

PHARMACOLOGY

[in PHARMACOLOGY AND PHYSIOLOGY OF THE EXERCISE]

Course ID: BIO/14

ECTS: 5

1st Year: 2nd semester

Teacher: PROF. TENTORI Lucio

Objectives: The course will provide basic information in pharmacology, integrating the basic science with applications in sport and health promotion. Besides giving general principles on the way of drugs enter the body (i.e. their absorption, distribution, metabolism and excretion), and on the mechanisms of drug action the course will focus on how drugs affect physical activities and how exercise can change the effects of drugs. Special emphasis will be given to drugs used to enhance the performance of athletes, to drug abuse, to physical and psychological dependence. Drug interaction and variability of responses to drugs among healthy individuals or in patients with different pathological conditions.

Program:

General Principles.

Pharmacokinetics: drug absorption, distribution, metabolism, and elimination.

Pharmacodynamics: molecular mechanisms of drug action.

Drug toxicity.

Drug interactions.

Pharmacogenetics: genetic variation that gives rise to different response to drugs. both in terms of therapeutic effect as well as adverse effects

Drug development. drug discovery/product development, pre-clinical research and clinical trials.

Inflammation and anti-inflammatory drugs.

Anti-inflammatory, antipyretic, and analgesic agents: Nonsteroidal Anti-Inflammatory Drugs (NAID), Corticosteroids.

Hormones and growth factors.

Growth Hormone (GH), anabolic steroids, erythropoietin, insulin, Insulin-like growth factor.

Physical activities and drug interactions: how physical activity produces cardiovascular adaptations that increase exercise capacity. How exercise may alter drug pharmacokinetics and action or may prevent chronic diseases.

Nutritional supplements and their adverse effects.

Textbooks:

Goodman & Gilman's The Pharmacological Basis of Therapeutics, Laurence L. Brunton, Bruce A. Chabner, Björn C. Knollmann. 12th edition 2011. The McGraw-Hill Companies

Drugs in sport. Edited by David R Mottram. 5th edition 2010. Routledge Francis and Taylor group

Exam method: oral exam