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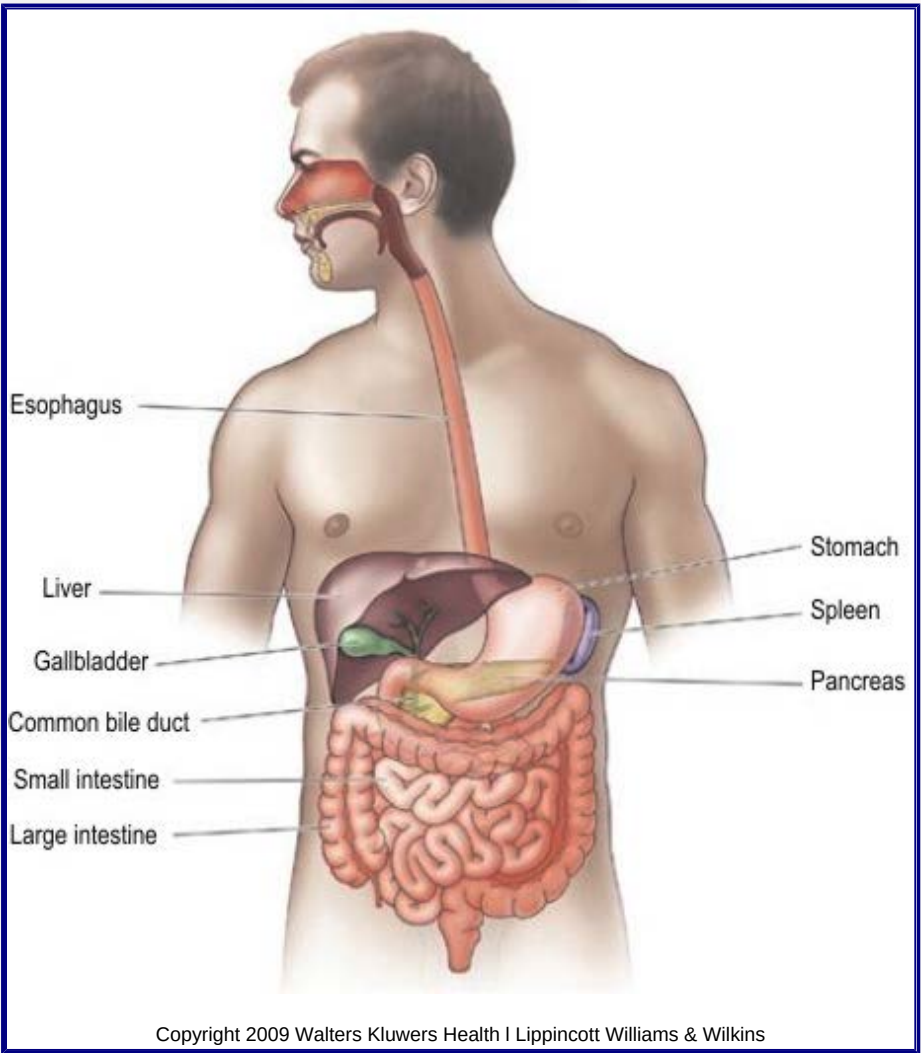
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Digestive System



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Digestive System

Easiest way to discuss structure of the Digestive System is to follow a piece of food through it.

Accessory Organs		
Liver	Gallbladder	Pancreas
Hepatocytes have great power of regeneration High blood supply: hepatic artery and portal vein Sugar storage, protein synthesis, detoxification, recycling products of dead red blood cells (RBCs) into bile	Receives bile, stores and concentrates it Releases bile into duodenum Emulsifies fats	Endocrine and exocrine Digestive juices and bicarbonate to neutralize acidic chime Capable of autodigestion if duct is blocked

Take a Bite

|
Food enters Mouth

|
then travels down Esophagus

|
then Stomach

|
then Small Intestine*

|
then Large Intestine

|
then Rectum

|
and then Anus

* Gallbladder and Pancreas secretions intro small intestine

Problems and Massage

Autonomic imbalance can cause GI discomfort; this is relieved by massage

Hard to tell whether symptoms are related to stress or more serious disease

Temporary relief from massage may delay an important diagnosis

If pain in a new pattern is present for 3 or more weeks, client should consult a primary care physician

Red lights: severe local pain, blood in stool, anemia, bloating, fever

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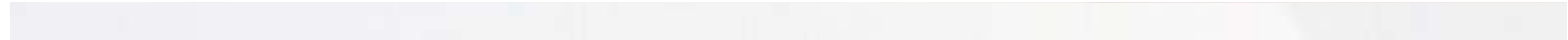
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Disorders of the Upper Gastrointestinal Tract

Celiac disease
Crohn disease
Esophageal cancer
Gastroenteritis
Gastroesophageal reflux
Peptic ulcers
Stomach cancer

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Celiac Disease

Villi are flattened, destroyed as reaction to gluten ; Also called celiac sprue, nontropical sprue, gluten-sensitive enteropathy

Etiology

Autoimmune or allergic reaction
Gluten is in wheat, rye, barley, spelt, some other grains
Normally broken down into amino acids, absorbed through villi into circulatory system
With celiac disease: breaks down to gliadin, which triggers a mild to severe inflammatory response
Villi degenerate, can't absorb anything: malabsorption, malnutrition
Occurs frequently with other autoimmune disorders: type 1 diabetes, hypothyroidism, lupus, rheumatoid arthritis
Can cause rash: dermatitis herpetiformis

Demographics

Diagnosed in 1:3,000

May be present in less severe form in 1:133

Mostly northern European
Genetic: runs in families



more Celiac Disease

Signs and Symptoms	Diagnosis	Treatment	Massage
Malabsorption GI pain, vitamin deficiency Gas, bloating, diarrhea Weight loss, failure to thrive, anemia, irritability, depression, muscle cramps Complications Anemia, folic acid deficiency, risk of neural tube defect in pregnancy Osteomalacia, osteoporosis Delayed growth, development in children Chronic inflammation raises risk of adenocarcinoma, lymphoma in small intestine	Antibodies show in blood test; biopsy of jejunum Can resemble (or occur concurrently with) Irritable bowel syndrome (IBS), peptic ulcers, intestinal parasites, Crohn disease, ulcerative colitis, gastroenteritis, chronic fatigue syndrome, depression	Avoid all gluten: villi grow back Not treating celiac disease → risk of cancer, birth defects, nerve damage	No direct impact Clients who manage celiac disease with diet have no contraindications Abdominal work within comfort level, of course

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Crohn Disease

Part of IBS with ulcerative colitis ; Disconnected patches of inflammation and damage all along the GI tract

Etiology

Usually begins at ileum, can affect upper and lower GI tract

Areas are not continuous

Affected areas are inflamed

Develop ulcers, may perforate

Scar tissue may block intestines (stenosis)

