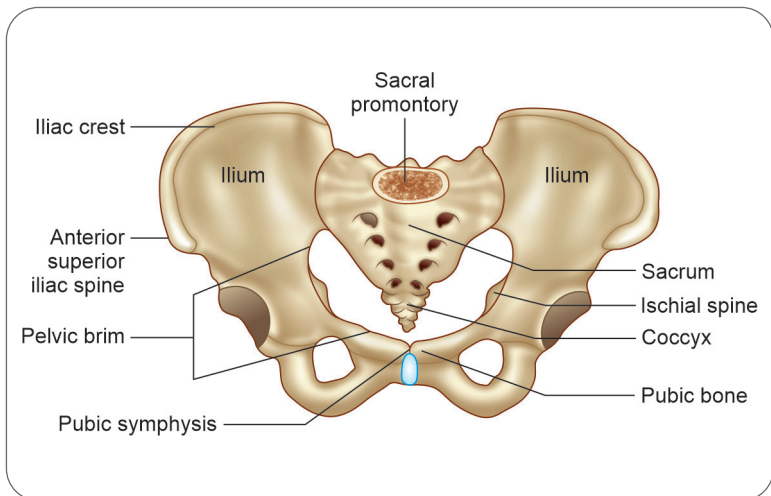


Female Pelvis

INTRODUCTION

- Female pelvis is a bony part which is composed of four bones:
 - Sacrum
 - Coccyx
 - Two innominate bones
- Each innominate bone is formed by the fusion of three bones:
 1. Ilium
 2. Ischium
 3. Pubis



PREPARATION OF THE ARTICLE

Name of the Article	Purposes
<ul style="list-style-type: none">Female pelvis model	To describe the female pelvis
<ul style="list-style-type: none">Scale or pencil	To point out the landmarks

TYPES OF PELVIS

Traditional obstetrics have characterized four types of pelvises:

1. **Gynecoid:** Ideal shape, with round to slightly oval (obstetrical inlet slightly less transverse) inlet.
2. **Android:** Triangular inlet, and prominent ischial spines, more angulated pubic arch.
3. **Anthropoid:** The widest transverse diameter is less than the anteroposterior (obstetrical) diameter.
4. **Platypelloid:** Flat inlet with shortened obstetrical diameter.

ANATOMY OF FEMALE PELVIS

Innominate Bone

Ilium

- The major portion of the pelvis is composed of two bones; each called the ilium—one on either side of the backbone (or spinal column) and curving toward the front of the body.
- The iliac crest is the curved, upper margin of the ilium.
- The anterosuperior spine is a bony projection marking the limit of the iliac crest on the front.
- The anteroinferior spine is a bony projection running beneath the anterosuperior spine on the front side of the bone.
- The posterosuperior spine is the terminus of the iliac crest on the rear-facing side of the ilium.
- The posteroinferior spine is below the posterosuperior spine, and at the end of a larger, roughened region called the auricular surface.
- The auricular surface connects with the sacrum via ligaments to form the sacroiliac joint.

- The iliac fossa is a shallow depression on the internal surface of the upper part of the bone.
- The arcuate line is a ridge that forms the bottom border of the ilium, created by the change in curvature between the upper and lower portions of the bone.
- The greater sciatic arch is the larger U-shaped indentation at the rear margin of the lower ilium.

Ischium

- The ischium is the thick lower part of the pelvis, formed from two fused bones—one on either side.
- The ischial tuberosity is a large posteroinferior protuberance for several muscle attachments (e.g., hamstrings, adductor magnus, inferior gemellus muscles).
- The ischial spine is a posteromedial projection near the merge of the ramus and the body.
- The lesser sciatic notch is a notch on the ramus between the ischial spine and the ischial tuberosity.
- The greater sciatic notch is a larger concavity located between the posteroinferior iliac spine and the ischial spine.

