
- ✓ **Legumes:** 2 - 3 hours
- ✓ **Nuts and seeds:** 2 - 3 hours
- ✓ **Dairy:** 2 - 4 hours
- ✓ **Fish:** 45 - 90 minutes
- ✓ **Poultry:** 1 ½ - 2 ½ hours
- ✓ **Meat:** 3 - 5 hours



Healing Factors for the Stomach



- ✓ Bitters
- ✓ Licorice root
- ✓ Slippery elm
- ✓ HCl supplementation, if needed
- ✓ Pepsin
- ✓ Lemon juice
- ✓ Apple cider vinegar
- ✓ Extract of black pepper
- ✓ Glutamine
- ✓ Chlorophyll



Healing Leaky Gut – The 4R Process



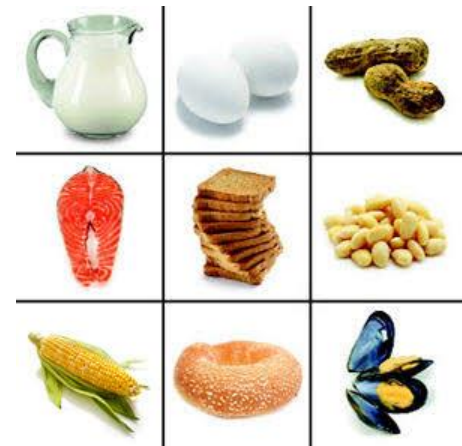
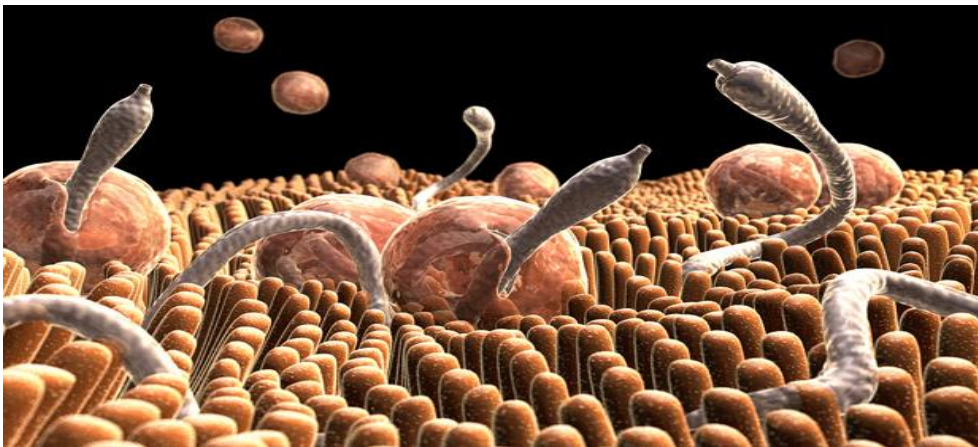
- ✓ Remove
- ✓ Replace
- ✓ Reinoculate
- ✓ Repair



Remove

Toxic Foods, Chemicals, and Organisms

- ✓ Foods that hurt the gut
 - ✓ Medications, unless prescribed by a doctor
 - ✓ Candida, parasites, and bacteria
- Common allergens:
 - Gluten
 - Dairy
 - Egg
 - Peanuts
 - Corn
 - Soy



