

ULTRASOUND

➤ Training

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Ultrasounds

Ultrasound scans use high frequency sound waves to capture live images and video. This helps doctors view the inside of your body. Abdominal ultrasounds are used to help your doctor visualize the organs and structures (in detail) inside the abdomen.

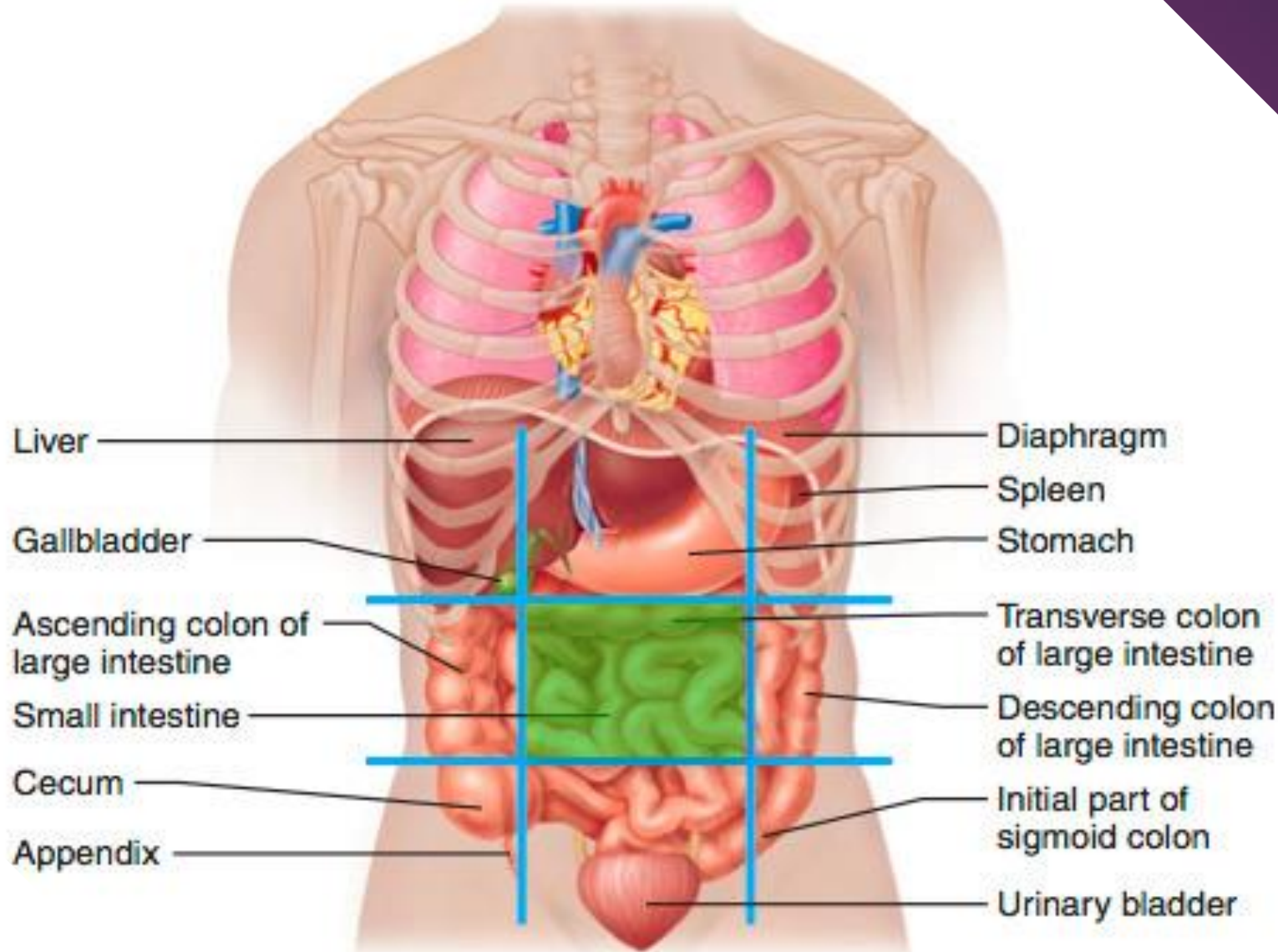


These are called **Probes** and they are used to rub against requested region to obtain image.

