Module Definition Form (MDF)

Module code: MOD005692	**Version:** 6 **Date Amended:** 20/May/2026

1. Module Title
Strength, Power and Functional Assessment in Sport and Clinical Practice

2a. Module Leader
Dan Gordon

2b. School
School of Psychology, Sport and Sensory Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
5

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc (Hons) Sport and Exercise Science, BSc (Hons) Strength and Conditioning, BSc (Hons) Sports and Exercise Therapy		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

The ability to generate force and power across a range of movements, and in relation to individual body size and shape, is fundamental to both everyday functional capacity and specialised athletic performance. In this module, you'll examine the assessment and profiling of force and power production under short-term (non-aerobic) conditions, integrating perspectives from sports performance and clinical or health-related practice. A central philosophy of the module is the importance of validity and reliability in test selection, administration, and interpretation. You'll explore a range of approaches used to assess non-aerobic (metabolic) power, including Wingate cycling protocols, jump-based assessments, and stair-climbing tests. Anaerobic capacity will be evaluated through methods such as accumulated oxygen deficit, constant-load trials, and lactate or critical-power-based modelling approaches relevant to both athletic conditioning and clinical evaluation of functional tolerance. Strength assessment will address isometric, isotonic, and isoinertial modes of force production using conventional gym-based methods alongside clinically oriented measures, including the Reactive Strength Index. These practical assessments will be contrasted with laboratory-based evaluations of muscular strength and torque using isokinetic dynamometry, enabling you to appraise the advantages, limitations, and applicability of each approach across different populations.

The module also considers the assessment of change of direction (COD) as a multidimensional capability influenced by neuromuscular, metabolic, and cognitive components. You'll evaluate COD tests in relation to their relevance for athletes, clinical populations, and individuals with specific functional needs. Measures of body composition will be introduced through field-based methods such as skinfolds and callipers, as well as laboratory standards such as air-displacement plethysmography. Range of motion (ROM) will be examined through both indirect techniques, —such as sit-and-reach — and direct assessment using flexometers and goniometers. Throughout the module, you'll develop transferable skills in laboratory practice, data collection, analysis, and scientific communication. These competencies support a broad range of employment pathways and are particularly relevant for those seeking careers within sport science support services or clinical exercise environments. Learning will be contextualised through live briefs and case-based scenarios that demonstrate how you'd apply these concepts and technical skills in professional practice.

6b. Outline Content

• Validity and reliability

• Anaerobic power: cycle based tests, stair-based tests, running-based tests and jump tests

• Anaerobic capacity: Accumulated oxygen deficit tests, constant load tests, lactate-based tests

• Strength: 1-Repetition maximum, isometric measures, isotonic approaches, isoinertial tests, isokinetic dynamometry

• Flexibility: Leighton flexometer, goniometry, indirect measures, Sit-and-Reach

• Body composition: skinfold thickness, hydrostatic weighing, DEXA

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

Cambridge Centre for Sport and Exercise Sciences

Technician support

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Demonstrate an applied understanding of the physiological principles of neuromuscular profiling and assessment
2	Knowledge and Understanding	Evaluate the assessment protocols in respect of specificity, validity and reliability
3	Intellectual, practical, affective and transferrable skills	Interpret appropriate neuromuscular-based physiological data
4	Intellectual, practical, affective and transferrable skills	Execute practical activities evidencing a safe and effective working practice when undertaking a physiological assessment

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	24	1-4	Lectures 2 hours per week
Other teacher managed learning	24	3-4	Laboratory-based practical's 1 hour per week, group-based tutorials 1 hour per week
Student managed learning	102	1-3	Completion of weekly readings, tasks and preparation for assessments
TOTAL:	150		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-3	50 (%)	Fine Grade	30 (%)
Written laboratory report using data collected from practical sessions of (2000 words equivalent)					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Practical	2,4	50 (%)	Fine Grade	30 (%)
Weekly in-class MCQ (7 questions) based on a single peer-reviewed article pertinent to the weekly theme plus data from previous weeks practical. 1000 word equivalent					

Assessment components for Element 011			
Component No.	**Assessment Title**	**Submission Method**	**Components needed for Mark Calculation?**
011/1	MCQ Paper 1	Scheduled Activity: Timetabled assessment task	Best 7 out of 10. All components used in calculation are equally weighted
011/2	MCQ Paper 2	Scheduled Activity: Timetabled assessment task	
011/3	MCQ Paper 3	Scheduled Activity: Timetabled assessment task	
011/4	MCQ Paper 4	Scheduled Activity: Timetabled assessment task	
011/5	MCQ Paper 5	Scheduled Activity: Timetabled assessment task	
011/6	MCQ Paper 6	Scheduled Activity: Timetabled assessment task	
011/7	MCQ Paper 7	Scheduled Activity: Timetabled assessment task	
011/8	MCQ Paper 8	Scheduled Activity: Timetabled assessment task	
011/9	MCQ Paper 9	Scheduled Activity: Timetabled assessment task	
011/10	MCQ Paper 10	Scheduled Activity: Timetabled assessment task	

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]