Remove

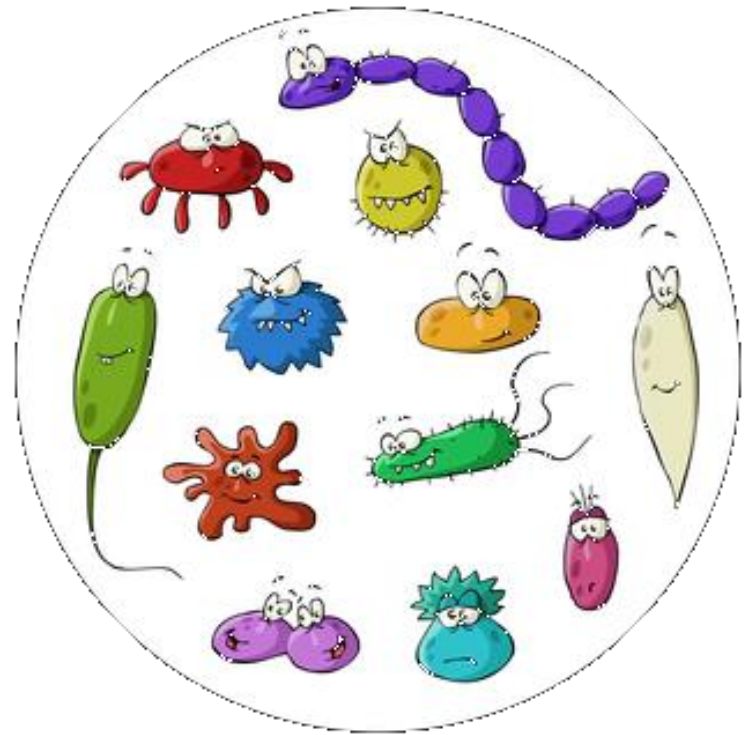
Foods That Can Hurt The Gut

- ✓ Sugar
- ✓ Gluten
- ✓ Dairy
- ✓ Refined carbohydrates
- ✓ All allergens
- ✓ Caffeine
- ✓ Alcohol
- ✓ Trans fats
- ✓ Heated, processed, oxidized fats
- ✓ Processed meats
- ✓ Nightshades in sensitive people
- ✓ Lectins in sensitive people: grains, beans
- ✓ FODMAPs in some people



Remove Unfriendly Gut Bugs (Dysbiosis)

- ✓ Fungi and yeasts
- ✓ Bacteria
- ✓ Viruses
- ✓ Parasites
- ✓ Worms



Antimicrobial Herbs and Foods

- ✓ Berberine containing herbs
 - Bayberry
 - Oregon grape
 - Goldenseal
- ✓ Oregano
- ✓ Turmeric
- ✓ Thyme
- ✓ Propolis
- ✓ Fennel
- ✓ Neem
- ✓ Sage
- ✓ Pumpkin seeds / seed oil
- ✓ Coconut oil (caprylic acid)
- ✓ Pomegranate juice
- ✓ Rosemary
- ✓ Garlic
- ✓ Pau d'arco
- ✓ Grapefruit seed extract
- ✓ Undecylenic acid
- ✓ Artemisia
- ✓ Black walnut



Antimicrobial Essential Oils

- ✓ Carrot seed
- ✓ Celery seed
- ✓ Coriander seed
- ✓ Cinnamon
- ✓ Eucalyptus
- ✓ Oregano
- ✓ Citronella
- ✓ Bergamot
- ✓ Basil
- ✓ Cardamom
- ✓ Geranium
- ✓ Bay laurel
- ✓ Lemongrass
- ✓ Orange
- ✓ Patchouli
- ✓ Marjoram



<http://www.drritamarie.com/go/PMID8893526>



Replace Missing Enzymes and Nutrients

- ✓ **Raw and living foods:**
contain enzymes (as much as tolerated)
- ✓ **Digestive enzymes:**
with all cooked or complex raw foods
- ✓ **Greens, fresh fruits, and vegetables:**
nutrient-dense foods
- ✓ **Green juices, sea vegetables, and microalgae:**
the most nutrient dense of all, as tolerated
- ✓ **Nutritive herbs and supplements:**
as needed



Repair

Digestive Tract Lining

- Demulcent (aka mucilaginous) herbs and foods
- Therapeutic foods
- Gut healing supplements
- Anti-inflammatory herbs and foods
- Gut healing meal replacements
- Bitters
- Carminatives



Demulcent Herbs and Foods

– Soothe and Heal

What They Do:

- ✓ Soothe the GI tract
- ✓ Rebuild the mucous layer
- ✓ Anti-inflammatory
- ✓ Lubricate the digestive tract
- ✓ Nourish body fluids and tissues

