Biomechanics of Strength and Conditioning

Module Information

2022.01, Approved

Summary Information

Module Code	7155SPOSCI
Formal Module Title	Biomechanics of Strength and Conditioning
Owning School	Sport and Exercise Sciences
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Sport and Exercise Sciences

Learning Methods

Learning Method Type	Hours
Lecture	10
Practical	3
Workshop	20

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	This module aims to introduce the main biomechanical characteristics of human muscles, tendons and joints, and the implications for human movement, performance and biomechanical testing. The mechanical parameters and behaviour of these tissues of the human body in-vivo will also be examined in response to chronic loading and disuse in order to understand basic musculoskeletal mechanisms and adaptations underpinning changes in whole-body function and performance.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Critically appraise current literature on muscle-tendon mechanics and adaptations
MLO2	2	Analyse, evaluate and adapt methods used for the study of musculoskeletal system function in practice, research and development.
MLO3	3	Apply current strategies and methods for improving performance in sports and rehabilitation applications.
MLO4	4	Research, evaluate and summarise information related to muscle-tendon structure and function.

Module Content

Outline Syllabus	• Muscle architecture and function, and the adaptations to (dis)use• Tendon properties and the adaptations to (dis)use • Neuromuscular activation and the adaptations to (dis)use • Biomechanics of sprinting, jumping, landing and lifting
Module Overview	This module aims to introduce the main biomechanical characteristics of human muscles, tendons and joints and the implications for human movement, performance and biomechanical testing. The mechanical parameters and behaviour of these tissues of the human body in-vivo will also be examined in response to chronic loading and disuse in order to understand basic musculoskeletal mechanisms and adaptations underpinning changes in whole-body function and performance. You will receive two hours direct contact per week and take part in stimulus lectures and practical sessions on the topics concerned.
Additional Information	This module aims to introduce the main biomechanical characteristics of human muscles, tendons and joints, and the implications for human movement, performance and biomechanical testing. The mechanical parameters and behaviour of these tissues of the human body in-vivo will also be examined in response to chronic loading and disuse in order to understand basic musculoskeletal mechanisms and adaptations underpinning changes in whole-body function and performance.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Laboratory report	50	0	MLO2, MLO4
Presentation	Oral presentation	50	0	MLO1, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings

Constantinos Maganaris	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings