FEDERAL UNIVERSITY OF SÃO CARLOS

GRADUATE PROGRAM IN PHYSIOTHERAPY – PPGFt

COURSE CHARACTERIZATION FORM

Graduate Program: Physiotherapy

Course Code: DIP-061

Credits: 1

Course Title: Technology and Parkinson's Disease: Assessment and Intervention

Start of Validity: 2025 – 1st Semester

Justification

This course was created to host a visiting researcher at the Graduate Program in Physiotherapy (PPGFt) and the Graduate Program in Gerontology (PPGGero) at UFSCar. The course will be taught in person by Prof. Dr. Paulo Silva Pelicioni, Assistant Professor at the University of New South Wales (UNSW) and researcher at Neuroscience Research Australia (NeuRA).

Prof. Pelicioni conducts research on balance disorders and fall risk in people with Parkinson's disease and leads innovative studies using functional near-infrared spectroscopy (fNIRS) to investigate neural correlates of balance and gait in older adults and individuals with Parkinson's disease. He received the Emerging Scientist Award from the International Society of Posture and Gait Research (ISPGR) in 2023. His clinical and translational research includes the development of remote balance and gait assessments for individuals with neurological disorders. According to the SciVal ranking, Prof. Pelicioni is also the leading early-career researcher in Australia in the research topic T.3229 'Parkinson's disease, neurological gait and remote sensors', and his Field-Weighted Citation Impact (FWCI) in the health sciences is 2.26.

Prof. Pelicioni is visiting the PPGFt and PPGGero under the supervision of faculty members from PPGFt (Prof. Dr. Larissa Pires de Andrade and Prof. Dr. Anielle Cristhine de Medeiros Takahashi) and from PPGGero (Prof. Dr. Juliana Hotta Ansai, Prof. Dr. Camila Bianca Falasco Pantoni, and Prof. Dr. Karina Gramani Say). He has also discussed potential affiliation as a collaborator with the PPGFt, making this course an important opportunity to strengthen this collaboration.

Course Workload

Theoretical Classes: 7 hours

Practical Classes: 1 hour

Exercises/Seminars: 7 hours

Course Syllabus

This course broadly addresses balance, gait, and falls in neurorehabilitation and then explores issues associated with Parkinson's disease in greater depth, including innovative approaches to understanding postural control, such as functional neuroimaging. The focus of the course is on variables related to balance, gait, falls, and functional neuroimaging.

• Balance and gait in neurological diseases

• Fall prevention in neurological diseases

• Neural correlates of balance and gait

• Parkinson’s disease: a comprehensive approach

• Assessment and rehabilitation in Parkinson’s disease

• Discussion of clinical cases

Nature of the Course

Elective course for both Master’s and Doctoral programs.

Main Bibliography

Barbieri FA, Vitorio R, Santos PCR (eds.). Locomotion and Posture in Older Adults: The Role of Aging and Movement Disorders. Springer, 2024.

Bloem BR et al. Measurement instruments to assess posture, gait, and balance in Parkinson's disease: Critique and recommendations. Movement Disorders, 2016.

Allen NE et al. Interventions for preventing falls in Parkinson's disease. Cochrane Database of Systematic Reviews, 2022.

Pelicioni PHS et al. Prefrontal cortical activation measured by fNIRS during walking. PeerJ, 2019.

Stuart S, Morris R (eds.). Gait, Balance, and Mobility Analysis: Theoretical, Technical, and Clinical Applications. Elsevier, 2024.

Main Responsible Faculty

Larissa Pires de Andrade – Permanent Faculty

Karina Gramani Say – Visiting Faculty

Paulo Silva Pelicioni – Visiting Faculty

Approval

Approved at the 292nd Ordinary Meeting of the PPGFt Graduate Program Committee on April 11, 2025.

São Carlos, April 14, 2025.

Prof. Dr. Tatiana de Oliveira Sato

Chair of the PPGFt Graduate Program Committee – UFSCar