

DPR: History and Physical Exam of the Gastrointestinal System Part I

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Do.
Make.
Heal.
Innovate.
Reinvent the Future.

Session Objectives

- Identify and describe the components of a history for a common gastrointestinal complaint.
- Describe the components and sequence of the abdominal physical exam.
- Isolate and describe normal abdominal exam findings.
- Define, describe, and identify the different types of bowel sounds and their clinical significance
- Correlate abdominal exam findings with likely etiologies

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Case Presentation

- 44-year-old female with complaint of constipation which has been worsening over the past 3 to 4 months.
- What questions should you ask this patient?
- Any questions pertaining to osteopathic principles and practice?
- During your history taking consider the patient's discomfort in reporting certain complaints

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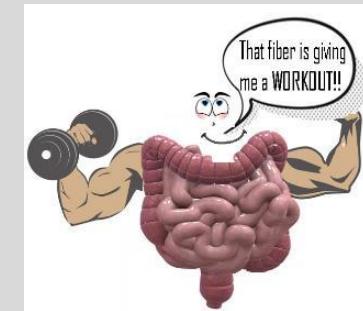


Definitions - Constipation

- Physicians:
 - Fewer than 3 bowel movements per week
- Patients:
 - Hard stools
 - Feeling of incomplete evacuation
 - Excessive straining
 - Sense of anorectal blockage during defecation
 - Need for manual maneuvers to defecate

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Source: American Gastroenterological Association Medical Position Statement on Constipation.
Gastroenterology 2013; 144:211-217



Constipation - HPI

HPI Components	What should you ask patient?
Onset	When did it start? Older patient new-onset → cancer
Palliation/ Provocation	What makes it better/worse, What have they tried?
Quality	Lumpy or hard stools, incomplete evacuation, excessive straining. Which of these is most distressing to the patient?
Severity	Frequency, intervals between bowel movements Prolonged straining, digital evacuation → Pelvic floor dysfunction Need laxative to produce loose stools, how often and what dosage Sensation of incomplete evacuation
Timing	Constant, intermittently occurring How many bowel movements per week?

Source: Jonathan Gotfried, et al. Constipation. Merck Manual Professional, Updated April 2025
<https://www.merckmanuals.com/professional/gastrointestinal-disorders/symptoms-of-gastrointestinal-disorders/constipation?query=constipation>

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Constipation - HPI

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HPI Components	What should you ask patient?
Associated symptoms	Fever, nausea, abdominal pain Alternates with diarrhea → Irritable bowel syndrome Paradoxical diarrhea in elderly → fecal impaction Bloating and cramping → Irritable bowel syndrome Hematochezia → Colon cancer, diverticulosis, inflammatory bowel disease Weight loss \geq 10 lbs → colon cancer
Other	Pain on DRE → Anal fissure, hemorrhoids Leakage of stool on DRE → Fecal impaction, rectal prolapse Medications → opioids, calcium channel blockers, iron supplements PMHX: Parkinson's, hypothyroidism, dementia

Source: Jonathan Gotfried, et al. Constipation. Merck Manual Professional, Updated April 2025
<https://www.merckmanuals.com/professional/gastrointestinal-disorders/symptoms-of-gastrointestinal-disorders/constipation?query=constipation>



Other Causes of Constipation

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- Reduced physical activity
- Immobility
- Post- surgical
- Endocrine and metabolic disorders
- Medications
- Low fiber diet
- Dehydration
- Electrolyte disturbances
- Fecal impaction
- Intestinal obstruction



Source: K.Sadler, F.Arnold, Spencer D. Chronic Constipation in Adults. American Family Physician, 2022;106(3):299-306

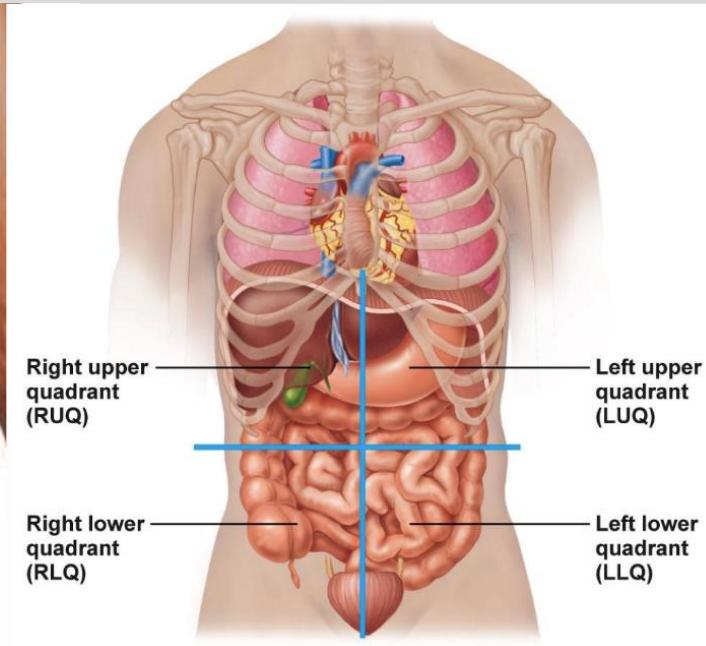
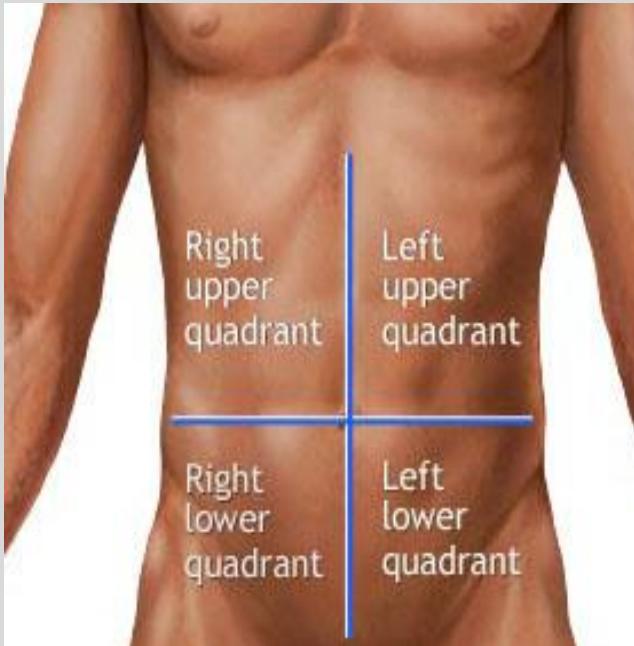


Anatomy



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Source: Bates' Guide to the Physical Examination and History Taking; 13th Ed. – Chapter 19

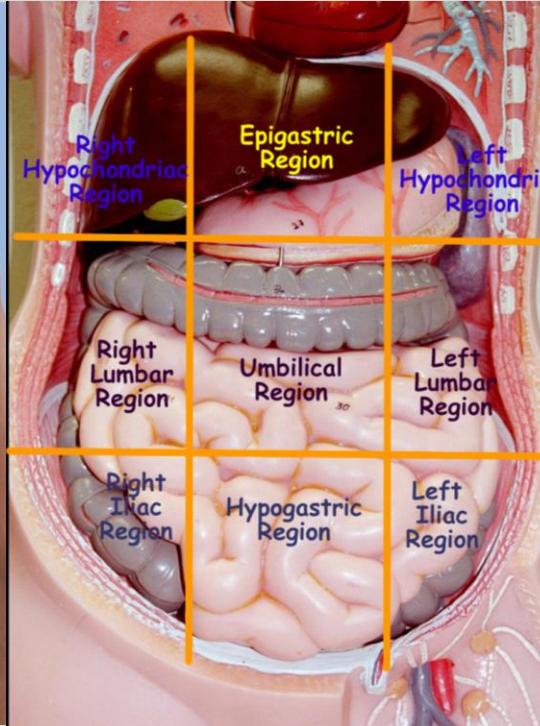
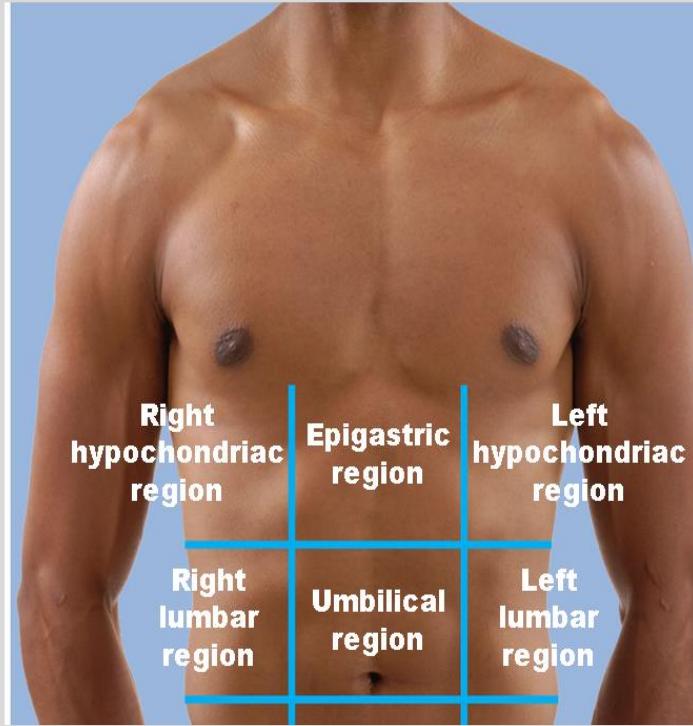


Abdominal Quadrant	Contents
Right Upper Quadrant (RUQ)	Liver, gallbladder, duodenum, pylorus, right kidney, hepatic flexure, ascending colon, transverse colon, lower right lung
Left Upper Quadrant (LUQ)	Tip of the medial liver lobe, spleen, stomach, left kidney, pancreas, splenic flexure, transverse colon, descending colons, left lower lung
Right Lower Quadrant (RLQ)	Appendix, cecum, ascending colon, bladder, right ovary, uterus, right spermatic cord, right ureter, small bowel
Left Lower Quadrant (LLQ)	Sigmoid colon, descending colon, bladder, left ovary, uterus, left spermatic cord, left ureter, small bowel



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Abdominal Region	Contents
Right hypochondriac region	Liver, gallbladder, ascending colon, transverse colon, small intestine, hepatic flexure, right kidney
Epigastric region	Esophagus, stomach, liver, pancreas, spleen, small intestine, transverse colon, right and left (kidneys, adrenal, ureters)
Left hypochondriac region	Stomach, liver (tip), tail of pancreas, small intestine, transverse colon, descending colon, splenic flexure, left kidney, spleen
Right lumbar region	Liver (tip), gallbladder, small intestine, ascending colon, right kidney
Umbilical region	Stomach, pancreas, small intestine, transverse colon, right and left (kidneys, adrenal, ureters)

