

| | |
|--------------------------|---|
| ID | 652 |
| Curricular Unit | Physiology of Sports Training |
| Regent | Joao Nuno Seabra da Costa Rasoilo |
| Learning Outcomes | Be able to demonstrate knowledge of the main physiologic mechanisms of acute and chronic adaptation to systematic sports training. Be able to analyze the physiologic demands of different sports. Know how to apply physiologic and functional evaluation techniques. |
| Syllabus | Basic and applied physiology. Acute and chronic adaptations to exercise. Historical events. Sports training and characterization of the training load. Genetics of physical fitness. Energy metabolism and cellular mechanisms of ATP re-synthesis. Main physiologic support systems to energy transfer. Mechanisms of the O ₂ supply chain. VO ₂ kinetics, intensity domains and intensity levels. Evaluation of the power and capacity of the energy systems: ergometry; measuring techniques of physiologic variables and parameters; evaluation of anaerobic and aerobic energy production. Analysis of sports demands: physiologic classification criteria. Physiologic training control. Training, muscular fatigue and overtraining. Environmental factors: hypobaric environment and altitude training; hyperbaric environment, underwater exercise and sports diving; temperature, thermoregulation and acclimatization; circadian rhythms and jet lag influences. Warm-up and cool-down. Training, tapering and detraining. |
| Evaluation | The teaching methodology follows a logic of knowledge development centred on the students, based on theoretical and lab work. Written examination and course work: presentation and discussion of thematic reports. |
| Bibliography | Astrand P-O, Rodahl K, Dahl H A, Stromme S B, Textbook of Work Physiology, Fourth Edition, Human Kinetics, Champaign, 2003. MacDougall J D, Wenger H A, Green H J, Physiological Testing of the High-Performance Athlete. 2 ^a ed., Human Kinetics, Champaign, 1991. Wilmore J H, Costill D L, Physiology of Sport and Exercise, Third Edition, Human Kinetics, Champaign, 2004. |