Demulcent herbs are also known as “mucilaginous”

Common Herbs and Foods:

- ✓ Chia seed
- ✓ Flax seed
- ✓ Licorice
- ✓ Marshmallow
- ✓ Slippery elm
- ✓ Comfrey
- ✓ Irish moss
- ✓ Cinnamon
- ✓ Chamomile
- ✓ Fenugreek
- ✓ Jujube dates
- ✓ Aloe vera gel
- ✓ Plantain
- ✓ Calendula
- ✓ Yarrow



Anti-Inflammatory Herbs, Foods, and Nutrients

- ✓ Ginger
- ✓ Turmeric
- ✓ Licorice
- ✓ Chia seeds
- ✓ Flax seeds
- ✓ Hemp seeds
- ✓ Deep ocean fish
- ✓ Algae and sea greens
- ✓ Purslane
- ✓ Vitamin C
- ✓ Omega-3 fats
- ✓ Bromelain and other proteolytic enzymes



- ✓ Capsaicin-containing foods: peppers
- ✓ Cinnamon
- ✓ Rosemary
- ✓ Basil
- ✓ Cardamom
- ✓ Chives
- ✓ Cilantro
- ✓ Cloves
- ✓ Garlic
- ✓ Parsley
- ✓ Boswelvia
- ✓ Quercetin (bioflavonoid in onions)



Carminative Herbs

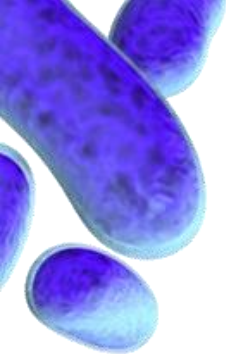
What They Do:

- ✓ Reduce gas and bloating
- ✓ Enhance digestive secretions
- ✓ Tone the digestive tract
- ✓ Reduce smooth muscle spasms
- ✓ Increase peristalsis

Herbs You May Know:

- ✓ Dill
- ✓ Fennel
- ✓ Anise
- ✓ Mint
- ✓ Ginger
- ✓ Caraway
- ✓ Cinnamon
- ✓ Turmeric
- ✓ Clove
- ✓ Cardamom
- ✓ Chamomile
- ✓ Oregano
- ✓ Rosemary
- ✓ Thyme





