



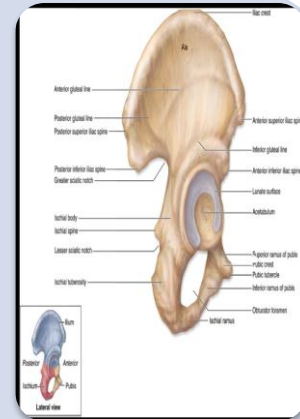
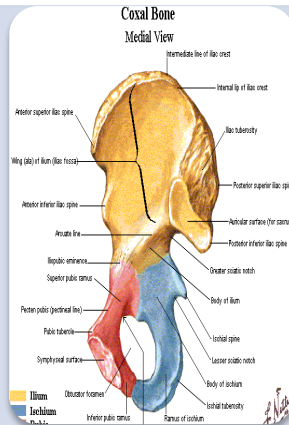
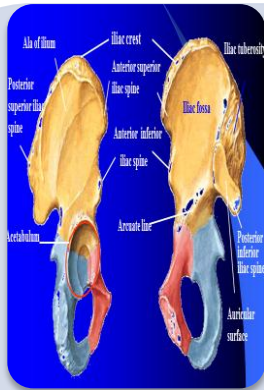
ANATOMY TEAM
Lecture (6)
Pelvis and Sacrum

PELVIS & SACRUM

Objectives:

- **Describe** the bony structures of the pelvis.
- **Describe** in detail the hip bone, the sacrum, and the coccyx.
- **Describe** the boundaries of the pelvic inlet and outlet.
- **Identify** the structures forming the pelvic walls.
- **Identify** the articulations of the bony pelvis.
- **List** the major differences between the male and female pelvis.
- **List** the different types of female pelvis.

تنويه : هذا الملف لا يعتبر مرجع أساسي للمذاكرة وإنما هو للمراجعة فقط ، المرجع الأساسي هو السلايد ، وتم التأكد بأنه لا يوجد أي اختلاف بين سلايد الاولاد والبنات



- ilium

Upper part is the iliac crest (marked below the waist)

- At the end of the crest is the superior iliac spine (Anteriorly, posteriorly)
- Under it is the inferior iliac spine (Anteriorly, posteriorly)

- Outer part: is rough, has 3 gluteal lines: Anterior, Posterior, Inferior.

- Inner part: contains the Iliac fossa (false pelvis) smooth

Auricular surface" ear shaped": (articulate with sacrum)

iliopectinial line (pelvic inlet): separate between the false and true pelvis

- ischium

Lower, posterior

- Thick part: Ischial tuberosity (takes weight when sitting)
- Ischial spine: Direction (inward-male)

(Outward- female)

Distance between 2 spines:

(small: Male)

(big: Female)

has 2 notches:

greater sciatic notch (Pelvis to thigh)

Lesser sciatic notch (Pelvis to perineum)

- Those two Notches change to foramen for the nerve and the vessels by ligaments

- Pubis

Lower, Anterior

-Body:

Pubic crest

Pubic tubercle

2 pubic rami:

bound to

Obturator

foramen" passage

for vessels and nerves > Partially

closed by the

Obturator

membrane.