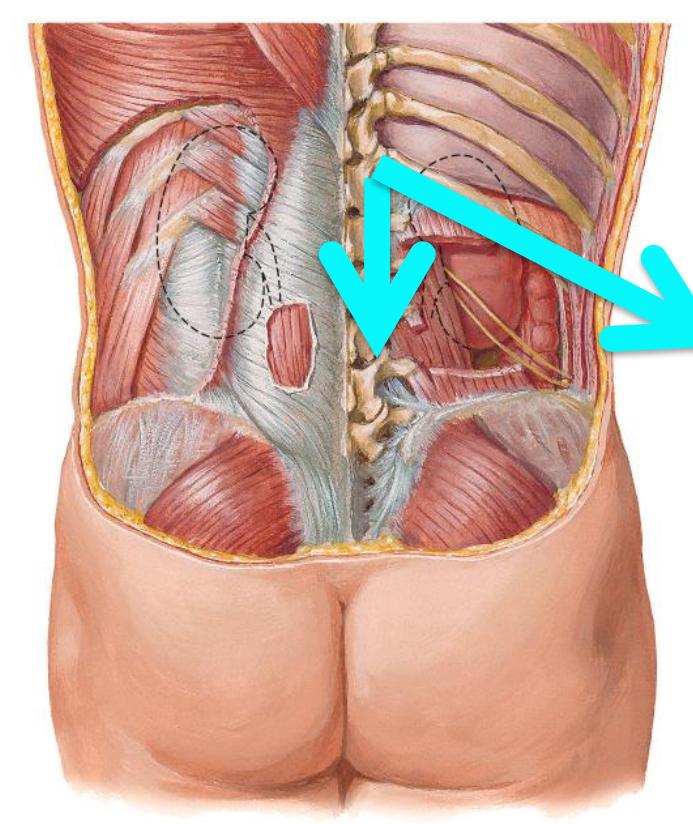


Abdominal Region	Contents
Left lumbar region	Small intestine, descending colon, left kidney (tip)
Right iliac region	Small intestine, appendix, cecum, ascending colon, right ovary and fallopian tube
Hypogastric region	Small intestine, sigmoid colon, rectum, right and left ovaries, right and left ureters, urinary bladder, uterus, right and left (ovaries and fallopian tubes), vas deferens, seminal vesicles, prostate
Left iliac region	Small intestine, descending colon, sigmoid colon, left ovary and fallopian tube



Angle formed by :

- Lower border of 12th rib
- And transverse processes of the upper lumbar vertebrae



Defines region
to assess for
kidney
tenderness



Examination Techniques



1st - Inspect



2nd - Auscultate



3rd - Percuss



4th - Palpate



Abdominal Exam - Preparation

- Good Light
- Warm Room, hands, instruments
- Relaxed Patient:
 - Pillow or folded sheets under head and knees.
 - Patients arms at his/her sides
- Exposure – position drapes appropriately
- Empty Bladder
- Examine Area of Pain **Last**

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Inspection



Inspect the Abdomen

- With the patient lying supine, the abdomen should be:
 - Completely exposed
 - Revealing all 4 quadrants
- Tell your patient that you are inspecting their abdomen.

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Inspect Abdominal Wall

- Contour
 - Symmetry, Masses
- Skin
 - Scars, striae
 - Dilated Veins, Discoloration
 - Rash or lesions
- Umbilicus
- Motion
- Pulsations

Remember
to observe
from the
right side!



Inspect Abdominal Wall Contour



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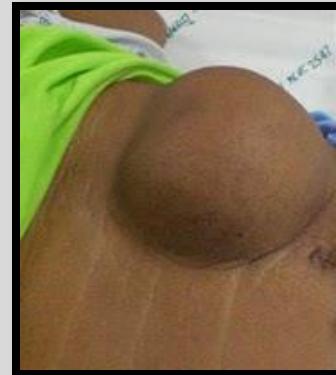
- Distention
 - Generalized
 - Localized
- Protuberant
- Scaphoid
- Flat



Inspect Abdomen for Masses

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- Masses
 - Inspect from several angles
- Distinguish between:
 - Abdominal wall mass
 - Intra-abdominal mass



Inspect Abdomen for Scars

- Describe or diagram
- Include in the description:
 - Location
 - Size & Shape
 - Type (surgical/injury)
 - Healing stage
- Correlate with patient's history

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Inspect Abdomen for Striae

- Related to rupture of reticular dermis with rapid stretching of the skin
- Common in:
 - Cushing's syndrome
 - Obesity, Pregnancy
 - Ehlers-Danlos syndrome
 - Puberty, Ascites
 - Overuse of cortisone creams

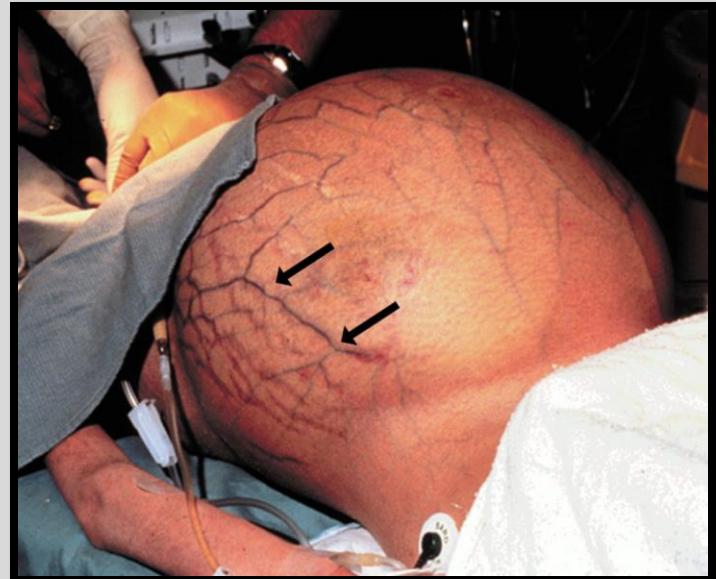


Inspect Abdomen for Dilated Veins

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- A few small visible veins may be normal.
- Abnormal dilation seen in:
 - Portal hypertension
 - Emaciation
 - IVC obstruction