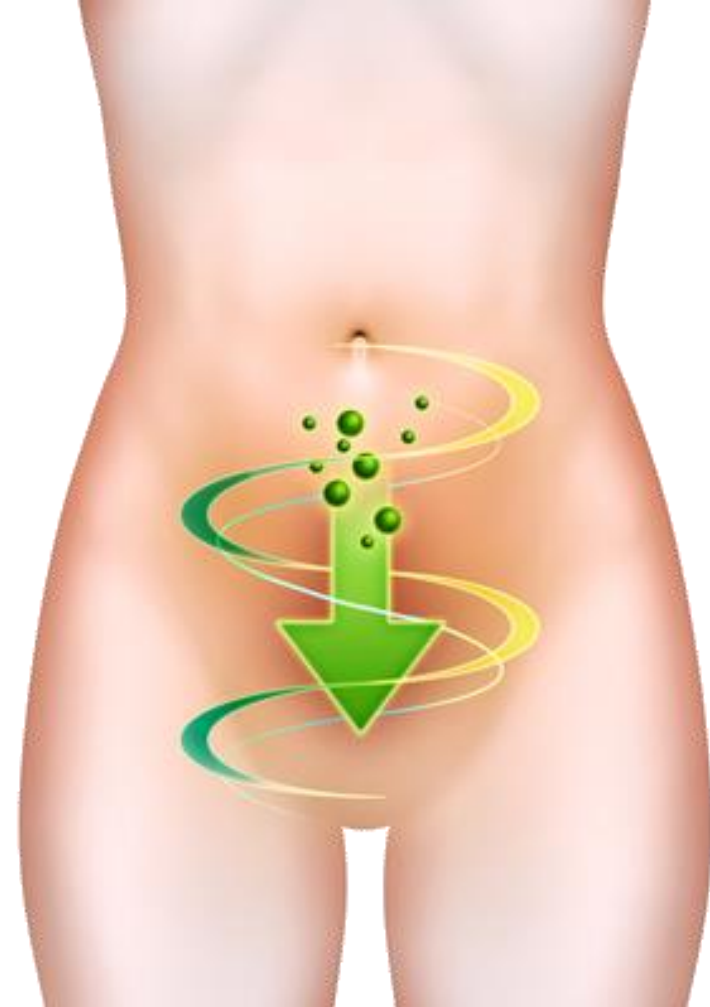
Reinoculate

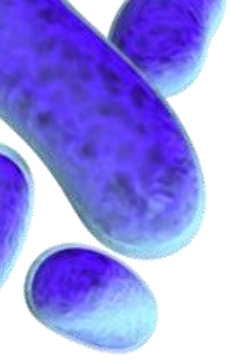
✓ Put back normal flora with probiotics:

- Lactobacillus
- Bifidus
- Saccharomyces boulardii
- L. Sporogenes
- Mixed strains

✓ Feed the normal flora with prebiotics:

- Fructooligosaccharides
- Inulin





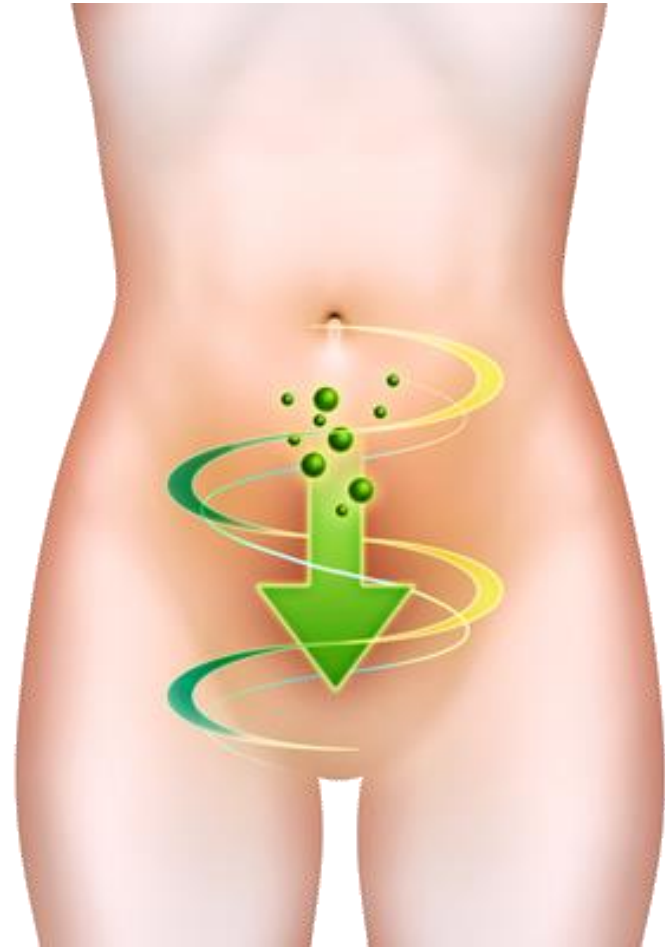
Reinoculate

✓ Put back normal flora with probiotics

- There are thousands
- Only a few dozen available commercially

✓ Feed the normal flora with prebiotics

- Fructooligosaccharides
- Inulin (longer chain length than FOS)
- Bifidobacter ferment to make SCFAs (short chain fatty acids)



Probiotics to Reinoculate The Gut

Food First!