Ultrasound and Sonograms are the same.



Ultrasound Preparations



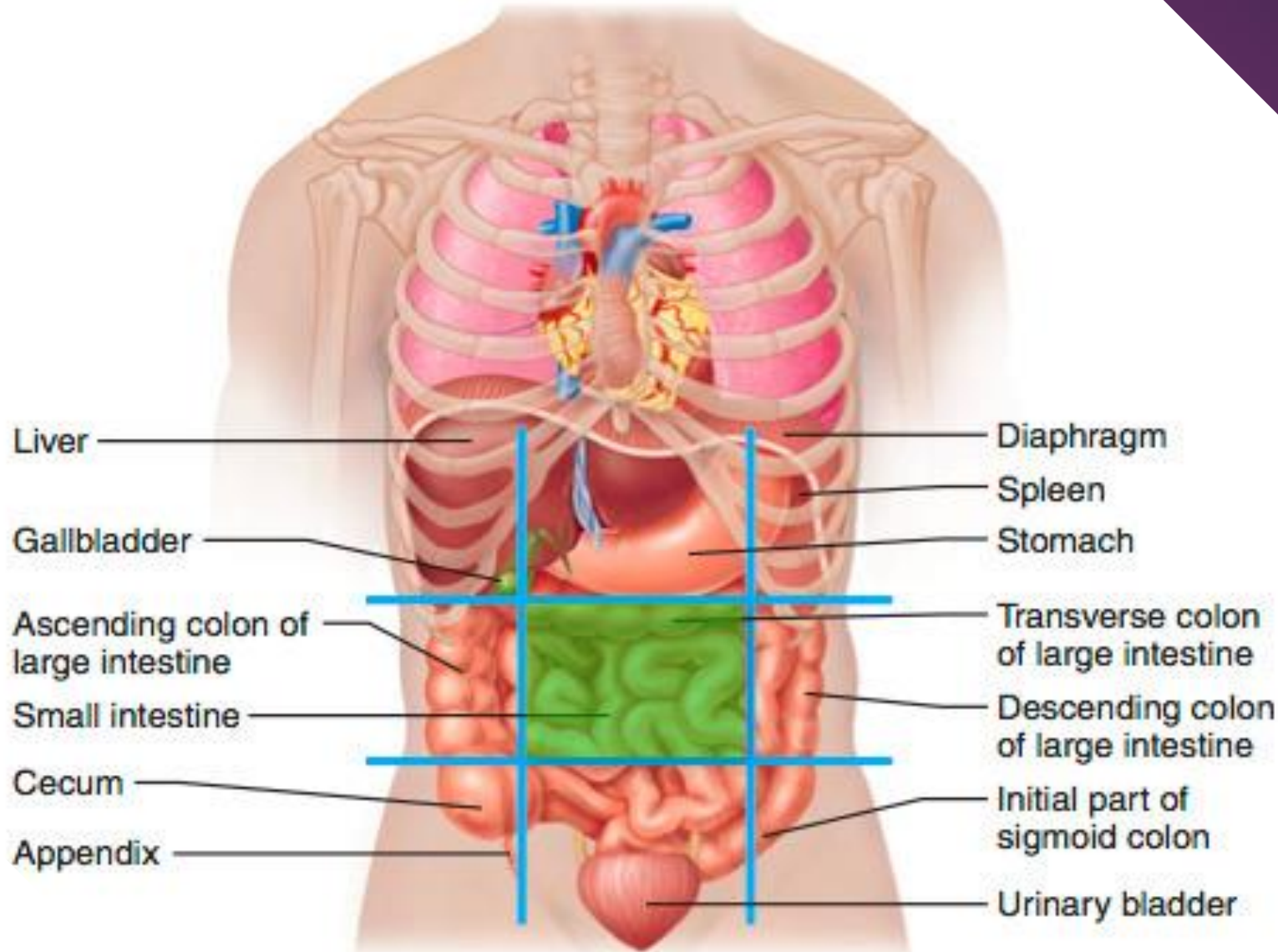
Abdominal Regions require 5-6 hours of *Fasting* (no food)

