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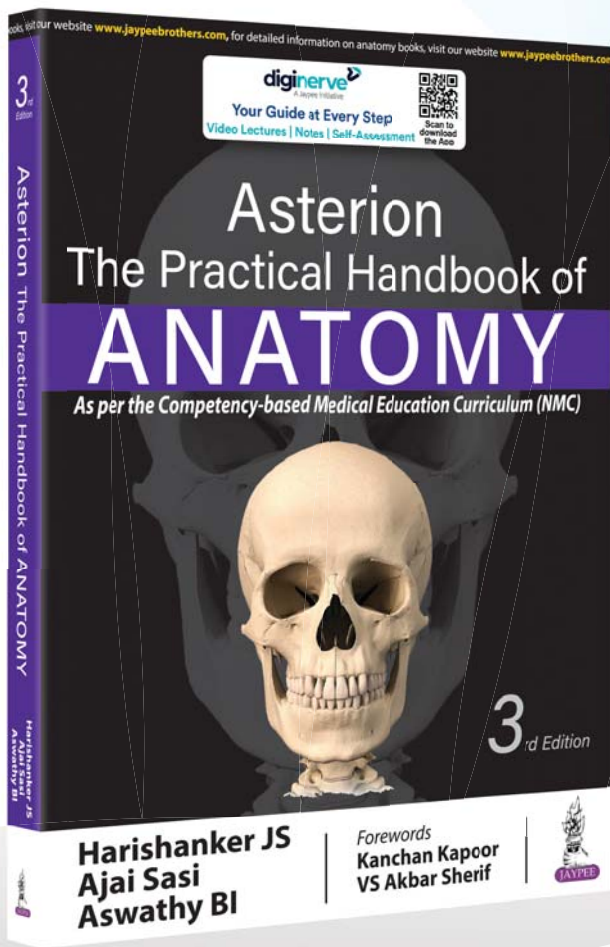
The Practical Handbook of

ANATOMY

As per the Competency-based Medical Education Curriculum (NMC)

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Ajai Sasi
Aswathy BI

3rd
Edition



TOC & Sample Chapter



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Why to Buy this Book ?

- As per the **Competency Based Medical Education Curriculum (NMC)**
- Asterion Covers all practical aspects of anatomy comprising **Histology, Embryology, Osteology, Radiology and Surface Marking.**
- Histology Chapter Covers - **Microscopic Slide and Handmade diagrams** given with **Identification Points, Applied Anatomy, Viva Voce** etc.
- Embryology Chapter Covers - **General Embryology, Systemic Embryology, Genetics** Etc.
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- **Spotters and Discussion Topics.**
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SAMPLE PAGES

Histology chapter features microscope slides and diagrams to show identification points.

SMOOTH MUSCLE

- Involuntary muscle
- Present in walls of hollow viscera and blood vessels.
- **Differentiated, spindle-shaped myocytes**
- **Centrally placed single nucleus**.
- **Nonstriated**. Actin and myosin filaments are arranged randomly and are without cross striation pattern.
- Present in arteries, veins and walls of hollow organs like gastrointestinal tract, respiratory tract and urinary tract.

Applied Anatomy

- These muscle cells divide actively and have capacity to regenerate.
- Lini representation are malignant tumours of smooth muscle. The tumour consists of spindle cells with large hyperchromatic nuclei.
- The contraction of smooth muscle cells is slow, but they can remain contracted for long periods.
- Smooth muscle cells form the extra-cellular fibrous tissue components in the tunica media of blood vessels.
- Smooth muscle cells in the walls of elastic arteries regulate the blood supply to their target tissues.

Viva voce

Q: When the muscle cells are cut in the cross section, there are interruptions in the basal lamina. What is responsible for these discontinuities?

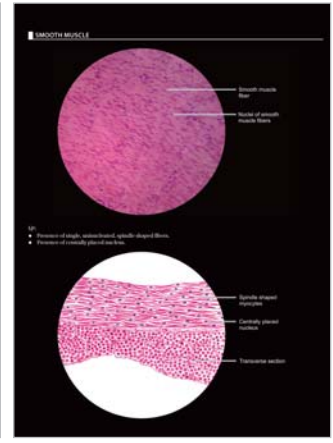
Ans: Gap junctions.

Q: Why do smooth muscle fibres in the cross section have different diameters and why do some of these fail to show nuclei?

Ans: Smooth muscle cells have tapered ends. Since the cells investigate different diameters would be revealed in a particular phase of section and the plane of section does not always go through the nucleus.

Q: Are myofibrils or sarcomeres present in smooth muscle fibres?

