

SYLLABUS DEL CORSO

Istologia

2324-1-H4601D002-H4601D009M

Aims

The objectives of the course are to provide expertise in histology, microscopic anatomy and embryology. Practical activities using light microscope observations will be used to reach the teaching objectives.

Contents

The primary goal of the course is to provide a good knowledge of the human histology, microscopic anatomy and prenatal development.

Detailed program

GENERAL HISTOLOGY

-Tissues: general characteristics and classification.

- Methods for preparation of histological specimens.
- For each of the following tissue structural, ultrastructural, functional characteristics and classification will be discussed:
- Lining epithelia. Exocrine gland epithelia. Merocrine, apocrine, holocrine and eccrine secretion;
- Proper connective tissue. Intercellular substance of the connective tissue (fibres and ground substance). Biosynthesis of collagen. Connective tissue cells;
- Adipose tissue (unilocular and multilocular adipose tissue);
- Cartilage (hyaline, elastic and fibrous cartilage);
- Bone (woven and lamellar bone, compact and trabecular bone). Osteogenesis (intramembranous and endochondral ossification);

- Muscle tissue (smooth, skeletal striated and cardiac striated muscle tissue). Sarcomere ultrastructure and mechanisms of contraction, neuromuscular spindle and Golgi tendon organ;
- Nervous tissue (neurones and neuroglia). Myelin and myelination. Nervous fibres;
- Blood tissue and hematopoiesis;
- Stem cells.

GENERAL EMBRYOLOGY

- Introduction. Gametogenesis (spermatogenesis and spermatozoa, oogenesis and oocytes).
- Capacitation. Fertilization. Cortical reaction. Zygote.
- First week of development: segmentation, morula, cavitation, blastocyst (embryoblast and trophoblast).
- Implantation.
- Early development of human embryo: formation of epiblast and ipoblast, bilaminar embryonic disc.
- Late development of human embryo: primitive streak, epithelial-mesenchymal transition (gastrulation), formation of mesoderm, trilaminar embryonic disc, notochord and formation of body axes, neurulation (neural tube and neural crest cells).
- Cephalo-caudal and lateral folding.
- Germ layers (ectoderm, endoderm and mesoderm) and their derivatives.
- Somites and their derivatives.
- Pharyngeal arches and their derivatives.
- Intra-embryonic Coelom formation.

MICROSCOPIC ANATOMY:

- Introduction for correct use of the light microscope. Overview of the morphological characteristics of the different tissues that constitute the human body.
- Skin. Structure, organization and histology.
- Digestive system. Structure, organization and histology of lip, tongue, esophagus, stomach, small, large intestine.
- Digestive glands. Structure, organization and histology of liver, gallbladder, pancreas, salivary glands.
- Endocrine system. Structure, organization and histology of hypophysis, thyroid, parathyroid, adrenal glands.- Urinary system. Structure, organization and histology of kidney, minor and major calyx, renal pelvis, ureters, bladder, urethra.
- Respiratory system. Structure, organization and histology of olfactory mucosa, larynx, trachea, bronchial tree (primary, secondary and tertiary bronchi, bronchioles, terminal and respiratory bronchioles, alveolar ducts and alveolar epithelium), lung.
- Female reproductive system. Structure, organization and histology of ovary, fallopian tubes, uterus.
- Male reproductive system. Structure, organization and histology of testis, tubuli recti, rete testis, ductuli efferentes, epididymis, duct system, seminal vesicles, bulbourethral glands, prostate.
- Lymphatic system. Structure, organization and histology of thymus, lymph node, spleen, tonsil, lymphatic vessels.

Prerequisites

College level scientific knowledge

Teaching form

Frontal lessons and optical microscopy exercises.

Textbook and teaching resource

See the "Anatomia, Istologia ed Embriologia Generali e dell'Apparato Stomatognatico" syllabus

Semester

1st and 2nd terms

Assessment method

An extensive mid-course assessment is scheduled for the end of the first term, for the details see Syllabus of "Anatomia, Istologia ed Embriologia e dell'Apparato Stomatognatico".

Office hours

By appointment

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY
