OPTIMIZING GASTRIC MOTIITY

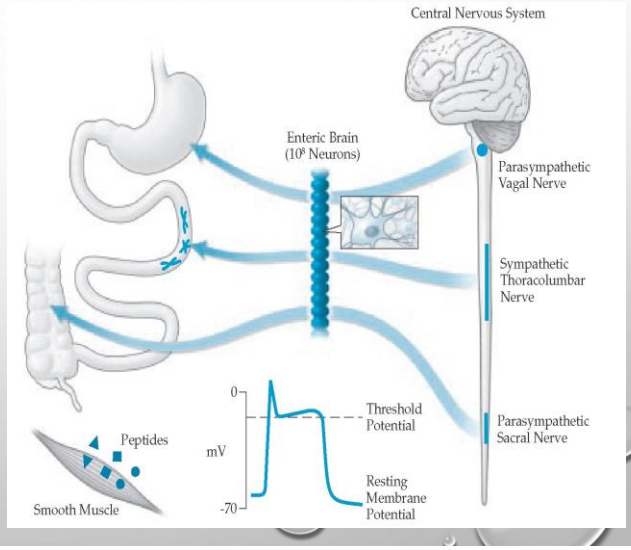
DR JILLIAN STANSBURY

GASTRIC MOTILITY

- MOTILITY DURING THE DIGESTIVE PERIOD INVOLVES BOTH NEURAL AND HORMONAL INPUT.
- MOTILITY INVOLVES GALLBLADDER CONTRACTIONS, STIMULATION OF PANCREATIC SECRETION, AND SPHINCTER OF ODDI RELAXATION.
- UP TO 30–40% OF GALLBLADDER EMPTYING AND 25% OF PANCREATIC SECRETION OCCURS DURING THE CEPHALIC PHASE VIA VAGAL INPUT
- ANOTHER 10–20% OF THE RESPONSE OCCURS DURING THE GASTRIC PHASE VIA VASOVAGAL PATHWAYS.
- HOWEVER, THE GALLBLADDER EMPTIES MOST OF ITS REMAINING CONTENTS AND THE PANCREAS UP TO 50% OF ITS TOTAL SECRETION DURING THE INTESTINAL PHASE.

REGULATION OF GASTRIC MOTILITY

- GASTRIC MOTILITY INVOLVES THE RELEASE OF CHOLECYSTOKININ (CCK) AND SECRETIN FROM THE DUODENUM AND PROXIMAL JEJUNUM.
- DUODENAL CCK CONTRACTS THE GALLBLADDER, RELAXES THE S.O., AND CAUSES PANCREATIC EXOCRINE DIGESTIVE ENZYME SECRETION VIA DIRECT ACTIONS ON CCK RECEPTORS AND INDIRECTLY THROUGH CHOLINERGIC NEURONS.
- ATROPINE BLOCKS CCK INDUCED GALLBLADDER CONTRACTION AND PANCREATIC SECRETION INDUCED BY A PROTEIN-FATTY MEAL

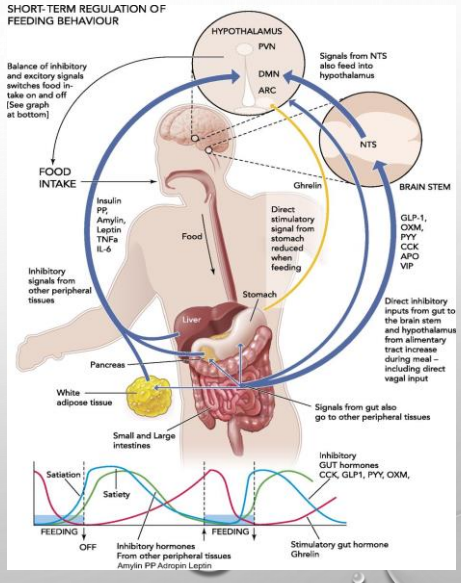


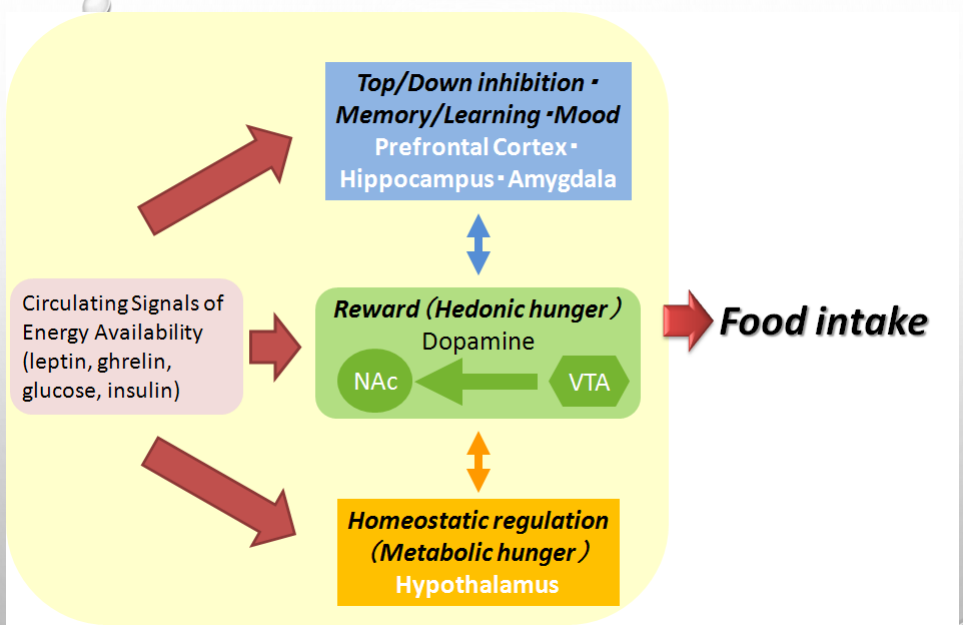
HORMONES INVOLVED IN GASTRIC MOTILITY

- MOTILIN, SOMATOSTATIN, AND OCTREOTIDE HORMONALLY INFLUENCE S.O. FUNCTION.
- MOTILIN, SECRETED BY THE DUODENUM AND JEJUNUM, INDUCES CONTRACTION OF GB SMOOTH MUSCLE AND STIMULATES BILE SECRETION.
- SOMATOSTATIN, PRESENT IN ENDOCRINE CELLS THROUGHOUT THE GASTROINTESTINAL TRACT, EXERTS INHIBITORY EFFECTS ON BOTH GALLBLADDER CONTRACTION AND RELAXATION OF THE S.O.

SEROTONIN'S ROLE IN METABOLISM AND GASTRIC MOTILITY

- SEROTONIN, A CENTRAL NEUROMODULATOR WITH ANCIENT TIES TO FEEDING AND METABOLISM, IS A MAJOR DRIVER OF BODY FAT LOSS.
- SEROTONIN CONTROLS FOOD INTAKE AND FEEDING BEHAVIOR, MOOD, ADIPOSITY, LOCOMOTION AND ENERGY EXPENDITURE.
- THE NEUROENDOCRINE RELEASE OF SEROTONIN RESPONDS TO NUTRIENT SENSORS, INCLUDING TACHYKININ RECEPTORS IN THE INTESTINE THAT ALSO DRIVE FAT LOSS VIA THE ADIPOCYTE TRIGLYCERIDE LIPASES.

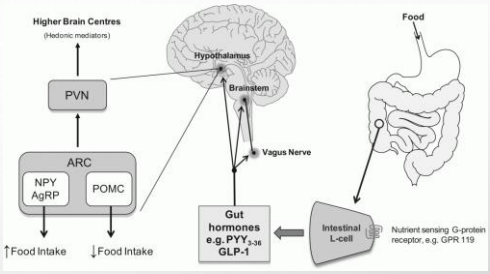


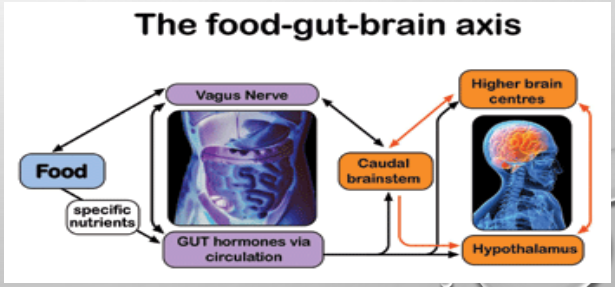


GUT BRAIN AXIS AND GLUCOSE HOMEOSTASIS

- **THE GUT–BRAIN AXIS IMPACTS METABOLIC FUNCTION AND IS A POTENTIAL THERAPEUTIC TARGET FOR DEFECTIVE GLUCOSE HOMEOSTASIS.**

- **GLUCOREGULATORY PEPTIDES ARE RELEASED BY BOTH THE GUT AND BRAIN, AND MAY BE DERANGED FOLLOWING ACUTE PANCREATITIS AND OTHER AILMENTS.**



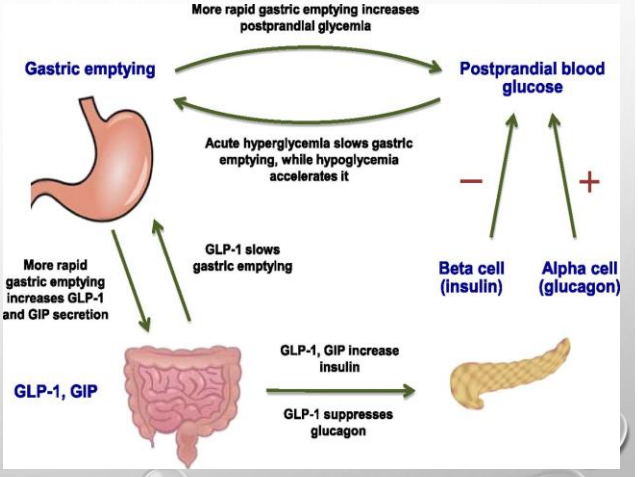


- GLUCOREGULATORY PEPTIDES INCLUDE: GLUCAGON-LIKE PEPTIDE, GLICENTIN, OXYNTOMODULIN, PEPTIDE YY, GHRELIN, CHOLECYSTOKININ, VASOACTIVE INTESTINAL PEPTIDE (VIP), AND SECRETIN, AND ALL ARE BEING TARGETED AS POSSIBLE TARGETS TO TREAT DIABETES, WEIGHT LOSS, INTESTINAL MOTILITY, CHRONIC PANCREATITIS, AND OTHER DISORDERS.

- THESE GLUCOREGULATORY PEPTIDES AFFECT PANCREATIC ISLET CELLS AND ARE SECRETED BY ENTEROENDOCRINE CELLS AND BY THE BRAIN, AND THE INTERACTIONS BETWEEN THESE COMPOUNDS ARE REFERRED TO AS THE GUT-BRAIN AXIS, KNOWN TO ACT BIDIRECTIONALLY TO REGULATE ENERGY AND METABOLIC FUNCTIONS. PEPTIDES OF THE GUT–BRAIN AXIS EXERT THEIR ACTIONS THROUGH G PROTEIN-COUPLED RECEPTORS SUPERFAMILY.

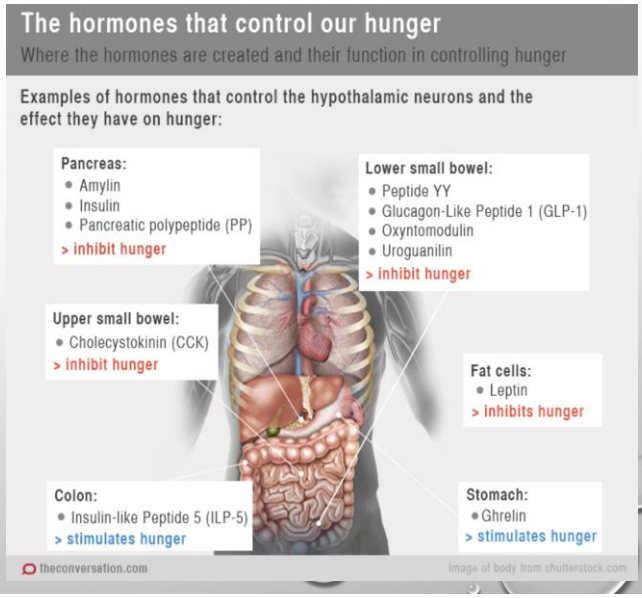
GASTRIC EMPTYING AND FOOD INTAKE

- ANOREXIA NERVOSA IS ASSOCIATED WITH SLOWER GASTRIC EMPTYING AND HEIGHTENED VISCERAL PERCEPTION COMPARED TO OBESE AND NORMAL WEIGHT INDIVIDUALS.
- IN CONTRAST, OBESE INDIVIDUALS HAVE A DELAYED ONSET OF FULLNESS OR SATIATION. THEREFORE, GASTRIC EMPTYING AND MOTILITY MAY CONTRIBUTE TO BOTH OF THESE DISORDERS.



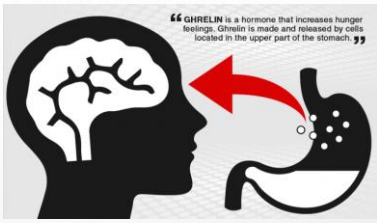
KEY HORMONES OF HUNGER AND SATIETY

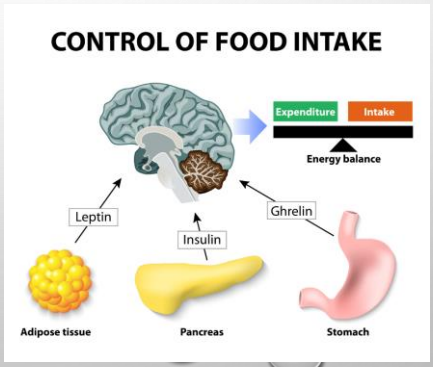
- LEPTIN - THE SATIETY HORMONE
- ADIPONECTIN - THE APPETITE-STIMULATING HORMONE
- GHRELIN – THE HUNGER HORMONE



GHRELIN – THE HUNGER HORMONE

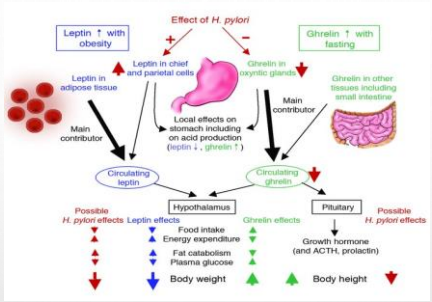
- GHRELIN, DISCOVERED IN 1999, AND RECOGNIZED TO STIMULATE OF GROWTH HORMONE SECRETION, AS WELL AS TO PLAY ROLES IN ENERGY HOMEOSTASIS, APPETITE STIMULATION AND ENERGY EXPENDITURE REGULATION.
- GHRELIN INDUCES POSITIVE ENERGY BALANCE, AND LOW LEVELS MAY PLAY A ROLE IN THE CANCER CACHEXIA SYNDROME. OPTIMIZING GHRELIN MAY SUPPORT WEIGHT GAIN AND NUTRITION.