Pubic Bone

- The pubic bones on either side form the front part of the pelvis. The two pubic bones meet in the middle at the **pubic symphysis**.
- **Pubic body:** This is the largest portion of the pubis. The body forms the wide, strong, middle, and flat part of the pubic bone.
- **Superior pubic ramus:** This is one of two sections of bone that branch off the pubic body. The superior pubic ramus is the upper section that connects to both the wing-shaped ilium and the upper portion of the L-shaped ischium.
- **Inferior pubic ramus:** This is the lower section of bone that branches off the pubic body. The inferior pubic ramus connects to the lower portion of the L-shaped ischium.

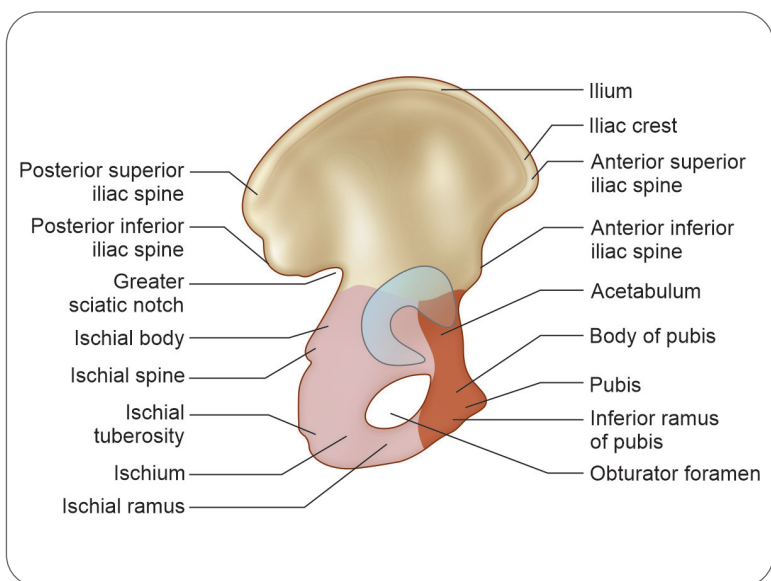
Sacrum

- The sacrum is a tapered, wedge-shaped bone at the back of the pelvis, consisting of five fused vertebrae (the small bones that make up the spinal column or backbone).

- The upper border of the first vertebra in the sacrum sticks out, and points toward the front of the body; this protuberance is the **sacral promontory**—an important landmark for labor and delivery.
- **Apex:** Directed downwards and articulates with the coccyx.
- **Pelvic surface:** It is concave, smooth, and directed forward and downward. It shows four pairs of ventral sacral foramina, for passage of ventral rami of sacral nerves.
- The anterior surface of the sacrum is concavely referred to as the hollow of the sacrum. Laterally extends into sacral ala or wing. Four pairs of holes or foramina pierce the sacrum through these nerves from cauda equina emerges to pelvis organ. The posterior surface is rough to receive an attachment of muscles.

Coccyx

At the bottom of the sacrum is a tail-like bony projection called the coccyx.



Pelvic Joints

There are four joints in the pelvis.

Joints	Types	Location
Symphysis pubis	Fibrocartilaginous joint	In-between two pubic bones
Sacroiliac joint (left and right)	Synovial joint	In-between sacrum and ilium bones
Sacrococcygeal joint	Synovial hinge joint	In-between sacrum and coccyx bones

Pelvic Ligaments

The pelvic girdle has great strength and stability in order to fulfill its functions of support.

Ligaments	Location
Sacroiliac ligaments	Pass in front of and behind each sacroiliac joint
Pubic ligaments	Pass in-between two pubic bones
Sacro tuberos ligaments	Pass from the sacrum to the ischial tuberosity
Sacrospinous ligament	Pass from sacrum to the ischial spine
Sacrococcygeal ligaments	Pass from the sacrum to coccyx

False Pelvis

The false pelvis is the portion above the pelvic brim and has no significance relevant to passage of the fetus through the pelvis. The pelvis is divided by the linea terminalis into the false pelvis above and true pelvis below it.

