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PATOFISIOLOGI PENYAKIT 2
GANGGUAN SALURAN CERNA BAWAH
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ILMU GIZI / FAKULTAS ILMU KESEHATAN

KEMAMPUAN AKHIR YANG DIHARAPKAN

- Memahami patofisiologi gangguan saluran cerna bawah

Lower gastrointestinal tract disorders

Outline :

- Common intestinal problems
- Disease of small intestine
- Intestinal brush border enzyme deficiencies
- Inflammatory bowel disease
- Disorders of the large intestine



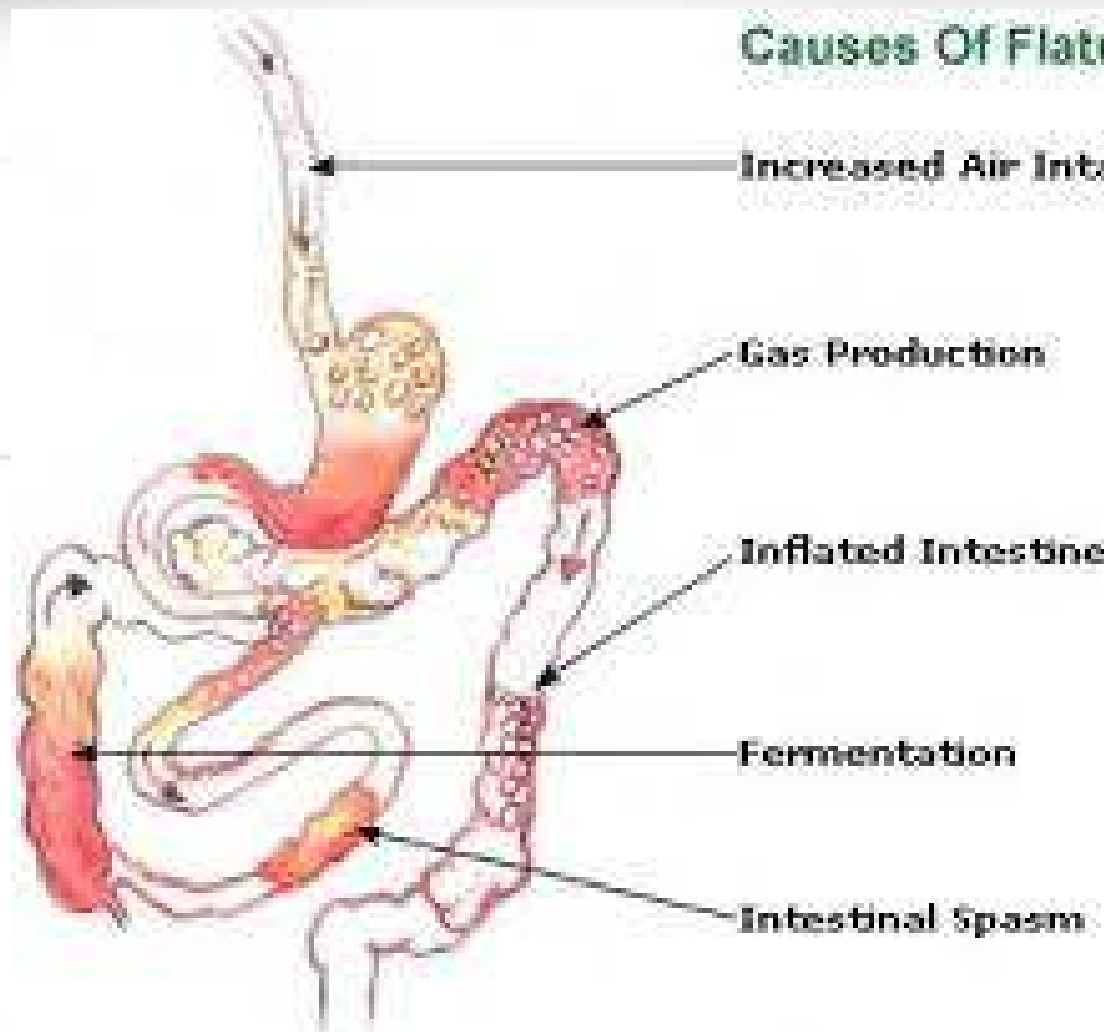
Common intestinal problems

- Intestinal gas and flatulence
- Constipation
- Diarrhea
- Steatorrhea
- Gastrointestinal obstruction

Intestinal gas & flatulence

- Intestinal gas : N₂, O₂, Co₂, H₂, & CH₄
- Normal : 200 mL gas present in GI tract, 700 mL excrete each day
- Intestinal gas human swallow and produced within GI tract, expelled through lung & belching
- Flatulence : excessive collection & passage of gas from GI tract
- Flatus : gas expelled through anus
- Symptom : excessive gas, refer to high vol of flatulence, cramping pain