Fistulas may form

Causes

Idiopathic, multifactorial

Pathological invasion, genetic predisposition, immune system dysfunction, environmental influences, dietary triggers

Exposure to paratuberculosis may be a factor; Crohn disease is not contagious

During flare, proinflammatory cytokines are very high

Demographics

500,000 in the United States

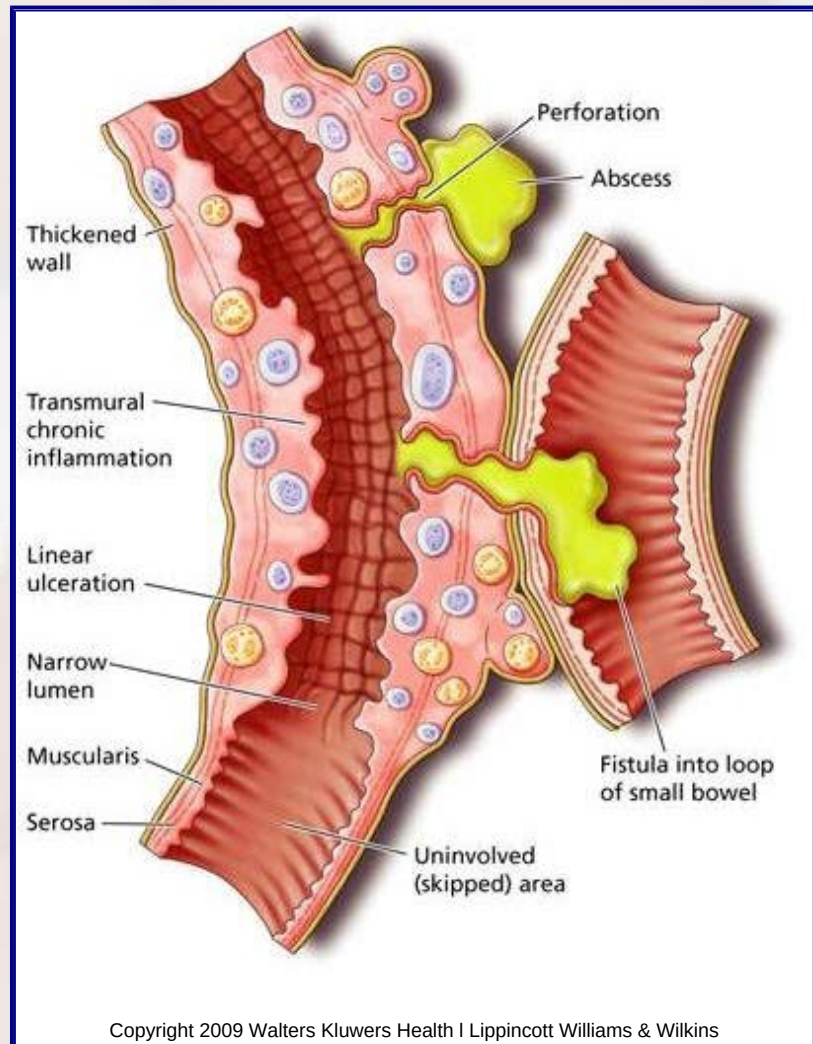
Men = women

Usually diagnosed between 15–30 or over 55 years old

Mostly in urban areas of North America, Europe

Whites > other groups 4:1

Genetic susceptibility



more Crohn Disease

Signs and Symptoms	Treatment	Massage
Flare and remission (implies autoimmunity) During flare Abdominal pain, cramping, diarrhea (may be bloody), bloating Weight loss, fever, ulcers in mouth, on skin, anal fissures Complications Malnutrition Bowel obstruction Perforation, peritonitis Adhesions Abscesses Increased risk of colorectal cancer Liver damage, jaundice, gallstones Ulcers in mouth, on lower legs	Steroids, immunosuppressant drugs Cytokine inhibitors Surgery to remove strictures (may be repeated) Dietary adjustments	Indicated for comfort, support during remission Avoid deep abdominal work; aim for parasympathetic support and improved digestion During flare: circulatory work may be too intrusive

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Esophageal Cancer

Malignant cells in esophagus ; Squamous cell carcinoma at proximal end ; Adenocarcinoma at distal end

Etiology

Malignant cells at proximal end = squamous
Related to smoking, alcohol use
Malignant cells at distal end = adenocarcinoma
Related to Barrett esophagus, gastroesophageal reflux disease (GERD)
Used to be rare; now more common than squamous cell carcinoma
Metastasis through direct contact with other organs, lymphatics, bloodstream

Risk Factors

Not controllable: age, gender, race
Controllable: tobacco, alcohol, GERD, obesity
Others: exposure to radiation at neck, toxic substances, human papillomavirus (HPV), drinking hot beverages

Demographics

Men > women 3–4:1
14,500 diagnoses/year
13,700 deaths/year

New treatment options may improve life expectancy for new cases

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more Esophageal Cancer

Signs and Symptoms	Diagnosis	Treatment	Massage
Early: no signs Later: dysphagia, pain with swallowing, hoarseness, weight loss, chronic cough	Barium swallow, positron emission tomography (PET), computed tomography (CT), ultrasound	Surgery, chemotherapy, radiation, photodynamic therapy	Respect effects of cancer and cancer treatments

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Gastroenteritis

Inflammation of the stomach or small intestine ; Related to infection, can be hard to discern causes

Etiology

Some pathogens secrete toxins that damage GI lining
Some pathogens invade healthy cells
When digestion is impaired, pathogens can become more aggressive
When GI tract is damaged:
Absorption of water, nutrients disrupted

Causes

Viruses

Norwalk virus, rotavirus, hepatitis A, B, C (not flu!)
50–70% cases in the United States
Bacteria: Salmonella, Shigella, Campylobacter, Escherichia coli: food poisoning
Helicobacter pylori (peptic ulcers)
15–20% cases in the United States

Dangerous bacterial infection: Clostridium difficile

Parasites

Giardia, cryptosporidium, and amebiasis

Others

Candidiasis, toxins, food allergies, medications, bile reflux, other diseases that can cause inflammation of the GI tract

Infectious forms are highly communicable

Oral-fecal
Contaminated water, ice

Demographics

Most dangerous for young and old
210,000 hospitalizations/year in the United States

10,000 deaths/year in the United States

Worldwide: a leading cause of mortality, especially in children

Food prepared on contaminated surfaces

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more Gastroenteritis

Signs and Symptoms	Diagnosis	Treatment	Massage
Abdominal pain, nausea, vomiting, and diarrhea Bloating, cramps, gas, mucous or blood in stool	Can be difficult to get a good diagnosis Treating with wrong medication can worsen Person can carry pathogens after infection has subsided	Usually self-limiting Antibiotics can make symptoms worse Antidiarrhea meds are discouraged Intravenous fluids if necessary Prevent through rigorous hygiene Prognosis Most resolve in 2–3 days 2–3 weeks may indicate underlying chronic disease	Contraindicated while acute Long-term situations need information on underlying disorders

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Gastroesophageal Reflux Disease

Damage to the squamous epithelial lining of the esophagus ; Chronic exposure to gastric juices from stomach ; Problems at lower esophageal sphincter (LES)

Etiology

Four problems

- LES is too relaxed
- LES doesn't allow esophagus to clear out
- Hiatal hernia
- Slow stomach emptying, back-pressure at LES

Leads to several consequences

Respiratory injury : Contents may be aspirated into lungs

Decay of tooth enamel : Acidic juices present in mouth

Ulcers : In esophagus: can bleed or become infected

Stricture : thickening in esophageal wall

Barrett esophagitis : Cells in esophagus begin to resemble stomach cells: precancerous for esophageal cancer

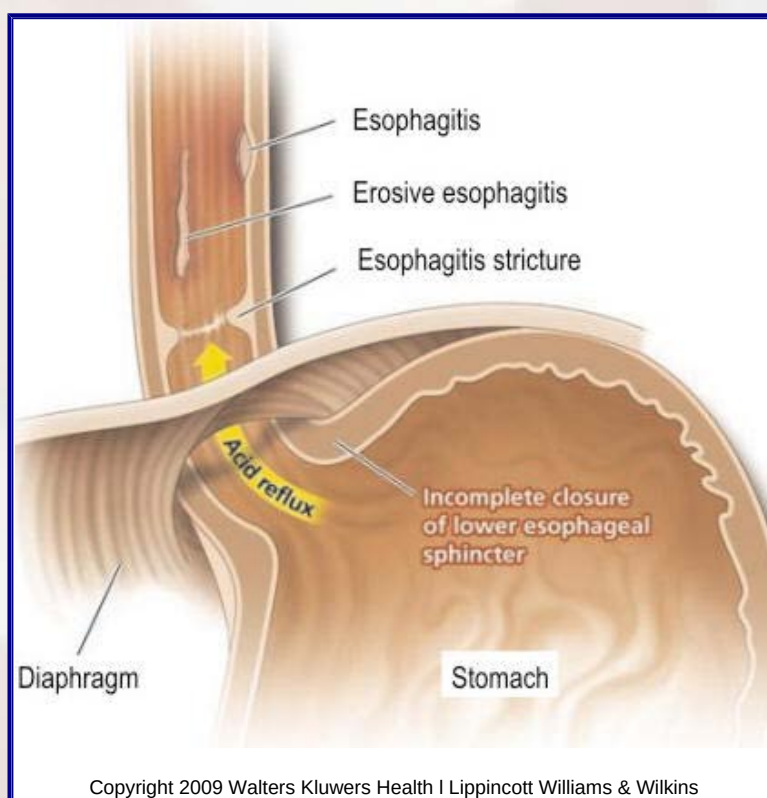
Risk Factors

- Pregnancy
- Obesity
- Smoking
- Diet
- Connective tissue diseases
- Hiatal hernia
- Delayed stomach emptying

Demographics

8–10% in the United States have heartburn every day

GERD is probably present in 40–60% of those who report heartburn symptoms most days



Other risk factors: radiation for chest tumors, infection of the esophagus, some medications

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more Gastroesophageal Reflux Disease

Signs and Symptoms	Treatment	Massage
Heartburn, indigestion, bloating, pain in chest Can look like angina, heart attack Aggravated by lying down, bending over Also: Dysphagia, coughing, wheezing, hemoptysis	Management Lose weight; smaller portions; don't lie down after meal; avoid caffeine, alcohol, nicotine; raise head of bed; wear loose clothing; heating pad on abdomen Repair Medication to block receptors that stimulate acid production, increase motility, etc. Surgery to repair LES, Barrett esophagitis, hiatal hernia	Caution not to exacerbate symptoms Shorter sessions, not lying flat?

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Peptic Ulcer

Damage to esophagus, stomach, and duodenum wall ; Open sore, invitation for infection

Etiology

Pepsin, a protein-digesting enzyme, contributes to development in esophagus, stomach, duodenum
Traditionally associated with stress, spicy food

Contributing Factors: Stress

Aggressive features (acid, pepsin)
Defensive features (blood supply, mucous lining, bicarbonate)
Frequent fluctuations in stress can allow aggressive features to outweigh defensive ones

Contributing Factors: Helicobacter pylori

H. pylori is a bacillus with spiral flagella
Can drill into stomach, duodenal wall, cause local infection

Contributing Factors: NSAIDs

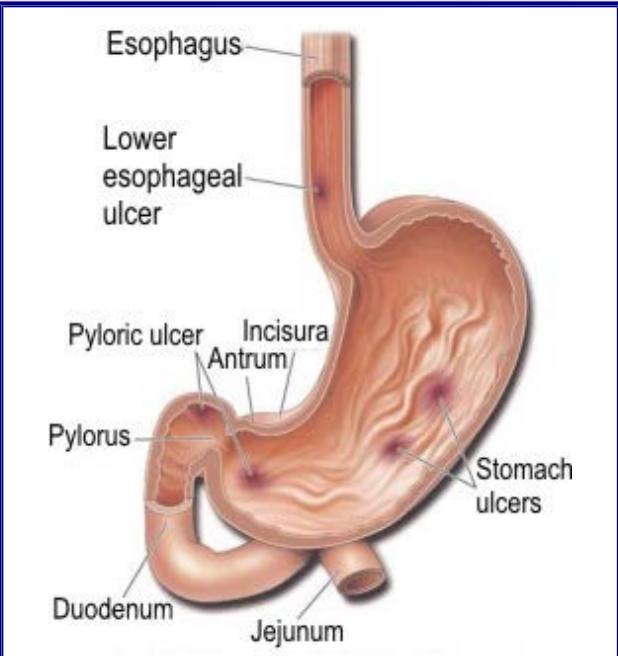
Aspirin, ibuprofen, naproxen sodium
Inhibit the cyclooxygenase-1 pathway
Impede the production of prostaglandins
Slow production of protective mucous
Acetaminophen does not affect stomach function

Other Contributing Factors

Exacerbators: smoking, alcohol consumption, Crohn disease, others

Demographics

10% of the United States population will probably have an ulcer at some point
25 million diagnosed now
630,000 hospitalizations/year
6,500 deaths/year



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bacillus with spiral flagella



