

Name:- Muhammad Majid

ID No: 13628

subject: Cross Sectional Anatomy

Submitted To: Sir Waqar Ihsan

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Qa write about the bones of upper limb?

Answer:

Bone of the upper limb are given below.

Scapula Bone:

The Scapula is a flat, triangular-shaped bone that lies adjacent to the posterior surface of ribs. Seventeen muscles attach to the scapula, & it articulates with the clavicle to form the shoulder girdle or pectoral girdle, which supports movement of the humerus.

Scapula Bone - Anterior Anatomy:

The bone markings of the anterior Scapula include the superior border, medial border, lateral border, Superior angle, lateral angle, inferior

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coracoid process, suprascapular notch, glenoid cavity, infraglenoid tubercle and the suprascapular fossa.

### Scapula bone - Posterior Anatomy:-

The bone markings of the posterior scapula include the superior border, medial border, lateral border, superior angle, lateral angle, inferior angle, scapular spine, acromion, supraspinous fossa, infraspinous fossa, glenoid cavity and the infraglenoid tubercle.

### Clavicle bone:-

The clavicle or collarbone is located superior to the first rib and horizontally from the manubrium of the sternum to the acromion of the scapula.

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## Humerus bone:-

The Humerus is a long bone that supports the upper limb arm and it extends from the shoulder joint to the elbow joint.

## Radius & Ulna Bones:

The Radius & ulna are the bones of the forearm. The forearm is the region of the upper limb that extends from the elbow to the wrist.

## General Anatomy of the Hand & wrist bones:

Twenty-seven bones form the hand & eight small Carpal bones support the wrist.

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## Hand & Wrist Bones Anterior (Palmar) Views:

The proximal row of bones in the hand include the Scaphoid, lunate, triquetral & pisiform bone. The distal row of bones in the hand include the trapezium, trapezoid, capitate, hamate bone. The metacarpals support the palm. The Phalanges include fourteen bones that support the fingers.

### Carpal bones Anterior view:

An interactive and illustrated tutorial on carpal bones (Scaphoid, Lunate, Triquetral, Pisiform, Trapezium, Trapezoid, capitate & Hamate)

### Metacarpal bones: Anterior view

The metacarpal bones include five bones found in palm of hand. Numbering 1 to 5 of

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of bones begins on thumb side.

Phalanges Anterior views:-

Each finger consists of three phalanges: proximal phalanges, middle phalanges & distal phalanges. The thumb only has two: Proximal Phalanges & distal phalanges.

Q3 what are the planes used in cross sectional anatomy? Explain them.

Answers:-

- Median or Sagittal Plane
- Parasagittal Plane
- frontal or coronal Plane
- transverse or axial Plane.

An anatomical plane is a hypothetical plane used to transect the body, in order to describe the location of structures or the direction of movements. In

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human & animal anatomy three principal planes are used.

→ The Sagittal plane or median plane is a plane parallel to the sagittal suture. It divides the body into left & Right.

→ The Coronal plane or frontal plane divides the body into dorsal & ventral portion. It divides the body into posterior & anterior.

→ The transverse plane or axial plane divides the body into superior & inferior.

Qn write about MRI of Human Heart?

Answer: Cardiac MRI:  
magnetic resonance

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imaging is a noninvasive test used to diagnose medical condition.

MRI uses a powerful magnetic field, radio waves and a computer to produce detailed pictures of internal body structures. MRI does not use radiation.

Detailed MR images allow doctors to examine the body and detect disease. The images can be reviewed on a computer monitor. They may also be sent electronically, printed or copied to a CD, or uploaded to a digital cloud server.

Common Uses of the Procedure  
Cardiac MRI is performed to help your physician detect



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or monitor cardiac disease by:

→ Evaluating the anatomy & function of the heart chambers, heart valves, size of and blood flow through major vessels, & the surrounding structures such as the pericardium.

→ Diagnosing a variety of cardiovascular disorders such as tumors, infections & inflammatory conditions.

→ Evaluating the effects of coronary artery disease such as limited blood flow to the heart muscle & scanning within the heart muscle after a heart attack.

→ Planning a patient's treatment for cardiovascular disorder.

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→ Monitoring the progression of certain disorders over time.

Cardiac MRI uses a powerful magnetic field radio waves & a computer to produce detailed pictures heart. Cardiac MRI is used to detect or monitor cardiac disease & to evaluate the heart's anatomy & function in patients with both heart disease present at birth & heart diseases that develop after birth.

Cardiac MRI does not use ionizing radiation to produce images, & it may provide the best images of the heart for certain conditions.

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Q5 write detail note on cervical spine?