✓ Cultured (Fermented) Vegetables

- Kimchi
- Sauerkraut

✓ Yogurt

- Seed yogurt
- Coconut yogurt
- Nut yogurt (cashew)

✓ Beverages

- Coconut kefir
- Kevita
- Kombucha
- Rejuvalec

✓ Fermented Soy

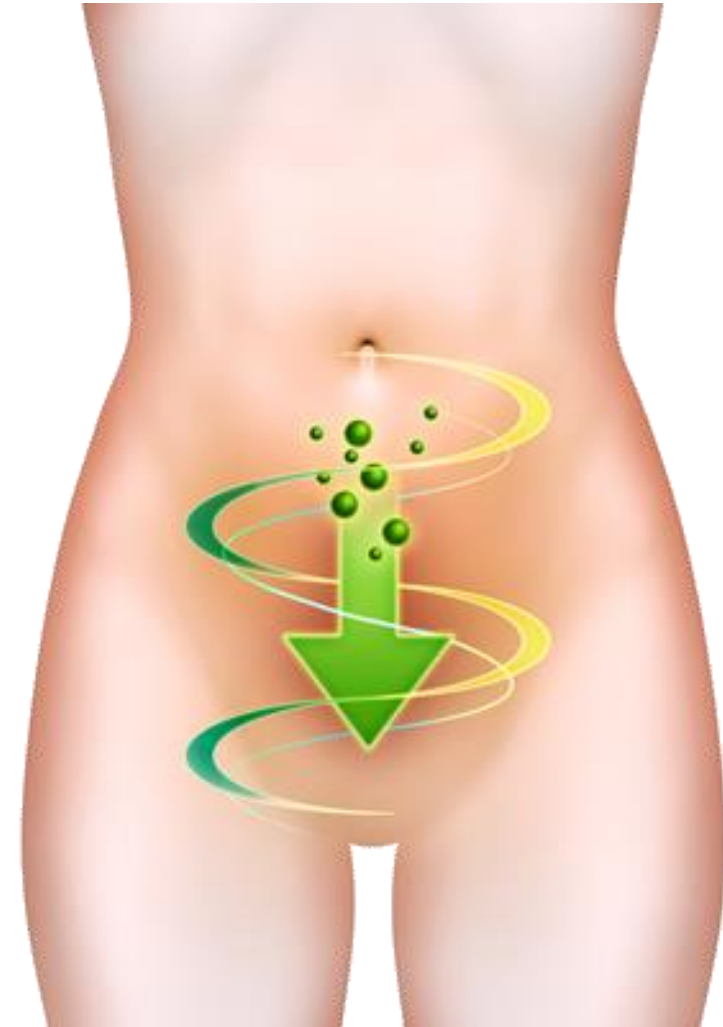
- Miso
- Natto
- Tempeh



Reinoculate

Supplemental Probiotics

- ✓ Lactobacillus
 - Acidophilus
 - Reuteri
 - Helveticus
- ✓ Streptococcus thermophilus
- ✓ Bifidus
- ✓ Saccharomyces boulardii
- ✓ L. Sporogenes
- ✓ Mixed strains ...



Reinoculate

Prebiotic Containing Foods

- ✓ Jerusalem artichoke
- ✓ Chicory
- ✓ Dandelion
- ✓ Gum arabic, AKA acacia gum
- ✓ Dandelion root
- ✓ Wild yam
- ✓ Jicama root
- ✓ Burdock root
- ✓ Onions
- ✓ Garlic
- ✓ Leeks
- ✓ Asparagus
- ✓ Yacón



Liver Supportive Foods

- ✓ Brassicas: indole-3-carbinol
 - **Especially broccoli sprouts and seeds**
- ✓ Citrus peels: limonene
- ✓ Caraway: limonene
- ✓ Turmeric
- ✓ Avocado
- ✓ Basil
- ✓ Beets
- ✓ Leafy bitter greens
- ✓ Mushrooms
- ✓ Cardamom
- ✓ Cayenne
- ✓ Chlorella
- ✓ Cilantro
- ✓ Cinnamon
- ✓ Dandelion