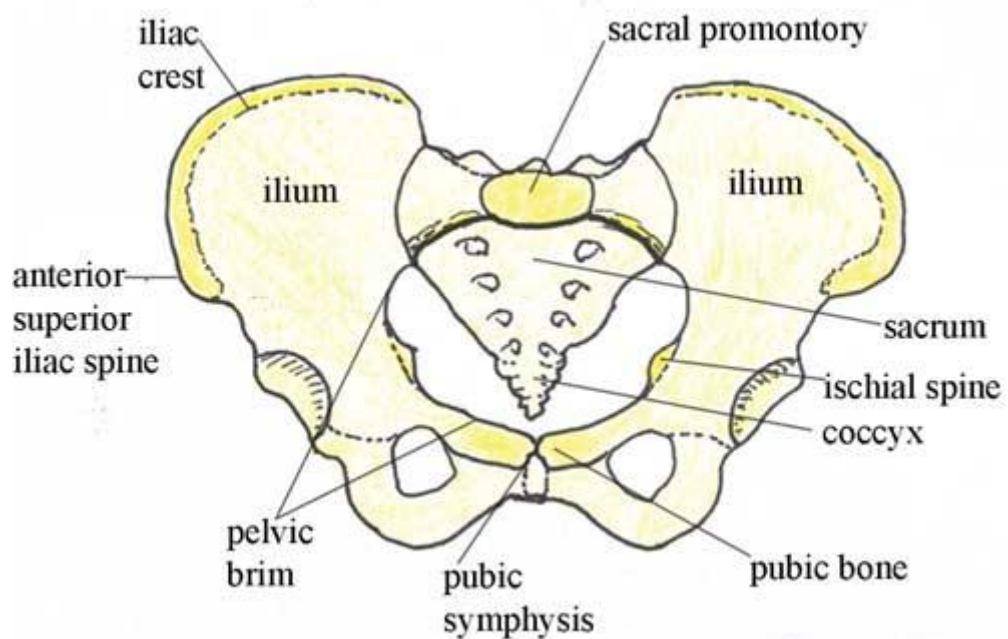
Notes:

- The pubic tubercle is subcutaneous, and an important mark to know the difference between two types of hernia either above or below.
- The bladder lays directly behind the symphysis pubic.
- To know the direction of the hip bone, know that the Acetabulum is always laterally

Pelvis:

2 hipbone	Sacrum	Coccyx
<ul style="list-style-type: none"> •Called the pelvic girdle •heavy and large to bear weight •Contains 3 bones: Ilium, Ischium, Pubis 	<ul style="list-style-type: none"> •Wedge shaped •Consist of 5 vertebrae fused together •Contain: <ul style="list-style-type: none"> •Sacral promontory: the body of the first sacral vertebrae, Tilted forward forming Lumbosacral angle •Possess 4 sacral foramina on each side •The fused foramina form the Sacral canal •lower limit of the sacral canal is Sacral hiatus •the median sacral crest, made up rudimentary spinous processes that are more or less fused to form the crest 	<ul style="list-style-type: none"> •Consist of 4 vertebrae that forms a triangular piece •They are the bones at the base of the spinal column

Bony pelvis



Some important notes:

- BONY PELVIS : composed of 4 bones: 2 *hip bones*, *sacrum*, *coccyx*
- **Function:** transmits the weight of the body from the vertebral column to the femur and provides attachment to trunk and the *lower limb muscles*.
- **Pelvic girdle** composed of 2 *hip bones*
 - **Hip bone** it is a large & irregular and it is a fusion of: *ilium* , *ischium* , *pubis* joined at the deep socket (**acetabulum**).
 - There are two surfaces in the ilium : *inner and outer*
 - The **outer** surface is **rough** and has **gluteal lines** which attach to **gluteal muscles** .
 - The **inner** surface has: *iliac fossa*, *Auricular surface*, Iliopectinial Line
 - Iliac Fossa in the inner surface forms **false pelvis** while Iliopectinial Line separates between the **False & the True pelvis**
 - Pubis has: **Body, Two pubic Rami:** Superior & Inferior; bounding the **Obturator Foramen** closed partially by the **obturator membrane** .
 - Ischial Tuberosity receives body weight in sitting.
 - **Symphysis Pubis** is **Cartilagenous joint** while **Sacroiliac Joints** Is Strong **synovial joints**.
 - The weakest parts of the pelvis are: *Pubic rami, acetabula, sacroiliac joint and alae of the ilium*
 - **Ala of sacrum:** lateral superior of the sacrum
 - **4 Sacral Foramina** on each side (total 8) of the anterior & posterior surfaces
 - **Sacral Canal** formed by **fusion** of vertebral foramina, contains the cauda equina
 - Sacrum's lower limit is the **Sacral Hiatus, which contains the last nerve cauda equine**
 - **Coccyx** consists of (4) vertebrae fused together forming a single Triangular piece.

- **Orientation of the Pelvis:**

- 1- The front of the Symphysis pubis and the Anterior Superior iliac spines lie in the same vertical plane.
النقطتين تكون على مستوى واحد.
- 2- The pelvic **surface** of the Symphysis pubis faces upward and backward.
- 3- The anterior **surface** of the Sacrum is directed forward and downward.