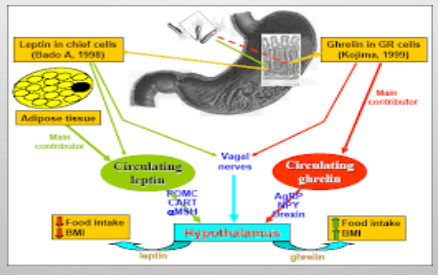


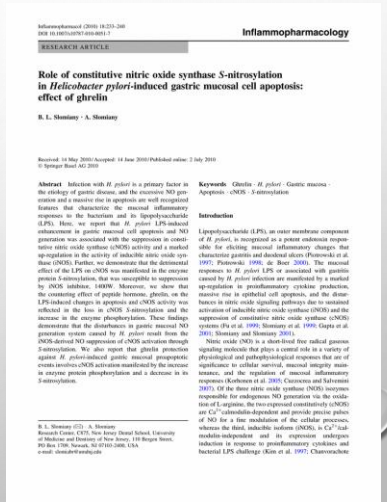


HELICOBACTER'S EFFECT ON GHRELIN

- HELICOBACTER PYLORI INFECTION AND GASTRIC MUCOSAL ATROPHY AFFECT GHRELIN LEVELS, AND TREATING THIS INFECTION AS WELL AS RESTORING MUCOSAL INTEGRITY MAY NORMALIZE GHRELIN LEVELS.






Inflammopharmacology

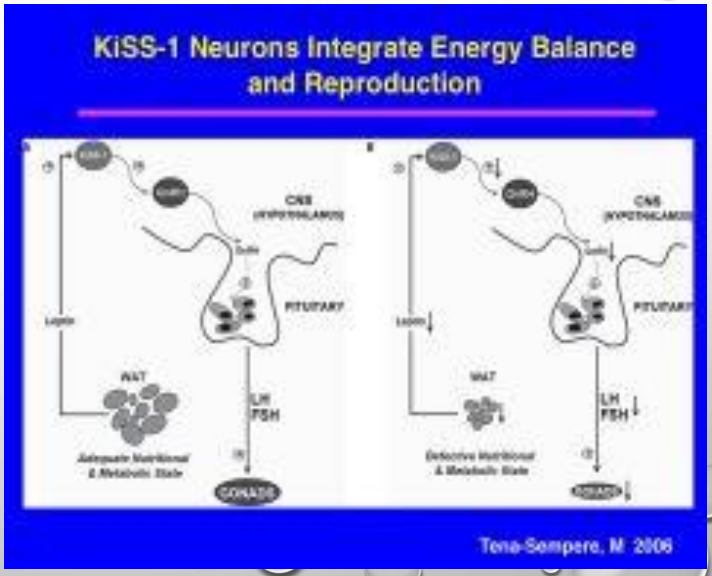
RESEARCH ARTICLE

Role of constitutive nitric oxide synthase *S*-nitrosylation in *Helicobacter pylori*-induced gastric mucosal cell apoptosis: effect of ghrelin

B. L. Slomiany · A. Slomiany

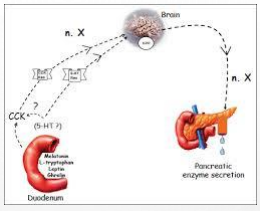
GHRELIN PATHWAYS

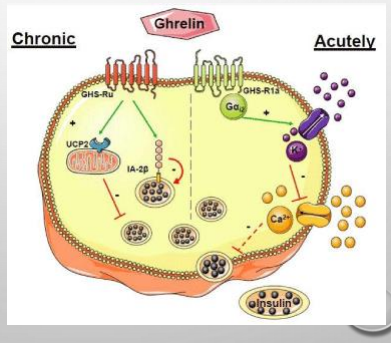
- GHRELIN IS A PEPTIDE HORMONE WITH NUMEROUS CENTRAL AND PERIPHERAL EFFECTS.
- THE CENTRAL EFFECTS INCLUDE PROMOTION OF GH SECRETION, FOOD INTAKE, AND ENERGY HOMEOSTASIS AND ARE PARTLY MEDIATED BY KISS1- KISSR SIGNALING PATHWAY.



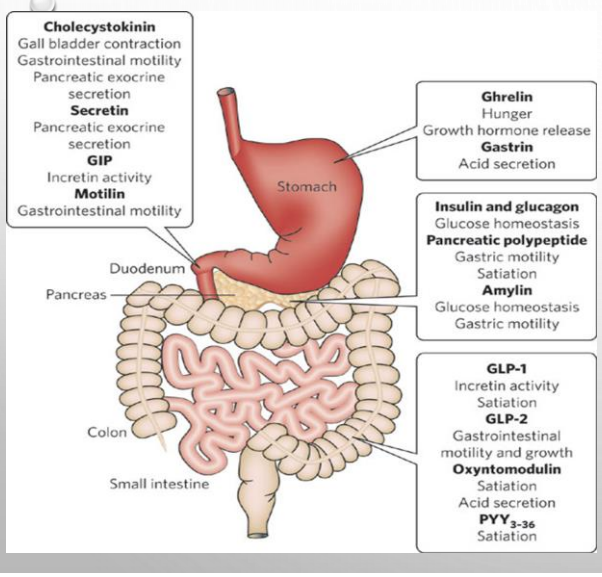
GHRELIN'S EFFECT ON INSULIN

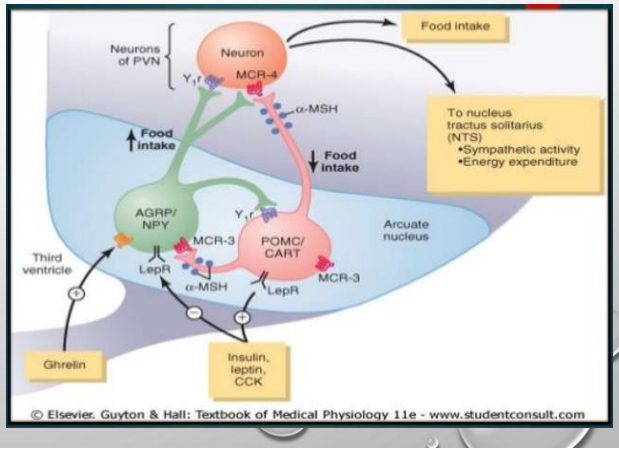
- GHRELIN AND ITS RECEPTOR ARE ALSO EXPRESSED IN THE PANCREATIC ISLETS AND ARE ONE OF THE KEY METABOLIC FACTORS CONTROLLING INSULIN SECRETION FROM THE ISLETS OF LANGERHANS.
- GHRELIN MAY INHIBIT BOTH PANCREATIC ISLETS AND HYPOTHALAMUS HORMONES.





GHRELIN AND HORMONES OF DIGESTION





GHRELIN

- THE EXACT ROLE OF GHRELIN IN REGULATION OF INSULIN SECRETION IS NOT DEFINITELY UNDERSTOOD.
- GHRELIN WAS FOUND TO INHIBIT INSULIN SECRETION IN SOME EXPERIMENTS BUT TO STIMULATE IT IN OTHERS.
- GHRELIN IS SECRETED MAINLY FROM THE STOMACH.
- GHRELIN IS AN ENDOGENOUS LIGAND OF THE GROWTH HORMONE RECEPTOR, ALSO NOW REFERRED TO THE GHRELIN RECEPTOR.
- LIKE DOPAMINE, GHRELIN SUPPRESSES THE PULSATILE LUTEINIZING HORMONE (LH) SECRETION.
- GHRELIN REGULATES FOOD INTAKE, GASTROINTESTINAL MOTILITY, AND ENERGY HOMEOSTASIS.
- GHRELIN HAS OREXIGENIC EFFECT AND IS THEREFORE REFERRED TO AS "THE HUNGER HORMONE".
- GHRELIN PASSES THROUGH THE BLOOD–BRAIN BARRIER AND ACTS ON BRAIN NUCLEI INVOLVED IN FOOD INTAKE.
- GHRELIN IS ALSO PRODUCED CENTRALLY IN THE ARCUATE NUCLEUS OF THE HYPOTHALAMUS WHICH HAS A KEY ROLE IN REGULATION OF FOOD INTAKE.

- KISSPEPTINS (KSS) ARE PEPTIDES EXPRESSED IN THE HYPOTHALAMUS IS SENSITIVE TO NUTRITIONAL STATE, AND MAY CONTRIBUTE TO THE SUPPRESSION OF REPRODUCTIVE FUNCTION IN SUCH CONDITIONS AS NEGATIVE ENERGY BALANCE PERIODS, SUCH AS IN ANOREXIA.
- KISSPEPTINS HAS BEEN DETECTED IN THE CENTRAL NERVOUS SYSTEM AS WELL AS PERIPHERAL TISSUES SUCH AS PLACENTA, TESTES, AND PANCREAS.
- KISSPEPTIN AND ITS G PROTEIN-COUPLED RECEPTOR PLAY ESSENTIAL ROLES OF CONTROLLING GHRELIN EXPRESSION IN THE HYPOTHALAMUS.
- PANCREATIC BETA CELLS EXPRESS KISS-1 AND PLAY A ROLE IN HUNGER, METABOLISM, AND EXOCRINE FUNCTIONS.

FACTORS INFLUENCING GASTRIC EMPTYING TIME

Factors	Influence on Gastric Emptying
volume	The larger the starting volume, the greater the initial rate of emptying, after this initial period, the larger the original volume, the slower the rate of emptying.
Type of meal	Reduction in rate of emptying to an extent directly dependent upon concentration of carbohydrate,lipid and protein type food
Osmotic pressure	Reduction in rate of emptying to an extent dependent upon concentration for salts and nonelectrolytes
Physical state of gastric contents	Solutions or suspensions of small particles empty more rapidly
Body position	Rate of emptying is reduced in a patient lying on left side.
Viscosity	Rate of emptying is greater for viscous solutions.

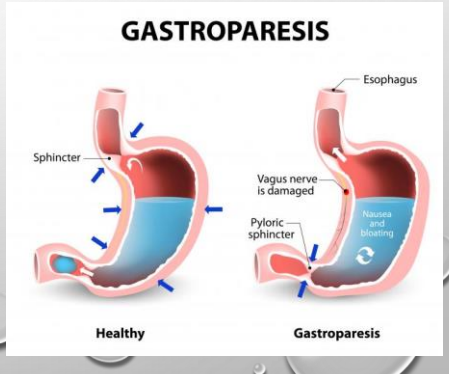
GASTROPARESIS

- GASTROPARESIS IS A CONDITION OF DELAYED GASTRIC EMPTYING, AND CAUSES PAIN, GAS, AND BLOATING, BUT NO ACTUAL OBSTRUCTION, AND PREDISPOSES TO DYSBIOSIS, AND SIBO.
- GASTROPARESIS MAY OCCUR IN METABOLIC DISORDERS SUCH AS DIABETES, PARTICULARLY THOSE WITH ADVANCED AUTONOMIC NEUROPATHY.
- HISTOLOGIC STUDY IN SEVERE GASTROPARESIS SHOWS ENTERIC NEURONAL, SMOOTH MUSCLE, INTERSTITIAL CELL, AND INFLAMMATORY ABNORMALITIES.

Severity of Gastroparesis

	Mild	Moderate	Severe
Retention at 4 hours	10-15%	16-35%	>35%
Homogenised food	Rare	Sometime	Routine
Nutritional supplements	Rare	By mouth	Jejunal tube
Non-pharmacologic treatment	No	No	Yes

N Eng J Med 2007;356:820-829



GHRELIN AGONIST AND MOTILITY DRUGS

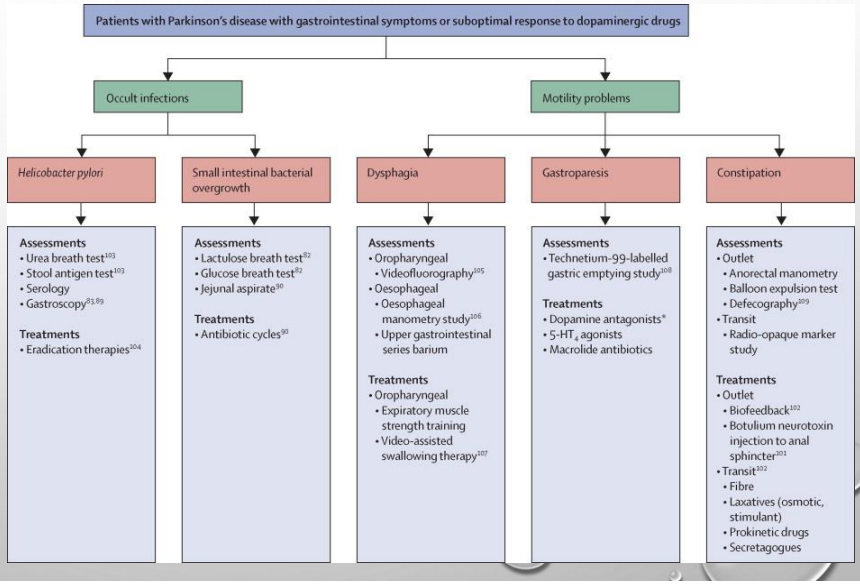
- MOTILITY ENHANCING AGENTS INCLUDE GHRELIN AGONISTS, AND GASTRIC ELECTRICAL STIMULATORS.
- PROKINETIC DRUGS INCLUDE SEROTONIN 5-HT4 AGONISTS, MOTILIN AGONISTS, DOPAMINE D2 ANTAGONISTS, MUSCARINIC ANTAGONIST AND ACETYLCHOLINESTERASE INHIBITORS.

motility stimulants

- = *prokinetic drug*
- domperidone (Motilium) - D_2 antagonist, also antiemetic
  - ↑ oesophageal sphincter pressure…GERD
  - – ! hyperprolactinemia
- metoclopramide (Paspertin) - DA antagonist and Ach agonist
  - – increases gastric emptying - GERD
  - – ! extrapyramidal side effects
- cisapride (Prepulsid) - 5-HT_4 rec. agonist….Ach release
  - ↑ gut motility, no antiemetic action
  - – withdrawn due to QT prolongation

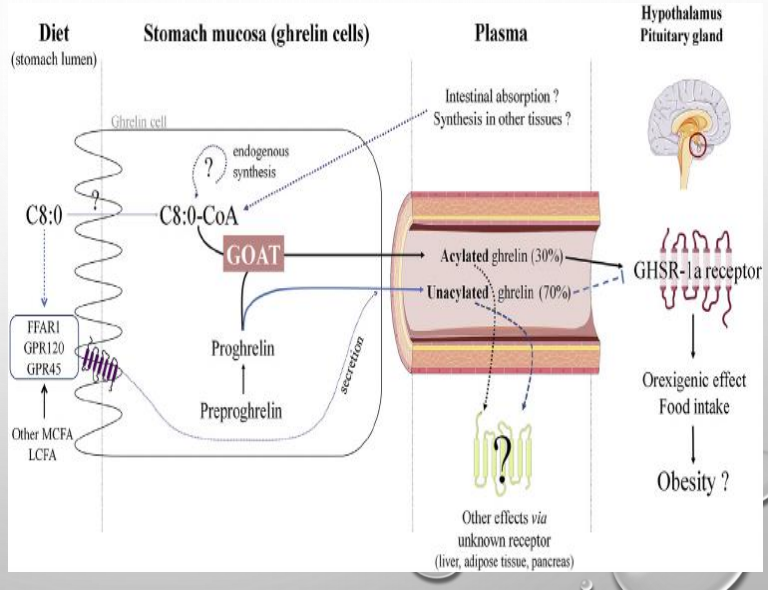
GASTRIC MOTILITY IMPAIRMENT IN PARKINSON'S DISEASE

THE MOTILITY ISSUES OF PARKINSON'S DISEASE CAN AFFECT THE NERVES OF THE ENTIRE GASTROINTESTINAL TRACT AND CAUSE CONSTIPATION, SMALL INTESTINAL BACTERIAL OVERGROWTH, AND GASTROPARESIS.



CAPRYLIC ACID HAS AN OREXIGENIC EFFECT

- **CAPRYLIC ACID IS A MEDIUM-CHAIN SATURATED FATTY ACIDS (MCFAS) WITH PHYSICAL AND METABOLIC PROPERTIES.**
- **CAPRYLIC ACID IS SHOWN TO BIND GHRELIN, THE ONLY PEPTIDE HORMONE WITH AN OREXIGENIC EFFECT.**
- **CARNITINE MAY PROMOTE GASTRIC SECRETION.**

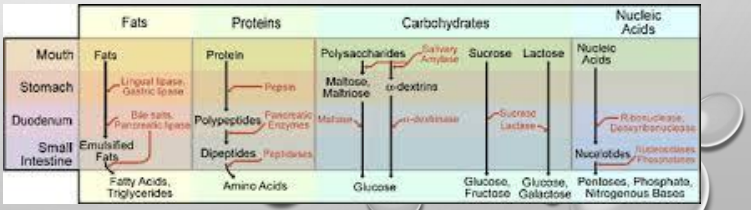


BASIC DIGESTION AND INTESTINAL MOTILITY

THE FAILURE TO ADEQUATELY BREAK DOWN, ABSORB, AND ASSIMILATE INGESTED FOOD MAY BE DUE TO:

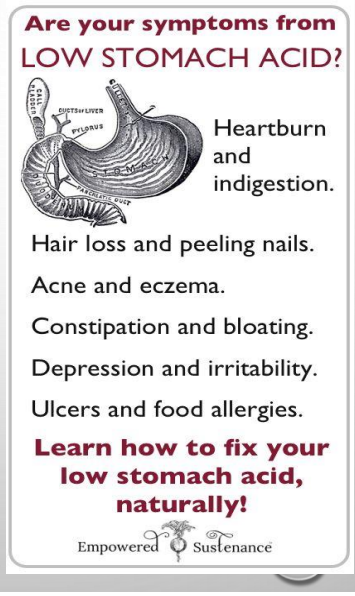
- **AGING**
- **BILIARY INSUFFICIENCY**
- **HYPOCLORHYDRIA**
- **HCL FROM THE STOMACH, OR**
- **PANCREATIC ENZYME INSUFFICIENCY**
- **GENETIC DEFECTS SUCH AS CELIAC'S DISEASE, OR LACTASE DEFICIENCY**

Digestive function	Circadian influence	Sleep-stage influence
Saliva production	Possibly pH	Yes
Swallows/esophageal motility	No	Yes
Gastric acid secretion	Yes	Unclear
Gastric motility	Unclear	Yes
Intestinal absorption	Yes	Unclear
Intestinal motility	Potentially	Yes
Colonic motility	Potentially	Yes
Rectum/anal function	Potentially	Yes



GERIATRIC DIGESTIVE ISSUES

- **THE ELDERLY ARE PARTICULARLY LIKELY TO HAVE HYPOCHLORHYDRIA AND PANCREATIC INSUFFICIENCY.**
- **COMMON NUTRITIONAL DEFICIENCIES INCLUDE CALCIUM, ZINC, MAGNESIUM, VITAMIN B(12), FOLIC ACID, AS WELL AS TRACE MINERALS AND GENERAL MALNUTRITION.**
- **HYPOCLORHYDRIA ALSO MAKES THE ELDERLY SUSCEPTIBLE TO SMALL BOWEL BACTERIAL OVERGROWTH, SIBO**



MALABSORPTION SYMPTOMS

THE SYMPTOMS OF MALABSORPTION ARE:

- **WEIGHT LOSS**
- **POOR WOUND HEALING**
- **DIGESTIVE GAS AND BLOATING**

Signs, symptoms

Caloric	Weight loss with normal appetite
Fat	Pale,voluminous,greasy offensive diarrhea
Protein	Edema, muscle atrophy, amenorrhea
carbohydrate	Abdominal bloating, flatus, w. diarrhea
B12	Macrocytic anemia Subacut combined degeneration of sp.cord
Folic acid	Macrocytic anemia
Vit B (general)	Cheilosis, glossitis,A.stomatitis, Acrodermatitis
Iron	Microcytic anemia
Ca & Vit D	Osteomalacea (bone pain,pathologic#), Tetany
Vit A	Follicular hyperkeratosis, Night blindness
Vit K	Bleeding diathesis, Hematoma

<u>SYMPTOMS OF SPECIFIC NUTRIENT DEFICIENCIES:</u>

- **B VITAMIN - GLOSSITIS, PARESTHESIAS**
- **MINERALS AND ELECTROLYTES - MUSCLE CRAMPS AND SPASMS**
- **PROTEIN - LACK OF LUSTER AND INTEGRITY OF HAIR AND FINGERNAILS**
- **VITAMIN C – BRUISING AND BLEEDING GUMS**
- **CALCIUM - TETANY, MUSCLE CRAMPS, BONE PAIN.**
- **IRON – ANEMIA, FATIGUE, HEART PALPITATIONS**

HERBS FOR MALABSORPTION

- **TREAT MALABSORPTION AS SPECIFICALLY AS POSSIBLE.**
- **TREAT BILIARY INSUFFICIENCY WITH *TARAXICUM, SILYBUM, CURCUMA*, AND *CHELIDONIUM*.**
- **TREAT PANCREATIC INSUFFICIENCY WITH DIGESTIVE ENZYMES**

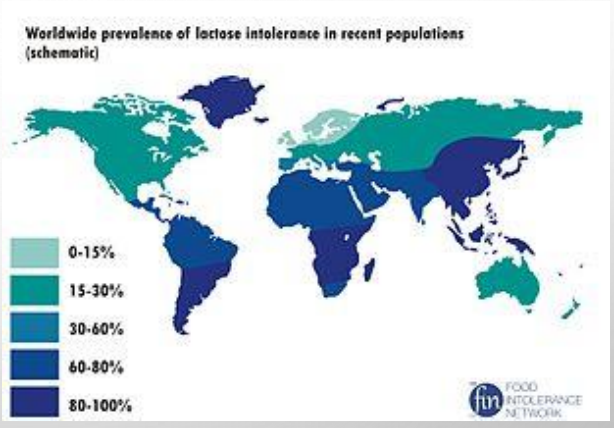
SYMPTOMS OF PANCREATIC INSUFFICIENCY

- PANCREATIC INSUFFICIENCY MAY BE SUSPECTED BY OILY OR FATTY STOOLS (STEATORRHEA) THAT FLOAT IN THE TOILET OR ARE PARTICULARLY STICKY AND MALODOROUS, AND DIFFICULT TO FLUSH AWAY
- LARGE MALODOROUS STOOLS ALSO OCCUR WITH CELIAC DISEASE.
- FAIRLY IMMEDIATE BELCHING, HEARTBURN AND STOMACH PAIN IS MOST TYPICAL OF HYPOCHLORHYDRIA HIGH UP IN THE DIGESTIVE SYSTEM.

Hereditary
Cystic fibrosis, Shwachman Diamond syndrome, Marrow-Pancreas Pearson syndrome, Johanson Blizzard syndrome, pancreatic agenesis, hereditary pancreatitis, isolated enzyme deficiency
Acquired
Malnutrition, tropical calcific pancreatitis, chronic pancreatitis

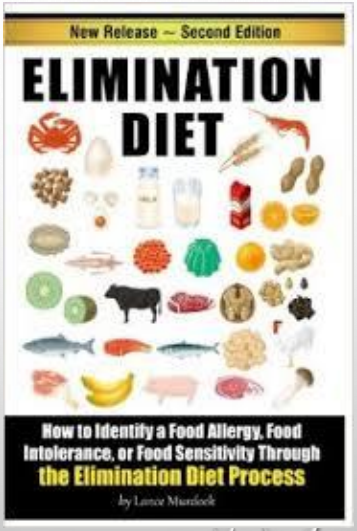
FOOD ALLERGENS AND MALABSORPTION

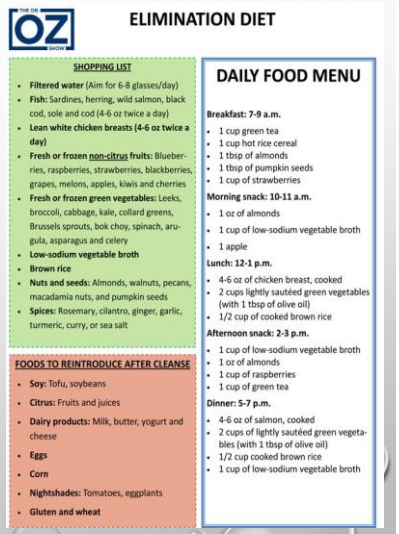
- INTESTINAL CRAMPING AND FLATULENCE ARE MOST TYPICAL OF MILK INTOLERANCE OR OTHER FOOD ALLERGEN AGGRAVATING THE INTESTINES.
- IF THE SYMPTOMS AND DIAGNOSTIC TESTS DO NOT HINT AT A SPECIFIC UNDERLYING CAUSE, A SIMPLE TRIAL ELIMINATION DIET MAY BE APPROPRIATE.



A TRIAL AND ERROR APPROACH IS REASONABLE

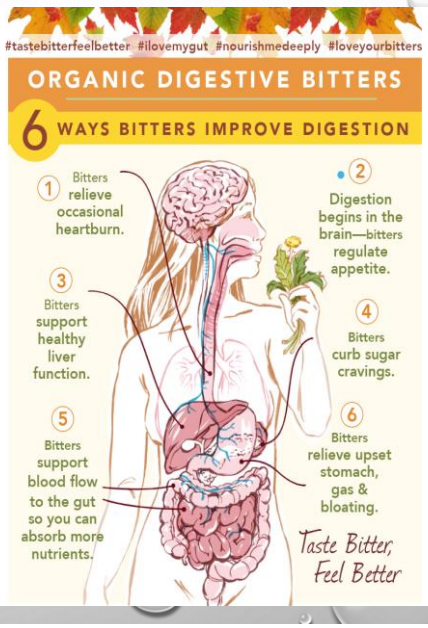
SINCE PATIENTS USUALLY RESPOND READILY TO HCL SUPPLEMENTS IF THEY ARE HYPOCHLORHYDRIC, TO PANCREATIC ENZYMES IF THERE IS ENZYME INSUFFICIENCY, AND TO BILIARY SUPPORT IF THERE IS INSUFFICIENT BILE, SUCH THERAPIES MAY SIMPLY BE ATTEMPTED FOR A WEEK OR TWO EVALUATING THE RESULTS.





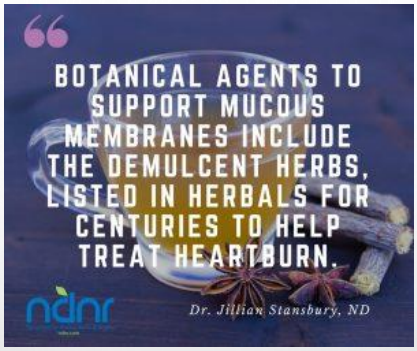
DIGESTIVE BITTERS AND ALTERATIVE HERBS

- BITTERS AND ALTERATIVES SUCH AS *ARTEMISIA*, *JUGLANS*, *CURCUMA*, *TARAXICUM*, *RUMEX*, *ARCTIUM* STIMULATE HCL, BILE, AND PANCREATIC ENZYMES ARE APPROPRIATE IN MOST CASES OF MALABSORPTION.
- LIVER HERBS AND THE B VITAMIN RELATIVES, CHOLINE AND INOSITOL IMPROVE BILE QUANTITY AND QUALITY, AND MAY HELP THOSE WITH FAT INTOLERANCE AND THE ELDERLY WITH GENERAL DIGESTIVE INSUFFICIENCY.



INTESTINAL DEMULCENTS

WHEN PATIENTS ARE SUSPECTED TO HAVE INTESTINAL MUCOSA INFLAMMATION DUE TO INGESTION OF FOOD ALLERGENS, THE ADDITION OF DEMULCENTS AND ANTI-INFLAMMATORIES ARE INDICATED, ALONG WITH SPECIFIC DIETARY CHANGES.



LIQUIDS OVER PILLS FOR GI ISSUES

- WHEN PATIENTS HAVE BECOME MALNOURISHED, NUTRITIONAL SUPPLEMENTS MAY HELP REBUILD AND RESTORE THE BODY, HOWEVER TAKING CARE TO NOT USE TOO MANY PILLS AS THEY ARE UNLIKELY TO BE WELL UTILIZED OR ASSIMILATED.
- LIQUIDS NUTRIENTS SUCH AS TEAS AND TINCTURES OR THE ADDITIONAL OF LIQUID NUTRIENTS TO SMOOTHIES OR JUICES WILL BE THE EASIEST TO ABSORB.

MINERAL HERBS AND HOT HERBS

- HIGH MINERAL HERBS SUCH AS *EQUISETUM*, *MEDICAGO*, *CENTELLA*, *SYMPHYTUM* ARE APPROPRIATE TO HELP REBUILD AND RESTORE CONNECTIVE TISSUE, SKIN, HAIR, AND NAILS.
- ADDITIONS OF SMALL AMOUNTS OF HOT SPICY HERBS SUCH AS *ZINGIBER*, *CAPSICUM*, AND *PIPER NIGUM*, DUE TO LOCAL VASODILATION IN THE INTESTINES MAY IMPROVE THE ABSORPTION OF NUTRIENTS ESPECIALLY IN THE ELDERLY AND THOSE WITH A COLD DEFICIENT CONSTITUTION.

