



TEACHER: Costanzo Moretti MD, Professor of Endocrinology MED13
www.endocrinologiamoretti.it/didattica

COURSE : ROLE OF PHYSICAL ACTIVITY IN HEALTH PROMOTION CFU: 14

TEACHING TOPIC : ENDOCRINOLOGY CFU: 5

Syllabus:

Endocrinology is the study of intercellular communications. The **main purpose** of this course is to assist the students in understanding the new concepts of hormone action counteracted by physiological responses restoring the system to equilibrium. The course is aimed to review the receptor and intracellular signaling as well as aspects of the transcriptional regulation in order to define the major physiologic processes controlled by hormones, including growth and maturation, intermediary metabolism and reproduction. The pathophysiology and management of the diseases affecting hypothalamus, pituitary, thyroid, parathyroid, pancreatic islets, adrenal gland, testis and ovary will be also addressed.

The **course objectives** will be:

- To understand the principles of hormone action through receptors, hormone biosynthesis and secretion, feedback regulation, paracrine and autocrine regulation, hormonal rhythms and pulsatility, transport and degradation.
- To explore neuroendocrinology and the influence of endocrine system disruption on hypertension, nutrition, obesity, osteoporosis, dyslipidemia
- To recognize clinical manifestations of endocrine and metabolic disorders and select among current options for diagnosis, management and therapy.
- To understand the pathogenesis and pathophysiology of endocrine diseases, identifying risk factors and strategies for prevention.
- To evaluate the guidelines related to either moderate and vigorous-intensity physical activity as benefit for neuroendocrine health.
- To review the novel mechanisms exerted by adipose and muscle tissues as endocrine systems in regulating energy homeostasis and body composition.

Program:

- General introduction to Neuroendocrinology. How the Endocrine system responds to physical activity



- Type 1 and 2 diabetes mellitus and physical activity: exercise as novel strategy for treatment and prevention of this pandemic disease.
- Adrenal Glands and role of Corticosteroids in Health promotion and Physical Activity. Ethical discussion in the use of steroids and doping in Sports.
- Human Growth Hormone (HGH), Prolactin and Exercise. Physiological regulation and tissue synthesis.
- Role of Exercise in the activation of brown adipose tissue
- Thyroid and its responds after stress and physical activity.
- Physical activity in the prevention of metabolic syndrome and cardiovascular diseases

Suggested Bibliography

P. Michael Conn. Endocrinology of Physical Activity and Sport. Second Edition, Naama Constantini, Anthony C Hackney Editors, Humana Press.

Shern L.Chew e David Leslie Endocrinologia Clinica e Diabete testo-atlante didattico Edizione Italiana di Andrea Fabbri e Costanzo Moretti, ed EMSI 2008

J. Larry Jameson and Leslie J De Groot Endocrinology Adult and Pediatric 7th Edition Elsevier 2016

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