- ☐ Abdomen Complete
- ☐ Right Upper Quadrant (RUQ)
- ☐ Right Lower Quadrant (RLQ)
- ☐ Left Lower Quadrant (LLQ)
- ☐ Upper Abdominal
- ☐ Liver
- ☐ Gallbladder
- ☐ Pancreas
- ☐ Spleen

SCHEDULE IN THE MORNING



Ultrasound Preparations



Abdominal Regions require 5-6 hours of **Fasting (no food)**

- ☐ Liver
- ☐ Liver Elastography
- ☐ Gallbladder
- ☐ Pancreas
- ☐ Spleen

- ☐ Abdominal Aorta
 - **AAA**- Abdominal Aorta Aneurism
- ☐ Abdominal Wall
 - Hernia

SCHEDULE IN THE MORNING

Ultrasound Preparations

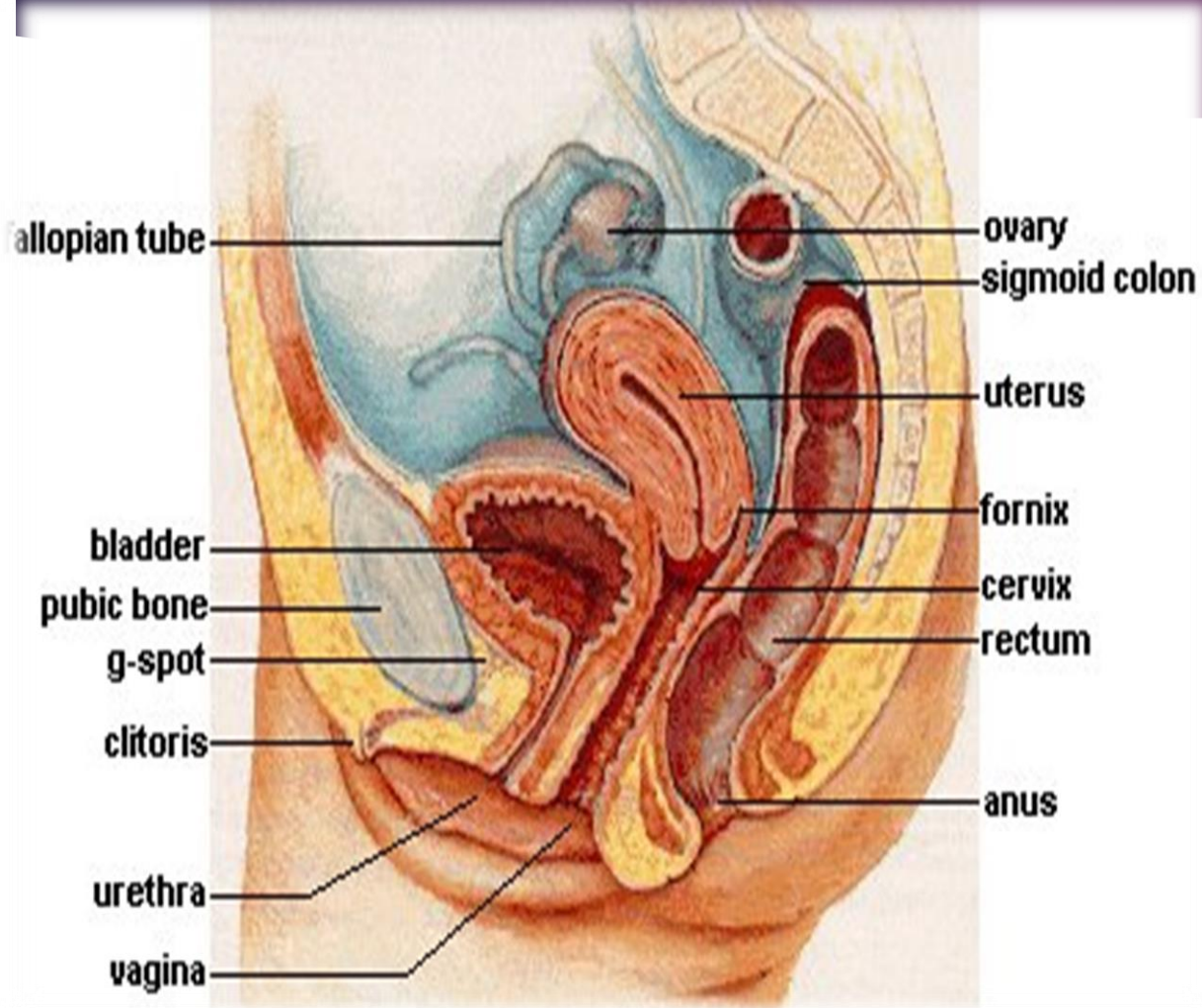
*Abdominal Regions require 5-6
hours of **Fasting** (no food)*

Even though patients cannot eat anything during these “FASTING” exams, patients ARE ALLOWED to drink water.

Some patients drink medications in the morning. Please advise every patient that it is okay to drink water.



Ultrasound Preparations (Continued)



Most Exams in Pelvic Region require

Full bladder (32 oz water)

☐ Bladder

- Post Void (*Standard Procedure*)

☐ Pelvic

☐ OB 1st trimester only

- OB deals with pregnancy (we only do 1st trimester)



Ultrasound Preparations (Continued)



If Rx, says "Prostate Ultrasound" , we need to identify if they want the ultrasound via transabdominal (pelvis) or via trans rectal. We will need an updated Rx.

□ PROSTATE

2 Methods (Vias)

Transabdominal

- **Requires Full Bladder**

- The term "Transabdominal" and "Pelvis" are similar

Transrectal

- **Requires special prep-Enemas (Next Slides)**



Ultrasounds with NO PREP!!

There are some Ultrasounds that DO NOT require any special prep. These are:

- ☐ Renal Ultrasound
(kidneys)
- ☐ Testicular
- ☐ Thyroid
- ☐ Parathyroid
- ☐ Breast
- ☐ Transvaginal
- ☐ Soft Tissue

Although Transvaginal Ultrasounds do not have any preps, patient cannot have menstrual cycle.

Soft Tissue can be any mass or lump that is not in the organs but that can be felt superficially.



Pelvic Vs Transvaginal Ultrasound

- ❑ Transvaginal – No Prep
- ❑ Pelvic- Full Bladder

Commonly sent together (Combos)

2 Combinations

Pelvic / Transvaginal

- Tech will do BOTH, Pelvic + Transvaginal
- Schedule as Pelvic/Transvaginal
- Full Bladder Required

Memorization Technique

If the first exam requires prep, then is 2 exams (combo).
If first exam does not require prep, then is 1 only- transvaginal

Transvaginal / Pelvic

- Tech will do ONLY Transvaginal
- Schedule as Transvaginal Only
- No prep

Ultrasound SPECIAL Prep!

There are some Ultrasounds that will require a deeper prep. These are:

- ☐ Renal Artery Doppler
- ☐ Trans rectal U/S

Enemas are sold at local pharmacies such as Walgreens and CVS. Explaining to a patient how to apply an enema can be complicated and sensitive. For that reason, DO NOT give instructions. Advise patient to ask pharmacist when purchasing the enema (s).

Preparation

➤ Renal Artery:

- 1 enema afternoon before exam. As early as possible (4-7PM). No more eating. Clear liquids only.
- Complete fasting day of exam. (These studies should always be in the morning)

➤ Transrectal

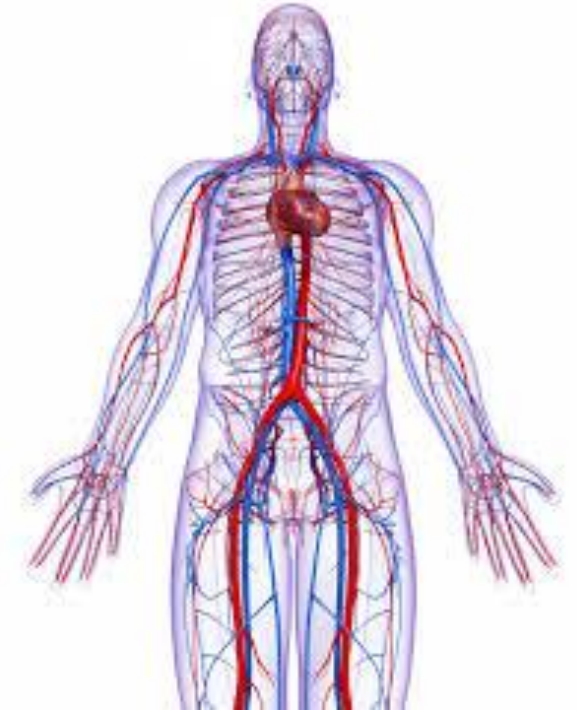
- 1 enema afternoon before exam. As early as possible (4-7PM). No more eating. Clear liquids only.
- 1 enema in the morning of exam. Complete fasting after this.
- 2 enemas in total



Vascular Studies

- ❑ Vascular refers to the blood flow through our VEINS and Arteries.
 - Vein – Venous
 - Artery – Arterial

❑ **Doppler** – A type of ultrasound that uses high frequency waves to detect any abnormalities in the blood flow through VEINS and ARTERIES



Doppler is
used for Veins
and Arteries

In the referrals, sometimes prescription will mention “Color Flow”. This refers to the same concept as Doppler. The Doppler Ultrasound produces color to show blood flow.

Vascular Studies (Continued)

Carotid Artery Doppler

- Artery that runs through neck area
- Also known as "Extracranial Doppler"
- No prep

Renal Artery Doppler

- Requires special Prep (see previous slides)

Lower Extremities Doppler

- Can be arterial or venous
- Can be unilateral (one leg) or bilateral (both legs)
- No prep