BLACK PEPPER TO INCREASE ABSORPTION

PIPER NIGRUM (BLACK PEPPER) HAS BEEN SHOWN TO MAKE INTESTINAL MUCOSAL TIGHT JUNCTIONS LESS PERMEABLE, AND YET *PIPER NIGRUM* HAS BEEN FOUND TO INCREASE THE ABSORPTION OF MANY BENEFICIAL NUTRIENTS BY 100 FOLD.

PIPER NIGRUM ENHANCES ASSIMILATION

***PIPER NIGRUM* MAY ENHANCE THE ABSORPTION OF NUTRIENTS THROUGH VASODILATORY EFFECTS ON THE SUBMUCOSAL VASCULATURE, AND BY A YET TO BE EXPLAINED MECHANISM THAT INCREASES THE LENGTH AND GIRTH OF INTESTINAL MICROVILLI AND THEREBY INCREASES THE ABSORPTIVE SURFACE AREA. PREPARATION OF THESE HERBS IN VINEGAR IS A USEFUL VEHICLE FOR PROMOTING DIGESTION FUNCTION.**

DIGESTIVE VINEGAR

- 1 QUART APPLE CIDER VINEGAR
- FRESH GINGER ROOT CHOPPED
- FRESH HABENEROS PEPPERS
- GARLIC CLOVES
- ONION
- TURMERIC ROOT, CHOPPED
- 1 LEMONS, ZEST, AND JUICE
- *MEDICAGO* (ALFALFA) DRIED ½ CUP
- *MAHONIA* ROOT (OREGON GRAPE) ½ CUP
- *ARCTIUM* (BURDOCK ROOT) ½ CUP
- *ARTEMESIA* (WORMWOOD) ½ CUP

PLACE ALL IN A BLENDER AND LIQUEFY AS FINELY AS POSSIBLE. TRANSFER TO A LARGE CANNING JAR AND SHAKE DAILY FOR 6 WEEKS. STRAIN THE HERBS AND STORE THE VINEGAR IN INDIVIDUAL BOTTLES.

THIS VERSION OF THE CLASSIC "FIRE CIDER" ADDS BITTER HERBS TO STIMULATE DIGESTION. THE RECIPE CAN BE AMENDED FOR TASTE AND PURPOSE, MAKING HOTTER OR MILDER, AND USING MORE OR LESS BITTER HERBS. FRUITS SUCH AS MANGOS, PINEAPPLES, AND PAPAYAS, INCLUDING PAPAYA SEEDS, CAN ALSO BE BLENDED INTO THE VINEGAR, BOTH TO MAKE THE BLEND SWEETER, AS WELL TO PROMOTE HYDROCHLORIC ACID, AND HELP TREAT UNDERLYING DIGESTIVE INSUFFICIENCY AND DYSBIOSIS.

TINCTURE FOR MALABSORPTION DUE TO HYPOCHLORHYDRIA

- *ARTEMESIA* 15 ML
- *JUGLANS* 15 ML
- *RUMEX* 15 ML
- *MATRICARIA* 15 ML
- *ZINGIBER* 4 ML

THIS FORMULA IS BEST TAKEN ON AN EMPTY STOMACH 15 -20 MINUTES BEFORE MEALS. ANOTHER OPTION IS TO PREPARE AN APERATIV USING 1-2 TSP OF THE TINCTURE, THE JUICE OF A LEMON SLICE, AND A BIT OF WATER OR CHAMOMILE TEA TO SIP BEFORE MEALS.

BITTER HERBS STIMULATE BILE, HCL AND DIGESTIVE ENZYMES, BUT ALL ON THEIR OWN MIGHT BE NAUSEATING AND TOO STIMULATING.

THE BITTER HERBS ARE COMBINED WITH THE DIGESTIVE TONIC AND CARMINATIVE *MATRICARIA* AND *ZINGIBER* IN THIS FORMULA.



MALABSORPTION IN THE ELDERLY

- *GINKGO* 15 ML
- *GENTIAN* 15 ML
- *ARTEMESIA* 15 ML
- *PANAX* 15 ML
- *ZINGIBER* 4 ML

THIS FORMULA IS BEST TAKEN ON AN EMPTY STOMACH 15 -20 MINUTES BEFORE MEALS. ANOTHER OPTION IS TO PREPARE AN APERATIF USING 1-2 TSP OF THE TINCTURE, THE JUICE OF A LEMON SLICE, AND A BIT OF WATER OR CHAMOMILE TEA TO SIP BEFORE MEALS.

SOME PATIENTS, ESPECIALLY THE ELDERLY MAY HAVE BOTH HYPOCHLORHYDRIA AND POOR CIRCULATION IN THE DIGESTIVE ORGANS CONTRIBUTING TO MALABSORPTION.

NOTE HOW THIS FORMULA USES HALF BITTER AGENTS AND HALF CIRCULATORY ENHANCING HERBS.

POOR DIGESTION FOLLOWING A LONG ILLNESS

- *CURCUMA* 15 ML
- *PANAX* 15 ML
- *TARAXICUM`* 15 ML
- *ZINGIBER* 4 ML
- THIS FORMULA IS BEST TAKEN ON AN EMPTY STOMACH 15 -20 MINUTES BEFORE MEALS. ANOTHER OPTION IS TO PREPARE AN APERATIF USING 1-2 TSP OF THE TINCTURE, THE JUICE OF A LEMON SLICE, AND A BIT OF WATER TO SIP BEFORE MEALS.

- WHEN PATIENTS HAVE UNDERGONE SURGERY, BEEN HOSPITALIZED, ARE ON MANY MEDICINES, OR HAVE BEEN BED-RIDDEN DUE TO ANY ILLNESS, THE DIGESTIVE SYSTEM CAN BE WEAKENED AND MAY BENEFIT FROM A "JUMP START".
- THE USE OF CHI TONICS, BITTERS, ALTERATIVES, AND STIMULANTS IN THIS FORMULA, MAY QUICKLY IMPROVE APPETITE, BOWEL FUNCTION, AND DIGESTION.

BITTER TEA FOR HYPOCHLORHYDRIA

- *ACHILLEA*- FLOWERS
- *RUMEX* – ROOT, FINELY CHOPPED
- *MATRICARIA* - FLOWERS
- *CINNAMOMUM* - SMALL CHIPS

STEEP 1 -2 TSP PER CUP HOT WATER, STRAIN AND DRINK 1-2 CUPS 3 TIMES DAILY BEFORE EACH MEAL. MAY ADD A TSP OR TWO OF FRESH SQUEEZED LEMON JUICE TO EACH CUP.

BITTER TEA MAY BE CHALLENGING FOR SOME PATIENTS TO CONSUME, WHILE OTHERS MAY PREFER IT OVER TINCTURES, BEING LESS EXPENSIVE AND ALCOHOL-FREE.

THE USE OF CINNAMON BOTH IMPROVES THE FLAVOR AND ACTS AS CARMINATIVE STIMULANT

HERBAL VINEGAR FOR MALABSORPTION

- 2 TBL *ARTEMESIA* LEAVES
- 2 TBL NETTLE LEAVES
- 1 CAYENNE PEPPER, SMALL, SEEDED AND COARSELY CHOPPED
- 2 TBL FRESH GINGER ROOT, COARSELY CHOPPED

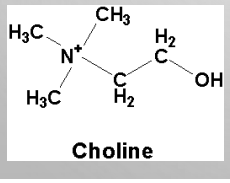
PLACE ALL IN A BLENDER AND COVER WITH APPLE CIDER VINEGAR AND PUREE. TRANSFER TO A GLASS JAR AND SHAKE DAILY FOR SEVERAL WEEK AND THEN STRAIN THROUGH A FINE STRAINER. USE FINISHED VINEGAR ON STEAMED VEGETABLES AND TO PREPARE SALAD DRESSINGS. THE VINEGAR MAY ALSO BE PREPARED INTO AN APERATIV TO SIP IN WATER OR TEA.

PATIENTS WITH MALDIGESTION CAN BE TAUGHT HOW TO MAKE THEIR OWN HERBAL VINEGAR AT HOME INEXPENSIVELY, OR YOU CAN PREPARE SOMETHING LIKE THIS FOR THEM.

VINEGAR ALONE IS GREAT FOR DIGESTION, AND ESPECIALLY ONE WITH APPROPRIATELY CHOSEN BITTER AND STIMULANT HERBS, AS IN THIS EXAMPLE.

ADJUVENT THERAPIES FOR MALABSORPTION AND MALDIGESTION

- OX BILE
- HCL
- PANCREATIC LIPASE, AMYLASE, AND PROTEASES
- BROMELAIN
- CHOLINE, INOSITOL



Choline

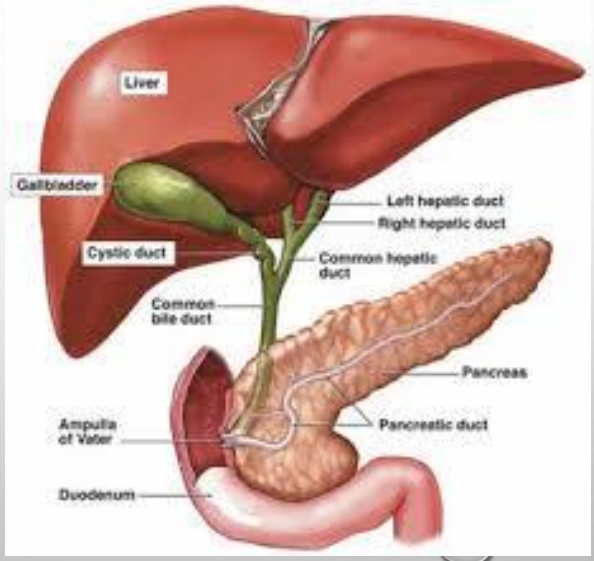
Bile Salts

- These are synthesized in liver from cholesterol.
- **Primary bile acids** – Cholic acid & Chenodeoxy cholic acid.
- Conjugation – bile acids get conjugated in liver with Taurin & choline.

1. Cholic Acid + Taurine = Taurocholic Acid
2. Cholic Acid + Glycine = Glycocholic acid

BOTANICAL THERAPIES FOR MALABSORPTION, BILIARY INSUFFICIENCY, HYPOCHLORHYDRIA

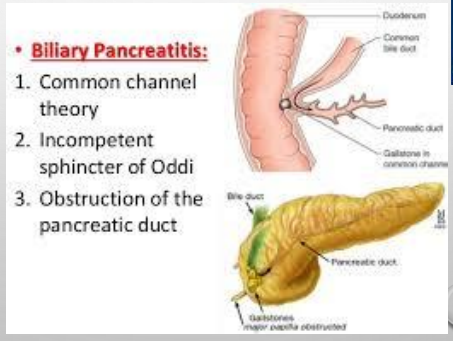
- *ARCTIUM LAPPA*
- *ARTEMESIA ABSINTHINUM*
- *BERBERIS SPECIES (MAHONIA)*
- *CHELIDONIUM MAJUS*
- *CINNAMOMUM*
- *GENTIANA LUTEA*
- *IRIS VERSICOLOR*
- *JUGLANS NIGRA*
- *MAHONIA*
- *PODOPHYLLUM PELTATUM*
- *RUMEX*
- *STILLINGIA*
- *TARAXICUM OFFICINALE*
- *ZINGIBER*



PANCREATIC INSUFFICIENCY

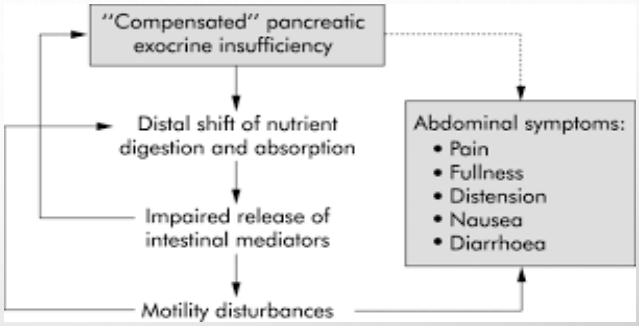
EXOCRINE PANCREATIC INSUFFICIENCY CAN RESULT IN MALABSORPTION, AND POSSIBLY IMPAIRED MOTILITY.

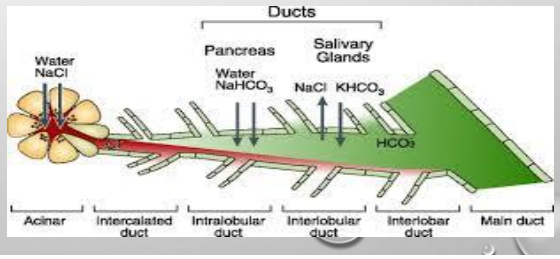
PANCREATIC INSUFFICIENCY CAN BE DUE TO CHRONIC PANCREATITIS, CYSTIC FIBROSIS, AND EXTENSIVE NECROTIZING ACUTE PANCREATITIS, AND HEAVY ALCOHOL CONSUMPTION.



PANCREATIC INSUFFICIENCY

- THE USE OF PANCREATIC ENZYMES MAY BE REQUIRED FOR LIFE.
- LIPASE LEVELS JUST 5–10% BELOW OF NORMAL CAN RESULT STEATORRHEA, WEIGHT LOSS, AND A POTENTIAL DECREASE IN QUALITY OF LIFE.
- DECREASED BICARBONATE OUTPUT ASSOCIATED WITH CYSTIC FIBROSIS OR CHRONIC PANCREATITIS CAUSES LOW INTESTINAL PH, IMPAIRS MICELLE FORMATION OF FATS AND FURTHER DAMPENING HYDROLYSIS OF INTRALUMINAL FAT.





PANCREATIC INSUFFICIENCY

- PANCREATIC INSUFFICIENCY RESULTS IN CLAY-COLORED, LOOSE, GREASY, FOUL-SMELLING LARGE STOOLS, ABDOMINAL DISCOMFORT, BLOATING, AND WEIGHT LOSS.
- ALTHOUGH FLOATING STOOLS ARE OFTEN THOUGHT OF BEING INDICATIVE OF STEATORRHEA, EVEN MORE TYPICAL, STOOLS THAT CLING TO THE TOILET BOWL, AND WON'T FLUSH AWAY, IS EVEN A MORE SPECIFIC SIGN

Overview of Exocrine Pancreatic Insufficiency Symptoms

Diseases and Mechanisms Associated With Exocrine Pancreatic Insufficiency

Disease or Condition	Pathologic Mechanism
Chronic pancreatitis, CF, diabetes, sequelae of acute necrotizing pancreatitis, hereditary pancreatitis	Loss of pancreatic parenchyma (responsible for most cases of EPI)
Periampullary tumors, IPMN, pancreatic head carcinoma, benign pancreatic tumors	Obstruction of main pancreatic duct
Celiac disease, Crohn disease, Schwachman-Diamond syndrome	Decreased pancreatic stimulation
Zollinger-Ellison syndrome	Acid-mediated inactivation of pancreas enzymes
Gastrectomy, gastric bypass, extensive small bowel surgery	Gastrointestinal/pancreatic surgery

Fieker A, et al. *Clin Exp Gastroenterol.* 2011;4:55-73.