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more Peptic Ulcer

Signs and Symptoms	Diagnosis	Treatment	Massage
Gnawing burning pain in chest, abdomen Relieved by antacids, eating Nausea, vomiting, loss of appetite, and bleeding into the GI tract Complications Bleeding, anemia Hemorrhage Perforation, peritonitis Scar tissue, obstruction Increased risk of stomach cancer, lymphoma	Tests for <i>H. pylori</i> Radiography, endoscopy, biopsy	Antibiotics (only for <i>H. pylori</i>) Bismuth H₂ blockers, proton pump inhibitors Surgical correction	Parasympathetic response may aggravate ulcer: adjust for duration, position

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Stomach Cancer

Development of malignant tumors in the stomach

Etiology

Most are adenocarcinoma

Probably related to diets high in pickled, salted, preserved food

Also related to *H. pylori*

Converts nitrates and nitrites into carcinogens

Anything that impedes normal production of gastric juices raises risk:

H. pylori, gastritis, stomach surgery pernicious anemia

Metastasizes through portal system to liver, or through lymph system

Adenomas = 90–95% stomach cancer

Others: non-Hodgkin lymphoma, carcinoid tumors, stromal cell tumors

Risk Factors

H. pylori infection

Diet

Tobacco and alcohol use

Other factors: previous stomach surgery, type A blood, being male, being 60–79 years old, having genes associated with breast or colorectal cancer

Demographics

Has become fairly rare in the United States

23,000 diagnoses/year

14,000 deaths/year

Most in 60s and 70s

Men > women 2:1

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more Stomach Cancer

Signs and Symptoms	Diagnosis	Treatment	Massage
Feeling of fullness with little food Abdominal pain above navel Unintentional weight loss Heartburn Nausea, vomiting Ascites Small amount of blood in stool	Seldom found before metastasis unless screened for aggressively Endoscopy, biopsy, barium wash, ultrasound, CT, MRI	Chemotherapy, radiation therapy, surgery Chemotherapy before and after surgery improves prognosis Test nearby lymph nodes for signs of metastasis	As with other cancers: respect challenges of cancer and cancer treatment

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Disorders of the Large Intestine

Colorectal cancer
Diverticular disease
Irritable bowel syndrome
Ulcerative colitis

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Colorectal Cancer

Development of tumors anywhere in the large intestine

Etiology

Begins with development of adenomas: polyps

If present for long time

Oncogenes activated

Tumor suppressor genes inactivated

Cells replicate, don't die off

Invade deeper layers off the colon, obstruct lumen, or both

Causes

Cause of polyps is unknown; 50% of older Americans have them

Triggers for mutation:

High-fat foods

Risk Factors

Obesity, sedentary lifestyle

Family history

Familial adenomatous polyposis (FAP)

Hereditary nonpolyposis colorectal cancer syndrome (HNPCC)

These account for a small percentage of diagnoses

Inflammatory bowel disease

Age

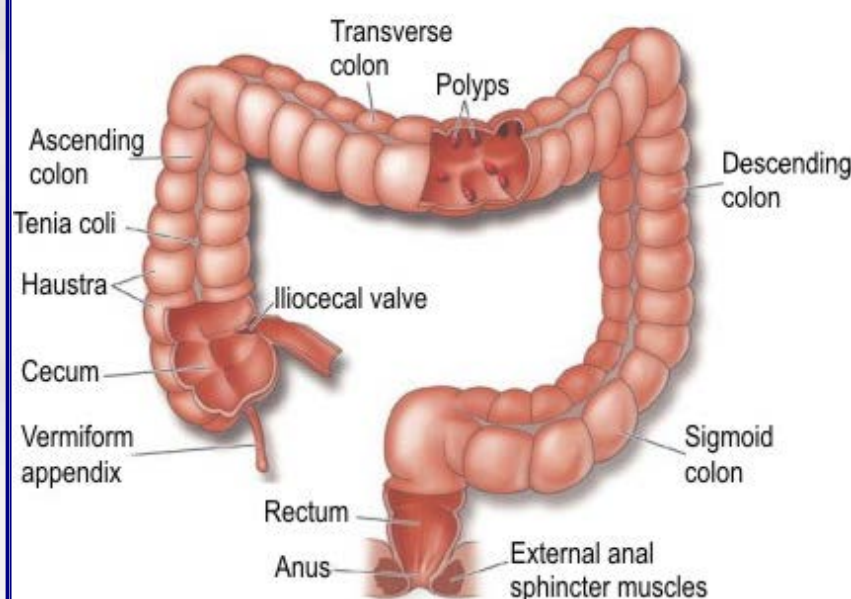
Demographics

148,000 diagnoses/year in the United States

55,000 deaths/year

Number 2 cause of death by cancer in the United States

90% of patients > 50 years old



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Deep Layers of the Colon



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more Colorectal Cancer

Signs and Symptoms	Diagnosis	Treatment	Massage
Silent early Later: anemia (bleeding tumors), constipation, narrowed stools, feeling bowel movements are incomplete, unintentional weight loss	Fecal occult blood test Sigmoidoscopy, full colonoscopy, CT	Depends on stage at diagnosis Surgery, with or without colostomy Chemotherapy, radiation if necessary Biological therapies in development Prevention 5-a-day diet Reduce fats in the diet, especially saturated fats Get calcium, magnesium, vitamin B ₆ , and folate Limit alcohol consumption Don't smoke Be physically active, maintain a healthy weight	Can be helpful within limits set by cancer and cancer treatments Colostomy bag needs adjustments

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Diverticular Disease

Bulge in colon forming diverticulum ; Diverticulosis: presence of bulges ; Diverticulitis: infection of bulges

Etiology

Multifactorial

- Inefficient motility
- Poor strength in colon wall
- Low-grade infection
- Imbalance in bacteria
- Hypersensitivity of neurons → uncoordinated contractions

Diverticula form during strong colon contraction

- Mucosa, submucosa herniated through muscularis
- May be filled with fecal material
- 20% eventually get infected

- Usually at sigmoid flexure or descending colon
- Can be anywhere in GI tract
- Range in size: kernel of corn, walnut, larger

Demographics

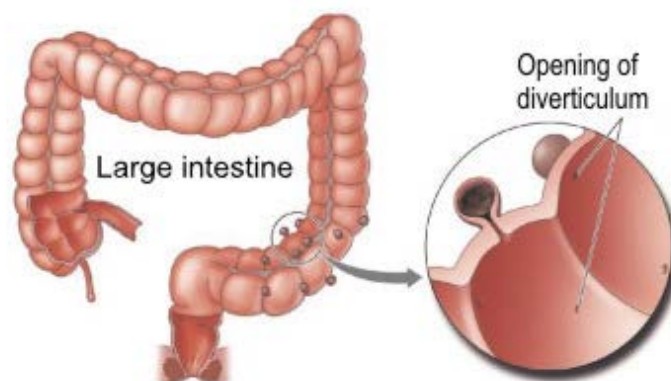
Half of 60- to 80-year-olds have diverticula