Echocardiogram w/ Doppler

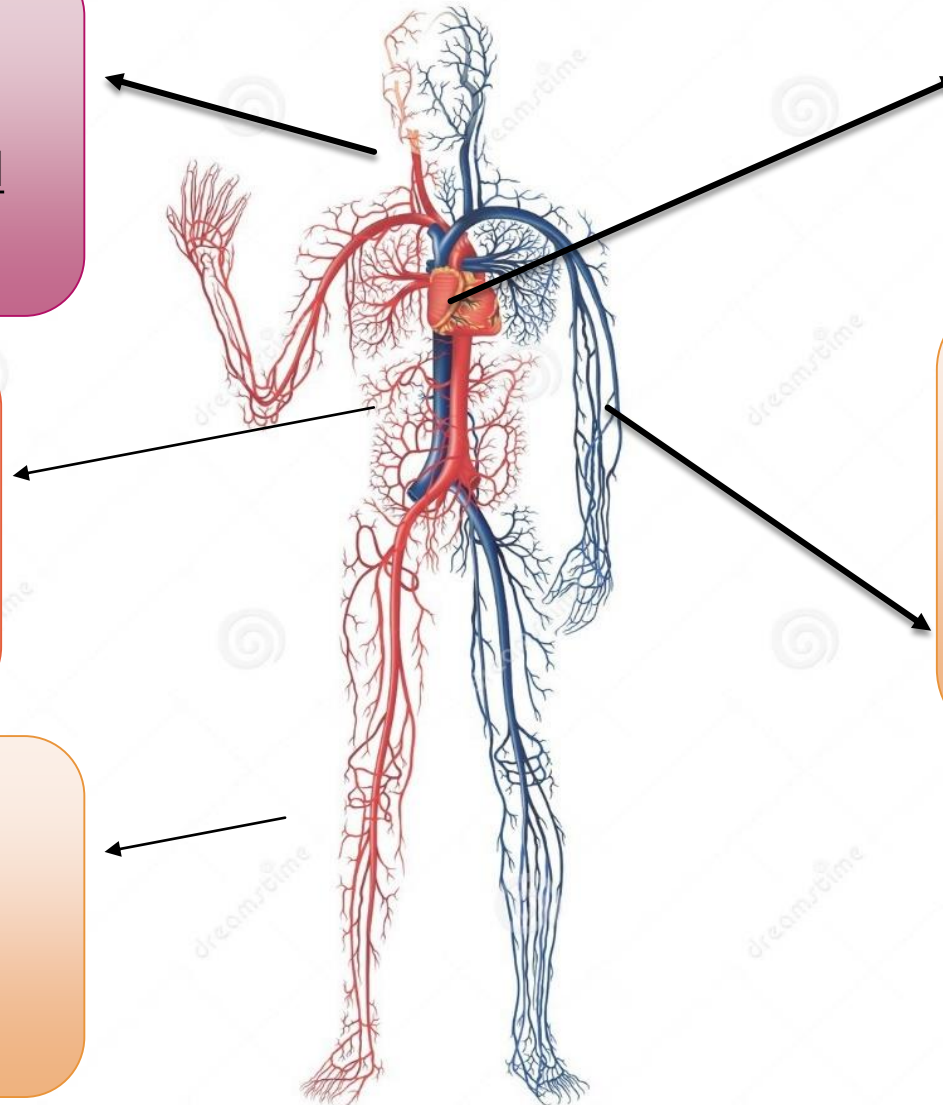
- Ultrasound of the heart
- No prep

Aorta Artery

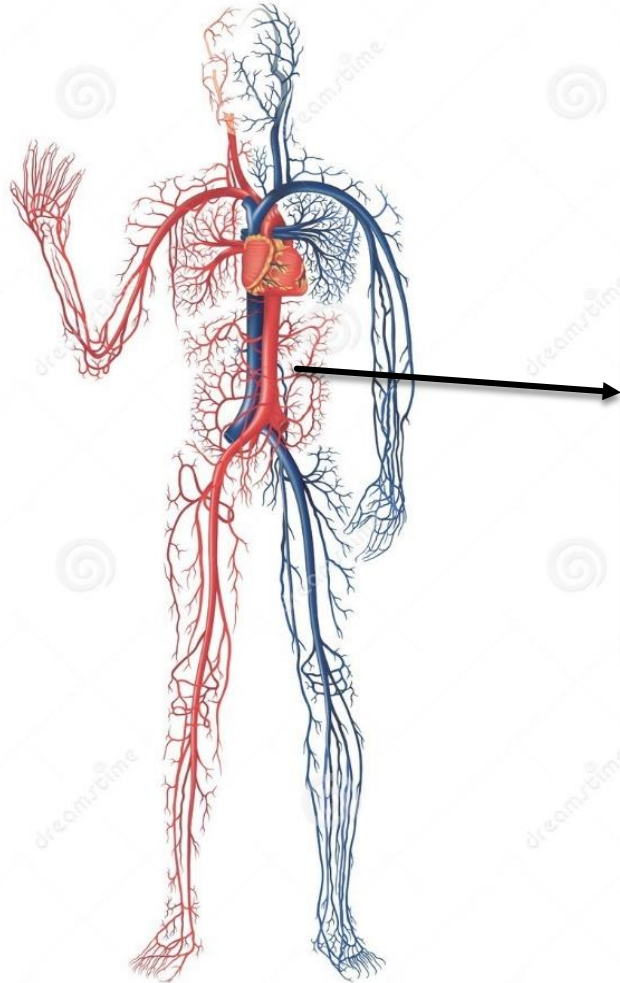
- Biggest Artery starting at heart and ending at lower extrem.
- Abdominal View of Aorta
- **MESENTERIC ARTERY** – artery derived from Aorta to supply for intestines.

