



Department of
Education

Year 12 ATAR Physical Education Studies

UNIT 3

Unit 3 PHYSICAL EDUCATION STUDIES 2020

WEEK	TOPIC	CONTENT	WRITTEN ASSESSMENT	PRACTICAL ASSESSMENT
Term 1 1&2 (2020)	Exercise Physiology	<ul style="list-style-type: none"> • implications of preparing and performing in varying environmental conditions <ul style="list-style-type: none"> ▪ heat/humidity ▪ altitude ▪ cold 		
3 & 4		<ul style="list-style-type: none"> • relationship between energy demands and nutritional requirements during physical activity <ul style="list-style-type: none"> ▪ phases of activity – pre-competition, during exercise, recovery ▪ nutritional considerations – balanced diet, glycemic index, fats, proteins, carbohydrates, fluid replacement 	Investigation: Heat Lab conducted	
5		<ul style="list-style-type: none"> • physiological changes brought on by the use of performance enhancers <ul style="list-style-type: none"> ▪ protein powders ▪ anabolic steroids ▪ stimulants 		
6, 7 & 8		<ul style="list-style-type: none"> • training programs designed to improve performance in relation to: <ul style="list-style-type: none"> ▪ periodisation: micro cycle, macro cycle, pre-season, in-season, off-season ▪ specific energy system requirements ▪ peaking ▪ overtraining ▪ injured athletes ▪ tapering ▪ recovery ▪ maintenance 	Investigation: Heat Lab due week 6	

Assessment Outline 2020

This outline has been included to indicate where this assessment task is located in the year assessment planner.

Course: 12 ATAR Physical Education Studies

Units: 3 and 4

Assessment Type (from Syllabus)		Assessment Type Weighting (from syllabus)	Assessment Task Weighting	Weighting for combined mark	Semester/Week due	Assessment Task (general description including the content covered)
Practical Semester One	Netball/Tennis Skills	50%	25	7.5	T2 W1-3	Sport Skill Performance
	Netball /Tennis Conditioned Performance		25	7.5	T2 W1-3	Sport Game Performance
Practical Semester Two	Touch/Tennis Skills	50%	25	7.5	T3 W7-9	Sport Skill Examination
	Touch /Tennis Conditioned Performance		25	7.5	T3 W7-9	Sport Game Performance
			100%	30%		
Investigation		20%	10%	7%	T2 W10	Group Cohesion and Psychology Tasks: <i>Examine a selected context to discuss group cohesion strategies. Report and validate.</i>
			10%	7%	T1 W6	Exercise Physiology Lab Report: Report on training activities in hot environment.
Response		25%	5%	3.5	T4 W8 (2019)	Functional Anatomy Test: <i>Test on Functional Anatomy.</i>
			7.5%	5.25	T2 W3	Motor Learning & Coaching Test: <i>Test on Motor Learning & Coaching</i>
			7.5%	5.25	T3 W5	Biomechanics Test: <i>Test on Biomechanics.</i>
			5%	3.5	T3 W8	Biomechanics Test: <i>Test on Fluid Dynamics.</i>
Written Examination		55%	25%	17.5	Exam week (May)	Semester 1 Examination
			30%	21	Exam week (October)	Semester 2 Examination
Total		100%	100%	70%		

Investigation: Exercise Physiology Lab Report: Report on training activities in hot environment.

The following heat data is for your analysis and incorporation into your report.

	Hot Environment					Cold Environment			
	NAME	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7	Student 8
Body Weight	Pre	75.5	60.3	79.2	73.6	56.7	69.3	54.7	68.7
	Post	75.1	60	78.7	73.3	56.7	68.3	53.5	68.5
Lengths Run	3 mins	9	11	11	11	9	12	10	12
	6 mins	9	11	12	11	9	10	10	11
	9 mins	9	10	11	10	8	9	9	12
	12 mins	9	10	10	11	10	9	10	12
	15 mins	10	9	10	11	10	10	10	11
Temperature	Pre	34.1	32.7	36.8	34.3	35.4	36.8	33.8	34.7
	3 mins	34.7	33.8	36.6	34.7	35.4	36.7	32.3	32.4
	6 mins	33.6	34.9	33.5	36	34.8	NR	32.5	32.1
	9 mins	33.8	35.9	37	36.5	35.7	37.7	32.6	32.6
	12 mins	33.7	36.1	37.6	36.7	35.7	37.5	36	34.1
	15 mins	33.6	36.2	38.3	35.2	35.1	37.8	37	33.9
Heart Rate	Pre	80	114	105	100	85	75	104	83
	3 mins	155	186	186	175	140	NR	155	150
	6 mins	167	192	197	188	160	147	193	198
	9 mins	176	199	198	194	151	150	193	208
	12 mins	178	199	197	200	195	NR	180	204
	15 mins	182	201	195	196	182	NR	179	207