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Patient with caput medusa and ascites



Inspect Abdomen for Skin Lesions

- Describe
 - Location
 - Size
 - Color
 - Shape
 - Pattern and distribution

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Inspect Abdomen for Discoloration

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- Cullen's sign
 - Periumbilical ecchymosis
 - Hemoperitoneum
- Gray Turner's sign
 - Ecchymosis of the flank region
 - Retroperitoneal bleed



Inspect Abdomen for Jaundice

- Pre-hepatic
 - Red blood cells rupture faster than the liver can conjugate bilirubin
- Hepatic
 - Liver's inability to conjugate or excrete bilirubin
- Post-hepatic
 - Flow of bile into the intestine is blocked

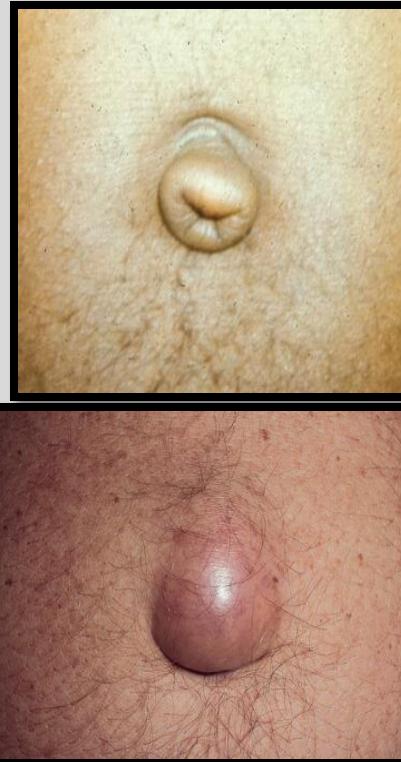
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Inspect Abdominal Umbilicus

- Observe:
 - Contour
 - Location
 - Inflammation
 - Bulges



Bates' Guide to the Physical Examination and History Taking; 13th Ed. – Chapter 19

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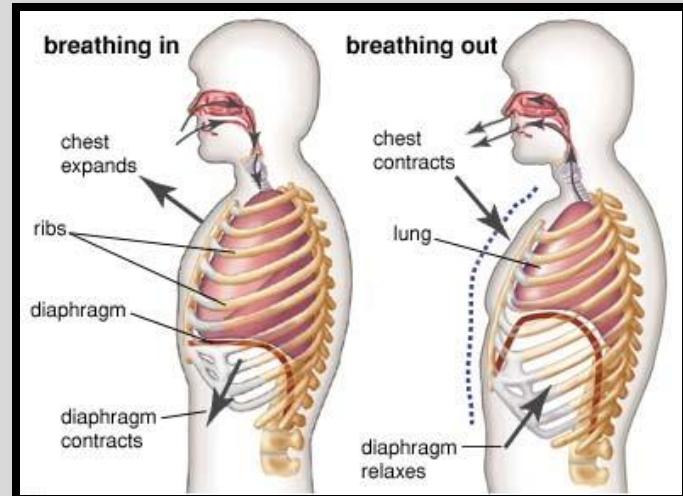


Inspection of Abdomen for Respiratory Motion

- **Absence of respiratory motion**
 - In all or part of abdominal wall suggests peritoneal irritation (acute abdomen)
- **Respiratory alternans or paradoxical**
 - Alternating outward and inward displacement - diaphragmatic muscle fatigue
 - Paradoxical inward displacement - COPD

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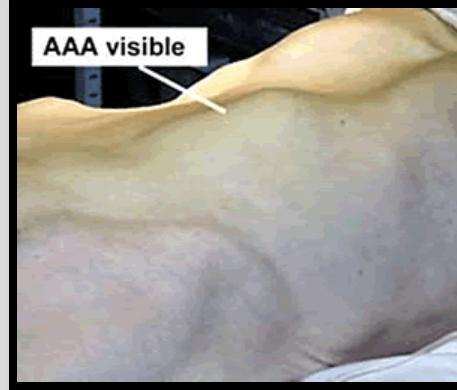


Inspect Abdomen for Pulsations and Peristalsis

- Abdominal aortic aneurysm may be visible as a pulsatile mass
- Visible peristalsis is usually the result of intestinal obstruction

Visible peristalsis video:

<http://www.nejm.org/doi/full/10.1056/NEJMcm0910079>



Auscultation



Auscultation of the Abdomen

- Auscultate the abdomen **BEFORE** percussing or palpation as these maneuvers may alter frequency of bowel sounds.
- Place the diaphragm of your stethoscope gently on the abdomen
- Listen for bowel sounds: Note their frequency and character
- Listen for vascular bruits
- Auscultate the abdomen in **ALL 4 quadrants**

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Bowel Sounds - Normoactive

- Normal (normoactive): estimated frequency of 5 to 34 “clicks or gurgles” per minute.
- Bowel sounds are produced by peristalsis of the intestines
- Occurs intermittently:
 - Low-pitched
 - Chuckling

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Bowel Sounds - Hypoactive

Reduction in the loudness, tone, or regularity of the sounds.

Sign that intestinal activity has slowed

- Normal during sleep; after the use of certain medications (opiates, anesthetics) and abdominal surgery.
- May be indicative:
 - Ileus (failure of peristalsis), Peritonitis
 - Bowel obstruction, Constipation
 - Electrolyte imbalances

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Bowel Sounds - Hyperactive

- Increase in intestinal activity
- Sometimes can be heard without a stethoscope.
- Occurs with diarrhea and after eating.
- Disease states:
 - Crohn's disease, Ulcerative Colitis
 - GI bleeding, Enteritis
 - Early bowel obstruction
 - Laxative use

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Bowel Sounds - Absent

- Must listen for a full 2-3 minutes before determining bowel sounds are absent
- Absence of bowel sounds occurs with:
 - Ileus, Bowel obstruction
 - Necrosis of bowel tissue
 - Peritonitis

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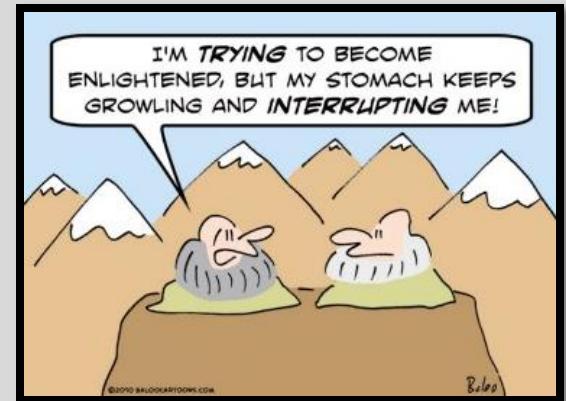


Auscultation of Abdomen for Other Bowel Sounds

- **Borborygmi:** Prolonged gurgles of hyperperistalsis; stomach "growling" or "rumbling".
- **High-pitched tinkling sounds:** Suggestive of dilated bowel due to the presence of air and fluid under tension
- **Rushes of high-pitched sounds** that coincide with abdominal cramps: Suggestive of intestinal obstruction

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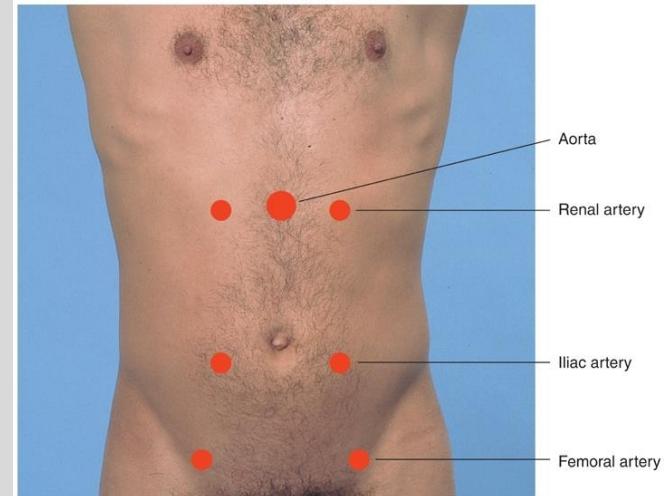


Auscultation of Abdomen for Vascular Bruits

- Bruits:
 - Resembles heart murmurs
 - Check aorta, renal, iliac and femoral arteries
- Presence bruits are suggestive:
 - Renal artery stenosis (secondary cause of HTN)
 - Arterial insufficiency, Arterial occlusion

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Auscultation of Abdomen for Friction Rubs

- Rare in occurrence
- May be found over liver or spleen
- Implies surface of organ is irregular
- Rub is caused by the grating of inflamed peritoneal surface against each other during respiration
- Involvement of tumor, abscess or infarction

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Percussion



Percussion of the Abdomen

- Percuss the abdomen in all 4 quadrants
- Assess for tympany, and dullness
- Usually tympany predominates
- Note any large area of dullness (may indicate mass or enlarged organ)

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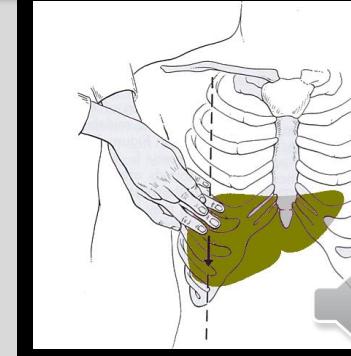


Percuss and Measure the Liver: Mid-clavicular Line

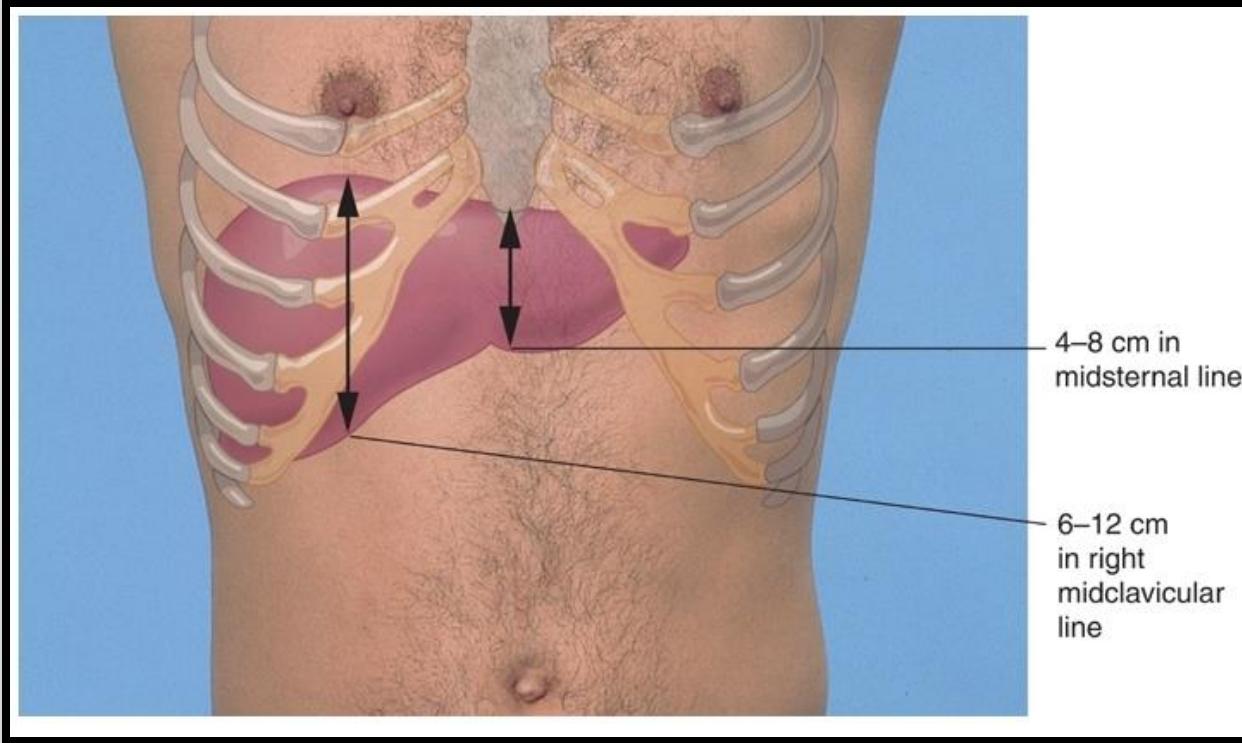
- Percuss the liver in a downward or upward direction.
- Start at an area below the umbilicus (midclavicular line) and percuss up from abdominal tympany until dullness is appreciated (lower border of the liver)
- Next, starting at the nipple line percuss from lung resonance down toward liver dullness (upper border of the liver)
- When dealing with a patient with large breasts, ask her or him to displace the breast as necessary.

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Normal Liver Span



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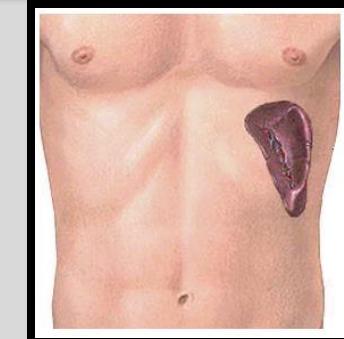


Percuss the Spleen

- Percuss the spleen on the anterior lateral, not directly on the front of the abdomen.
- Percuss the lowest interspace in the left anterior axillary line (tympanitic).
- Ask the patient to take a deep breath, and percuss again
- Should stay tympanitic
- If becomes dull upon inspiration suggests splenic enlargement

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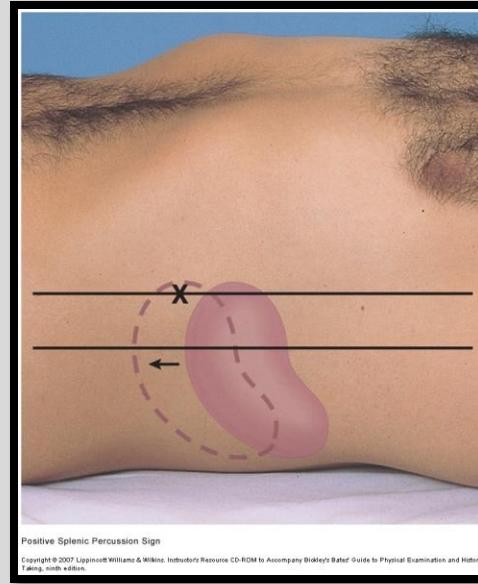
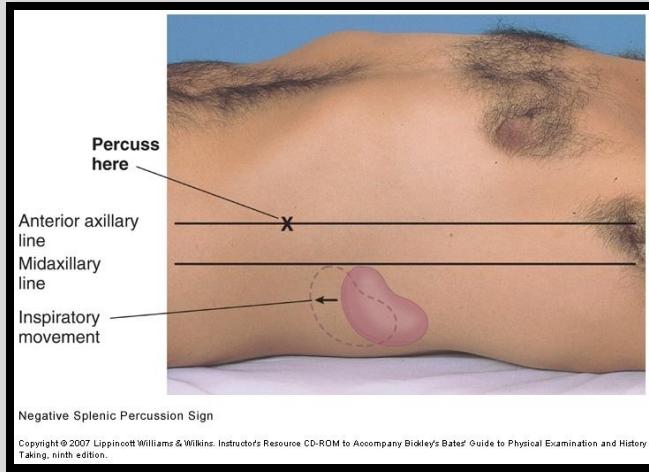
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Percuss the Spleen

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Detect Abdominal Masses by Percussion

- **RUQ:** hepatomegaly, hydrops of the gallbladder, carcinoma of the head of the pancreas.
- **Epigastric:** pancreatic (pseudocyst or carcinoma), gastric malignancies, colon malignancies.
- **Flank:** kidney (cyst or tumor)
- **LUQ:** splenomegaly or carcinoma of the stomach or colon
- **RLQ:** appendiceal abscess, cecal carcinoma or ovarian tumor
- **LLQ:** diverticular abscess, sigmoid carcinoma, ovarian tumor
- **Central:** aortic aneurysms
- **Suprapubic:** distended bladder, uterine fibroid

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Palpation



Palpate the Abdomen

- First, palpate the abdomen **lightly**.
 - To indentify tenderness, muscular resistance and superficial organs and masses.
- Then palpate **deeply** using finger pads, not finger tips.
 - To delineate masses (pregnant uterus, abdominal aortic aneurysm, or a distended bladder).
- **Note:** If patient complaint is “abdominal pain” make sure you examine the painful area **last**.