Ans: No.



Embryology chapter includes topics like General Embryology and Systemic Embryology to explain developmental processes.

GENERAL EMBRYOLOGY

EMBRYOGENESIS (FIG. 1)

- Sperm + Oocyte → Zygote → Cleavage → Morula → Differentiate → Inner cell mass (embryoblast) + Trophoblast → Blastocyst → Embryonic Disc
- Inner cell mass (embryoblast) has two parts:
 1. Epiblast (epiblast) → Embryonic anlagen
 2. Trophoblast (endoblast) → Yolk sac
- Trophoblast → Syncytiotrophoblast + Cytotrophoblast → Placenta (fetal part)

IMPLANTATION (FIG. 2)

- Post-implantation of the ovum, it reaches uterus via uterine tubes and undergoes fertilization.
- A fertilized ovum as it reaches uterus, it would have become a morula.
- Trophoblast cells of embryos have a property to stick to any tissue which it comes in contact with.
- Mucous covered by zona pellucida prevent morula from sticking to the walls of uterine tube.
- After zona pellucida disappears the trophoblast cells become exposed and gets stuck to uterine endometrium. This is known as implantation.

EMBRYONIC DISC AND GERM LAYERS (FIG. 4)

- Some cells of the inner cell mass differentiate into flat cells and come to lower end and form endoderm, remaining cells become columnar and form ectoderm.
- A space arises between trophoblast and ectoderm called amniotic cavity.
- Some cells of trophoblast gets separated and forms the roof of amniotic cavity. These cells are called amniogenic cells.
- Flat cells from endoderm cover blastocystic cavity and the newly formed cavity is called primary yolk sac.
- The cells of trophoblast form a mass called extraembryonic mesoderm. Gradually small spaces form inside these mass of cells and form a cavity called extraembryonic coelom.
- As a result extraembryonic coelom is split into two layers—the outermost part called somatopleuric or parietal extraembryonic mesoderm and innermost, i.e., just outside the yolk sac called splanchnopleuric or visceral extraembryonic mesoderm.
- But the extraembryonic coelom is not continuous where extraembryonic mesoderm attaches the amniotic cavity to trophoblast. And this uplift part of extraembryonic mesoderm forms the **connecting stalk**.
- **Chorion** is formed by parietal extraembryonic mesoderm and overlying trophoblast.
- Amnion is formed by amniogenic cells derived from trophoblast.
- The primary yolk sac undergoes reduction in size and cells become cubical forming secondary yolk sac.
- In the disc formed, in an area near the margin, the cubical cells of endoderm becomes columnar and this area is called **prochordal plate**.
- Soon some of the cells lying along the central axis of prochordal plate proliferate and bulge and form elevation called **primitive streak**.

DECIDUA (FIG. 3)

- Uterine endometrium after implantation is known as decidua.
- Stromal cells become enlarged and vacuolated and stores glycogen and lipids, also nuclei become rounded, volume of cell increases, etc., this change in stromal cells is termed as **decidual reaction**.
- Decidua consists of three parts:
 1. **Decidua basalis**: Maternal source of placenta, firmly attached to chorion, present at embryonic pole and also called decidual plate and contain large cells with high lipid content.
 2. **Decidua capsularis**: Separates embryo from uterine lumen.
 3. **Decidua parietalis**: It lines the uterine cavity.

EMBRYONIC DISC AND GERM LAYERS (FIG. 4)

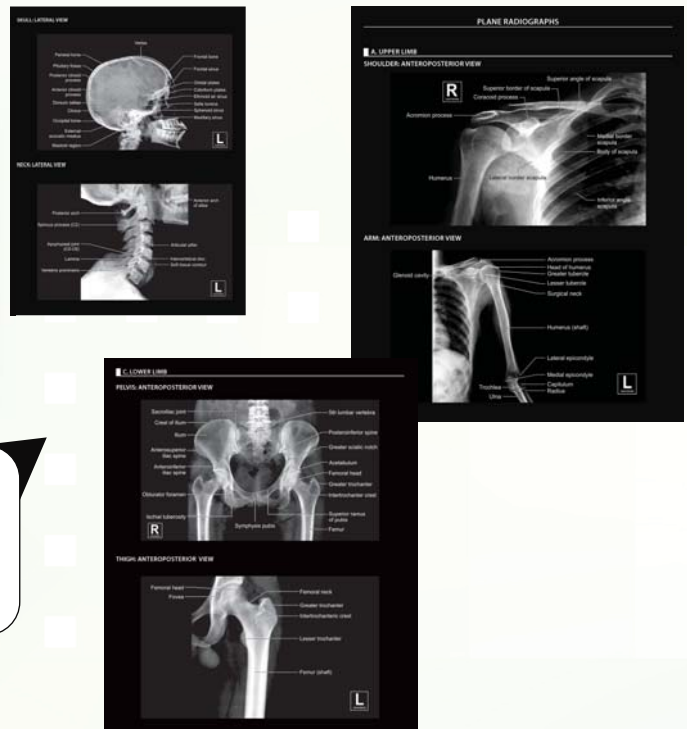
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tissues absorb radiation producing gray scale image.