Causes Of Flatulence



Intestinal gas

- The symptom related to : inactivity, decrease GI motility, aerophagia, dietary component, GI disorder
- Aerophagia can be avoided by : eating slowly, chewing with the mouth closed
- Refraining from drinking through straw
- ↑ gas production due to bacterial fermentation, → dietary fermentation

Intestinal Gas : medical therapy

- Problem : ↑ gas production n difficult to pass
- Inactivity, dysmotility GI tract → exercise may help
- Primary dietary management: ↓ carbohydrate that likely to malabsorbed & fermented.
Legume produce flatus due to fiber, stachyose (susu dan kacang-kacangan), and raffinose (kacang-kacangan, kol, brokoli dll)

Constipation

- Definition:
- A condition in which the frequency & quantity of stools is reduced
- Highly subjective, such as hard stool, infrequent bowel movement
- Hard stool incomplete evacuation & difficulty passing stool
→ more in geriatric

Normal human :

- stool weight 100-200 g/d
- Freq 1x/3d -3x/d
- Transit time 18-48 h
- RDA 14 g fiber to have larger n softer stools → easy to pass

Constipation: causes

- Chronic use of laxative
- Metabolic abnormalities : hypercalcemia
- Lack of exercise
- Ignoring the urge of defecation
- Vasculer disease of large bowel
- Neuromuscular disease
- Poor diet, lack fluid, low fiber
- Pregnancy
- Cancer
- hemorrhoid



Constipation : medical nutrition therapy

- Adult

Ensure adequate dietary fiber, fluid, & exercise, heed to urge of defecation

- Infant & children

Initial treatment : laxative & lubricant, next focus : fiber intake

Diarrhea: Pathophysiology

Characterized by frequent evacuation of liquid stools (> 300 mL) accompanied by an excessive loss of fluid & electrolytes (Na& K)

Occurs when :

1. ↓ enzymatic digestion of foodstuffs
2. ↓ absorption of fluid & nutrients
3. ↑secretion of fluids into GI tract

Causes : related to inflammatory disease, infection (bacterial, fungal, medication, over sugar consumption)

Steatorrhea : pathophysiology

- = excessive fat in the stool is a consequence of disease. Surgical resection of organ involved in digestion & mal absorption in lipid
- May result from :
 1. Inadequate bile secretion secondary to liver disease or biliary obstruction
 2. Blind loop syndrome (bacterial overgrowth from stasis of the intestinal tract)
 3. Pancreatic insufficiency
 4. Inadequate reabsorption of bile salt due to disease involving the distal ileum
 5. Decreased fat reesterification, formation & transport of chylomicrons

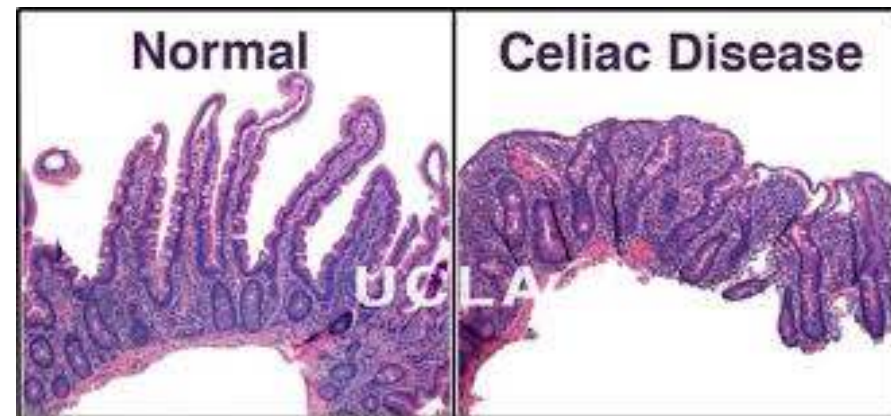
Steatorrhea : MCT oil

- 8-10 carbons long
- Bile not needed for absorption
- Delivered to liver via blood
- Incorporated into food (salad dressing, sandwich spread or confection)
- 8.3 kcal/g;
- Expensive
- Increase osmolality of tube feeding

