

PHARMACOLOGY

[in PHARMACOLOGY AND PHYSIOLOGY OF THE EXERCISE]

Course ID: BIO/14

ECTS: 5

1st Year: 2nd semester

Teacher: PROF. TENTORI Lucio

Objectives: Aim of the course will be to provide basic information in pharmacology, integrating the basic science with applications in sport and health promotion. Besides giving general principles on pharmacokinetics, pharmacodynamics, drug interactions and toxicity, the course will focus on how drugs may affect physical activities and how exercise could change the effects of the drugs. Special emphasis will be given to the drugs used in the treatment of chronic and degenerative disease; to the substances utilized to enhance the performance of athletes; to drug abuse, physical and psychological dependence

Program:

General Principles.

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

Pharmacodynamics.

Drug toxicity.

Drug interactions.

Pharmacogenetics: genetic variations that give 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, antipyretic, and analgesic agents.

Hormones and growth factors.

Pharmacology of autonomic and central nervous systems.

Sport supplements and their adverse effects. Doping.

Physical activities and drug interactions. The role of physical activity in the prevention of disorders such as hypertension, stroke, diabetes, obesity, hypercholesterolemia, breast and colon cancer, depression, degenerative diseases, osteoporosis and as complementary therapy for the treatment of chronic non-transmissible diseases.

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 and evaluation in progress.

At the end of the course each student will be asked to give a seminar on the current therapies of a chronic disease and on the potential role of physical activity in the prevention and in the support of the pharmacological treatment. The evaluation of students' knowledge on Pharmacology will be assessed on the basis of the power point presentation followed by a discussion on the topic. In particular, it will be evaluated the knowledge of the student on the pharmacokinetics, pharmacodynamics, adverse effects of the drugs illustrated in the presentation, the drug-drug/drug-supplement interactions and the potential benefits of physical activity.