

FEDERAL UNIVERSITY OF SÃO CARLOS FOUNDATION

GRADUATE PROGRAM IN PHYSIOTHERAPY – PPGFt/CCBS/R

COURSE CHARACTERIZATION FORM

Graduate Program: Physiotherapy

Course Code: FIT-215

Credits: 4

Course Title: Cardiovascular Assessment Instruments and Innovation in Physiotherapy

Start of Validity: 2025 – 2nd Semester

Justification

This course was created as part of the restructuring of the PPGFt curriculum.

Course Workload

Theoretical Classes: 40 hours

Practical Classes: 20 hours

Exercises/Seminars: Not applicable

Course Syllabus

This course addresses advanced topics related to different cardiovascular assessment instruments. Its objective is to train graduate students in the use of different instruments for hemodynamic, vascular, and autonomic cardiovascular assessment.

- Hemodynamic assessment using cardiopulmonary impedance
- Assessment of endothelial function – flow-mediated dilation
- Study of cardiac autonomic modulation (heart rate variability)
- Study of cardiovascular autonomic modulation (blood pressure variability and baroreflex sensitivity)
- Assessment of arterial stiffness

Nature of the Course

Elective course for both Master's and Doctoral programs.

Main Bibliography

Heubel AD et al. Determinants of endothelial dysfunction in noncritically ill hospitalized COVID-19 patients. Obesity, 2022.

Heiss C et al. Flow-mediated dilation reference values for evaluation of endothelial function. Cardiovascular Research, 2023.

Thijssen DHJ et al. Recommendations for the assessment of flow-mediated dilation in humans. European Heart Journal, 2019.

Townsend RR et al. Recommendations for improving and standardizing vascular research on arterial stiffness. Hypertension, 2015.

Van Bortel LM et al. Measurement of aortic stiffness using carotid-femoral pulse wave velocity. Journal of Hypertension, 2012.

Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. Frontiers in Public Health, 2017.

Catai AM et al. Heart rate variability: are you using it properly? Brazilian Journal of Physical Therapy, 2020.

Main Responsible Faculty

Aparecida Maria Catai – Permanent Faculty

Audrey Borghi e Silva – Permanent Faculty

Renata Gonçalves Mendes – Permanent Faculty

Approval

Approved at the 294th Ordinary Meeting of the PPGFt Graduate Program Committee on June 13, 2025.

São Carlos, June 17, 2025.

Prof. Dr. Anielle Cristhine de Medeiros Takahashi

Chair of the PPGFt Graduate Program Committee and Coordinator of the PPGFt – UFSCar