UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Fisiologia dell'Apparato Stomatognatico

1819-3-H4601D012-H4601D033M

Aims

The course
provides specific concepts in the stomatognathic system for better understanding the pathophysiology and the basic clinical knowledge to practice the profession. The course, organized in one semester, is divided into lectures, tutorials and seminars.

Contents

• Describe
the sensory innervation of oro-facial region, the sensory innervation of the tooth

• Outline
the masticatory function

Detailed program

Salivation.
Secretion of water and electrolytes. Ionic mechanisms of salivary secretion. Enzyme secretion. Cellular mechanisms of control of salivary secretion. Nervous control of salivary glands.

Sensitivity
of the oro-facial region

Sensory

innervation of oro-facial region: the touch-pressure receptors, thermal receptors, nociceptors, receptors of the temporomandibular joint. Muscle and tendon receptors.

Sensory
innervation of the tooth; the innervation of the periodontal ligament

The
trigeminal territory. Anatomical and functional organization of the trigeminal nuclear complex. The trigeminal pain.

Taste:
taste receptors, distribution and innervation.

The
biomechanics of mastication. Temporo-mandibular joint. Movements of elevation and lowering of the jaw. Lateral movements.

Bone and
dental structures: dento-alveolar articulation (gomphosis) and occlusion.

The muscles
of mastication: muscle fiber type and motor unit and the lowering of the elevator muscles of the jaw, tension-length relationship.

Jaw
movements and muscle activity during chewing.

Central
integration of the sensitivity and motility of the masticatory system.

The
brainstem (cranial nerve nuclei, reticular formation and monoaminergic systems).

The
reflexes of the masticatory muscles: Excitation and inhibition of mastication motor neurons: synaptic effects of proprioceptive muscle afferents of the oral cavity. Reflex actions initiated by muscle proprioceptors. Degree of jaw reflexes: their role during locomotion and during chewing. Adjustment and sensitivity of the stretch reflex during mastication

The
masticatory function

Masticatory
cycle: during opening, closing, occlusal phase (phase of working power).

Control of
mastication: local control: reflex compensation masticatory loading and unloading; central control: subcortical rhythm generator; trunk circuits-brain and cerebellar influences and the role of the cerebral cortex.

Deglutition

Voluntary
and involuntary phases of swallowing. Influence of the pharyngeal phase on the breath. Neural control of swallowing. Motility of the esophagus and lower esophageal sphincter function.

Calcium
homeostasis

Introduction
of calcium in the diet and its absorption, calcium content in the blood, calcium deposits in the body, control of calcium excretion and balance.

Phonation:
general

Level of
study: high

Prerequisites

Preliminary
required knowledge:
Fundamentals of physics, biochemistry, histology and nervous system anatomy, the cardiovascular anatomy, skeletal muscle anatomy, respiratory system anatomy, gastrointestinal system anatomy, histology and anatomy of the kidney, stomatognathic system anatomy.

Teaching form

Lectures,
seminars and tutorials

Textbook and teaching resource

Manzoni, SCARNATI,*Fisiologia Orale e dell'apparato stomatognatico*, EDI-ERMES

PowerPoint presentations

Semester

First Semester

Assessment method

Written
test: multiple choice test aimed at assessing the understanding of the topics covered, in a context of clinical evaluation of the main physiological parameters with particular reference to the relationships and interactions

between the functions of the organs, apparatuses and systems.

Office hours

By
appointment, by communication to be sent to greta.forcaia@unimib.it