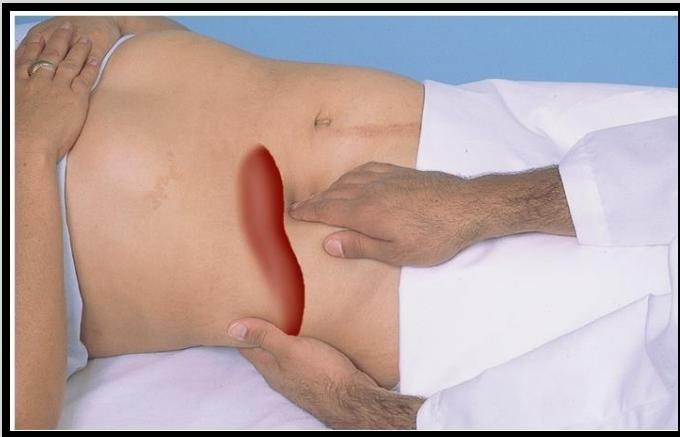
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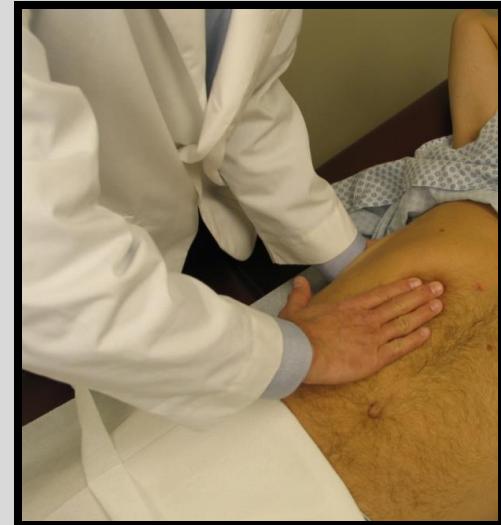
Palpate the Liver: *Bi-manual Compression*

- The left hand is placed under the right posterior ribs, and the right hand palpates the liver deeply



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Palpate the Liver: *Two-Handed Deep Palpation*



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- Push up towards the head from below with both hands



Palpate the Liver: Hooking Technique

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- “Hook” the liver from above with both hands

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Palpate the Spleen

- Brace the posterior ribs with the left hand and palpate with the right hand
- Ask the patient to take a deep breath as the spleen is palpated

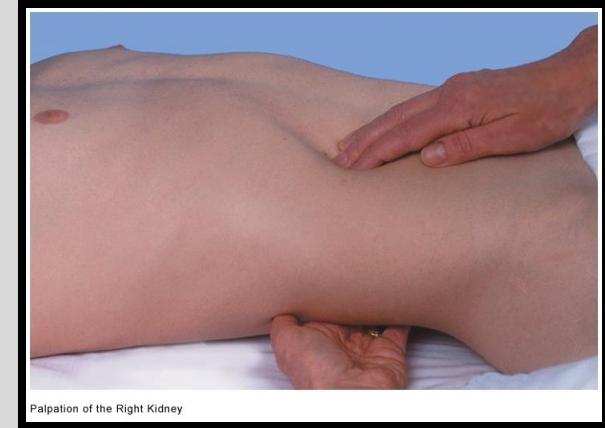
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Palpation of Kidney

- Bimanual technique. Place one hand on patients back parallel to the 12th rib.
- Lift patients back.
- Place the other hand below the costal margin lateral and parallel to the rectus abdominus muscle.
- Ask patient to take a deep breath.
- At peak of inspiration attempt to capture patients kidney between your hands.



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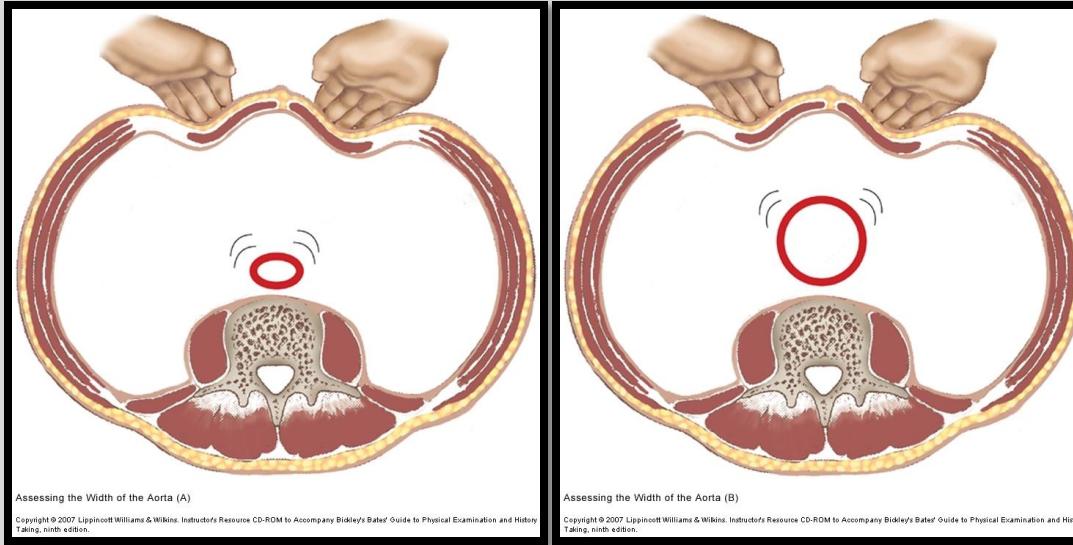
Examiner stands on same side of kidney being palpated.