PANCREATIC INSUFFICIENCY

IN CELIAC DISEASE, ALTHOUGH EXOCRINE PANCREATIC FUNCTION IS INTRINSICALLY NORMAL, REDUCED LEVELS OF CHOLECYSTOKININ RELEASE AS A RESULT OF THE DUODENAL VILLOUS ATROPHY, ACCOUNTS FOR IMPAIRED GALL BLADDER CONTRACTION AND REDUCED EXOCRINE PANCREATIC SECRETION.

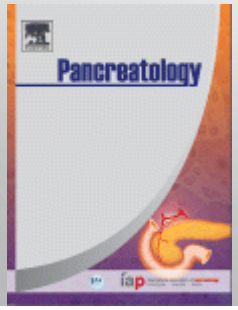
Pancreatic Insufficiency: Possible Causes

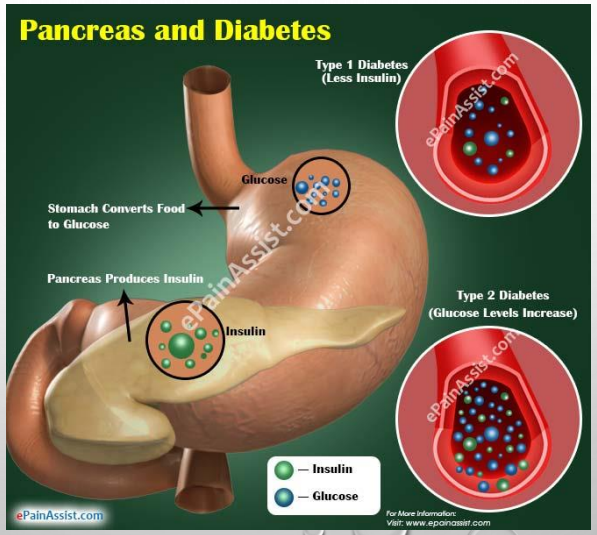
- Chronic pancreatitis (most common)
- Alcoholism
- Smoking
- Surgery
- Pancreatic obstruction
- Cystic fibrosis
- Autoimmune related
- Crohn's disease
- Celiac disease

Medscape

PANCREATIC INSUFFICIENCY

DIABETICS MAY ALSO DEVELOP PANCREATIC INSUFFICIENCY AS THE PART OF THE AUTOIMMUNE DISEASE.





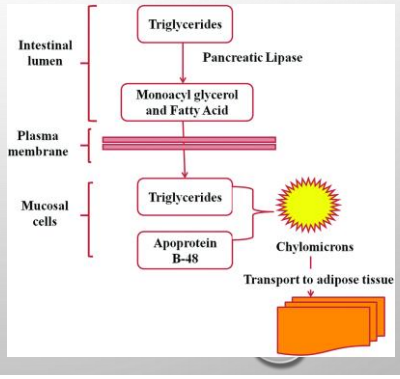
PANCREATIC INSUFFICIENCY

ALL INFANTS, ESPECIALLY PRETERM INFANTS HAVE LOW PANCREATIC EXOCRINE FUNCTION, COMPENSATED FOR BY AMYLASE AND LIPASE PRESENT IN BREASTMILK, HOWEVER MANY INFANTS HAVE SOME DEGREE OF PANCREATIC INSUFFICIENCY, WHICH WOULD BE WORSE IN NON-BREAST-FED INFANTS AND PLAY A ROLE IN EARLY NUTRIENT DEFICITS.

DOSE OF LIPASE

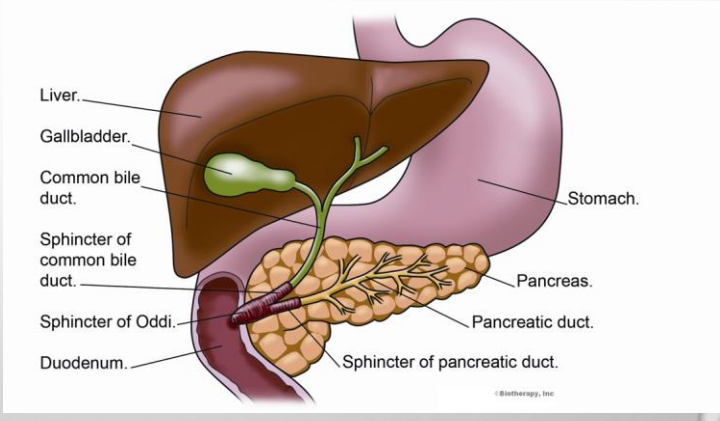
- 25,000 –80,000 LIPASE UNITS PER MAIN MEAL IN ADULTS.
- PANCREATIC ENZYME REPLACEMENT THERAPY - ENTERIC-COATED PANCREATIC ENZYMES ARE MOST EFFECTIVE AT A PH > 6, SO THE ENTERIC COATED PILLS MIGHT BE TAKEN WITH LEMON JUICE, OR VINEGAR, OR WITH HCL SUPPLEMENTS.

IF THERE IS A POOR RESPONSE, CONSIDER CONCOMITANT COMORBIDITIES SUCH AS LACTOSE INTOLERANCE, ENTERIC BACTERIAL INFECTION, PARASITES (ESPECIALLY GIARDIA), SMALL INTESTINAL BACTERIAL OVERGROWTH, BILIARY DISEASE (CHOLESTASIS), COLITIS, CELIAC DISEASE, SHORT BOWEL SYNDROME, AND CROHN'S DISEASE.



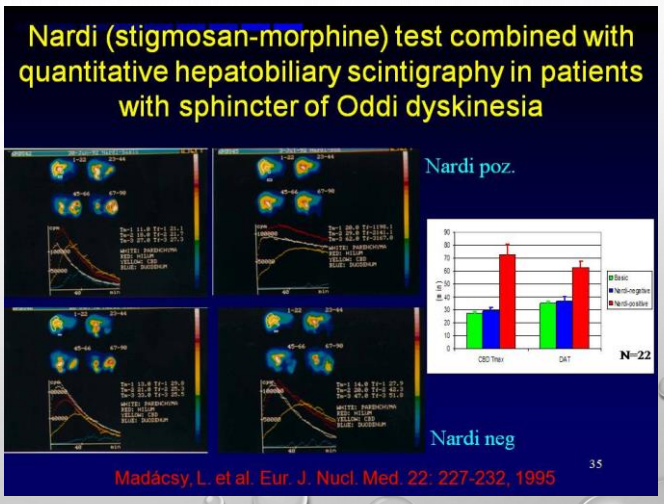
SPHINCTER OF ODDI

- THE SPHINCTER OF ODDI IS A SMOOTH MUSCLE VALVE REGULATING THE FLOW OF BILIARY AND PANCREATIC SECRETIONS INTO THE DUODENUM
- THE SPHINCTER OF ODDI PREVENTS OF DUODENAL REFLUX AND REGULATES GALLBLADDER FILLING BY DIVERTING BILE INTO THE GALLBLADDER WITH SPHINCTER CLOSURE.



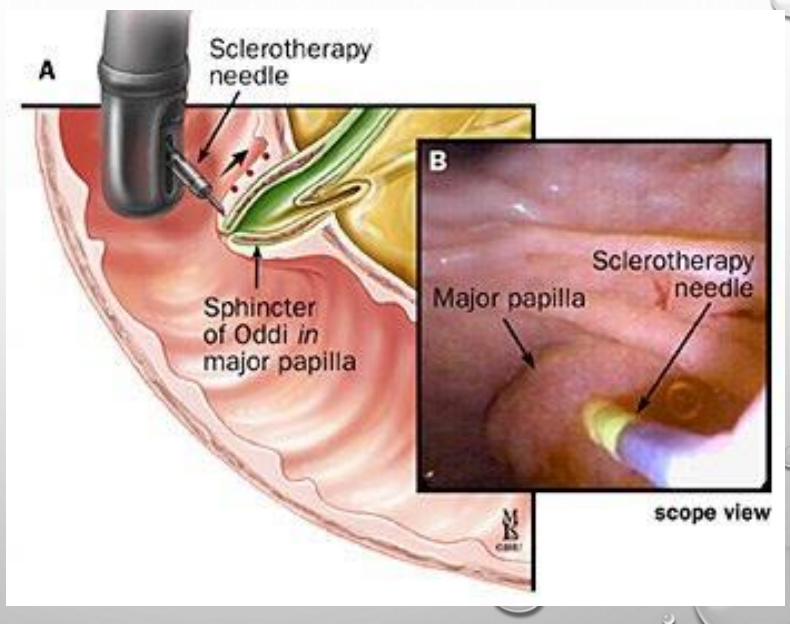
SPHINCTER OF ODDI DYSFUNCTION AND BILIARY DYSKENESIA

- SCINTIGRAPHY CAN HELP REVEAL BILIARY AND SPHINCTER OF ODDI DYSKINESIA, AND IS ONE CAUSE OF IMPAIRED GASTRIC MOTILITY.
- BILIARY DYSKINESIA IS A SEPARATE ENTITY.
- BOTH CAN CAUSE ABDOMINAL PAIN AND BE ASSOCIATED WITH ELEVATED LIVER ENZYMES.



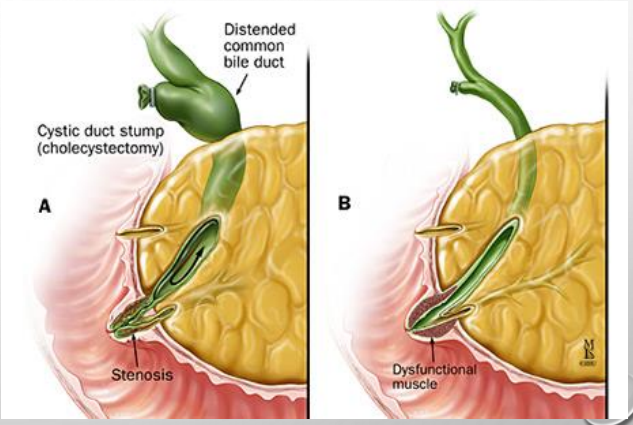
SPHINCTER OF ODDI DYSFUNCTION

SO DYSFUNCTION IS A BROAD TERM REFERRING TO NUMEROUS BILIARY, PANCREATIC, AND HEPATIC DISORDERS RESULTING FROM SPASMS, STRICTURES, AND RELAXATION OF THIS VALVE AT INAPPROPRIATE TIMES.



SOD
SPHINCTER OF ODDI DYSFUNCTION

- **VARIOUS FACTORS THAT INCREASE THE RISK OF SPHINCTER OF ODDI DYSFUNCTION, INCLUDING CHOLECYSTECTOMY, OPIATES, AND ALCOHOL.**
- **SPHINCTER OF ODDI DYSFUNCTION MAY CONTRIBUTE TO PANCREATITIS AND BILIARY SYMPTOMS WITH HEPATIC ENZYME ELEVATION.**
- **PHARMACOLOGIC TREATMENTS OF SOD MAY INCLUDE CALCIUM-CHANNEL BLOCKERS, GLYCERYL TRINITRATE, AND TRICYCLIC ANTIDEPRESSANTS.**



CLINICAL PRESENTATIONS OF SOD

- SPHINCTER OF ODDI DYSFUNCTION CAN INVOLVE THE BILIARY SPHINCTER, THE PANCREATIC SPHINCTER, OR BOTH.
- BILIARY SOD TYPICALLY PRESENTS WITH RECURRENT BILIARY PAIN, CHARACTERIZED AS DISABLING EPIGASTRIC OR RIGHT UPPER QUADRANT PAIN LASTING 30 MIN TO SEVERAL HOURS WITH OR WITHOUT HEPATIC ENZYME ELEVATION.
- IT MAY RADIATE TO THE BACK, SHOULDER, OR SCAPULA AND MAY BE ACCOMPANIED BY NAUSEA AND VOMITING, MIMICKING A GALLBLADDER ATTACK.
- PAIN IS NOT CONSISTENTLY POSTPRANDIAL AND IS NOT RELIEVED BY POSTURAL CHANGES, ANTACIDS, OR BOWEL MOVEMENTS.

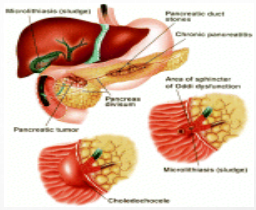
PANCREATITIS AND MOTILITY

PANCREATIC SOD MAY CAUSE RECURRENT EPISODES OF ACUTE PANCREATITIS.

PATIENTS WILL HAVE MID-ABDOMINAL, PANCREATIC PAIN, RADIATING TO THE BACK, ASSOCIATED WITH ELEVATIONS IN SERUM AMYLASE AND LIPASE.

SYMPTOMS INVOLVING THE PANCREATIC SPHINCTER ARE FREQUENTLY EXACERBATED BY FOOD INTAKE.

NO OTHER CAUSES FOR PANCREATITIS ARE USUALLY FOUND IN THESE PATIENTS, AND THEY MAY BE CLASSIFIED AS HAVING IDIOPATHIC ACUTE RECURRENT PANCREATITIS.



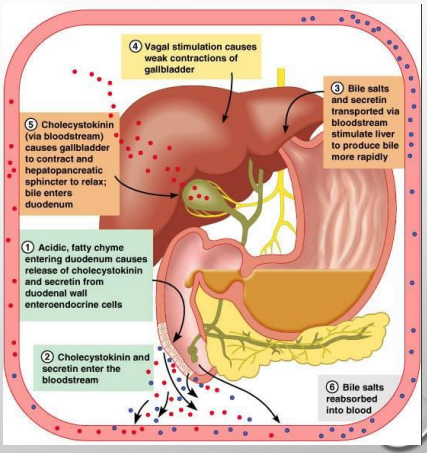
- **Mnemonic for the causes of Acute Pancreatitis:**

'I get smashed'

Idiopathic
Gallstones
Ethanol
Trauma
Steroids
Mumps
Autoimmune
Scorpion / **S**nakes
Hyperlipidaemia / **H**ypercalcaemia
ERCP
Drugs

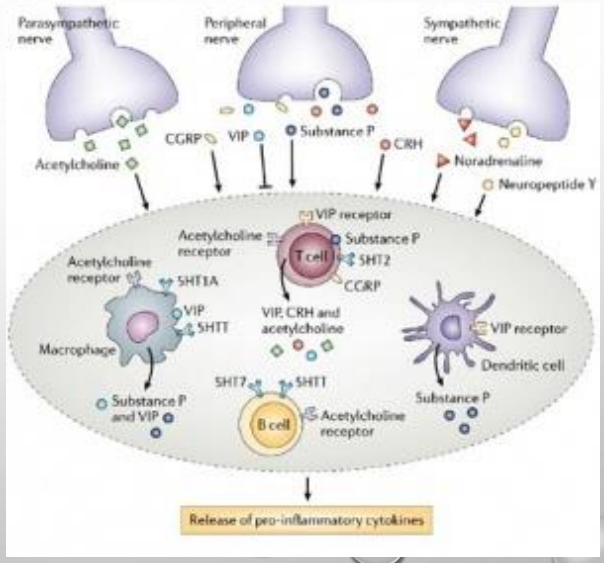
CHOLECYSTIKININ – CKK
VASOACTIVE INTESTINAL POLYPEPTIDE - VIP

- THE MOST IMPORTANT HORMONE INVOLVED IN SO FUNCTION IS CCK.
- CCK IS RELEASED FROM ENTEROENDOCRINE CELLS IN RESPONSE TO A MEAL AND EXERTS DIRECT HORMONAL EFFECTS AS WELL AS INDIRECT EFFECTS.
- CCK BY INTERACTING WITH NEURAL PATHWAYS, LEADING TO GALLBLADDER CONTRACTION AND PANCREATIC ENZYME SECRETION.
- CCK DECREASES SO BASAL PRESSURES AND INHIBITS PHASIC CONTRACTIONS, THEREBY PROMOTING ANTEROGRADE FLOW.



