FEDERAL UNIVERSITY OF SÃO CARLOS

GRADUATE PROGRAM IN PHYSIOTHERAPY – PPGFt

COURSE CHARACTERIZATION FORM

Graduate Program: Physiotherapy

Course Code: FIT-207

Credits: 2

Course Title: Methods for Assessing Muscle Performance

Start of Validity: 2025 – 1st Semester

Justification

Creation of an instrumental course aimed at providing methodological training in muscle performance assessment.

Course Workload

Theoretical Classes: 12 hours

Practical Classes: 18 hours

Exercises/Seminars: Not applicable

Course Syllabus

• Muscle performance: definition and applications

• Different methods for assessing muscle performance: advantages and limitations

• Basic concepts of isokinetic dynamometry

• Assessment of upper limbs

• Assessment of lower limbs

• Assessment of trunk muscles

• Clinical and research applications

Nature of the Course

Elective course for both Master's and Doctoral programs.

Main Bibliography

Lu X et al. Application of Isokinetic Dynamometry Data in Predicting Gait Deviation Index Using Machine Learning in Stroke Patients. Sensors, 2024.

Cicchella A, Zhang C. Isokinetic assessment of the female soccer player’s knee. Journal of Orthopaedic Surgery and Research, 2024.

Sørensen L et al. Measurement Properties of Isokinetic Dynamometry for Assessment of Shoulder Muscle Strength. Archives of Physical Medicine and Rehabilitation, 2021.

van der Woude DR et al. Reliability of Muscle Strength and Muscle Power Assessments Using Isokinetic Dynamometry in Neuromuscular Diseases. Physical Therapy, 2022.

Schindler IFSR et al. Isokinetic Muscle Strength in a Healthy Population. Sports Health, 2023.

Saygin D et al. Hand-held dynamometry for assessment of muscle strength in inflammatory myopathies. Rheumatology, 2021.

Aerts F et al. Reliability and Agreement of Hand-Held Dynamometry. International Journal of Sports Physical Therapy, 2025.

Althobaiti S et al. Responsiveness of hand-held dynamometry in chronic low back pain. BMC Musculoskeletal Disorders, 2025.

Welling W et al. Monitoring hamstring and quadriceps strength after ACL reconstruction. Journal of Orthopaedics, 2025.

Richards J. The Comprehensive Textbook of Clinical Biomechanics. Elsevier, 2018.

Main Responsible Faculty

Fábio Viadanna Serrão – Permanent Faculty

Mariana Árias Avila Vera – Permanent Faculty

Paula Rezende Camargo – Permanent Faculty

Approval

Approved at the 290th Ordinary Meeting of the PPGFt Graduate Program Committee on February 14, 2025.

São Carlos, February 21, 2025.

Prof. Dr. Tatiana de Oliveira Sato

Chair of the PPGFt Graduate Program Committee – UFSCar