

Liverpool John Moores University

Title: SKELETAL MUSCLE PHYSIOLOGY, METABOLISM AND NUTRITION
Status: Definitive
Code: **6015SPOSCI** (117542)
Version Start Date: 01-08-2018
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:** 24 **Total Delivered Hours:** 48
Total Learning Hours: 240 **Private Study:** 192

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	44
Tutorial	2

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	lab report	Lab report	50	
Exam	exam	Exam	50	2

Aims

This module aims to increase your understanding of the regulation of the metabolic processes by which muscles are provided with energy during exercise as well as examining the molecular mechanisms underpinning muscle adaptation to training. Having drawn upon this theoretical knowledge, the module also aims to develop your ability to translate this information to the applied context of sports nutrition with the goal of improving sports performance, training adaptations and recovery.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically evaluate the hormonal and cellular processes involved in the metabolic regulation of energy provision during exercise and the influence of pre- and during-exercise feeding on related metabolic pathways.
- 2 Explain the metabolic responses to acute and chronic endurance, high intensity and resistance-type exercise, and the influence of inactivity and poor diet on related metabolic pathways leading to disease
- 3 Critically evaluate the contribution of macronutrients, micronutrients and ergogenic aids on sports performance, training adaptations and recovery.

Learning Outcomes of Assessments

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

laboratory report	1	
exam	2	3

Outline Syllabus

*Overview of Metabolic Regulation in Exercise Metabolism
Carbohydrate Metabolism in Sport & Exercise
Lipid Metabolism in Sport & Exercise
Protein Metabolism in Sport & Exercise
Feeding Effects on Metabolic Regulation during Sport & Exercise
Metabolic Regulation in Endurance Exercise
Metabolic Regulation in High-Intensity Exercise
Metabolic Regulation in High-Intensity Intermittent Exercise
Training Effects on Metabolic Regulation
Molecular Biology of Muscle Adaptation
Introduction to Sports Nutrition: Digestion and Absorption
Energy Intake and Energy Expenditure
Carbohydrates for Sport Performance
Protein Requirements for Athletes
Fats and Fat Loading
Micronutrients Requirements for Athletes
Hydration Issues for Sports Performance*

Drugs in Sport
Making and Gaining Weight
Nutrition and Immune Function
Supplements for Sport
Practical Aspects of Sports Nutrition

Learning Activities

Students are expected to attend time-tabled lectures and are encouraged to utilise the available directed learning/private study time to get advice from module staff and/or conduct essential reading. Students should complete the required and recommended reading to widen their knowledge and understanding and their ability to apply material. Students will be required to evidence this in the production of their coursework and the module examination.

Notes

This module is designed to increase the students knowledge and understanding of the regulation of the metabolic processes by which muscles are provided with energy during exercise as well as examining the molecular mechanisms underpinning muscle adaptation to training, disuse and metabolic disease. The module also aims to develop your ability to translate this information to the applied context of sports nutrition with the goal of improving sports performance. This will be evaluated by the completion of the relevant assessment tasks. This module will incorporate support strategies in an attempt to ensure student completion. This will include feed forward on assessment and personal tutorial support.