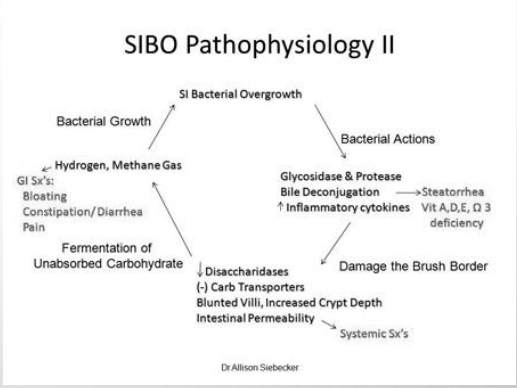
VIP AND NO

VASOACTIVE INTESTINAL POLYPEPTIDE AND NITRIC OXIDE, PRESENT IN THE INTRINSIC NEURONS OF THE SO, ARE INVOLVED IN THE RELAXATION RESPONSE TO CCK AS WELL AS THE RELAXATION OBSERVED IN THE CEPHALIC PHASE OF THE MEAL.



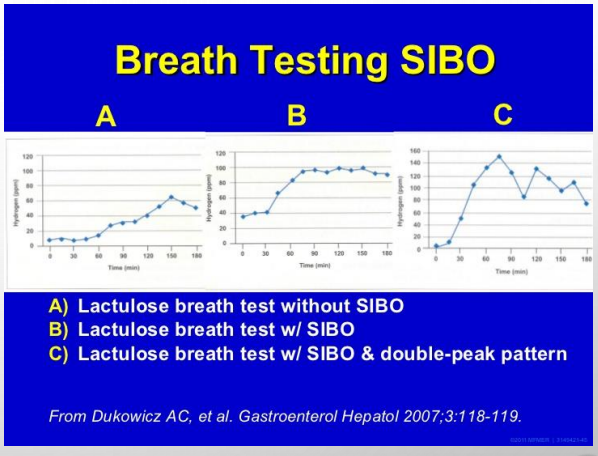
CREATING HERBAL FORMULAS FOR SIBO
SMALL BACTERIAL INTESTINAL OVERGROWTH

- SMALL INTESTINAL BACTERIAL OVERGROWTH (SIBO) INVOLVES EXCESSIVE AND UNBALANCED BACTERIA IN THE SMALL INTESTINE, CAUSING BLOATING, PAIN, GAS, AND DIARRHEA.
- THE OPTIMAL SMALL INTESTINAL BACTERIA BECOMES REPLACED WITH COLONIC SPECIES, AND POSSIBLY MORE PATHOGENIC SPECIES. SIBO CAN CAUSE SYSTEMIC COMPLICATIONS SUCH AS OSTEOPOROSIS AND MACROCYTIC ANEMIA AS ABSORPTION OF MINERALS AND NUTRIENTS IS IMPAIRED.



DX AND TX OF SIBO

- GUT INFLAMMATION MAY INTERFERE WITH GENE EXPRESSION INVOLVED WITH MUCUS SECRETION, LINKING SIBO TO CYSTIC FIBROSIS, IRRITABLE BOWEL SYNDROME, AND CHRONIC ABDOMINAL PAIN.
- GLUCOSE AND LACTULOSE BREATH TESTS, SMALL INTESTINAL ASPIRATION AND CULTURES HELP DIAGNOSE SIBO.
- SOME CLINICIANS SIMPLY ATTEMPT A 2 WEEK COURSE OF A BROAD SPECTRUM ANTI-BIOTICS, AND IF UNRESPONSIVE, REPETITIVE CYCLES OF ANTIBIOTICS.



CAUSES AND THERAPIES FOR SIBO

- PROMOTILITY DRUGS, DIETARY MODIFICATIONS, ARE WARRANTED.
- ACID SUPPRESSING DRUGS USED FOR REFLUX DISEASE ARE ASSOCIATED WITH SIBO DYSBIOSIS AND SHOULD BE ELIMINATED.
- PPIS EXACERBATE NONSTEROIDAL ANTI-INFLAMMATORY DRUG-INDUCED SMALL INTESTINAL INJURY.
- GASTROPARESIS AND HYPOTHYROIDSM ALSO PREDISPOSE TO SIBO DUE TO IMPAIRED GI MOTILITY.

Prokinetics drugs

Drugs that promote gastrointestinal motility without purgation

Muscrinic agonist	• Bethanechol • Neostigmine
Peripheral cholinergic stimulants	• Cisapride (prepulsid)
Dopamine antagonist	• Metoclopramide • Domperidone

FIBER FOR INTESTINAL HEALTH

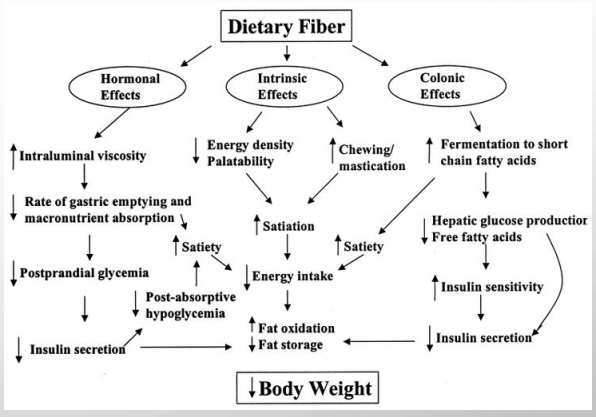
- THE NECESSITY OF A HIGH FIBER DIET, CAN NOT BE OVER EMPHASIZED.
- IN GENERAL, THE GREATER THE FIBER CONTENT, THE FASTER GASTRIC EMPTYING.
- GUAR GUM, APPLE PECTIN, AND PSYLLIUM CAN SIGNIFICANTLY MODIFY INTESTINAL MICROBIOTA AND EXERT PREBIOTIC EFFECTS, ENCOURAGING POPULATION OF THE GUT BY BENEFICIAL INTESTINAL PROBIOTIC SPECIES.

Classification based on water solubility/ fermentability

Characteristic	Fiber Component	Description	Food Sources
Water insoluble/ less fermentable	Cellulose	• Main structural component of plant cell wall • Insoluble in conc. Alkali • Soluble in conc. acid	Plants (vegetables, sugar beet, various brans)
	Hemicellulose	• Cell wall polysaccharide • Contain backbone of β-1,4 glycosidic linkages • Soluble in dilute alkali	Cereal grains
	Lignin	• Non carb cell wall component • Complex cross-linked phenyl propane polymer • Resists bacterial degradation	Woody plants
Water soluble/ more fermentable	Pectin	• Component of primary cell wall with D- Galacturonic acid as principal component • Water soluble • Gel forming	Fruits, vegetables, legumes, sugar beet, potato
	Gums	• Secreted at site of plant injury by secretary glands • Food & pharmaceutical use	Leguminous seed plants (guar, locust bean), seaweed extracts (carageenan, alginates), microbial gums (xanthan, gellan)
	Mucilages	• Synthesized by plant, prevent desiccation of seed endosperm • Food industry use, hydrophilic, stabilizer	Plant extracts (gum acacia, gum karaya, gum tragacanth)

FIBER FOR INTESTINAL HEALTH

- FIBER SUPPLEMENTATION MAY HELP TREAT CONSTIPATION, IRRITABLE BOWEL SYNDROME (IBS), SMALL INTESTINE BACTERIAL OVERGROWTH (SIBO), AND OTHER COMPLAINTS.
- FIBER SUPPLEMENTATION MAY BOOST THE EFFICACY OF ANTIBIOTICS IN TREATING SIBO.
- CONSUMPTION OF FRESH FRUITS AND VEGETABLES WILL PROVIDE



DIET TO SUPPORT MOTILITY

AVOID

- AVOID BREAD, GLUTEN, PASTA, CRACKERS, PRETZLES, AND ALL FLOUR PRODUCTS
- AVOID ALCOHOL
- AVOID SUGAR, FRUITS JUICE, JAM, SUGARY SNACKS, DRIED FRUITS, APPLES, PEARS, CHERRIES, PLUMS, WATERMELON
- AVOID CARBOHYDRATE-RICH VEGETABLES: POTATOES, CORN, PEAS,

ENJOY

- FERMENTED FOOD: SAUERKRAUT, KIMCHEE, MISO, APPLE CIDER VINEGAR
- SEAWEEDS: IN BROTHS, SALADS, CONDIMENTS
- LOW FODMAP VEGGIES: CABBAGE, GREEN BEANS, ARUGALA, SPINACH, ZUCHHINI, SQUASH, TURNIPS, CARROTS, BELL PEPPER
- LOW FODMAP FRUITS: BERRIES, MELON, PINEAPPLES, CITRUS, GRAPES
- LOW FODMAP STAPLES: LENTILS, QUINOA, NUTS, CHEESE, QUALITY MEATS

IMPAIRMENT OF INTESTINAL MOTILITY BY ADHESIONS

- ABDOMINAL ADHESIONS CAN CONTRIBUTE TO INTESTINAL FUNCTION AND MOTILITY. ADHESIONS MAY RESULT FROM ABDOMINO-PELVIC SURGERY, RADIATION THERAPY, AND INFLAMMATORY PROCESSES.
-
- **POST-SURGICAL:** NEARLY 90% OF ABDOMINAL ADHESIONS FORM AS A RESULT OF PRIOR ABDOMINAL SURGERY, PRIMARILY LAPAROTOMY
- **POST-INFLAMMATORY OR INFECTIOUS:** ENDOMETRIOSIS AND PELVIC INFLAMMATORY DISEASE ARE THE MOST COMMON ETIOLOGIES OF NON-SURGICAL ADHESIONS IN WOMEN. OTHER ETIOLOGIES AFFECTING EITHER SEX INCLUDE DIVERTICULAR DISEASE (PARTICULARLY OF SMALL BOWEL), CROHN'S DISEASE, AND ABDOMINAL TUBERCULOSIS (IN ENDEMIC AREAS).
- **POST-RADIATION**: ABDOMINOPELVIC RADIATION USED FOR TREATMENT OF A VARIETY OF MALIGNANCIES
- **ANN MED SURG** (LOND). 2017 MAR; 15: 9–13. *ABDOMINAL ADHESIONS: A PRACTICAL REVIEW OF AN OFTEN OVERLOOKED ENTITY* N. TABIBIAN,A E. SWEHLI,A A. BOYD,A A. UMBREEN,A AND J.H. TABIBIANB
-

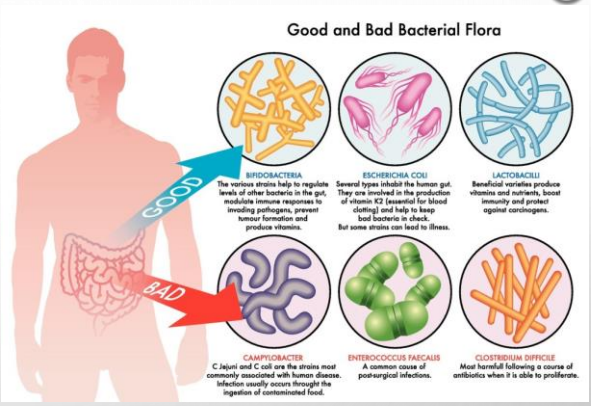
SYMPTOMS OF INTESTINAL ADHESIONS

- CHRONIC (PERSISTENT OR INTERMITTENT) BLOATING.
- ABDOMINAL CRAMPING AND BORBORYGMI.
- ALTERED BOWEL HABITS, INCLUDING CONSTIPATION OR FREQUENT LOOSE STOOLS (E.G. FROM DEVELOPMENT OF SMALL INTESTINAL BACTERIAL OVERGROWTH).
- NAUSEA WITH OR WITHOUT EARLY SATIETY.
- BOWEL OBSTRUCTION, WHICH MAY BE TRANSIENT, PARTIAL, OR COMPLETE (AND MAY CAUSE THE AFOREMENTIONED SYMPTOMS).
- FEMALE INFERTILITY AND DYSPAREUNIA.
- RECTAL BLEEDING AND DYSCHEZIA (I.E. PAINFUL DEFECATION) DURING MENSES, WHICH TYPICALLY INDICATE COLORECTAL INVOLVEMENT OF ENDOMETRIOSIS.
- IN ADDITION, MANY PATIENTS, PARTICULARLY IF THEIR SYMPTOMS ARE UNPREDICTABLE, GO UNDIAGNOSED, AND/OR WITHOUT EFFECTIVE TREATMENT, CAN DEVELOP ADJUSTMENT DISORDER AND DEMORALIZATION, WHICH MAY ERRONEOUSLY POINT TOWARD FUNCTIONAL BOWEL DISORDERS SUCH AS IRRITABLE BOWEL SYNDROME.

RIKKUNSHITO FOR GASTROPARESIS

RIKKUNSHITO IS A TRADITIONAL JAPANESE FORMULA USED TO TREAT UPPER GASTROINTESTINAL DISORDERS SUCH AS FUNCTIONAL DYSPEPSIA, GASTROESOPHAGEAL REFLUX, AND GASTRIC MOTOR FUNCTION VIA ENHANCING GHRELIN

- ***GLYCYRRHIZA***
- ***ZINGIBER***
- ***ATRACTYLODIS LANCEAE***
- ***ZIZYPHIS* FRUITS**
- ***CITRUS AURANTII* PEEL**
- ***PANAX GINSENG* ROOT**
- ***PINELLIAE* TUBER**



PING WEI SAN (CALM THE STOMACH POWDER)

THIS FORMULA IS SPECIFICALLY INDICATED FOR DIGESTIVE SYMPTOMS HAVING A FULL HEAVY SENSATION, MUCOUS CONGESTION, AND "DAMPNESS", AND MAY IMPROVE APPETITE, SENSE OF TASTE, GERD, VOMITING, NAUSEA.

• ***ATRACTYLODES***	**4 OZ**
• ***MAGNOLIA***	**3 OZ**
• **CITRUS PEEL**	**2 OZ**
• ***GLYCYRRHIZA***	**2 OZ**
• ***ZIZYPHUS***	**2 OZ**
• ***ZINGIBER***	**1 OZ**

COMBINE ALL AND DECOCT 1 QUARTER CUP IN 8 CUPS OF WATER, SIMMERING GENTLY DOWN TO 6 CUPS. STRAIN AND DRINK OVER THE COURSE OF THE DAY.

ZHIZHU FOR GASTROPARESIS

ZHIZHU PILL IS A TRADITIONAL CHINESE FORMULA USED FOR DYSPEPTIC SYMPTOMS. THIS DECOCTION ADAPTS THE TRADITIONAL FORMULA ADDING SEVERAL OTHER HERBS TRADITIONAL FOR GASTROPARESIS.

- ***PINELLIA***
- ***GLYCYRRHIZA***
- ***PORIA***
- ***GINSENG***
- ***CODONOPSIS***
- ***CITRUS* PEEL**
- ***ATRACTYLODES***
- ***ZINGIBER***

COMBINE EQUAL PARTS OF EACH HERB AND BLEND. SIMMER 1 TSP/CUP OF HOT WATER FOR 10 MINUTES. LET STAND IN A COVERED PAN, AND DRINK 3 OR MORE CUPS PER DAY.

TINCTURE FOR FUNCTIONAL DYSPEPSIA AND GASTROPARESIS

• ***HARPAGOPHYTUM***	**15 ML**
• ***COMMIPHORA MUKUL***	**15 ML**
• ***IRIS VERSICOLOR***	**10 ML**
• ***FOENICULUM***	**10 ML**
• ***ZINGIBER***	**10 ML**

- **ANETHOLE, A VOLATILE OIL IN FENNEL AND ANISE SEEDS, HAS BEEN SHOWN TO IMPROVE DYSPEPTIC SYMPTOMS AS WELL AS IMPROVE GASTRIC EMPTYING.**
- **THE ANTI-EMETIC EFFECTS OF GINGER, *ZINGIBER* MAY BE HELPFUL, BUT MINT MAY BE BE BEST AVOIDED DUE TO ACTING AS GASTRIC RELAXANT. *I***
- ***RIS* IS A FOLKLORIC SECRETORY STIMULANT AND MAY ENHANCE DIGESTION AND MOTILITY.**
- ***HARPAGOPHYTUM PROCUMBENS*, DEVILS'S CLAW, MAY SUPPRESS APPETITE AND SUPPORT WEIGHT LOSS VIA THE GHRELINERGIC SYSTEM.**
- **THE GUGGULSTERONES IN *COMMIPHORA MUKUL* REDUCE FOOD INTAKE AND SUPPORTS WEIGHT LOSS IN PART VIA REDUCING PLASMA GHRELIN AND INCREASING PLASMA LEPTIN, SEROTONIN, AND DOPAMINE. THESE ACTIONS MAY ALSO ENHANCE GASTRIC MOTOR FUNCTIONS VIA EFFECTS ON GROWTH HORMONE RECEPTORS.**

OOLONG TEA FOR GASTROPARESIS

CHIN-SHIN OOLONG TEA, IS SOMETIMES CALLED TEA GHRELIN BECAUSE IT HAS BEEN SHOWN TO BIND GROWTH HORMONE RECEPTORS LIKE GHRELIN.

OOLONG TEA

- STEEP 1 TBL PER CUP OF HOT WATER, AND DRINK THROUGH OUT THE DAY, ESPECIALLY AFTER EACH MEAL.

OOLONG IS A SEMI-FERMENTED GREEN TEA, ESPECIALLY FROM MOUNTAINOUS REGIONS OF TAIWAN.

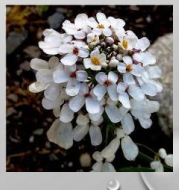
SLOW MOTILITY WITH CONSTIPATION

• *IBERIS AMARA* OR *RAPHANUS NIGRA*	20 ML
• *ANGELICA ARCHANGELICA*	20 ML
• *CHELIDONIUM*	20 ML
• *MATRICARIA CHAMOMILE*	10 ML
• *FOENICULUM* SEEDS	10 ML
• *SILYMARIN* SEED POWDER	10 ML
• *MELISSA OFFCINALIS*	10 ML
• *MENTHA PIPERTA*	10 ML
• *GLYCYRRHIZA*	5 ML
• *ZINGIBER*	5 ML

THIS FORMULA WILL FILL A 4 OUNCE BOTTLE AND CAN BE TAKEN BY THE TEASPOON FULL 3 OR MORE TIMES PER DAY.

BASED ON A COMMERCIAL FORMULA SHOWN EFFECTIVE FOR FUNCTIONAL DYSPEPSIA AND GASTRIC SYMPTOMS, AND TO STIMULATE GHRELIN ACTIVITY, THIS FORMULA MAY BE PREPARED AS A TINCTURE OR A TEA TO TREAT IMPAIRED GASTRIC MOTILITY, AND IS FORMULATED HERE AS A COMPLEX TINCTURE.

AS *IBERIS*, OR CANDY TUFT, A BRASSICA FAMILY HERB MAY NOT BE READILY AVAILABLE, *RHAPHANUS*, SPANISH BLACK RADISH MAY BE A POSSIBLE SUBSTITUTE.



ACHILLEA MILLEFOLIUM
YARROW

- ***ACHILLEA MILLEFOLIUM*** **INDICATED FOR IBS AND LIVER CONGESTION, SKIN LESIONS, ATONY TISSUE IN COLDER CONSTITUTIONS, DUE TO A WARMING AND EVEN DIAPHORETIC EFFECT.**
- ***ACHILLEA*** **IS STRONGLY ANTIMICROBIAL, AND DUE TO FAIRLY RELIABLE HEMOSTATIC EFFECTS, IS SPECIFIC FOR BLEEDING HEMORRHOIDS, BLOOD IN THE STOOL, AND PASSIVE HEMORRHAGE ASSOCIATED WITH ATONY OF THE TISSUES.**

AESCULUS HIPPOCASTANUM

- ***AESCULUS HIPPOCASTANUM*** **IS SPECIFIC FOR ENGORGEMENT IN THE LOWER BOWEL WITH HEMORRHOIDS, BACKACHE, AND SENSE OF FULLNESS AND PRESSURE IN THE ABDOMEN.**
- ***AESCULUS*** **MAY IMPROVE POOR DIGESTION WHEN ASSOCIATED WITH VENOUS STASIS AND PORTAL CONGESTION.**
- ***AESCULUS*** **IS SPECIFIC FOR FULL SENSATION]WITH TENDERNESS IN THE RIGHT UPPER QUADRANT, A SENSE OF WEIGHT IN THE STOMACH WITH GNAWING AND ACHING PAIN, AND HEMORRHOIDS WITH STICKING, OR SHARP SHOOTING PAIN, SWELLING OF THE RECTAL MUCOUS MEMBRANES WITH PAIN AND SORENESS IN THE ANUS. DUE TO ITS SPECIFICITY FOR PORTAL AND VENOUS CONGESTION.**

ALLIUM SATIVUM

***ALLIUM SATIVUM* – MAY CORRECT INTESTINAL DYSBIOSIS, WITH ANTI-MICROBIAL EFFECTS FOR INFECTIOUS GASTROENTERITIS AND AMEOBIC DYSENTERY, AND IS A SAFE PREVENTATIVE AGENT WHEN TRAVELING OUT OF THE US.**

***ALLIUM* IS WARMING, STIMULATING HERB BEST FOR COLD DAMP CONSTITUTIONS, CATARRHAL STATES, CONSTIPATION OR SLOW PERISTALSIS.**

ALOE VERA

- ***ALOE VERA* - ALOE RIND IS INDICATED FOR CHRONIC CONSTIPATION AND THE GEL AND JUICE MAY BE USED TO SOOTHE INTESTINAL PAIN, HEAL ULCERS, AND REDUCE INFLAMMATION OF DIGESTIVE MUCOUS MEMBRANES.**
- **BECAUSE *ALOE* JUICE CONTAINS IMMUNE POLYSACCHARIDES, CONSIDER *ALOE* ALSO FOR BOWEL CANCERS AND DYSPLASTIC CHANGES.**

ARCTIUM LAPPA

- ***ARCTIUM LAPPA* –IS AN IMPORTANT ALTERATIVE HERB AND CHOLAGOGUE THAT CAN BE INCLUDED IN FORMULAS FOR INTESTINAL DYSBIOSIS, MALABSORPTION, AND DYSPEPSIA.**
- ***ARCTIUM* IS SPECIFICALLY INDICATED FOR SYSTEMIC SYMPTOMS THAT SPECIFICALLY INDICATE ITS USE INCLUDE HYPERLIPIDEMIA, ACNE AND SKIN DISORDERS, HYPERESTROGENISM, AND GENERAL MALAISE RELATED TO TOXICITY.**



ARTEMESIA SPECIES

- ***ARTEMESIA ANNUA* – SPECIFIC FOR PARASITES, MALABSORPTION AND AMEOBIC DYSTENTARY, BUT MAY ALSO HAVE STIMULATING EFFECTS ON ALL GI SECRETIONS FOR INSUFFICIENCY AND ATONY OF THE LIVER AND BILIARY SYSTEMS**
- ***ARTEMESIA VULGARIS* – A BITTER HERB SPECIFIC FOR INSUFFICIENT DIGESTIVE SECRETIONS, AND PARASITES. DUE TO POTENTIALLY TOXIC VOLATILE OILS, ONLY SMALL SHORT TERM DOSES SHOULD BE USED AND THE ESSENTIAL OIL SHOULD NEVER BE CONSUMED ORALLY.**




ANGELICA SINENSIS

ANGELICA SINENSIS- ANGELICA'S **AREA OF ACTION IS MAINLY ON BLOOD CELLS AND CYTOKINES GIVING IT "BLOOD MOVING" PROPERTIES, ANTI-ALLERGY EFFECTS, AND AN ABILITY TO ENHANCE PERFUSION TO VARIOUS ORGANS.**

ANGELICA MAY BE INCLUDED IN GASTROINTESTINAL FORMULAS WHEN FOR VASCULAR CONGESTION, PELVIC STAGNATION, MENSTRUAL CRAMPS, ALLERGIES ARE PRESENT AND CONTRIBUTORY.

ATROPA BELLADONNA

- ***ATROPA BELLADONNA*** **– BELLADONNA IS A POTENTIALLY TOXIC HERB USED IN SMALL DOSES FOR SPASTIC COLON AND MUCOUS COLITIS AS IT WILL QUICKLY REDUCE EXCESSIVE INTESTINAL SECRETIONS PERISTALSIS.**
- **BELLADONNA OILS AND OINTMENTS CAN BE PAIN RELIEVING WHEN APPLIED TOPICALLY TO HEMORRHOIDS AND RECTAL FISSURES.**

BETA VULGARIS

- *BETA VULGARIS* – BEETS AND BETAIN ARE SUPPORTIVE TO LIVER DETOXIFICATION PATHWAYS, AND CAN BE INCLUDED LIBERALLY IN THE DIET OR IN VARIOUS BEVERAGES.
- KVASS, A TRADITIONAL FERMENTED BEVERAGE PREPARED FROM BEETS, IS ALSO USEFUL AND MAY BE MADE AT HOME, OR MAY BE COMMERCIALLY AVAILABLE.

BUPLEURUM CHINENSE, FALCATUM

- *BUPLEURUM CHINENSE, FALCATUM* – IS WIDELY USED TO TREAT FEVER, HEPATITIS, JAUNDICE, NEPHRITIS, DIZZINESS.
- BUPLEURUM BAKED WITH VINEGAR IS USED TO TREAT LIVER DISEASE AND IS SPECIFIC FOR ORGANOMEGALY AND ABDOMINAL PAIN.
- *BUPLEURUM* IS OFTEN COMBINED WITH PEONY TO TREAT LIVER CONGESTION AND DISEASE IN TCM.

CEANOTHUS AMERICANUS

- *CEANOTHUS AMERICANUS* – SPECIFIC FOR LIVER CONGESTION, PELVIC AND PORTAL CONGESTION, SPLENOMEGALY, VASCULAR CONGESTION AND HYPERTENSION.
- CEANOTHUS HAS AN AFFINITY FOR THE LYMPHATIC SYSTEM, ALLEVIATING VASCULAR CONGESTION VIA ENHANCING ENTRY OF INTERSTITIAL FLUID INTO THE VASCULATURE AND ENHANCING VENOUS RETURN.




CHELIDONIUM MAJUS

- *CHELIDONIUM MAJUS* – A VALUABLE CHOLAGOGUE USED FOR PAIN OR FULLNESS IN THE RIGHT UPPER QUADRANT, PAIN THAT RADIATES TO RIGHT SHOULDER, JAUNDICE, BILIARY DISEASE, AND GALLSTONES.
- *CHELIDONIUM* TREATS NAUSEA AND PAIN DUE TO BILIARY INSUFFICIENCY.
- CHELIDONIUM IS SPECIFIC FOR A COATED FLABBY TONGUE WITH INDENTATIONS OF TEETH ON LATERAL MARGINS, AND CONSTIPATION WITH DRY HARD STOOLS.
- *CHELIDONIUM* IS ALSO SPECIFIC WHEN THE STOOL IS ABNORMAL, SUCH AS BRIGHT YELLOW, CLAY COLORED, OR LIGHT COLORED STOOLS THAT FLOAT, ALL INDICATIVE OF BILIARY INSUFFICIENCY.
- ALTHOUGH CHELIDONIUM IS ONE OF THE BEST REMEDIES FOR BILIARY AND HEPATIC CONGESTION, IT IS BEST AVOIDED IN ACUTE INFLAMMATIONS OF THE LIVER.

CHELONE

- *CHELONE* – IS AN ALTERATIVE AND CHOLAGOGUE USED FOR LIVER CONGESTION WITH JAUNDICE, DYSPEPSIA, AND TO HELP RECOVER FROM INFECTIOUS ILLNESS WHERE THE APPETITE AND DIGESTION HAVE BEEN AFFECTED.
- CHELONE IS SPECIFICALLY INDICATED FOR GI DEBILITY ACCOMPANIED BY JAUNDICE, FOR DYSPEPSIA FOLLOWING FEBRILE DISEASES AND EXHAUSTIVE ILLNESSES.




CHENOPODIUM

- *CHENOPODIUM* – A CLASSIC REMEDY FOR INTESTINAL WORMS, THE EXTREMELY BITTER VOLATILE OIL WAS GIVEN ON SUGAR CUBES, IN SYRUP, OR IN CASTOR OIL SEVERAL TIMES A DAY FOR 5 DAYS TO A WEEK.