Palpation of Aortic Pulsations

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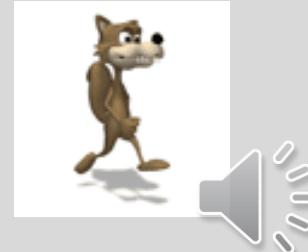


Tenderness of the Abdomen

- **RUQ:** Cholecystitis, pancreatitis, or hepatitis, pulmonary pathology.
- **LUQ:** Peptic ulcer disease, splenic or pulmonary pathology
- **Epigastric:** Pancreatitis or peptic ulcer disease.
- **Perumbilical:** Appendicitis
- **Suprapubic:** Bladder/uterine pathology, cystitis, UTI
- **Flank:** Renal pathology, either pyelonephritis or perinephric abscess.
- **RLQ:** Appendicitis, cecal diverticulitis, perforated carcinoma, or ovarian pathology
- **LLQ:** Sigmoid diverticulitis or ovarian pathology

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Preventative Measures – Colon Cancer

- Factors increasing risk
 - Excessive alcohol intake
 - Cigarette smoking
 - Obesity
- Factors decreasing risk
 - Regular physical activity
 - Aspirin
- USPSTF recommendations:
 - Begin screening at age 45 years and continuing until 75 years
- CDC screening tests
 - Stool tests – once a year
 - Sigmoidoscopy – every 5 years
 - Colonoscopy – every 10 years
 - CT Colonography – Every 5 years

https://www.cdc.gov/cancer/colorectal/basic_info/screening/tests.htm

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Osteopathic Considerations – Lower bowel disorders

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- Sympathetics
 - T10 -T11 – Right side of colon
 - T12 - L2 – Left side of colon
- Parasympathetics
 - Vagus – right side of colon
 - Pelvic splanchnic nerves – left side of colon
- Chapman points
 - Lateral sides of the thighs in the anterior half of the iliotibial bands



SOAP NOTE – Case Presentation

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Subjective

cc: Constipation

HPI: 44-year-old female with complaint of constipation which has been worsening over the past 3 to 4 months. Has 1 to 2 bowel movements per week , strains to defecate, produced hard stools and many time feels she does not completely evacuate. Has tried increasing fiber and fluid in her diet, eats prunes and drink prune juice has not been helpful. Denies nausea, vomiting, diarrhea, hematochezia, abdominal pain, fever, chills, weight loss. Admits to some weight gain.

PMH: HTN, Vitiligo

PSH: BLT, C-Section x 2

Allergies: PCN (rash)

Meds: Diltiazem ER 120 mg daily, Multivitamin daily, Docusate sodium 100 mg daily

Social Hx: Denies past or present use of tobacco, alcohol or recreational drug use, 1 – 2 cups coffee/day, Married, sexually active with male husband, Pediatrician, eats usually a healthy diet, no stressors

Family Hx: Father & Mother A&W, no siblings, 2 daughters A&W

HCM: Mammography and pap smear this year, both normal, influenza vaccine 09/2019

ROS: Denies: fever, chills, chest pain, palpitations, SOB, cough, nausea, vomiting, diarrhea, hematochezia, melena, regurgitation, abdominal pain, joint stiffness, pain or swelling, rash, tremors, paralysis, depression or anxiety. Admits: fatigue, weight gain and skin dryness



SOAP NOTE – Case Presentation

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Objective

VS: 100/60, HR 64, RR 12, Temp. 97.6, H 64" W 160 lbs BMI 27.5

Gen: Appears stated age, well groomed, NAD, overweight

Chest: CTA B/L, no w/r/r

Heart: S1S2, RRR, no m/r/g

Lungs: CTA B/L, no w/r/r

Abd: +BS hypoactive, soft, non-tender, non-distended, no hepatosplenomegaly, no palpable masses, no bruits, no dilated veins, no rebound or guarding, percussion sounds were tympanic in all 4 quadrants

Ext: No c/c/e, no varicosities, warm, +2 pulses x 4, joints with no synovitis, swelling or redness

Skin: No rash, good turgor, +dryness

Musc: Good range of motion upper and lower extremities

Neuro: Muscle strength 5/5 x 4, DTR's normal, negative Romberg

Rectal: No external lesions good sphincter tone, no rectal masses, +soft stool in rectal vault

OSE: L1FRS left

Labs: -Guaiac stool, UA negative

Assessment / Differential Diagnosis

Hypothyroidism

Irritable bowel syndrome

Functional constipation

Medication induced constipation

Hypertension

Overweight

Vitiligo

Plan

Labs: TSH, CBC, CMP, Guaiac stools x 3

Consider gastroenterology consult

Consider discontinuing Diltiazem once lab results are known

Continue current medications for now. Counsel patient on weight loss.

Discuss skin care. Use sun block lotions. Refer to dermatology.

Follow-up in 2 weeks.



Summary Slide

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- Points:
 - Consider patient's discomfort with discussing their problems
 - Observe from the patient from the right side of the patient
 - Explain to the patient what you are doing
 - Observe the patient for signs of pain, don't rely solely on verbal cues



References

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