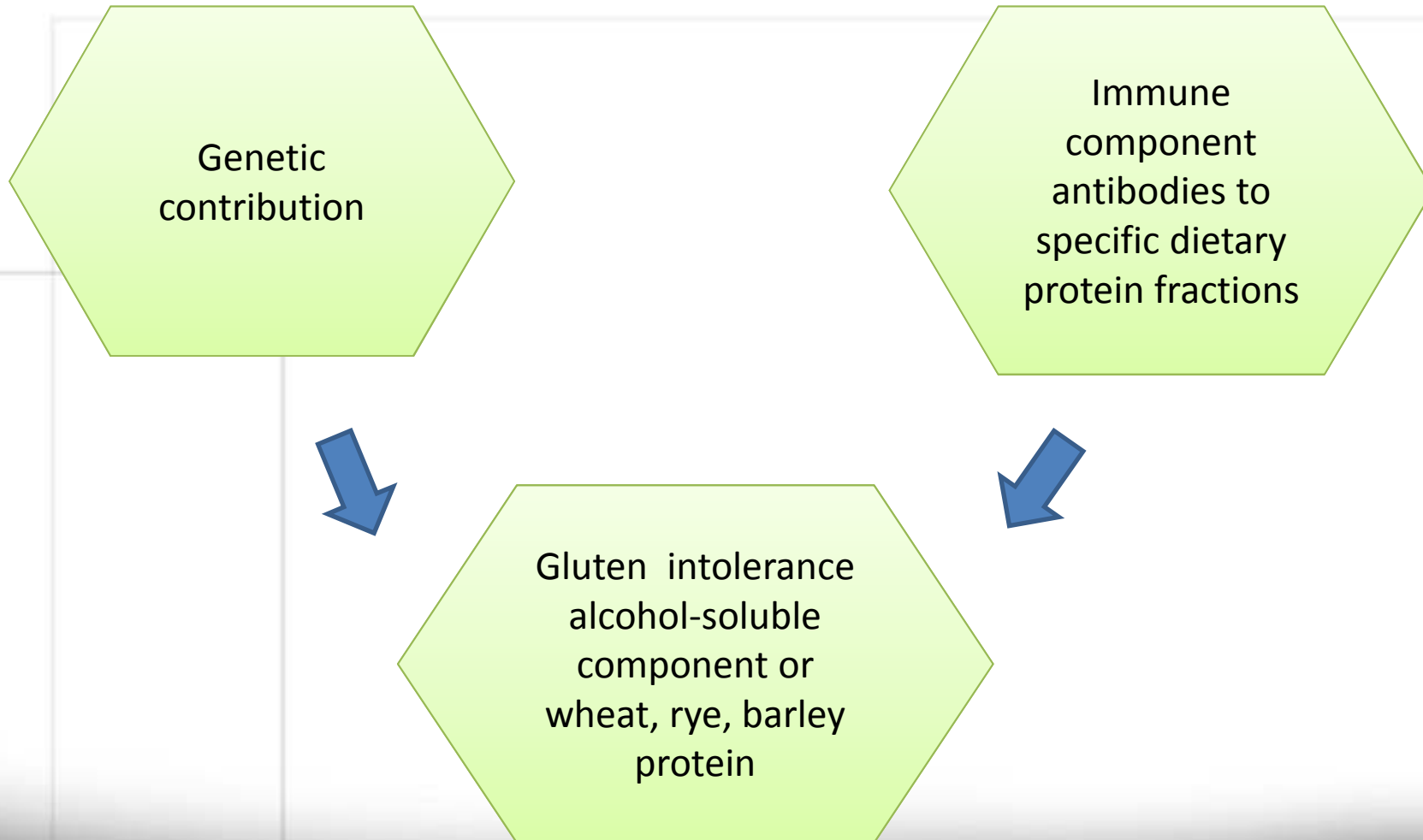


Celiac Disease : gluten-sensitive enteropathy

- Adverse reaction to gluten-gliadin fraction
- Intestinal mucosa damaged
 - Malabsorption of nutrients
 - Iron deficiency
 - Osteomalacia
 - Growth failure
 - Projectile vomiting



Celiac Disease : cause



Celiac disease: pathophysiology

Damage to small bowel

- Atrophy and flattening of vili for absorption
- Cellular deficiency of disaccharidases and peptidases

Extraintestinal effects

- Anemia
- Bone losses
- Muscle weakness
- Peripheral neuropathy
- Endocrine disorders
- Folicular hyperkeratosis