Men = women

300,000 diagnoses/year

2.5 million people have diverticular disease

Most common with eating habits with white flour, animal fats



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more Diverticular Disease

Signs and Symptoms	Treatment	Massage
May be silent With infection: fever, nausea, cramping, pain May have sudden or gradual onset Complications Bleeding Abscesses Perforation Blockage Fistulas Not associated with increased risk of colorectal cancer; can hide early signs	Prevent with high-fiber diet For diverticulosis: no treatment may be necessary For diverticulitis: antibiotics, controlled diet; surgical correction if necessary	If diagnosed, deep abdominal work is contraindicated Acute infection systemically contraindicates bodywork

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Irritable Bowel Syndrome

Digestive system dysfunction without structural changes ; Also called spastic colon, irritable colon, mucus colitis, functional bowel syndrome

Demographics

10–20% of people in the United States have symptoms at some point
Women > men 3:1

Etiology

Colon is hyperreactive: small stimuli create big responses
Peristalsis is irregular, uncoordinated
Hypersensitivity to pain, pressure in colon
Dysfunction in brain-gut axis

- Serotonin secretion/uptake problems
- Appears with chronic fatigue syndrome, fibromyalgia

Triggered by stress

Risk Factors

Women
Adolescence or early adulthood
Low birth weight, history of psychological trauma

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more Irritable Bowel Syndrome

Signs and Symptoms	Diagnosis	Treatment	Massage
Abdominal pain, cramps, bloating, constipation/diarrhea IBS-D: with diarrhea IBS-C: with constipation IBS-M or A: mixed or alternating No structural changes in colon	Rule out more threatening conditions: diverticulosis, colorectal cancer, ulcerative colitis, Crohn disease, parasites, celiac disease, food allergies, chronic infections Some patients show signs of long-term low-grade inflammation: opens new treatment options Colonoscopy can reveal lack of structural changes, inefficient peristalsis	Depends on the individual Manage diet, stress Eliminate nicotine, alcohol, caffeine, sorbitol Supplement fiber Drugs: antispasmodics, antidiarrheals, antidepressants Alternative medicine: acupuncture, peppermint, probiotics	Can be useful for stress management if well tolerated

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Ulcerative Colitis

Inflammation, ulcers in large intestine ; Part of *IBS* (with Crohn disease)

Demographics

Men = women
Most diagnoses 15–25 or 55–65
1 million people in the United States have some type of inflammatory bowel disease

Etiology

Probably autoimmune
Poor tolerance for antigens in GI tract
Usually begins in rectum, forms shallow ulcers

Chronic bloody diarrhea, risk of secondary infection

Classified by part of colon affected

Ulcerative proctitis
Left-sided colitis
Pancolitis
Fulminant colitis: full colon is inflamed and ulcerated

Most patients reach plateau; half have mild form

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more Ulcerative Colitis

Signs and Symptoms	Diagnosis	Treatment	Massage
Depends on severity, flare versus remission Flare: painful chronic diarrhea, blood and pus in stool, cramping, mild fever Other systems may be affected Hepatitis, inflammation of gallbladder/ducts, arthritis, osteoporosis, anemia, kidney stones, uveitis, rashes	Blood tests for anemia, inflammation Stool samples Scope, biopsy Important to distinguish from IBS and Crohn disease Complications High risk of colorectal cancer Toxic megacolon	Medications to reduce severity, frequency of flares Steroids, nicotine patches Surgery: 20–40% have part of bowel removed	Contraindicates local circulatory massage Deep abdominal work always contraindicated During remission gentle abdominal work may be helpful if well tolerated Any work to balance autonomic is useful

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Disorders of the Accessory Organs

- Cirrhosis
- Gallstones
- Hepatitis
- Liver Cancer
- Pancreatic Cancer
- Pancreatitis

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Cirrhosis

Replacement of healthy hepatocytes with nonfunctioning scar tissue ; Can interfere with every liver function

Etiology

Hepatocytes usually replace themselves easily, but they can lose that ability

Chronic inflammation, irritation

- Suppresses regeneration

- Stimulates production of collagen, scar tissue

Channels blocked, chemical production reduced, function lost

Hobnail liver functioning cells interspersed with scar tissue

Causes

Alcoholism; hepatitis C, B, D; autoimmune hepatitis

NAFLD: nonalcoholic fatty liver disease

- Deposition of fatty tissue in liver: obesity, type 2 diabetes, high triglycerides

NASH: nonalcoholic steatohepatitis

- Inflammation of fatty tissue in liver

Other causes: obstruction of bile duct, toxins, heart failure, some congenital diseases

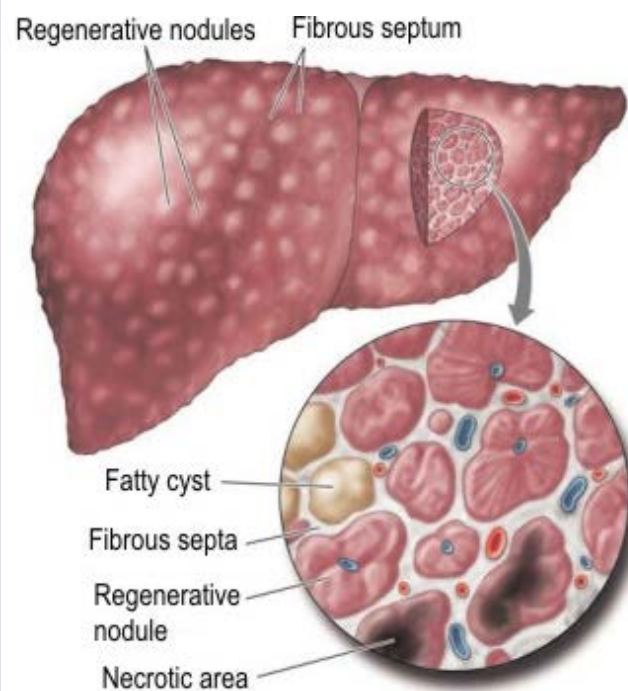
Demographics

500,000 hospitalizations/year

26,000 deaths

Estimated to shorten lifespan by 22 years

Hobnail liver functioning cells interspersed with scar tissue



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more Cirrhosis

Signs and Symptoms	Complications	Treatment	Massage
Silent or subtle early Nausea, vomiting, weight loss, rashes Later: complications listed next	Portal hypertension: liver is congested, can't accept blood from major vessels Can lead to <i>Splenomegaly (enlarged spleen)</i> <i>Ascites</i> <i>Internal varices</i> <i>Bleeding, bruising</i> <i>Osteoporosis</i> <i>Muscle wasting</i> <i>Jaundice</i> <i>Systemic edema</i> <i>Hormone disruption</i> <i>Encephalopathy</i> <i>Kidney failure, hepatorenal syndrome</i> <i>Liver failure</i> <i>Liver cancer</i>	Stop liver damage (quit drinking) Meds to counteract effects of disease, vitamins Hepatitis may be treated with interferon Colchicine, milk thistle may slow progression Liver transplant: 18,000 on list for 5,000 procedures/year Living donor is possible	Advanced disease contraindicates circulatory massage (fluid movement) Noncirculatory bodywork can be safe and helpful Work with health care team