- **Boundaries of pelvic brim "pelvic inlet" :**

Anteriorly → by the pubic symphysis

Posteriorly → by the anterior margin of the base of the sacrum (or the ala of sacrum) and sacral promontory

Laterally "on both side –right and left-" → iliopectineal line

- Pelvic Brim divide the pelvis into false pelvis (upper part) and true pelvis (lower part)
- **False pelvis** lies superior to the pelvic brim and enclosed by the **Fossae of the iliac** bones And it Forms the inferior region of the abdominal cavity.
- In infants and young children, the urinary bladder is in the abdomen even when empty
- **True pelvis** lies inferior to the pelvic brim and Encloses the pelvic cavity. And Contains the pelvic organs for example reproductive organs, urinary bladder, ureter, rectum.
- True pelvis → have : **pelvic inlet, outlet, and pelvic walls**
- Pelvic Inlet Bounded by: **Sacral promontory, Iliopectineal lines, and Symphysis pubis.**
- Pelvic outlet bounded by: **Coccyx, Ischial tuberosities, and Pubic arche.**
- For identification of human skeletal remains, the **bony pelvis** is of prime focus of attention **because sexual differences are clearly visible.**
- **Types of Obstetrical :** **Anthropoid, Gynaecoid** normal female type and the most common one while **Android** common and normal in males.
- Iliac crest is **a land mark below the waist**
- **Pubic tubercle** is subcutaneous
- Ischial tuberosity takes the weight of the body while sitting
- Symphysis pubis **is a secondary cartilaginous joint**
- Sacroiliac joint **are two joint at each side and they are synovial joint that articulate between ilium and sacrum**

Quick review

1. pelvic girdle is composed of ..?

- Two hip bones.

2. what are the three irregular bones that form hip?

- 1) Ilium * 2) Ischium *3) Pubis

3- What are the boundaries of the Pelvic Outlet:

- Coccyx- ischial tuberosities,-Pubic arches(part of the ramus of the ischium).

4 where are the gluteal lines located ?

- Outer surface of the ilium.

5.Name one feature of Greater sciatic notch?

- Allows sciatic nerve & vessels to pass from pelvis to thigh

6. what are the articulations of hip bone?

1) Symphysis Pubis , 2) Sacroiliac Joints , 3) Hip Joint

7. trauma to the pelvic bones occurs in ..?

- Car accidents

8. How many Sacral Foramina in sacrum ?

- 4 on each side (anterior & posterior)

9. Lumbosacral joint articulates with ..?

- the 5th Lumber vertebra

10..The anterior surface of the Sacrum is directed...?

- forward and downward

11. false pelvis enclosed by ..?

- Fossae of the iliac bones

12. what does true pelvis contain ?

- pelvic organs.

13. pelvic Brim Bounded by..?

Sacral promontory-Iliopectineal lines.-Symphysis pubis.

14. Pelvic Outlet Bounded by..?

Coccyx -Ischial tuberosities-Pubic arches

15. Bones of Posterior Wall are..?

- Sacrum and Coccyx

16. the lesser pelvis in male is..?

- Narrow and deep.

17. what can Android cause to women ?

- it causes hazards to normal vaginal delivery

18. No. Of bones composing the bony pelvis?

- Four (2 hip bones, Sacrum, coccyx)

19- What is the uncommon type of male and female pelvic?

- Platypelloi

20. What are the main functions of the pelvic?

- - Transmit weight of the body from vertebrae to femurs
- - contain, Supports and protects the pelvic viscera
- - Provide attachment to the trunk

21. What is inside the pelvic cavity?

- Urinary bladder, lower part of the GIT (rectum, sigmoid colon), Genital organs

25. Where do the bones of the hip join?

- At the Acetabulum

26. Another name for iliopectineal line?

- Pelvic inlet

27- Type of Sacrum articulations:

- Lumbosacral joint, Sacrococcygeal joint, Sacroiliac joint

28- which joint transmit the weight of the body from the vertebrae to the pelvis?