Celiac disease: medical nutritional management

Medical management

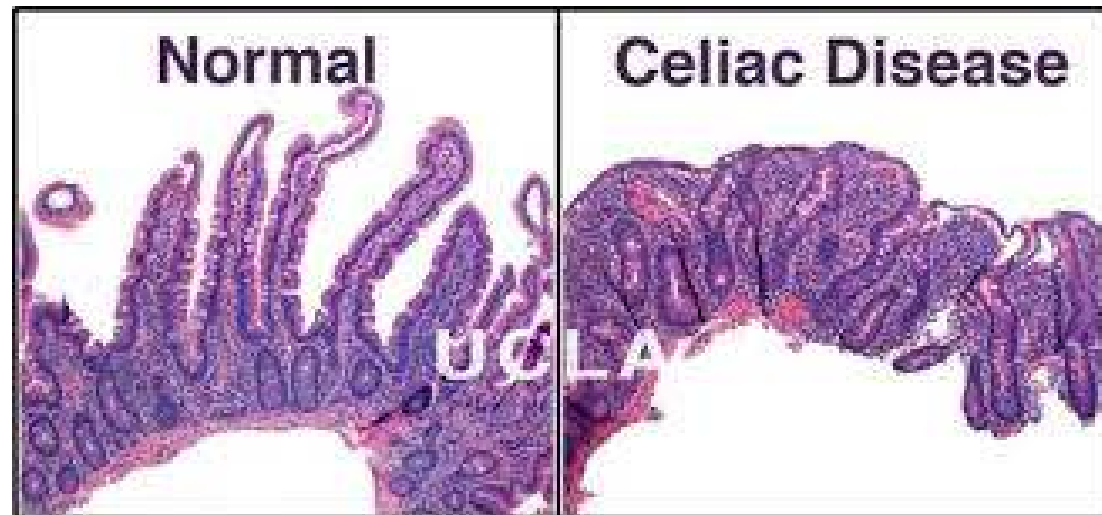
- Electrolyte and fluid replacement
- Vitamin and mineral supplementation
- Calcium and vitamin administration

Nutritional management

- Delete gluten source : wheat, rye, barley from diet
- Substitute with corn , potato, rice, soybean, tapioca.
- Read food lable carefully for hidden gluten containing ingredients

Celiac disease: tropical sprue

- Cause unknown: immitates celiac disease
- Result in atrophy and inflammation of vili

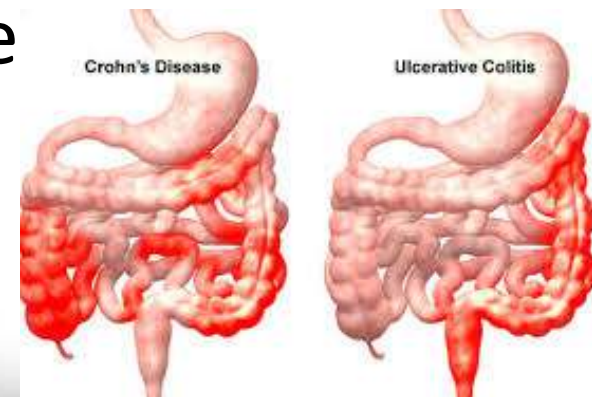


Intestinal brush border enzyme deficiencies: Lactose intolerance

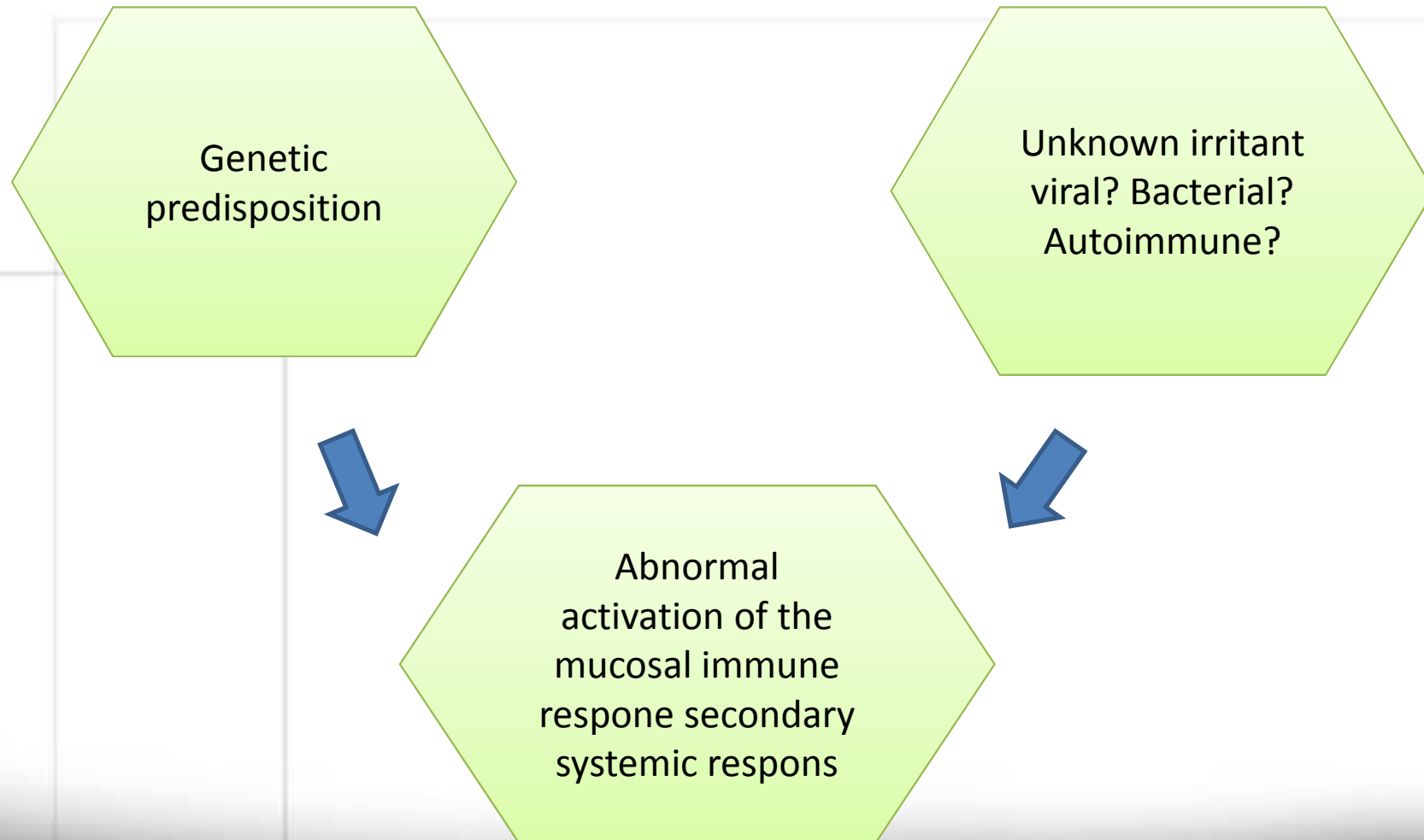
- Causes: genetic or secondary deficiency of milk sugar enzyme, lactase
 - Blacks, asians, native americans
 - Aging: damaging to GI tract
- Diagnose: lactose tolerance test or breath hydrogen test
- Therapy: avoid large amounts of lactose
- (milk protein allergy requires milk free diet); take lactase enzyme; processed dairy sometimes OK