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Gallstones

Gallbladder = cholecyst ; Stones here = cholelithiasis ;
Inflammation here = cholecystitis ; Stone lodged in
common bile duct = choledocholithiasis ; Inflammation of
ducts = cholangitis

Etiology

Bile from liver drips into gallbladder via cystic duct
Gallbladder squeezes bile into duodenum via
common bile duct

Pancreas shares a section of common bile duct

Bile emulsifies fats, made of water, bile salts,
bilirubin, cholesterol

Cholesterol and/or bilirubin can crystallize in
gallbladder

Most gallstones = cholesterol

Others= bilirubin (indicates underlying disorders)

Contributing Factors

- Obesity
- Estrogen
- Race
- Gender
- Cholesterol-lowering drugs
- Diabetes
- Rapid weight loss
- Fasting

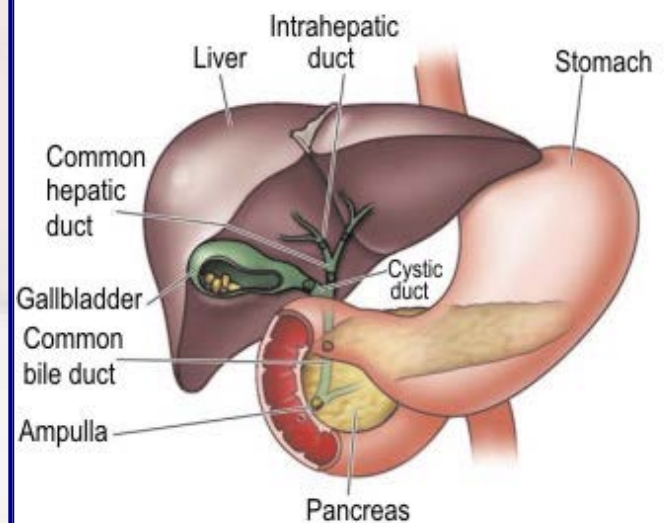
Demographics

42 million in the United States (most don't
have symptoms)

800,000 hospitalizations, 500,000
surgeries/year

Women > men 2:1

Native Americans, Mexican
Americans > other groups



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more Gallstones

Signs and Symptoms	Complications	Treatment	Massage
Symptoms develop when a stone lodges in a duct: biliary colic Extreme local pain rises to peak, then subsides as stone moves Refers pain to mid back, scapula, right shoulder	Can obstruct duct, block liver or pancreas Gallbladder infection, rupture	Surgery to remove gallbladder; usually laparoscopic Endoscopic retrograde cholangiopancreatography (ERCP): scope that may dislodge stones while sparing gallbladder	Contraindicated during attack Costal angle on right side a local caution if client knows stones are present History of stones or surgery is fine for massage

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Hepatitis

Inflamed liver ; Usually a viral infection (hepatitis A–G) ;

Demographics

Estimated 500,000–750,000 new infections/year

Etiology

Viral attacks on hepatocytes
Exposure to one type confers no protection from others
Four basic phases

Phase 1

New infection, viral replication: no symptoms

Phase 2

Prodromal stage: symptoms include food aversion, nausea, vomiting, malaise, itchy skin rashes

Phase 3

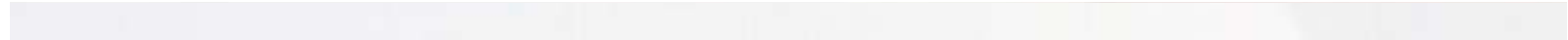
Icteric stage: yellowing skin (icterus), pale stools, dark urine, and hepatomegaly

Phase 4

Convalescence: liver heals, jaundice resolves, enzymes return to normal levels, health is restored

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Hepatitis A

Also called infectious hepatitis ; Short-term, acute, lifelong immunity

Communicability

Oral-fecal contamination
Can also be blood borne

Demographics

All age groups
90,000 infections/year in the United States
30% adults have antibodies showing exposure

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more Hepatitis A

Signs and Symptoms	Treatment	Massage
Like other varieties, but shortest duration Incubation is 2–6 weeks (contagious) May not fully recover for several months	Rest, fluids Gamma globulin shots may give short-term protection after exposure Vaccine available	Contraindicated while acute Noncirculatory work supportive during long recovery

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Hepatitis B

Long-term, subtle symptoms ; More risks of long-term damage ;
About 5% develop chronic infections: long-term carriers

Communicability

Through body fluids, not digestive system
Blood, semen, vaginal secretions
Some particles in saliva, probably not enough to impart infection
Sturdy outside a host: can be active for 1 week, occurs in high concentrations

Demographics

Anyone who comes in contact with intimate fluids

- Live or work with hepatitis B patients
- Born to mothers with hepatitis B
- Immigrants from countries with lots of hepatitis B
- Intravenous drug users

78,000 diagnoses/year (may not be accurate)
1.25 million U.S. people are long-term carriers, can spread disease
5,000-6,000 deaths/year

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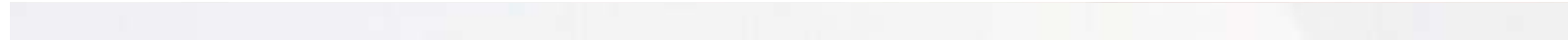
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Signs and Symptoms	Complications	Treatment	Massage
Incubates 2–6 months (communicable) Can stay in system for months, years Symptoms are subtle; chronic infection may be silent	5% develop chronic infection Can lead to varicose veins on stomach, esophagus Liver failure, cirrhosis, liver cancer	Interferon, lamivudine (only sporadically successful) Prevention Vaccine is available	Contraindicates circulatory massage while acute Chronic disease may be safe if client resilience is good Noncirculatory massage has many benefits without major risks

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Hepatitis C

Used to be called hepatitis non-A non-B ; Long-term chronic infections ; 5–25% recover spontaneously; 75–85% have lifelong infection, high risk of complications ; Alcoholism, coinfection with hepatitis B or HIV raises risk

Communicability
Shared fluids, sexual activity

Demographics
4 million U.S. people are infected

3 million as chronic infection
Main risk group = intravenous drug users: 26,000 new infections/year
Some sources say 150,000 new infections/year
10,000-20,000 deaths/year

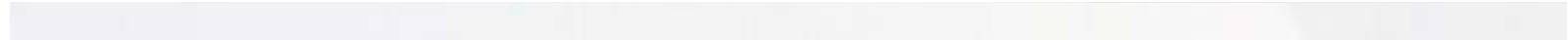


more Hepatitis C

Signs and Symptoms	Treatment	Massage
Weakness, fever, nausea, jaundice 80% have long delay (20–30 years) between exposure and onset of symptoms	Rest, fluids, good nutrition, monitor for complications No vaccine available Interferon, ribavirin Number 1 reason for liver transplant	As with other hepatitis infections, circulatory massage is contraindicated in the presence of acute disease. When the infection is chronic, judgments must be made based on the overall health and circulatory resiliency of the client.