- ✓ Dill
- ✓ Fennel
- ✓ Garlic
- ✓ Ginger
- ✓ Grapefruit
- ✓ Green juices
- ✓ Jerusalem artichoke
- ✓ Onion
- ✓ Peppermint
- ✓ Rosemary
- ✓ Sea vegetables
- ✓ Thyme
- ✓ Radishes
- ✓ Wheat grass



Cholagogue Herbs

What They Do:

- ✓ Stimulate flow of bile from liver
- ✓ Stimulate bile secretion from gallbladder
- ✓ Strengthen liver
- ✓ Enhance detoxification



Herbs You May Know:

- ✓ Artichoke
- ✓ Barberry
- ✓ Blue flag
- ✓ Boneset
- ✓ Dandelion root
- ✓ Fringe tree bark
- ✓ Gentian
- ✓ Goldenseal
- ✓ Greater celandine
- ✓ Rosemary
- ✓ Sage
- ✓ Wild indigo
- ✓ Wild yam
- ✓ Yellow dock



Gentle 5-Day Liver/Gallbladder Cleanse

✓ Take Herbs for Liver and Gallbladder

- **HealthForce Nutritionals Liver Rescue:** 1 capsule 3 times daily
- Any favorite formula

✓ Daily Diet

- *Gut Rejuvenator Drink* in the morning
- Green drinks – 1 quart or more each day
- Eat simple-to-digest foods
- Bitters with each meal
- Incorporate as many liver support foods as possible

■ Daily Drink: 3x/Day – Natural Gentle Cholagogue

- 1 tablespoon lemon juice
- 1 tablespoon organic olive oil
- 1 tablespoon apple cider vinegar

✓ Maintenance

- Take liver formula 2 times a day for 1 month
- Consume probiotics daily
- Follow Daily Diet list above



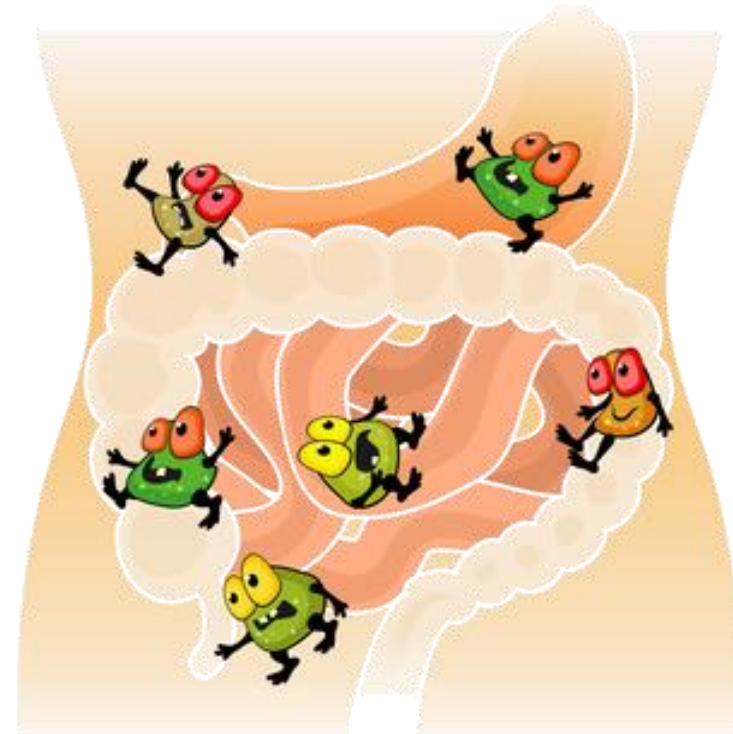
Living Without a Gallbladder: Special Considerations

- ✓ **Avoid** fried foods, trans fats
- ✓ **Minimize or avoid** dairy
- ✓ **Avoid** fats cooked with sugar
- ✓ **Reduce grains:** inefficient digestion of starch without gallbladder's bicarbonate
- ✓ **Use bitters** before meals to stimulate bile production and movement
- ✓ **Supplement with lipase**, the fat digesting enzyme
- ✓ **Supplement with bile salts**, 2 with all fatty meals - 5 days on, 2 days off until feeling well; cycle on and off