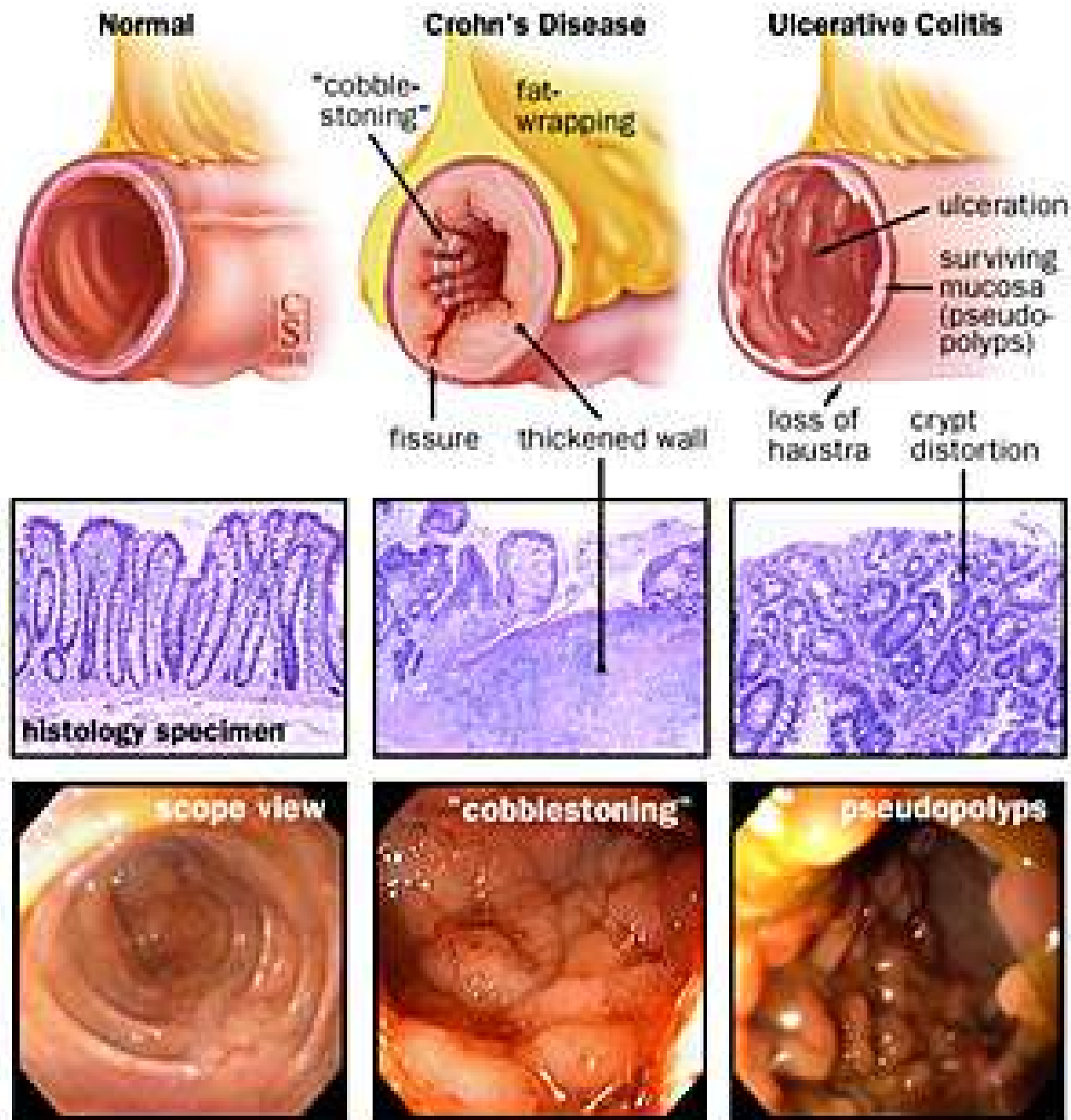
Inflammatory bowel disease: Chron's disease or ulcerative colitis