CHIONANTHUS

- *CHIONANTHUS* – FRINGE TREE IS TRADITIONAL FOR JAUNDICE AND HEPATITIS, SPECIFICALLY INDICATED FOR LIVER PAIN AND FULLNESS, AND FROTHY OR CLAY COLORED STOOLS.
- *CHIONANTHUS* WAS HIGHLY REGARDED BY THE ECLECTIC PHYSICIANS FOR PORTAL CONGESTION AND HEPATIC ENLARGEMENT, AND ALSO RECOMMENDED FOR INFANTILE JAUNDICE.



COLLINSONIA CANADENSIS

- *COLLINSONIA CANADENSIS* – IS SPECIFIC FOR RECTAL TIGHTNESS, HEMORRHOIDS, AND A CONGESTED FEELING IN THE PERINEUM.
- THE ROOT AND WHOLE PLANT MAY IMPROVE VASCULAR CONGESTION IN THE PELVIS.
- *COLLINSONIA* IS A TRADITIONAL REMEDY FOR ALL MANNER OF RECTAL COMPLAINTS INCLUDING FISSURES, PROCTITIS, STRAINING WITH BOWEL MOVEMENTS, AND FISTULAS.



DIOSCORREA VILLOSA

***DIOSCORREA VILLOSA* – SPECIFIC FOR COLICKY PAINS IN ABDOMINAL ORGANS INCLUDING MENSTRUAL CRAMPS, POOR DIGESTION AND FLATULENCE, RUQ PAINS THAT RADIATE TO THE SHOULDER OR RIGHT NIPPLE, AND TWISTING AND BORING PAINS ABOUT THE UMBILICUS.**

EUGENIA AROMATICA

- ***EUGENIA AROMATICA* – ACTS AS A DIGESTIVE STIMULANT, PROMOTING DIGESTIVE SECRETIONS, STIMULATING APPETITE, AND STRENGTHENING PERISTALSIS.**
- **UNLIKE IRRITANT LAXATIVES, *EUGENIA* IS ALSO CARMINATIVE AND ANTIMICROBIAL, CAN RELIEVE NAUSEA AND VOMITING IN CASES OF INFECTIONS, AS WELL AS RELIEVE FLATULENCE, CRAMPING, AND DISTENSION.**

FOENICULUM VULGARE

***FOENICULUM VULGARE* – GAS AND BLOATING, PEPTIC DISTENSION CAUSING FULLNESS AND DISCOMFORT, BURPING AND CRAMPING AND GURGLING IN THE INTESTINES, COLIC IN BABIES.**

GENTIANA LUTEA

- ***GENTIANA LUTEA* –IS BEST FOR ATONIC SITUATIONS IN THE DIGESTIVE TRACT, GIVEN BEFORE MEALS TO STIMULATE THE APPETITE IN CASES OF ANOREXIA.**
- ***GENTIANA* CAN HELP RECOVER ENFEEBLED DIGESTION FOLLOWING PROLONGED ILLNESSES.**
- ***GENTIANA* IS SPECIFICALLY INDICATED WHEN FATIGUE AND MENTAL LETHARGY ACCOMPANY THE PHYSICAL SYMPTOMS.**

HYDRASTIS CANADENSIS

- *HYDRASTIS* – DIGESTIVE DISTURBANCE ASSOCIATED WITH MUCH THICK ROPY MUCOUS, MUCOUS IN DIARRHEA, ATONIC DYSPEPSIA, JAUNDICE, LIVER TENDERNESS, TRAVELER'S DIARRHEA, PULSATIONS IN THE STOMACH AND "ALL GONE" FEELING..
- MORNING NAUSEA AND VOMITING IN CHRONIC ALCOHOLICS, ANOREXIA AND GASTRIC CATARRH IN ALCOHOLISM.
- *HYDRASTIS* IS AN ANTI-MICROBIAL AND DRYING AGENT USEFUL IN CASES OF GASTRITIS, DIGESTIVE ULCERS, AND BOWEL CANCER.
- HYDRASTIS TONES AND TIGHTENS DAMP, BOGGY AND ATONIC DIGESTIVE TISSUES, USEFUL FOR INTESTINAL INFECTIONS, RECTAL PROLAPSE, ANAL FISSURES WITH STICKING PAIN IN THE RECTUM.

IRIS VERSICOLOR

- *IRIS VERSICOLOR* –STIMULATES CONGESTED LYMPHATIC TISSUES AND BODY GLANDS – LYMPH NODES, SPLEEN, LIVER, AND THYROID.
- *IRIS* INCREASES DIGESTIVE SECRETIONS USEFUL FOR DIGESTIVE INSUFFICIENCY, FAT INTOLERANCE WITH STEATORRHEA.
- *IRIS* IS SPECIFIC FOR ROUGH, GREASY SKIN, PIGMENTARY CHANGES AND A TENDENCY TO SEBACEOUS PAPULES OR PUSTULES.
- *IRIS* IS A WARMING STIMULATING HERB. USE SMALL DOSES ONLY TO GENTLY STIMULATE THE GLANDS.

MAHONIA AQUIFOLIUM

- ***MAHONIA AQUIFOLIUM*** **- IS A BROAD ACTING ALTERATIVE ANTIMICROBIAL APPROPRIATE FOR EVERYTHING FROM INFECTIOUS HEPATITIS, TO DYSBIOSIS, TO TRAVELER'S DIARRHEA AND FOOD POISONING.**
- ***MAHONIA*** **IS SPECIFIC FOR LIVER CONGESTION WITH TENDERNESS AND SLOW DIGESTION, COATED TONGUE, AND SKIN ERUPTIONS DUE TO POOR LIVER AND DIGESTIVE HEALTH, CHRONIC CATARRH, WEAKNESS AND EMACIATION FROM CHRONIC DISEASE, DIGESTIVE DERANGEMENTS, AND MALNUTRITION.**




MATRICARIA RECUTITA, CHAMOMILLA

- ***MATRICARIA RECUTITA, CHAMOMILLA*** **– IMPROVES DIGESTIVE SYMPTOMS DUE TO EMOTIONAL UPSETS, AND DYSPEPSIA WITH GAS, BLOATING, STOMACH PAIN AND PRESSURE, NAUSEA, AND BURPING.**
- ***MATRICARIA*** **IS AN EXCELLENT BASE HERB IN FORMULAS FOR IRRITABLE BOWEL SYNDROME, DIARRHEA, INTESTINAL ULCERATIONS, COLITIS, AND INTESTINAL CRAMPING, FLATULENT COLIC, GERD AND BURPING WITH BITTER OR FOUL TASTE, WORSE COFFEE.**



MENTHA PIPERITA

- ***MENTHA PIPERITA* –ONE OF OUR BEST HERBS FOR QUEASY STOMACHS AND CAN BE VERY VALUABLE IN FORMULAS FOR NAUSEA AND BLOATING, COLIC IN INFANTS, DIGESTIVE UPSET WITH A LARGE AMOUNT OF PAINFUL GAS, BURPING, RUMBLING, AND FLATULENCE.**
- ***MENTHA* CAN BE INCLUDED IN TINCTURES AND TEAS AND USED TOPICALLY AS AN ESSENTIAL OIL FOR COLIC AND DISTENSIVE OR SPASTIC PAIN IN THE STOMACH AND INTESTINES.**

MYRICA CERIFERA

- ***MYRICA CERIFERA* – SPECIFIC FOR LIVER DISEASE AND HEPATIC CONGESTION, BILIARY INSUFFICIENCY WITH NAUSEA, AND FOR ABITTER TASTE IN THE MOUTH AND HALITOSIS.**
- ***MYRICA* IS ALSO INDICATED FOR LOSS OF APPETITE, STOMACH DISCOMFORT AFTER EATING, FOR DIGESTIVE SYMPTOMS THAT ARE BETTER WITH ACIDS OR FOR A CRAVING FOR ACIDS.**
- **MYRICA IMPROVES LIVER INFLAMMATION, JAUNDICE, RUQ PAIN, CONSTANT SENSE OF FULLNESS, AND CLAY COLOR STOOL.**

PICRASMA EXCELSA

- ***PICRASMA EXCELSA* – QUASSIA BARK IS A BITTER STOMACH TONIC SAID TO COMBINE WELL WITH VINEGAR OR LEMON JUICE.**
- ***PICRASMA* IS OFTEN SEEN IN OLD FORMULAS FOR DIGESTIVE COMPLAINTS OF CHRONIC ALCOHOLICS.**






PODOPHYLLUM PELTATUM

- ***PODOPHYLLUM* –IS POTENTIALLY CAUSTIC HERB, USED IN SMALL AMOUNTS ONLY.**
- ***PODOPHYLLUM* IS SPECIFICALLY FOR CHRONIC DIGESTIVE COLIC, JAUNDICE AND LIVER DISEASE, "BILIOUS VOMITING" ENLARGEMENT OF THE LIVER, PORTAL CONGESTION AND TENDENCY TO HEMORRHOIDS, UPPER ABDOMINAL PAIN, HEARTBURN, GAGGING, RETCHING.**





QUERCUS ALBA

- *QUERCUS ALBA* – A DIGESTIVE ASTRINGENT FOR SWOLLEN ATONIC DIGESTIVE PASSAGES WITH EXCESSIVE MUCOUS DISCHARGES.
- *QUERCUS* IS HIGH IN TANNINS AND COMBINES WELL WITH MINT OR CINNAMON FOR DIARRHEA, AS WELL AS FLUID STASIS SECONDARY TO LIVER DISEASE AND ALCOHOLISM.
- *QUERCUS* IS SPECIFIC FOR PORTAL CONGESTION, HEMORRHOIDS, CHRONIC LIVER CONGESTION, INTESTINAL ATROPHY WITH MUCOUS DIARRHEA, BLOOD IN THE STOOL.

RAPHANUS NIGRA

- *RAPHANUS NIGRA* - HAS THE UNIQUE ABILITY TO RELAX BILIARY MUSCULATURE.
- RAPHANUS IMPROVE BILE FLOW IN CASES OF BILIARY COLIC, DYSPEPSIA AND CHRONIC CONSTIPATION.
- RAPHANUS IS SPECIFIC FOR LIVER AND SPLENIC PAIN, PAINFUL INCARCERATED FLATULENCE, DISTENDED, TYMPANIC HARD ABDOMEN, PERIUMBILICAL CRAMPING AND PAIN, LOOSE FROTHY PROFUSE STOOL PASSED WITH MUCH PAIN AND FLATULENCE, PUTRID ERUCTATIONS, RETCHING AND VOMITING, LOSS OF APPETITE.

RHAMNUS PURSHIANA

- ***RHAMNUS PURSHIANA*** **– AN IRRITANT LAXATIVE MOST USED FOR LOSS OF PERISTALSIS, CONSTIPATION, ATROPHY OF INTESTINAL MUSCLES. A CARMINATIVE AGENT IS REQUIRED IN FORMULAS USING *RHAMNUS* TO PREVENT THE PLANT FROM CAUSING INTESTINAL CRAMPS AND EXPLOSIVE BOWEL MOVEMENTS.**

RHEUM PALMATUM

- ***RHEUM*** **–INDICATED FOR INSUFFICIENT SECRETIONS AND SLOW OR IMPAIRED GASTRIC AND DIGESTIVE MOTILITY.**
- **RHEUM IS SPECIFIC FOR A SOUR SMELL TO BODY, DIARRHEA, FOR THE SENSATION OF HUNGER BUT EASILY BECOMING OVERFULL, FOR COLICKY PAIN ABOUT THE UMBILICUS, AND FOR SOUR SMELLING STOOL PASSED WITH CRAMPING AND STRAINING.**
- ***RHEUM*** **WAS AN IMPORTANT INGREDIENT IN FORMULAS FOR DYSPEPSIA, OFTEN REFERRED TO AS "NEUTRALIZING CORDIALS" AND COMBINED WITH CINNAMON, MINT, AND POTASSIUM BICARBONATE.**

RICINUS CASTORUS

- ***RICINUS CASTORUS*** **– CASTOR OIL IS MOST OFTEN USED TOPICALLY OVER INFLAMED AND CONGESTED ORGANS, BUT MAY BE TAKEN INTERNALLY AS A LAXATIVE.**
- **A SINGLE DOSE MAY IMPROVE CHRONIC COLICKY BOWEL MOVEMENTS WITH GRAY, STICKY, OR OTHER POOR QUALITY STOOL.**
- **COMBINE CASTOR OIL WITH PEPPERMINT ESSENTIAL OIL AND LICORICE TEA TO IMPROVE THE FLAVOR AND THIN THE THICK STICKY VISCOUS QUALITY.**




RUMEX SPECIES

- ***RUMEX CRISPUS*** **– DOCK IS INDICATED FOR HYPOCHLORHYDRIA, MALABSORPTION, CONSTIPATION, DIGESTIVE INSUFFICIENCY.** ***RUMEX*** **IS SPECIFIC FOR SKIN ERUPTIONS SECONDARY TO DIGESTIVE INSUFFICIENCY, BILIARY INSUFFICIENCY, AND POOR ELIMINATION WITH TOXICITY.**
- ***RUMEX*** **IS ALSO SPECIFIC FOR A SORE COATED TONGUE, HEARTBURN, HICCUPS, CHRONIC GASTRITIS, NAUSEA AND ANOREXIA, FLATULENCE AND ABDOMINAL PAIN, MORNING DIARRHEA, PRURITIS RELATED TO LIVER AND DIGESTIVE DISTURBANCES**



XANTHOXYLUM CLAVA-HERCULIS

- ***XANTHOXYLUM CLAVA-HERCULIS* – BARK IS A WARMING, STIMULATING REMEDY THAT BRINGS HEAT AND BLOOD TO THE STOMACH, INCREASING FUNCTION.**
- ***XANTHOXYLUM* INCREASES CIRCULATION AND SECRETIONS IN CASES OF DIGESTIVE DEBILITY AND INSUFFICIENCY, AND IS BEST IN THOSE WITH COLD CONSTITUTIONS, WEAKNESS, LETHARGY, AND POOR CIRCULATION.**
- ***XANTHOXYLUM* HAS A CARMINATIVE AND ANTISPASMODIC ACTION, AND IS A MILD APATITE STIMULANT IN CASES OF DYSPEPSIA.**




ZINGIBER OFFICINALE

- ***ZINGIBER OFFICINALE* – A WARMING, STIMULATING CARMINATIVE IN CASES OF DYSPEPSIA AND FLATULENT COLIC.**
- ***ZINGIBER* USEFUL ANTI-INFLAMMATORY IN CASES OF ALCOHOL OR IRRITANT INDUCED GASTRITIS, AND FOR DIARRHEA DUE TO ATONY OF THE BOWELS.**
- ***ZINGIBER* ALSO HAS BROAD ACTIVITY AGAINST NUMEROUS MICROBES AND IS WELL TOLERATED IN TEAS, TINCTURES, AND ENCAPSULATIONS.**




HAPPY TRAILS!