Upper Extremities Doppler

- Can be arterial or venous
- Can be unilateral (one leg) or bilateral (both legs)
- No prep



Vascular Studies (Continued)



ULTRASOUND ABDOMEN W/ DOPPLER

- Includes Liver with Doppler and Mesenteric Artery Ultrasound



ECHOCARDIOGRAM

- Basically, Echocardiogram is an ultrasound of the heart with Doppler
- Color Flow and Doppler are synonyms

➤ ONCOLOGY ECHOCARDIOGRAM

- Speckle Strain Analysis- used to analyze any strain that chemotherapy drugs can have on the heart.
- Uses a technology known as “Speckle Imaging”
- **Name of Exam: ECHOCARDIOGRAM SPECKLE STRAIN**

Ultrasound Preps

ULTRASOUND

☐ WITH / 3D RECONSTRUCTION
☐ WITH DOPPLER

- ☒ ABDOMINAL COMPLETE
- ☒ RIGHT UPPER QUADRANT (Liver, Pancreas, Gallbladder)
- ☒ UPPER ABDOMINAL (Gallbladder, Biliary Tree, Liver or Spleen)
- ☐ RENAL
- ☒ LIVER
- ☒ GALLBLADDER
- ☒ PANCREAS
- ☒ SPLEEN
- ☒ BLADDER
- ☒ RENAL & BLADDER
- ☒ ABDOMINAL AORTA
- ☒ OB - FIRST TRIMESTER
- ☒ PELVIC
- ☒ RENAL ARTERY
- ☐ TRANSCRANIAL DOPPLER (TCD)
- ☐ TRANSVAGINAL
- ☐ TESTICULAR
- ☐ THYROID, PARATHYROID PAROTID / SOFT TISSUE HEAD/NECK
- ☐ EXTREMITIES NON - VASCULAR
- ☐ TRANSPLANTED KIDNEY
- ☐ BREAST Bilateral _____ Unilateral _____

OTHER: _____

VASCULAR STUDIES

☐ ABI INDEX

- ☐ CAROTID DUPLEX IMAGING
- ☐ UPPER EXTREMITY
 - ☐ ARTERIAL ☐ RIGHT ☐ LEFT
 - ☐ VENOUS ☐ RIGHT ☐ LEFT
- ☐ LOWER EXTREMITY
 - ☐ ARTERIAL ☐ RIGHT ☐ LEFT
 - ☐ VENOUS ☐ RIGHT ☐ LEFT
- ☒ RENAL ARTERY DOPPLER

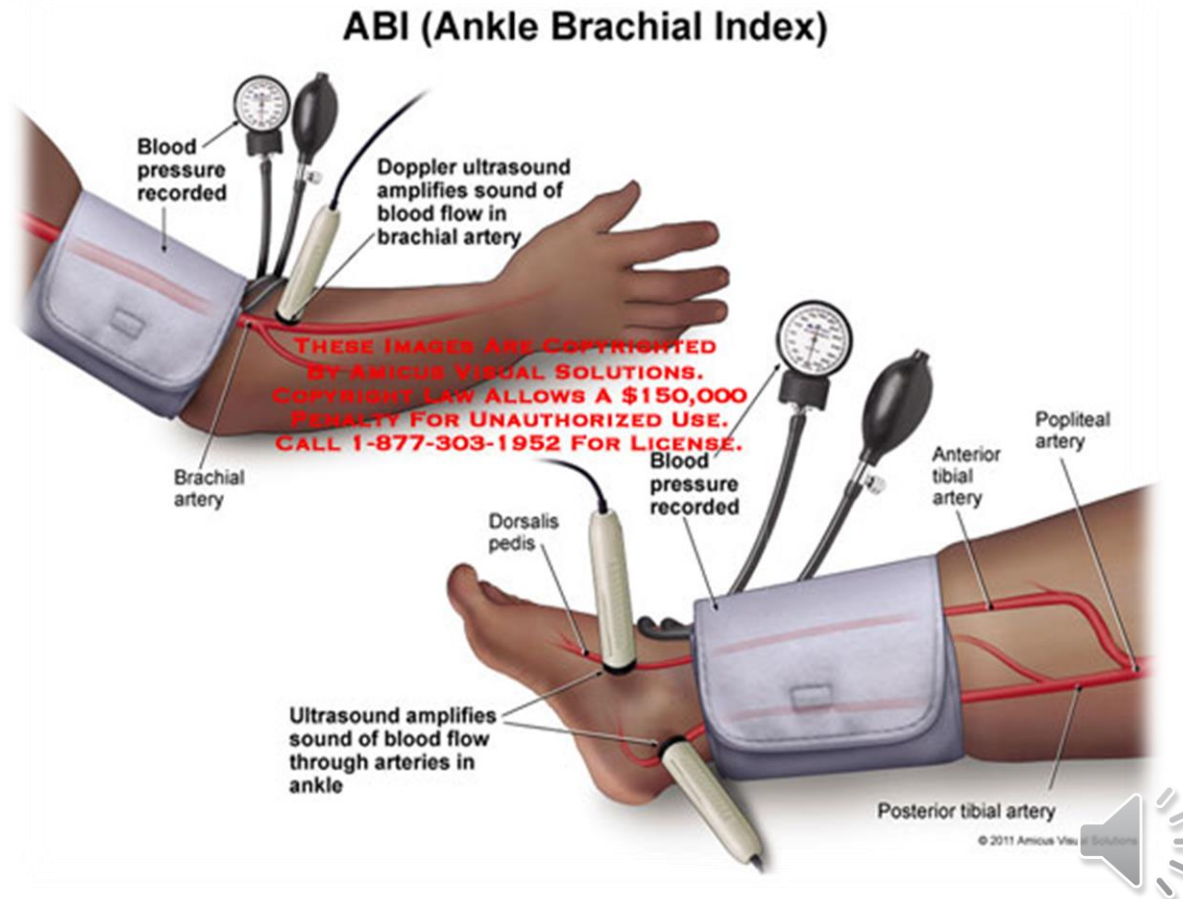
- ☒ Fasting 5-6 Hours
- ☒ Drink Water- Full Bladder 32 oz
- ☐ No Prep
- ☒ Special Prep