Special Diets for Specific Circumstances

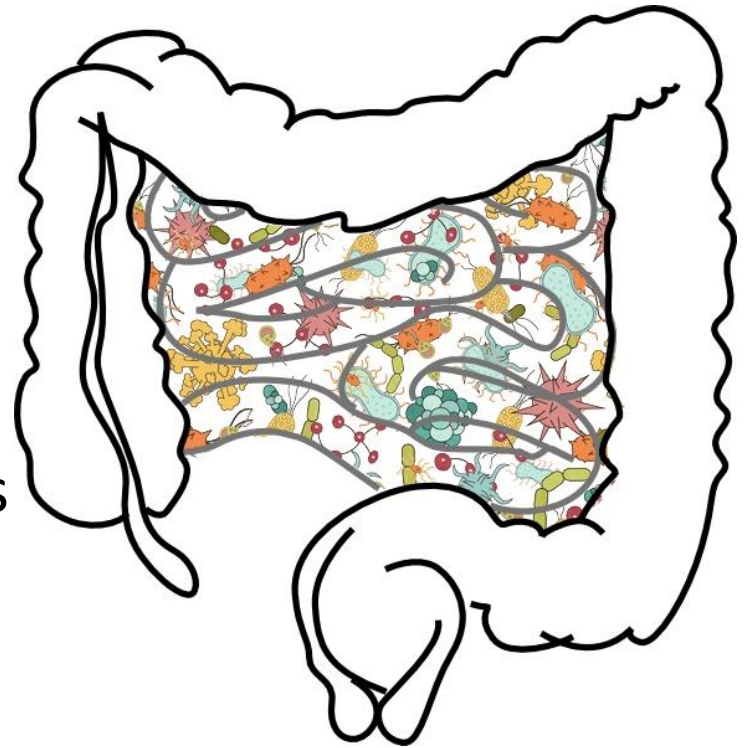
- ✓ Small Intestinal Bacterial Overgrowth: **SIBO**
- ✓ Specific Carbohydrate Diet: **SCD** (GAPs)
- ✓ Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols: **FODMAPs**



SIBO

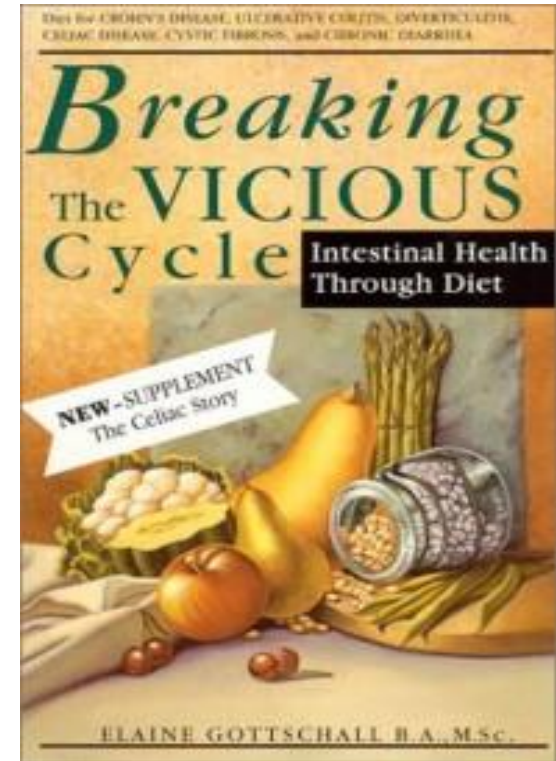
Small Intestinal Bacterial Overgrowth

- ✓ Overgrowth of large intestine bacteria in small intestine
- ✓ Rob you of B12, iron, and other nutrients
- ✓ Damage mucosa
- ✓ Can deconjugate bile leading to fat malabsorption
- ✓ Trigger pro-inflammatory cytokines and cause leaky gut
- ✓ Can cause sugar cravings
- ✓ Increase mucus production
- ✓ Damage to migrating motor complex