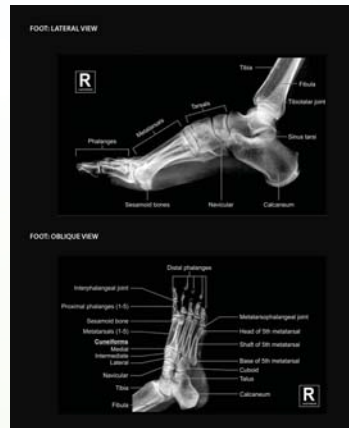
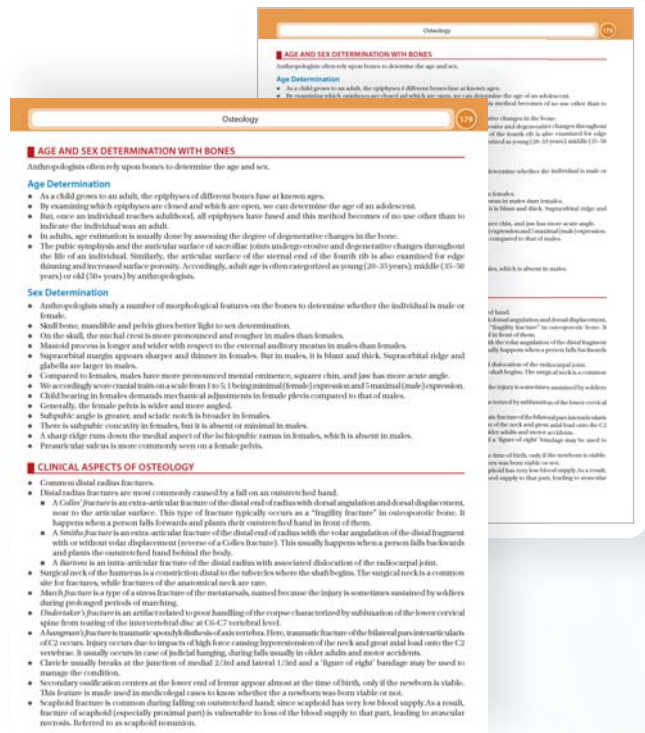
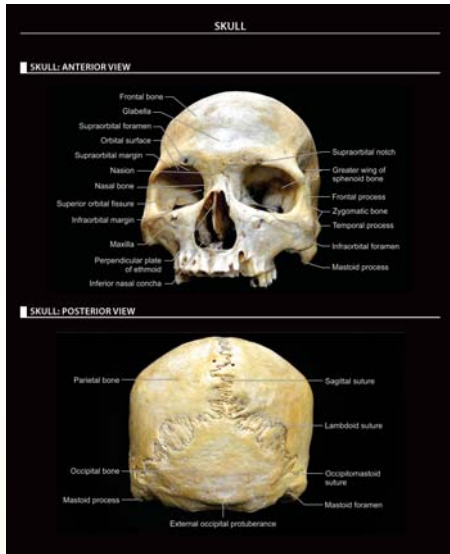
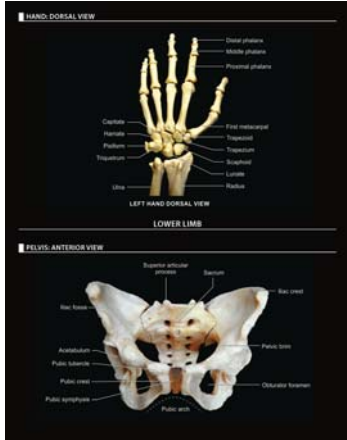
Commonly Used Views in X-ray

- **Posteroanterior (PA) view**
 - The beam of rays enters from back to front of the subject.
 - Here the structures visible are mostly the anterior most structures.
- **Anteroposterior (AP) view**
 - The beam enters from front to the back of the subject.
 - Here the structures visible are mostly the posterior most structures.
- **Lateral view**
 - The beam passes through the lateral part of the body or it passes through sideways of the body.

