

ID	2339
Curricular Unit	Research Methods on Sport Sciences I
Regent	Pedro Vítor Mil-Homens Ferreira Santos
Learning Outcomes	<p>Practical experience in research techniques related with Metabolic Evaluation, Neuromuscular Function, Anthropometric Measurements and Kinematic Analyses of the Movement.</p>
Syllabus	<p>1. Metabolic Evaluation Main parameters of physiological training evaluation: Heart rate; VO₂, VCO₂ and derived parameters; blood lactate; ergometry Anaerobic energy production evaluation; Aerobic energy production evaluation; Determination of a metabolic profile</p> <p>2. Evaluation of the Neuromuscular Function Electromyography. Basic procedures, for signal detection and signal processing. EMG-force relationship.</p> <p>3. Kineanthropometry Body dimensions and composition measurements. Sexual dimorphism; Maturation (early, normal and late matures).</p> <p>4. Kinematic Analyses of the Movement Video cameras Design and implementation of a practical situation for video analyses Utilization the the APAS system Video capture procedures Digitalization procedures Calculations: transformation and smoothing Results representation Results interpretation</p>
Evaluation	The teaching methodology in this unit is strongly "hands-on" (on the lab). For each topic of the program, the students have to collect and process data, for posterior analysis. The evaluation consists in a written report based on the laboratory work.

Bibliography

- MacDougall, J. D., Wenger, H. A., Green, H. J. (Eds.), *Physiological Testing of the High-Performance Athlete* (2^a edição), Human Kinetics, 1991.
- Mil-Homens, P. e M. J. Valamatos (2004). Manual de Procedimentos. In, Pezarat-Correia, P., P. Mil-Homens (Eds.). *A Electromiografia no estudo do movimento humano: Métodos de recolha e processamento, Manual de Procedimentos, Estudos experimentais*. Edições FMH, Lisboa
- Fragoso, I. & Vieira, F. (2011). *Morfologia e Crescimento. Curso Prático*. Cruz Quebrada: FMH - Serviço de Edições.
- Robertson, G., Caldwell, G., Hamill, J., Kamen, G., Whittlesey, S.,(2004) *Research Methods in Biomechanics*. Human Kinetics Champaign IL. 61825-5076.