Breathing Rate	Pre	36	24	24	30	30	30	24	18
	3 mins	60	48	30	66	36	48	36	24
	6 mins	48	54	60	72	48	51	60	42
	9 mins	54	57	72	72	48	64	60	48
	12 mins	60	60	36	72	54	60	60	54
	15 mins	66	63	48	78	66	66	66	60
Exertion	3 mins	10	13	13	11	7	12	13	11
	6 mins	10	15	14	15	11	15	15	17
	9 mins	12	16	16	17	12	11	13	18
	12 mins	14	17	17	19	14	12	13	18
	15 mins	15	18	19	20	14	15	14	19

Process

- Apply the process of how to write a lab report
- Consider and include the elements below

Research

Research and describe the implications of preparing and performing in the following environmental conditions:

- heat/humidity
- colder environment
- What other environmental conditions can influence performance? E.g. altitude

Analyse the data

Explore and expand on the relationship between energy demands and nutritional requirements during physical activity

- phases of activity – pre-competition, during exercise, recovery
- nutritional considerations – balanced diet, glycemic index, fats, proteins, carbohydrates, fluid replacement

Investigate training programs designed to improve performance in relation to:

- periodisation: micro cycle, macro cycle, pre-season, in-season, off-season
- specific energy system requirements
- peaking

- overtraining
- injured athletes
- tapering
- recovery
- maintenance

Explain each of these aspects and how you would address them in planning a training program for an athlete.



ENVIRONMENTAL CONDITIONS
Revision Questions

EXERCISING IN THE HEAT

1. Explain how experiencing a double heat load and cardiac drift can be detrimental to endurance performance. (4 mark)

2. Briefly explain how drinks containing relatively large amounts of caffeine could have a detrimental impact on endurance performance. (1 marks)

3. Explain how wearing an ice vest before exercising in the heat could improve performance. (2 marks)

4. How does having a large skin surface area to body mass ratio provide an advantage when exercising in the heat? (2 marks)

5. What are four physiological outcomes of undertaking heat acclimatisaton exercise training 5-10 days before competition in hot conditions? (4 marks)

ENVIRONMENTAL CONDITIONS: Spot Tests

(Do this both of these tests without referring to your text book or any other source.
Use this opportunity to practise test conditions).

EXERCISING IN THE HEAT

1. Of the four mechanisms of heat exchange between the body and the environment, which provides the most significant effects during exercise? Explain how this occurs.

2. Explain why wiping the sweat off the skin during exercise, and exercising during humid conditions, have a similar effect on the effectiveness of evaporative cooling.

3. As the ambient temperature gets hotter, the need for evaporative heat loss becomes greater. Explain this statement.

EXERCISING IN THE COLD – Spot Test

1. Define hypothermia and hyperthermia.

2. What are the symptoms of hypothermia and hyperthermia?

3. What are the treatments for hypothermia and hyperthermia?

4. Using your knowledge of the body's physiological response to cold environmental conditions explain why people often look paler when cold compared to when they are hot?

5. What is wind –chill factor and how does it affect the human body?

6. What are the body's physiological acute adaptations to exercising in the cold (ie: in a comp in the cold)?



7. What can an athlete do to adapt to the cold conditions?



Physiological changes brought on by the use of performance enhancers

Home Assessment Task

Ergogenic aids have been used by athletes to enhance their performance. There are a number of nutritional interventions that are widely used by athletes to help them to perform better. In this section you will be asked to define ergogenic aids, investigate various nutritional interventions, discuss illegal ergogenic aids and then discuss the reasons why athletes choose to use illegal forms of these.

Use a table to set out the different nutritional interventions in questions one and two that summarises their value as a supplement.

- 1. Discuss three nutritional interventions that can be used to enhance performance. For each nutritional intervention, explain how it can enhance performance, how and when it should be used and give examples of the types of athletes that can benefit from its usage.**
- 2. Research and discuss 3 illegal ergogenic aids that have been used by athletes to enhance performance. For each illegal ergogenic aid, explain how it can enhance performance, what the harmful side effects may be and give examples of the types of athletes that may be able to gain an unfair advantage from its usage.**
- 3. Provide and explain in depth three reasons why athletes may choose to use illegal ergogenic aids. Refer also to an athlete in the last decade that has been banned from their sport for this reason. Investigate and summarise their personal story.**

When submitting this task use the checklist below to ensure you have all inclusions:

- Cover page
- Introduction paragraph to the topic. Remember to define some of the major terms
- Table summaries for questions one and two
- Long answer question 3
- References