Specific Carbohydrate Diet™ (SCD)

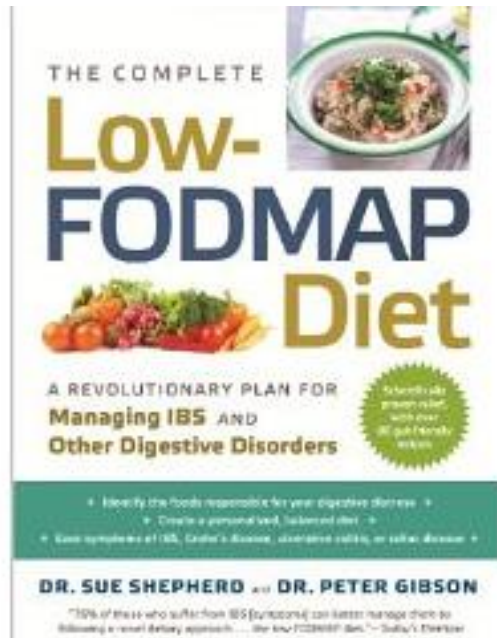
- ✓ Original intent mainly for Crohn's disease, ulcerative colitis, celiac disease, diverticulitis, cystic fibrosis, and chronic diarrhea
- ✓ Foods allowed based on the molecular structure
- ✓ Monosaccharides can be easily absorbed - allowed
- ✓ Disaccharides and polysaccharides - not allowed
- ✓ **Premise:** Complex carbohydrates that are not easily digested feed harmful bacteria and produce by-products and inflame the intestine wall



FODMAPs

- ✓ **F**ermentable
- ✓ **O**ligosaccharides
- ✓ **D**isaccharides
- ✓ **M**onosaccharides
- ✓ **A**nd
- ✓ **P**olyols

- ✓ Short-chain carbohydrates
- ✓ **Incompletely absorbed in the GI tract**
- ✓ Difficult to digest with functional gut disorders
- ✓ **Easily fermented** by gut bacteria
- ✓ Exert an osmotic effect, increasing fluid into the large bowel
- ✓ Causes **fermentation and osmosis**
- ✓ Can lead to IBS symptoms
- ✓ Intolerance may be due to **SIBO or dysbiosis**
- ✓ Stress is likely a factor in FODMAP sensitivity



Gut-Friendly Foods to Include Daily

- ✓ Green smoothies – at least 32 ounces
- ✓ Sea veggies
- ✓ Chlorella
- ✓ Probiotic-containing foods
- ✓ Lots of greens
- ✓ Brassicas, aka cruciferous vegetables
- ✓ Fruit should be eaten as part of a green smoothie or along with a green leafy, like lettuce or celery, to prevent sudden rises in blood sugar and the potential to feed yeast
- ✓ 1-2 enzymes with all meals, except juice only or shake



Which Herbs and Foods Heal Which Gut Organs

- ✓ **Licorice and slippery elm:** stomach and intestinal lining
- ✓ **Probiotics:** large and small intestine
- ✓ **Fiber:** the whole tract
- ✓ **Cabbage:** stomach
- ✓ **Chia and flax:** small and large intestines
- ✓ **Milk thistle seed:** gall bladder
- ✓ **Colon:** fiber, water, and short-chain fatty acids that come from having good amounts of friendly bacteria – (probiotics, cultured foods, fiber, leafy veggies)



Extra Reading

- ✓ *Ideal Health Through Sequential Eating* by Dr. Stanley Bass
<http://www.drritamarie.com/go/SequentialEating>
- ✓ *Soul-Full Eating: A (Delicious!) Path to Higher Consciousness* by Maureen Whitehouse
<http://www.drritamarie.com/go/MaureenWhitehouse>
- ✓ *Textbook of Functional Medicine* – IFM 2010
- ✓ *Integrative Gastroenterology* by Gerard Mullin