- Sacroiliac joint

29- Where is the weakest part of the pelvis?

- Pubic rami, Acetabula, Region of sacroiliac joint, Alae of the ilium(crest)

MCQ

- 1- **Each of the following bones is part of the pelvic girdle EXCEPT the**
 - A. pubis
 - B. Ilium.
 - C. Femur.
 - D. Ischium.
- 2- **In the true female pelvis, as compared to the true male pelvis,**
 - A. the angle formed at the junction of the pubic bones is narrow.
 - B. the distance between the anterior superior iliac spines is greater.
 - C. the dimensions of the pelvic outlets are smaller.
 - D. the ischium, ilium, and pubis remain unfused in adulthood.
- 3- **Which of the following structures helps define the pelvic brim?**
 - A. the arcuate line.
 - B. the greater sciatic notch.
 - C. the pubic symphysis.
 - D. the acetabulum.
- 4- **when the two pubic bones put together the inferior portion forms an inverted V shaped arch , where is that ?**
 - A. Iliac fossa
 - B. Pubis
 - C. Iliac crest
 - D. Pubic arch
- 5- **The joint between the sacrum and the ilium**
 - A. Iliac Crest.
 - B. Symphysis Pubis.
 - C. Lumbosacral joint.
 - D. Sacroiliac Joint.
- 6- **Ridge along the superior crest of the ilium**
 - A. What passes through the greater sciatic notch?
 - B. What is the conspicuous groove located below the posterior inferior iliac spine?
 - C. What is the ridge along the superior edge of the ilium?
 - D. What is the iliac crest?
- 7- **the classic female pelvis, most favorable for vaginal delivery, Has round inlet; curved sacrum; wide sacrosiatic notch; straight sidewalls; blunt ischial spines; wide pubic arch; well suited for delivery.**
 - A. Anthropoid pelvis
 - B. Platypelloid pelvis
 - C. Gynecoid pelvis
 - D. Android pelvis

8- the body of pubis contain

- A. pubic crest
- B. pubic tubercle
- C. A and b
- D. Ischium

9- lies superior to the pelvis brim

- A. True pelvis
- B. Brim of the pelvis
- C. Landmarks of the pelvis.
- D. False pelvis

10-separates the greater and lesser pelvis

- A. Ilium
- B. pelvic outlet
- C. pelvic brim
- D. pubis

11-which one of the following bears the Pubic Crest and Pubic Tubercle:

- A- Body of pubis
- B- pubic Rami
- C- pelvic brim
- D- gluteal line

12-An important anatomical landmark below the waist:

- A- Iliac Fossa
- B- Iliopectinial Line
- C- Iliac Crest
- D- Iliac Spines

13- We sit on:

- A- Ischial Tuberosity
- B- Ischial Spine
- C- Iliac Crest
- D- Iliac Fossa

14- An example of Anterior Wall of pelvic bone:

- A- Anterior surfaces of bodies of pubic bones
- B- Posterior surfaces of bodies of pubic bones
- C- Sacrum
- D- Coccyx

15-type of joint in the symphysis pubis

- A-Synovial joint
- B-Pivot joint
- C-Secondary Cartilaginous joint
- D- Nothing from the above

16-type of scum joint?

- A-Cartilaginous
- B-Synovial
- C-Fibrous

17-Shape of the acetabulum of the male?

- A-Round
- B-Square
- C-Small
- D- Large

18-Another name of the pelvic inlet?

- A-Inner part
- B-Pelvic brim
- C-Pelvic foramen

Useful links:

- <http://www.squidoo.com/pelvis>
- <http://forensicanth-nu.wikispaces.com/Skull+Group>
- <http://youtube.com/watch?v=7RqgAm69Wlk>
- <http://youtube.com/watch?v=1dJHDDxhqcE>
- <http://youtube.com/watch?feature=related&v=jpScugJrA8g>

N.Q	ANS
1	C
2	B
3	C
4	D
5	D
6	D
7	C
8	C
9	D
10	C
11	A
12	C
13	A
14	B
15	C
16	B
17	D
18	B

GOOD LUCK ;)