

Liverpool John Moores University

Title: CLINICAL BIOMECHANICS
Status: Definitive
Code: **6106SPOSCI** (123213)
Version Start Date: 01-08-2021

Owning School/Faculty: Sport and Exercise Sciences
Teaching School/Faculty: Sport and Exercise Sciences

Team	Leader
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Academic Level: FHEQ6 **Credit Value:** 20 **Total Delivered Hours:** 46
Total Learning Hours: 200 **Private Study:** 154

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	20
Practical	4
Tutorial	2
Workshop	18

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	Gait an.	Gait analysis report	50	
Exam	Exam	Clinical biomechanics exam	50	2

Aims

The aim of this module is for students to gain the knowledge and skills necessary for evaluating gait quantitatively and to gain the critical knowledge of muscle and tendon function and adaptation.

Learning Outcomes

After completing the module the student should be able to:

- 1 Conduct an experimental analysis of human gait and interpret the findings
- 2 Critically evaluate the role of muscle and tendon function and adaptation

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Gait analysis report	1
Clinical biomechanics exam	2

Outline Syllabus

Introduction to gait analysis

Observational gait analysis and temporal/spatial parameters

Methods of 3D movement analysis

Normal gait

Collection of kinematic data for assessment

Invited speaker on gait analysis

Relationship between muscle structure and function

Voluntary activation of muscle

Tendon function & adaptation

Measurement techniques for muscle and tendon function

Learning Activities

Lectures

Laboratory practicals to collect gait data

Using custom made programs on LJMU AppPlayer (ReportGenerator and TemporoSpatial) with existing data available on BlackBoard

Try QTM 3D motion capture software on LJMU AppPlayer, with pre-recorded data, following a step-by-step guide

ReportGenerator: Compare video of a normal gait case with angle curves

Data processing with step-by-step guide

Explore gait analysis related websites (CMAS standards, ESMAC, CGA)

For the muscle and tendon content there will be lectures followed up by laboratory

demonstration and measurement plus analysis of typical data

Notes

This module has a dual focus on gait analysis, and muscles and tendons.

Gait analysis is the systematic study of human walking. It is one of the main practical applications of biomechanics which can make a difference for individuals in a clinical context.

A critical understanding of muscles and tendon structure and function and their adaptations is vital to understanding biomechanical mechanisms in a clinical context.