The Pelvic Canal

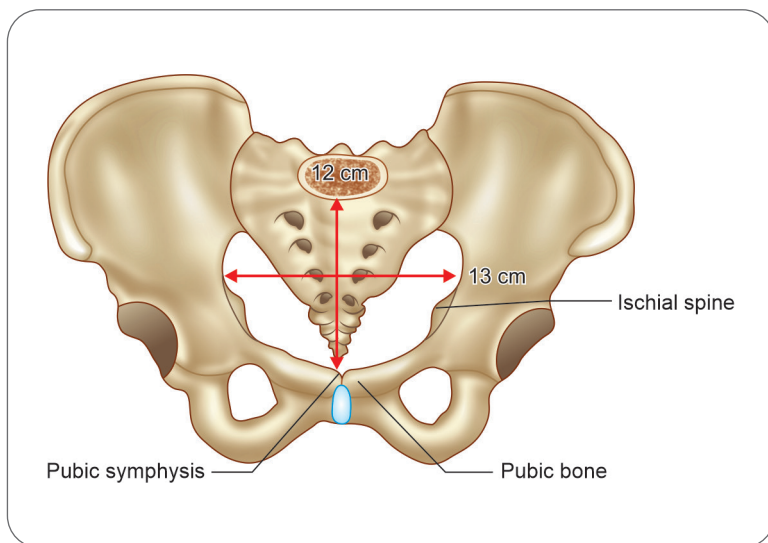
The roughly circular space enclosed by the pubic bones at the front, and the ischium on either side at the back, is called the pelvic canal—the bony passage through which the baby must pass. This canal has a curved shape because of the difference in size between the anterior (front) and posterior (back) borders of the space created by the pelvic bones.

True Pelvis

The true pelvis is the area between the pelvic inlet, and the pelvic outlet which contains the urinary bladder, the colon and the internal reproductive organs.

The Pelvic Inlet

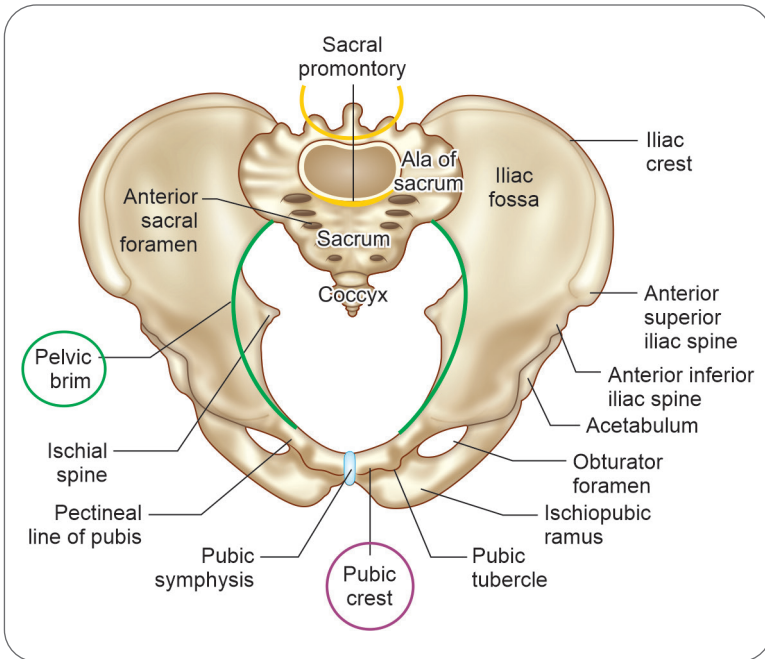
The pelvic inlet is formed by the pelvic brim, it is rounded, except where the sacral promontory and the ischial spines project into it.



