

# Unit Outline (Higher Education)

**Institute / School:** Institute of Health and Wellbeing

**Unit Title:** Exercise Physiology

**Unit ID:** EXSCI2171

**Credit Points:** 15.00

**Prerequisite(s):** (HEALT1111 and HEALT1112)

**Co-requisite(s):** Nil

**Exclusion(s):** Nil

**ASCED:** 069903

**Description of the Unit:**

This primary aim of this unit is for students to understand the key principles of exercise physiology and possess the knowledge and skills to safely test the relevant fitness components and effectively prescribe an exercise program to improve sport performance and general health and well-being of the individual. Students will become aware of important issues in exercise testing and prescription related to age, gender, ambient environment, nutrition and ergogenic supplements that may impact on the exercise response to ensure the health of the individual is always maintained. This unit will also focus on developing a critical perspective of current and emerging practices in the fitness industry and an evidence based approach in exercise testing and prescription.

**Grade Scheme:** Graded (HD, D, C, P, MF, F, XF)

**Work Experience:**

No work experience

**Placement Component:** No

**Supplementary Assessment:** Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

**Course Level:**

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Learning Outcomes:

#### Knowledge:

- K1.** Describe the acute effects of exercise on metabolism and the major physiological systems of the body.
- K2.** Describe the metabolic, physiological and fitness component adaptations to aerobic, anaerobic and resistance training, the various tests that can be used to assess adaptation, limitations of these tests and explain strategies to optimise adaptation.
- K3.** Describe the metabolic, physiological and fitness component changes across the lifespan, and the role of exercise in modulating these changes
- K4.** Critique contemporary ergogenic strategies used in sport and fitness settings with particular emphasis on the impact on metabolism, performance and well-being and discuss the recommended nutrition strategies to optimise exercise performance and adaptation to training.
- K5.** Describe the impact of exercise on the risk-factors for chronic diseases, the adaptations that facilitate improved health and advise on the optimal exercise prescription to confer good health.
- K6.** Describe gender differences in physiology and fitness components and the impact of the menstrual cycle and pregnancy on the exercising female.
- K7.** Explain the impact of different ambient environments (temperature, altitude) on the individuals acute and chronic physiological responses at rest and with exercise and strategies to optimise performance in different environments.

#### Skills:

- S1.** Monitor heart rate and blood pressure before, during and after exercise.
- S2.** Calculate and set work rate on a Monark bike during exercise.
- S3.** Conduct basic isokinetic dynamometer procedures for assessing and quantifying musculoskeletal function.
- S4.** Calculate energy expenditure of exercise and economy of movement across a range of exercise intensities.
- S5.** Administer and interpret results from basic physiological tests of exercise capacity/fitness.

#### Application of knowledge and skills:

- A1.** Critically review the current exercise physiology literature and write a literature review expressing opinions on topics in exercise physiology based on an evidence-based approach.

#### Unit Content:

1. Bioenergetics
2. Power & capacity evaluation
3. Calorimetry
4. Sports nutrition
5. Aerobic and anaerobic training adaptations and training strategies
6. Resistance training adaptations and training strategies
7. Ergogenic aids

8. Exercise and acute physiological responses (metabolic, cardio-vascular, neural, pulmonary, endocrine systems)
9. Exercise and thermoregulation
10. Exercise in hypobaric environments
11. Exercise gender and age
12. Exercise the immune system and health

## FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> <li>• Using effective verbal and non-verbal communication</li> <li>• Listening for meaning and influencing via active listening</li> <li>• Showing empathy for others</li> <li>• Negotiating and demonstrating conflict resolution skills</li> <li>• Working respectfully in cross-cultural and diverse teams.</li> </ul>	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Creating a collegial environment</li> <li>• Showing self-awareness and the ability to self-reflect</li> <li>• Inspiring and convincing others</li> <li>• Making informed decisions</li> <li>• Displaying initiative</li> </ul>	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Reflecting critically</li> <li>• Evaluating ideas, concepts and information</li> <li>• Considering alternative perspectives to refine ideas</li> <li>• Challenging conventional thinking to clarify concepts</li> <li>• Forming creative solutions in problem solving.</li> </ul>	Not applicable	Not applicable

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Finding, evaluating, managing, curating, organising and sharing digital information</li> <li>• Collating, managing, accessing and using digital data securely</li> <li>• Receiving and responding to messages in a range of digital media</li> <li>• Contributing actively to digital teams and working groups</li> <li>• Participating in and benefiting from digital learning opportunities.</li> </ul>	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts</li> <li>• Committing to social responsibility as a professional and a citizen</li> <li>• Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses</li> <li>• Embracing lifelong, life-wide and life-deep learning to be open to diverse others</li> <li>• Implementing required actions to foster sustainability in their professional and personal life.</li> </ul>	Not applicable	Not applicable

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, K5, K6, K7	Review of theoretical and laboratory content.	Mid semester test	20-40%
K1, K2, K3, K4, K5, K6, K7, S1, S2, S3, S4, S5	Assessment of practical skills and application of knowledge.	Practical case study	30-50%
A1	Research a topic in exercise physiology and interpret literature to form and convey a written evidence-based opinion.	Written Assignment	20-40%
S1, S2, S3, S4, S5	Attendance and participation in laboratory sessions to complete formative assessments.	90% attendance required to satisfy practical demonstration of skills	Satisfactory/Unsatisfactory

### Adopted Reference Style:

APA ()

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)