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Other Types of Hepatitis

Hepatitis D incomplete: only works with hepatitis B ; E, F, G rare in the United States ; Can be complication of mononucleosis, reaction to meds, autoimmune disease

Massage

Same guidelines: contraindicated while acute, supportive during recovery

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Liver Cancer

Hepatocellular carcinoma (HCC): originates in liver ; (As opposed to metastatic liver disease)

Etiology

Hepatocytes replicate out of control
History of hepatitis B or C, alcoholism, cirrhosis contribute to replication
Tumors may be single or in disconnected areas

Risk Factors

Hepatitis B infection: especially if infection occurs in childhood
Hepatitis C infection: 5–10% hepatitis C patients eventually develop liver cancer
Alcoholism: cessation of alcohol use may trigger cellular mutation—healing process gone wrong
Hemachromatosis
Cirrhosis
Aflatoxin B1: from *Aspergillus flavus*, grows on peanuts and grains stored in hot, humid conditions

Demographics

Worldwide liver cancer is common and deadly
Fairly rare in the United States: 18,000 diagnoses/year, 16,000 deaths
On the rise: doubled 1980–1998 (rising hepatitis C)

Men > women 3:1
Mostly 60 years +

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more Liver Cancer

Signs and Symptoms	Diagnosis	Treatment	Massage
Tumors interfere with normal liver function Symptoms may be lost in cirrhosis, hepatitis Vague abdominal pain, unintended weight loss, food aversion, muscle wasting, ascites, fever, abdominal mass, possibly jaundice Blood test for alpha-fetoprotein (AFP) (+ in 60% of cases)	CT, ultrasound, MRI, biopsy Can be difficult to discern primary liver cancer from metastases from elsewhere	Frequent recurrence Tends to be aggressive, appear with other diseases that compromise health Surgery (problematic with other health conditions) Liver doesn't tolerate chemotherapy, radiation therapy Other options: Burn/freeze cells through laparoscopic or percutaneous instruments; inject ethanol into tumor; block blood vessels that supply tumors	Same guidelines as other cancers: stay within limits, respect challenges of cancer and cancer treatments

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Pancreatic Cancer

Uncontrolled growth of cells in pancreas ; Usually exocrine ducts, can affect hormone-producing cells ; Aggressive, metastasizes easily, number 4 cause of death by cancer in the United States

Demographics

34,000 diagnoses/year
Life expectancy after diagnosis = 4–6 months

Men >women; women are catching up

Etiology

Several mutations of genes in cells that line exocrine ducts: adenocarcinomas
In islet cells: neuroendocrine tumors
Both types grow quickly, invade tissues through direct spreading:

Duodenum, stomach, peritoneal wall
Cells in blood or lymph usually go to liver

Risk Factors

Age (most are 60–80 years old)
Gender
Race (African Americans slightly more often
Smoking
History of type 2 diabetes
Chronic pancreatitis related to alcoholism
Others

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more Pancreatic Cancer

Signs and Symptoms	Diagnosis	Treatment	Massage
Early signs are subtle: abdominal discomfort, loss of appetite, unintended weight loss If tumor obstructs the bile duct: jaundice Later: itchy rashes, GI pain, ascites, enlarged liver, spleen If cancer affects islet cells: dysregulation of blood glucose	Can be difficult to accurately diagnose and stage Most procedures carry risk of spreading cells	Resection if possible (usually not) Chemotherapy and radiation therapy to slow progress; may be able to shrink tumor for surgery	May be helpful for pain, anxiety, fear Respect challenges of cancer and cancer treatments

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Pancreatitis

Inflammation of the pancreas ; Triggered by : Gallstones, toxic exposures, blunt trauma ; Chronic pancreatitis related to long-term alcohol abuse

Demographics

80,000 diagnosed with acute pancreatitis/year

Etiology

If ducts are blocked or if cysts or abscesses develop, pancreas will autodigest

Acute pancreatitis

Sudden onset of symptoms show blockage of ducts

Alcohol use, blunt trauma, malformation, infection, gallstones, toxins, cystic fibrosis

