



## Discipline Information

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The following dates are in (dd/mm/yyyy) format.

Code: RAL5896 - 1 Type: POS

Name: Invasive and Non-invasive Protocols for Assessing, Prescribing and Monitoring Aerobic Training Applied to the Locomotor System

Concentration area: Ciências da Saúde Aplicadas ao Aparelho Locomotor (17142)

### Approval dates:

CCP: 04/12/2020 CPG: 13/01/2021 CoPGr:

Activation date: 13/01/2021 Inactivation date:

### Workload:

Total: 60 h Theory: 4 h Practice: 5 h Study: 6 h

Credits: 4 Duration: 4 weeks

Professors: 8090041 - Marcelo Papoti - 13/01/2021 until today

### Objectives:

Study the invasive and non-invasive protocols for assessing aerobic capacity and power.

Study the use of invasive and non-invasive protocols for prescribing predominantly aerobic training.

Discuss the feasibility of applying the different aerobic assessment protocols in the clinical and sports context, in order to improve the performance of the locomotor system.

### Rationale:

In this discipline, the validity, specificity and viability in the clinical and sports context of the different physiological assessment protocols to measure maximum aerobic capacity and maximal aerobic power will be discussed. The discipline also seeks to discuss the sensitivity of these tests to the

### Content:

Maximum oxygen consumption (VO<sub>2</sub> max). Exercise intensity corresponding to VO<sub>2</sub> max (iVO<sub>2</sub> max).

Relationship between energy expenditure and exercise intensity. Maximum stable lactate phase (MFEL). Minimum lactate test. Physiological significance of the aerobic parameter of the critical power test. Physiological significance of the anaerobic parameter of the critical power test. Relationships between aerobic parameters and the performance of the locomotor system. Training prescription based on maximum aerobic capacity and aerobic power results.

### Bibliography:

de Araujo GG, Papoti M, Machado-Gobatto F de B, de Mello MAR, Gobatto CA.

Standardization of an experimental periodized training protocol in swimming rats. Rev Bras Med do Esporte 2010;

2 Bailemans AC, Fragala-Pinkham MA, Lennon N, Thorpe D, Boyd RN, O'Neil ME, Bjornson K, Becher JG, Dallmeijer AJ. Systematic review of the clinimetric properties of laboratory- and field-based aerobic and anaerobic fitness measures in children with cerebral palsy. Arch Phys Med Rehabil 2013;



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3 Campos EZ, Kalva-Filho CA, Loures JP, Machado-Gobatto FB, Zagatto AM, Papoti M.

Comparison between peak oxygen consumption and its associated speed determined through an incremental test and a 400-m effort: Implication for swimming training prescription. *Sci Sports* 2017;

4 Eerden S, Dekker R, Hettinga FJ. Maximal and submaximal aerobic tests for wheelchair-dependent persons with spinal cord injury: a systematic review to summarize and identify useful applications for clinical rehabilitation. *Disabil Rehabil* 2018;

5 Faleiros CM, Francescato HDC, Papoti M, Chaves L, Silva CGA, Costa RS, Coimbra TM. Effects of previous physical training on adriamycin nephropathy and its relationship with endothelial lesions and angiogenesis in the renal cortex. *Life Sci* 2017;

6 Hansen RK, Samani A, Laessoe U, Handberg A, Larsen RG. Effect of wheelchair-modified rowing exercise on cardiometabolic risk factors in spinal cord injured wheelchair users: Protocol for a randomised controlled trial. *BMJ Open* 2020;

7 Kalva-Filho CA, Barbieri RA, De Andrade VL, Gobbi RB, Pereira GL, Barbieri FA, Papoti M. A prototype for dynamic knee extension: construction, force characterization and electromyographic responses. *Brazilian J Mot Behav* 2020; 14: 97–109

8 Leite MR, Ramos EMC, Kalva-Filho CA, Freire APCF, Silva BS de A, Nicolino J, de Toledo-Arruda AC, Papoti M, Vanderlei LCM, Ramos D. Effects of 12 weeks of aerobic training on autonomic modulation, mucociliary clearance, and aerobic parameters in patients with COPD.

### Type of Assessment:

Preparation of a systematic review article on a selected topic;

Written test regarding the articles discussed in the classroom together with the results from t

### Note:

The course can be taught in portuguese and english

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