Radiology chapter covers Basic Radiology, X-rays, and advanced imaging techniques such as CT scans and MRIs.



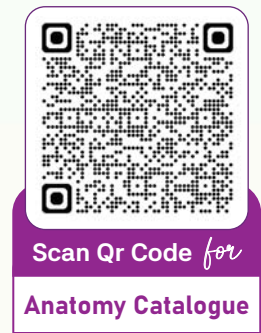
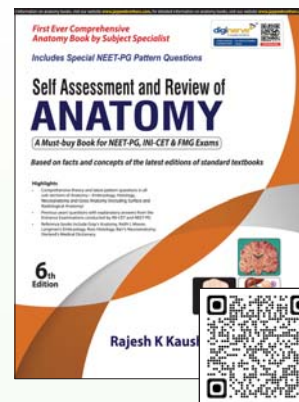
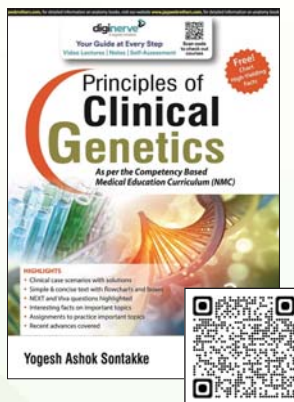
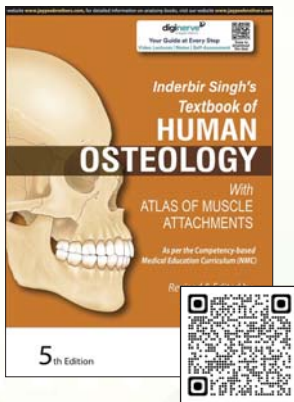
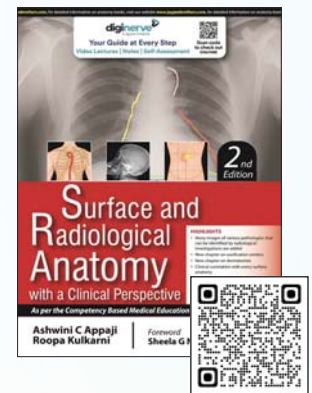
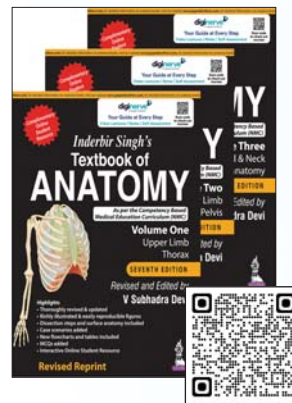
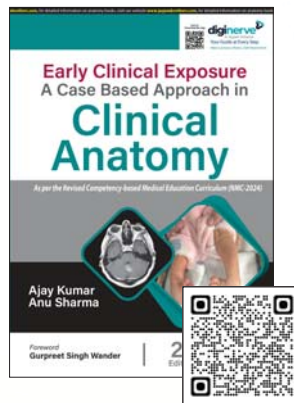
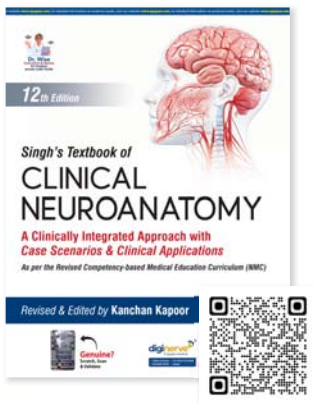
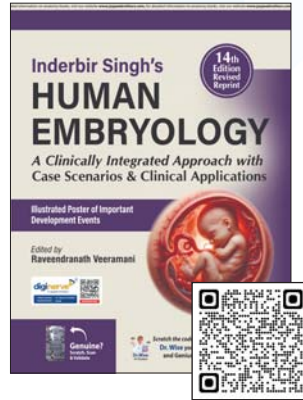
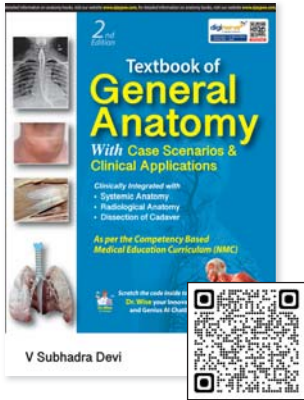
Osteology chapter covers bone basics, age and sex determination methods, and their clinical applications.



Best book for quick revision and understanding of basic concepts.

Very well presented, easy to understand, helps in building concept of anatomy and easy to revise before exams. Histology slides are remarkably outstanding.

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