- Both involve damage to the intestine
- Chron's: may damage either small or large intestine
 - Disease progression varies
- Ulcerative colitis: begins at rectum and progresses up the large intestine



Inflammatory bowel disease





Inflammatory bowel disease: patophysiology

Damage to the cells of the small and/or large intestine with malabsorption, ulceration, or stricture

Diarrhea, weight loss, poor growth

Inflammatory bowel disease: Medical-Nutrition Management

Medical management

- Corticosteroids, antinflammatory agents
- Immunosuppressant
- Antibiotics
- Anticytokine medications

Nutritional management

- Oral enteral formula
- Used of food that are well tolerated
- Parenteral nutrition in patients with severe disease

Inflammatory bowel disease: Therapy

- Diet depends on patient's status
- Nutrition assessment
- Select route of feeding
- Fiber is beneficial except during flareups

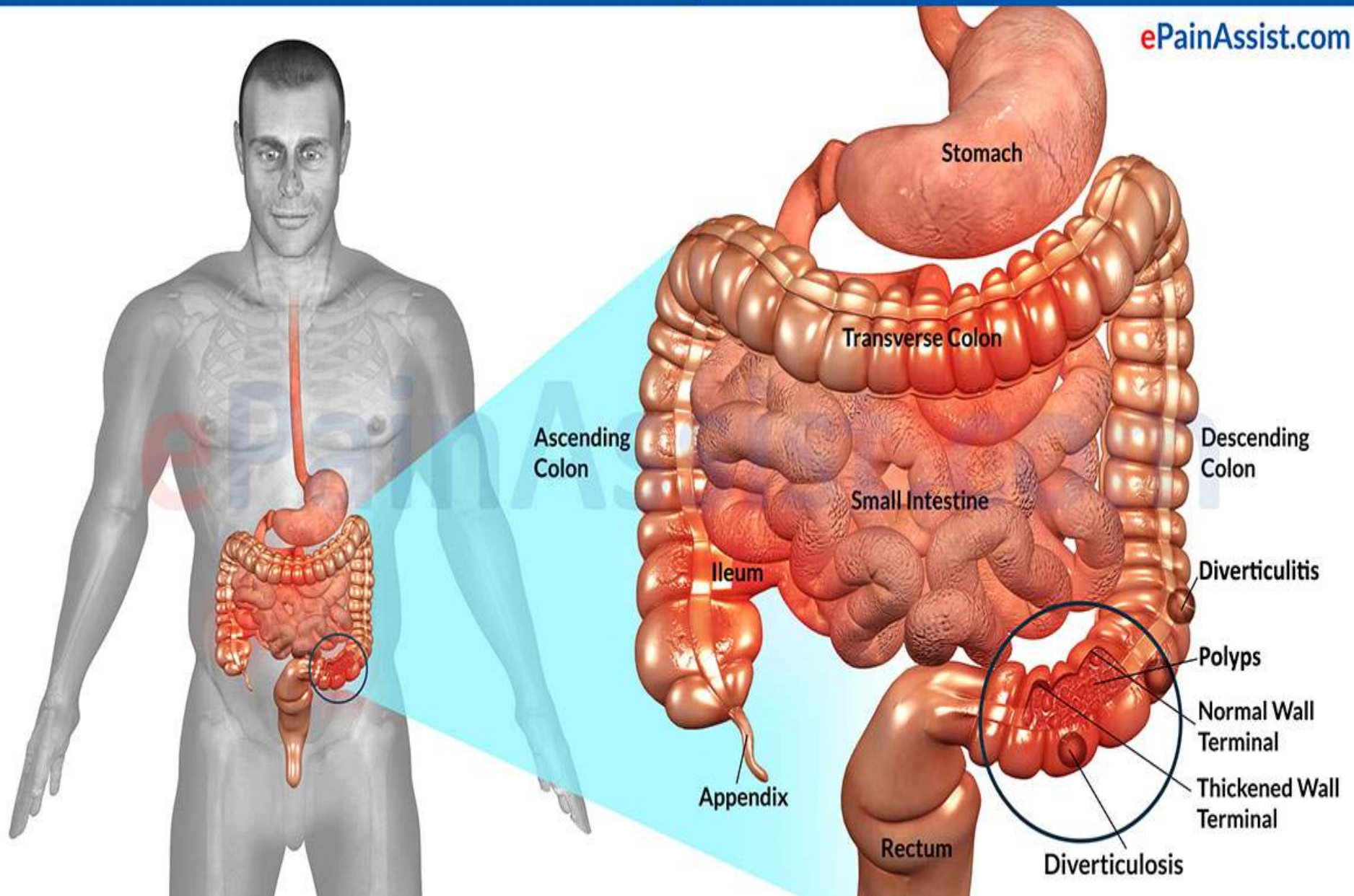
DISORDER OF LARGE INTESTINE:

Irritable bowel syndrome

- Common syndrome involving altered intestinal motility, increased sensitivity of the GI tract, and increased awareness and responsiveness of the viscera to internal and external stimuli
- Alternating constipation and diarrhea, abdominal pain, and bloating

Irritable Bowel Syndrome

ePainAssist.com

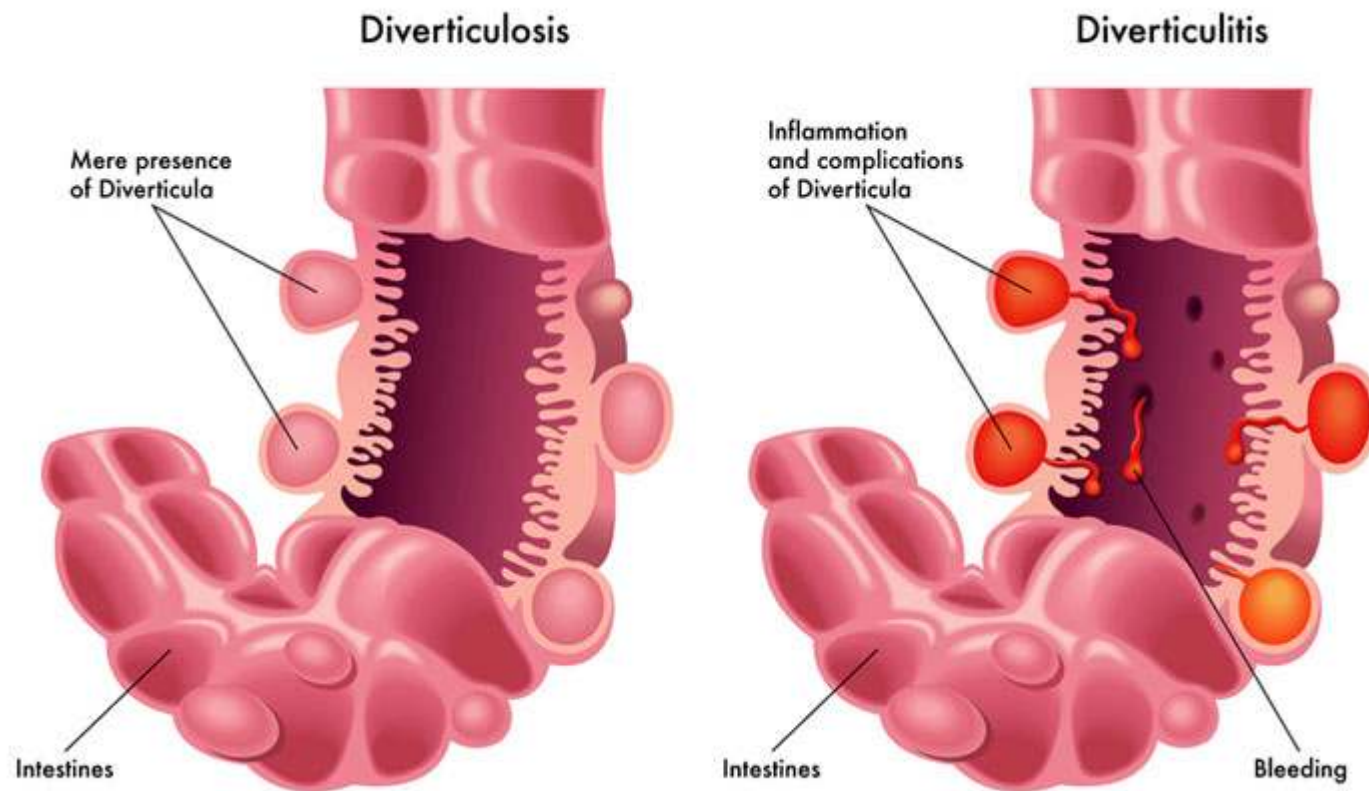


DISORDER OF LARGE INTESTINE:

Diverticular disease

- Herniations of the colon, chronic diverticulosis, acute diverticulitis
- Diverticulosis
 - High fiber diet: fruit, vegetables, whole grains (1 tsp bran daily)
- Diverticulitis
 - Low-residue or elemental diet
 - Possibly low-fat diet

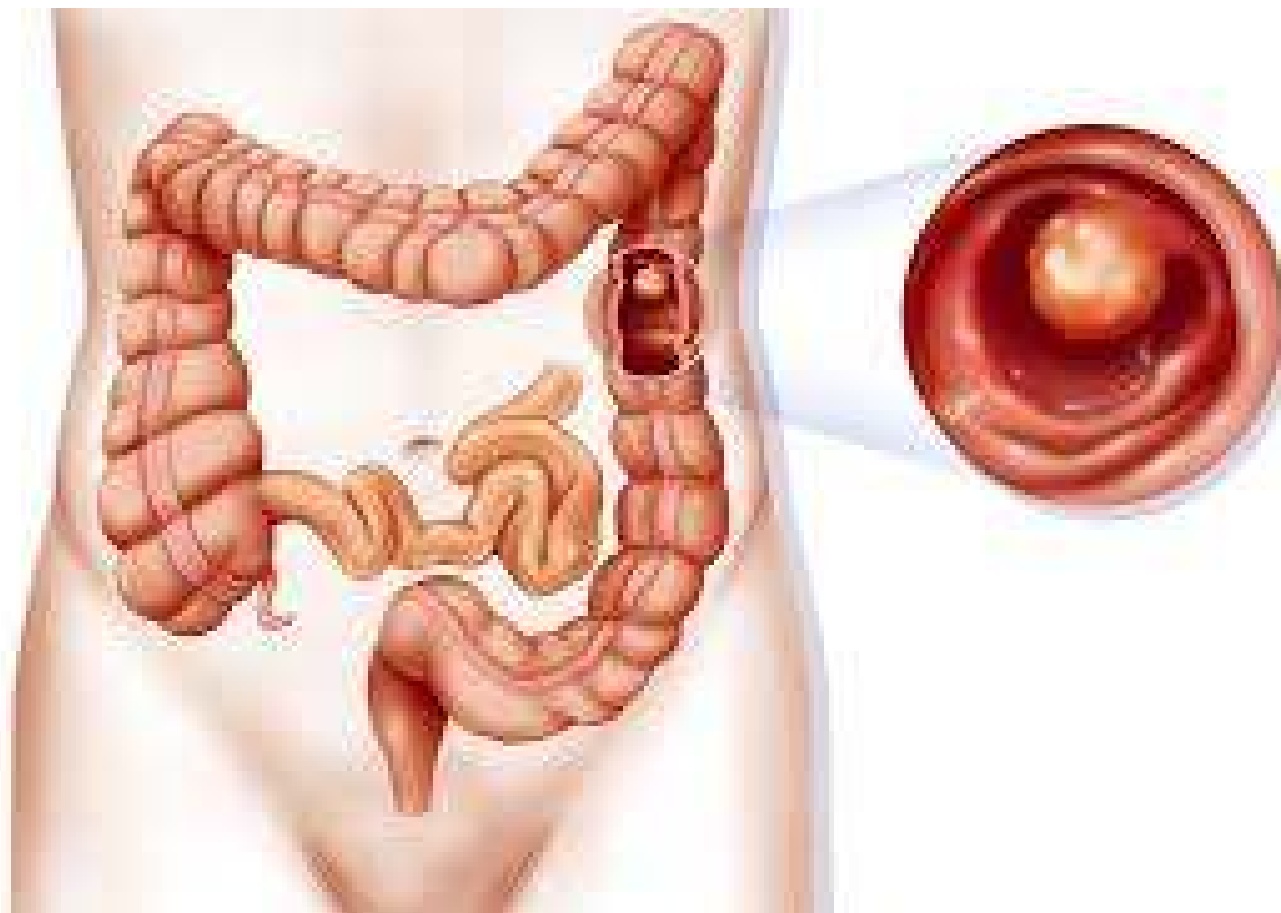
Diverticulitis



DISORDER OF LARGE INTESTINE: Colon cancer and polyps

- Colon cancer is the second most common cancer among US adults
- Polyps are considered precursors of colon cancer

Polyps





DIARE

TERIMA KASIH

10 Causes Of Constipation



Not Eating Enough Fiber



Not Drinking Enough Water



Out Of Balance Gut Bacteria



Certain Medications



Too Much Supplemental Calcium or Iron



Eating Too Much Dairy



Eating Too Much Sugar or Unhealthy Fats



Depression



Lack of Physical Activity



Laxative Abuse

GUT HEALTH