Answer: The cervical spine, your neck, is a complex structure making up the first region of the spinal column starting immediately below the skull & ending at the first thoracic vertebra. The neck is unique in that it supports the weight of your head (10 to 11 pounds) and allows a variety of head/neck movement, such as turning your head from side to side, nodding & looking up and down. The cervical column is comprised of 7 bones (C1 to C7) uniquely shaped to protect the spinal cord that descend from the base of your

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skull by the spinal nerves or root that exit the spine between each set of bones.

Upper Cervical Spine Enables wide Ranges of Neck Movements.

The upper cervical spine is unlike any other part of the vertebral column. The atlas (C1) & axis (C2) are part of the spine is a craniovertebral junction (CVJ) - this is where the base of your brain becomes part of your spinal column. Working together, the atlas & axis are primarily responsible for spinal rotation, flexion & extension. This is the most mobile section of your

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Your entire spine. Roughly 50% of rotation also occurs here.

Remember, while C<sub>1</sub> & C<sub>2</sub> allow tremendous ranges of neck movement, they also support your head too.

C<sub>3</sub>-C<sub>7</sub> vertebrae, cervical Discs  
Supporting Structures:

If you compare the thoracic & lumbar vertebrae to the cervical, you'll see the C<sub>3</sub>-C<sub>7</sub> bones are similar.

The vertebral bodies are round shaped. At the neck of the vertebral bodies are bony arches that project outward to form the facet joints & spinous processes. These bony ~~let~~ elements naturally create a hollow opening in the centre of the cervical spinal column - a canal that

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that houses and protects the spinal cord.

Another similarity is the cervical intervertebral discs - between each level starting below C2 (axis). The discs are strong flexible tissues of fibrocartilage. In the middle of each disc is a nucleus pulposus, a gel-like structure surrounded by a tough protective tire-like outer layer called the annulus fibrosus.

At vertebral level of the spine, each disc functions to hold the upper and lower vertebrae together, absorb shock & allows some movement. The height of disc creates spaces

nerve passageway called foramen or neuroforamen.

Ligaments, tendons & muscles are soft but strong tissues that help support the cervical spine as well as the entire spinal column by limiting excessive movement.

Eight ways to Help Protect your Cervical Spine:

- 1) Always wear a seatbelt.
- 2) Protect your head & upper neck by wearing a helmet when biking.
- 3) Adjust your Computer monitor to eye level: avoid Slumping.
- 4) Don't tuck your phone into your ear & shoulder.
- 5) Sleep using a pillow that supports your neck.
- 6) Periodic neck stretching

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movements & exercises can help release tension & avoid stiff neck.

- ⑦ Talk with your doctor about bone health, calcium and or vitamin D supplements.
- ⑧ Quit Smoking and/or vaping.

Q4 what are the protocols used while performing CT abdomen?

Answer:

CT Scan of the abdomen:-

The abdomen contains organs of the gastrointestinal, urinary, endocrine, and reproductive systems.

A CT scan of the abdomen may be performed to assess the abdomen & its organ for tumors & other



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lesion, injuries, intra-abdominal bleeding, infections, unexplained abdominal pain, obstruction or other condition, particularly when another type of examination is not conclusive.

A CT scan of the abdomen may also be used to evaluate the effects of treatment on abdominal tumors. Another use of Abdominal CT is to provide guidance for biopsies or for aspiration of tissue from the abdomen.

There may be other reasons for your doctor to recommend CT Scan of the abdomen.

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## Indications:-

→ Screening, Control or Baseline Scan.

### Pathology:

- Cyst
- Abscess
- Mass
- Tuberculosis
- Vascular lesion
- Calculus
- Metastasis

## Contraindication:

### Relative

→ Hyper Sensitivity to Iodinated Contrast media

→ Renal insufficiency

→ Pregnancy.

## Patient Preparation:

→ Nil per oral from 6 hours.

→ Use laxative as well as water enema for colon examination.

→ First explain all about examination & its complication to patient.

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- Take informed consent from patient or his/her close relatives
- Radiopaque material should be removed from area of examination.

### Contrast media:

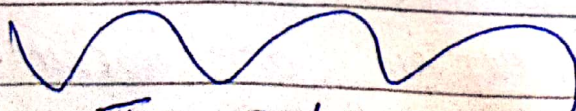
Oral Contrasts: 750-1000ml of  
1-2% Barium or water  
Soluble CM / plain water / air.

Rectal Contrast: 500-750ml of  
1-2% Diluted iodinated CM.

IV Contrast: Non ionic monomer  
300-350mg Dose 100 to 150ml

Techniques for routine pelvis:

- Injection rate 2-3 ml/sec
- Scan delay 40-60 sec
- Slice thickness 3-5mm
- Slice interval 1.5-2.5mm
- 3D Reconstruction MPR, MIP



The End.