The Landmarks of the Inlet

These are the fixed anatomical points on the brim—from posterior to anterior:

1. Sacral promontory
2. Sacral ala or sacral wings
3. Sacroiliac joints
4. Iliopectineal eminence
5. Iliopectineal line
6. Pectineal line
7. Pubic tubercle
8. Pubic crest
9. Upper border of symphysis pubis



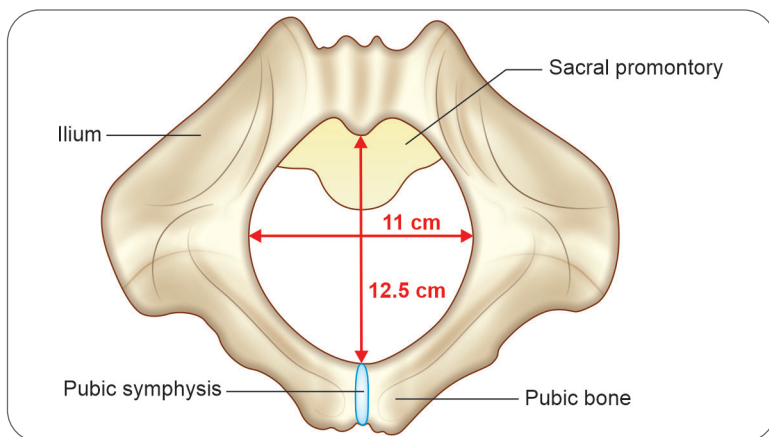
The Pelvic Cavity

The cavity extends from the brim above to the outlets below. It is short and curved with the posterior wall being considerably longer than the anterior wall resulting in a J-shaped axis with the curve directed forward called curve of Carus.

The Pelvic Outlet

The pelvic outlet is formed by the lower border of the pubic bones at the front, and the lower border of the sacrum at the back. The ischial spines point into this space on both sides.

It is further classified as anatomical and obstetrical outlet.



Pelvis diameters in centimeters are shown here:

Pelvis diameters			Extension	Measurement
Inlet	Antero-posterior diameter	Anatomical Conjugate	Distance between mid-point of sacral promontory to inner margin of upper border of symphysis pubis.	It measures about 11 cm.
		Obstetric conjugate	<ul style="list-style-type: none"> Distance between mid-point of sacral promontory to prominent bony projection in midline of inner surface of symphysis pubis. 	Shortest diameter of inlet, measures about 10–10.5 cm
		Diagonal conjugate	Distance between lower border of symphysis pubis to mid-point of sacral promontory.	It measures about 12 cm

Contd...

Pelvis diameters			Extension	Measure- ment
	Transverse diameter	Distance between two farthest points on pelvic brim over ilio-pectineal lines.		It measures about 13 cm
	Oblique diameter	There are two oblique diameters right and left. Each extends from one sacroiliac joint to opposite ilio-pectineal eminence		It measures about 12 cm
Cavity				
	<ul style="list-style-type: none">Anterior wall formed by pubic bone and symphysis pubis, measures 4 cm. The posterior wall formed by curve of sacrum and coccyx, measures 12 cm.Shape: Almost round.Anteroposterior diameter extended from midpoint of posterior surface of symphysis pubis to junction of 2nd and 3rd sacral vertebrae.Transverse and oblique diameter cannot measure exactly as it overlies soft tissues, so roughly we can say overall diameter 12 cm.			
Outlet				
1. Anatomical outlet	Anteroposterior diameter	It extends from lower border of symphysis pubis to tip of coccyx,		It measures about 13 cm.
	Transverse diameter	It is distance between tip of two ischial tuberosity		It measures about 11 cm
2. Obstetrical outlet	Anteroposterior diameter	It extends from the lower border of symphysis pubis to tip of sacrum		It measures about 11 cm.
	Transverse diameter	It is bispinous diameter, it is distance between tip of two ischial spine		It measures about 10.5 cm.

Contd...

Pelvic canal	Anteroposterior diameter (cm)	Oblique diameter (cm)	Transverse diameter (cm)
Brim	11	12	13
Cavity	12	12	12
Outlet	13	12	11