Usually short-lived, can be severe

Cysts, abscesses, necrosis, circulatory shock, renal failure

Chronic pancreatitis

Long-term wear and tear lead to permanent damage

Usually related to alcohol abuse

May lead to pancreatic stones

Complications

Pain, malabsorption, steatorrhea, bleeding, secondary diabetes

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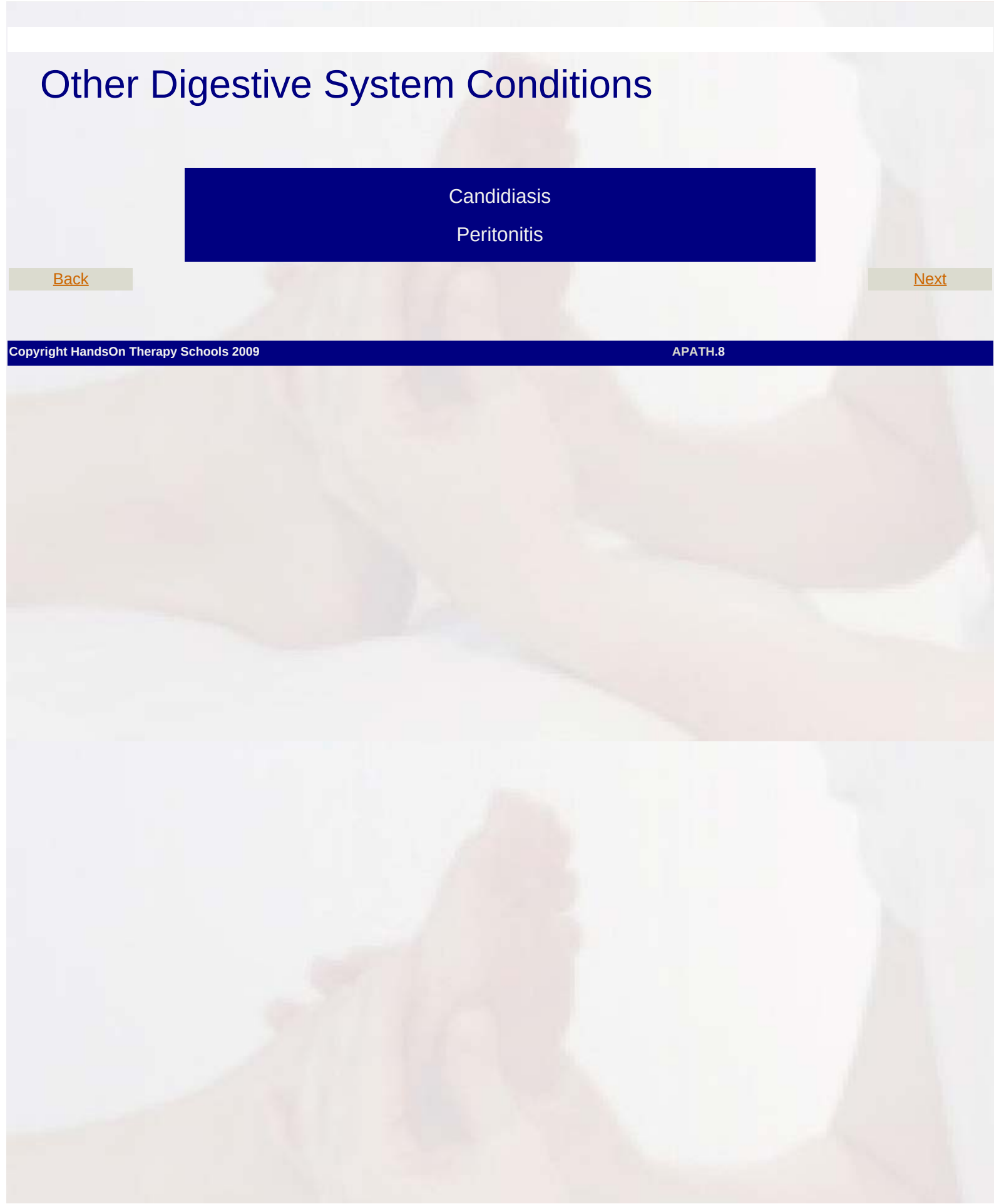
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more Pancreatitis

Signs and Symptoms	Diagnosis	Treatment	Massage
Upper abdominal pain Acute: may have sudden-onset nausea, fever, rapid pulse Chronic: pain is episodic with increasing frequency; refers to back Other: unintended weight loss, dysregulation of blood glucose, jaundice	CT, MRI, radiography, biopsy Blood tests for enzymes, other markers	Depends on cause Remove gallstones, abscesses, dead tissue, repair ducts Sever sensory neurons if necessary	Unexplained abdominal/back pain: necessitates diagnosis Avoid abdominal work; other supportive work with caution

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Other Digestive System Conditions

- Candidiasis
- Peritonitis

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Candidiasis

Candida albicans = yeastlike fungi in digestive tract; Live in balance with intestinal bacteria ; When balance is disturbed and they overgrow: [candidiasis](#)

Demographics

Hard to track, as not all agree about when overgrowth is pathological
Can look like allergies, chronic fatigue syndrome, hypothyroidism, other disorders

Etiology

Disruption in flora/fauna balance in GI tract
Candida becomes aggressive fungus, reproduces and spreads
Especially a risk for immunocompromised

Candidiasis triggers

Antibiotic use, immune system dysfunction, thymus tumor, hormonal imbalances

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more Candidiasis

Signs and Symptoms	Diagnosis	Treatment	Massage
<i>Mouth lesions</i> (thrush) <i>Esophagitis</i> <i>Anal lesions</i> <i>Intertrigo:</i> yeast infection at skin folds <i>Other skin lesions</i> <i>Vaginal infections:</i> also called vulvovaginal candidiasis (VVC) <i>Systemic symptoms (severe infection):</i> Fever and chills that do not respond to antibiotics <i>Systemic symptoms (chronic, low-grade yeast infection):</i> food and chemical sensitivities, headaches (with migraines), chronic vaginal and	Challenging; many clinicians don't recognize as a problem Skin biopsies, stool samples	Topical antifungals for skin outbreaks Internal antifungals: can take a long time to be effective	Depends on health of skin, general resilience May support effort to detoxify

urinary tract
infections,
fatigue,
reduced
resistance
to infection,
acne, many
others

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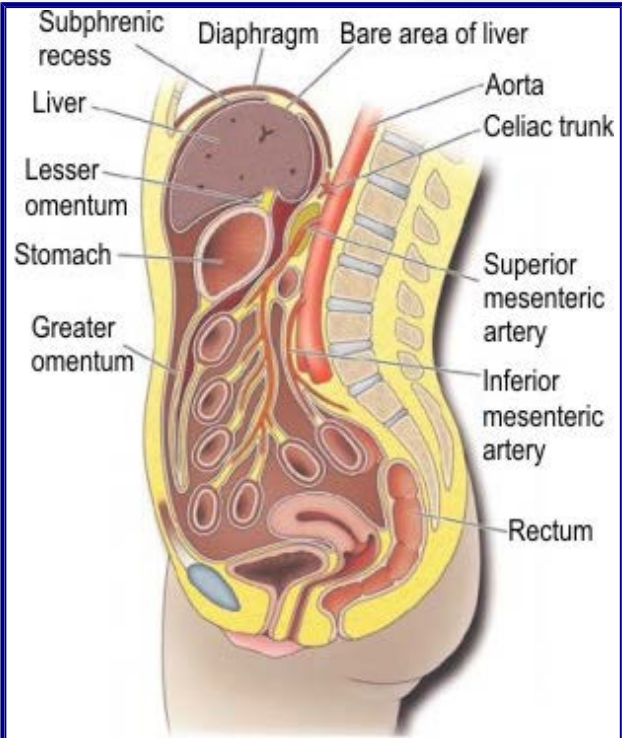
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Peritonitis

Infection in peritoneal space; Good growth medium

Etiology

- Bacteria enter peritoneum
 - Rupture of an organ
 - Pelvic or abdominal abscess
 - Mechanical perforation
 - Spontaneous peritonitis
 - Peritoneal dialysis
- Bacteria promote scar tissue: severe adhesions, cysts (hiding places for bacteria)



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more Peritonitis

Signs and Symptoms	Treatment	Massage
Vary with cause Abdominal pain, nausea, vomiting, dehydration Abdomen may swell as pain subsides: intestinal paralysis, medical emergency	Antibiotics, surgery	Any form of acute peritonitis systemically contraindicates massage until all signs of infection have passed

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