ABI Index

- ❑ **Ankle-brachial index (ABI)** is the ratio of the blood pressure at the ankle to the blood pressure in the upper arm (brachium).
 - ❑ Arm Vs Leg (blood pressure)
- ❑ Relates to Arterial/Venous Doppler of Lower and Upper Extremities
- ❑ Schedule under ABI index only is described on Rx.

ONLY IN MIAMI CENTER!



Post Void Residual (PVR)

- ❑ Relates to Arterial/Venous Doppler of Lower and Upper Extremities
- ❑ A **PVR** study is a technique in which the technician will use a blood pressure cuff while doing the ultrasound. It is used to obtain information about arterial blood flow in the arms and legs.



ONLY IN MIAMI CENTER!



Common Combos

- Ultrasound Pelvic and Transvaginal (PEL/TV)
- Ultrasound Renal and Bladder
- Arterial and Venous Doppler of Extremities



Recent Updates

- Prostate Ultrasound
 - Can be done via Transrectal or via transabdominal – need Rx to confirm it.
- Dx Hernia
 - If Rx is for Ultrasound Abdomen complete Dx. Hernia, you need to schedule as Abdominal wall . Need new Rx.
- Dx. AAA - Abdominal Aorta Aneurism
 - If Rx is for Ultrasound Abdomen Complete Dx AAA, you need to schedule as Abdominal Aorta. Need new Rx
- Mesentery Artery is derived from Aorta Artery- schedule as Mesentery artery Doppler
- Bladder U/S- the term post void is of no significance. It's the standard way to do the bladder u/s
- Pelvic/ Transvaginal Combo- if Rx says Transvaginal/Pelvic, you schedule Transvaginal Ultrasound Only- No prep required.
- Oncology Echocardiogram (Speckle Strain Analysis)



Terms You Need to Know:

- U/S
- Ultrasound
- Sonogram
- Echography
- RUQ- Right Upper Quadrant
- Abd – Abdomen or abdominal
- Pel – Pelvis
- TV – Transvaginal
- Soft Tissue
- Transabdominal
- Enemas
- Venous
- Arterial
- Vascular – veins or arteries
- Doppler- More advanced ultrasound with color
- Mesenteric / Aorta
- Liver Elastography
- ABI Index- Ankle Brachial Index
- PVR- Post Void Residual

