

ID	3499
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> <ol style="list-style-type: none"> 1. Metabolic Evaluation <p>Main parameters of physiological training evaluation: Heart rate; VO₂, VCO₂ and derived parameters; blood lactate; ergometry</p> <p>Anaerobic energy production evaluation</p> <p>Aerobic energy production evaluation</p> <p>Determination of a metabolic profile</p> <ol style="list-style-type: none"> 2. Evaluation of the Neuromuscular Function <p>Electromyography</p> <p>Basic procedures, for signal detection and signal processing</p> <p>EMG-force relationship</p> <ol style="list-style-type: none"> 3. Kineanthropometry <p>Body dimensions and composition measurements</p> <p>Sexual dimorphism; Maturation (early, normal and late matures)</p> <ol style="list-style-type: none"> 4. Kinematic Analyses of the Movement <p>Video cameras</p> <p>Design and implementation of a practical situation for video analyses</p> <p>Utilization of the APAS system</p> <p>Video capture procedures</p> <p>Digitalization procedures</p> <p>Calculations: transformation and smoothing</p> <p>Results representation</p> <p>Results interpretation</p>
Syllabus	
Evaluation	<p>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.</p>

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 Valamatos, M.J. (2004). Manual de Procedimentos. In P. Pezarat-Correia, 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*. Champaign, IL: Human Kinetics. 61825-5076.