

Title	Explain the management of extreme environments and travel in a coaching situation		
Level	4	Credits	4

Purpose	People credited with this unit standard are able to: explain the effects of altitude on performance and make recommendations for training, acclimatising, and performing at altitudes; explain the effects of heat on performance and make recommendations for training, acclimatising, and performing in hot environments; explain the effects of cold on performance and make recommendations for training, acclimatising, and performing in cold environments; explain strategies for minimising the effect of travelling different distances and across time zones on physiological function and performance; and explain the effects of pollutants and ways of minimising their effect on performance.
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Classification	Recreation and Sport > Recreation and Sport - Coaching and Instruction
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Available grade	Achieved
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Entry information	
Recommended skills and knowledge	Unit 5368, <i>Demonstrate knowledge of basic functional anatomy and physiology as they relate to movement</i> ; and Unit 6572, <i>Apply the principles of nutrition to people involved in physical activity</i> ; or demonstrate equivalent knowledge and skills.

Explanatory notes

Definition

Extreme environments in the context of this unit standard refer to altitude, heat, cold, pollution, and those requiring travel across time zones or to a foreign country to reach.

Outcomes and evidence requirements

Outcome 1

Explain the effects of altitude on performance and make recommendations for training, acclimatising, and performing at altitudes.

Evidence requirements

- 1.1 Explanation establishes the effects of various altitudes on performance in a range of categories of sports.
- Range at least one of – endurance, sprint, power, technical, artistic, combat, duel, precision events.
- 1.2 Explanation establishes the physiological effect of acute changes in altitude.
- Range pulmonary ventilation, number of red blood cells, blood volume, elimination of bicarbonate, blood pH, performance of fitness components, quantity and quality of training that can be accomplished, physical performance.
- 1.3 Explanation describes the process and duration of acclimatisation to various altitudes.
- Range time in which to adjust to ensure optimum performance; other measures to enhance adjustment – fluid, diet, sleeping patterns, training level versus living level.
- 1.4 Explanation establishes the effects of altitude training on performance at sea level for a range of categories of sports.
- Range at least one of – endurance, sprint, power, technical, artistic, combat, duel, precision events.
- 1.5 Explanation establishes the effects of sea level training on training and performance at altitude for a range of categories of sports.
- Range at least one of – endurance, sprint, power, technical, artistic, combat, duel, precision events.
- 1.6 Explanation establishes recommendations for training, acclimatising, and performing at altitudes.

Outcome 2

Explain the effects of heat on performance and make recommendations for training, acclimatising, and performing in hot environments.

Evidence requirements

- 2.1 Explanation establishes the effect of a hot environment on performance for a range categories of sports.
- Range endurance, sprint and/or power.
- 2.2 Body's normal temperature is identified and contrasted with the range of temperatures the body can tolerate during exercise.

- 2.3 Explanation establishes the mechanisms by which heat exchange can occur between the body and the environment.
- Range conduction, radiation, convection, evaporation.
- 2.4 Explanation describes the main regulatory mechanisms that contribute to heat dissipation.
- Range sweat, blood flow.
- 2.5 Explanation establishes the effect of humidity on the ability to dissipate heat.
- 2.6 Explanation describes the physiological adaptations that follow acclimatisation and/or training.
- Range circulatory adjustments, sweating mechanisms, subjective symptoms and discomfort, effect of training on the ability to perform.
- 2.7 Explanation establishes the dangers and management of heat stroke.
- Range conditions leading to heat stroke, symptoms, emergency treatment.
- 2.8 Explanation establishes recommendations for training, acclimatising, and performing in the heat.
- Range clothing, period of acclimatisation, adaptation of competitive strategy to environmental conditions; hydration – type and content of fluid, rate of fluid absorption, pre and post-competition hydration, monitoring of fluid losses using body weight.

Outcome 3

Explain the effects of cold on performance and make recommendations for training, acclimatising, and performing in cold environments.

Evidence requirements

- 3.1 Explanation describes factors that affect tolerance to cold.
- Range body surface area, percentage of body fat, age, fitness levels, clothing, gender differences.
- 3.2 Explanation describes the physiological adaptations that follow acclimatisation and/or training.
- Range circulatory adjustments, sweating mechanisms, subjective symptoms and discomfort, effect of training on the ability to tolerate and perform in the cold.

- 3.3 Explanation describes the management of hypothermia and frostbite.
- Range symptoms, treatment.
- 3.4 Explanation establishes recommendations for training, acclimatising, and performing in the cold.
- Range clothing; period of acclimatisation; training recommendations to reduce risk of injury; hydration – type and content of fluid, rate of fluid absorption, pre and post-competition hydration.

Outcome 4

Explain strategies for minimising the effect of travelling different distances and across time zones on physiological function and performance.

Evidence requirements

- 4.1 Explanation defines circadian rhythm.
- 4.2 Explanation establishes general physical and psychological effects observed when changing time zones and individual variations.
- Range diet, fluid intake, sleeping patterns, daily routines, speed of adjustment, bodily functions.
- 4.3 Explanation establishes strategies for offsetting detrimental effects of travel particularly over different time zones or in foreign countries.
- Range sleep, eating, drinking, training.

Outcome 5

Explain the effects of pollutants and ways of minimising their effect on performance.

Evidence requirements

- 5.1 Explanation establishes general and specific effects on training and performance of pollutants.
- Range carbon monoxide, ozone, sulphur dioxide, unclean environments.
- 5.2 Explanation establishes strategies to offset the negative effects of training and competing in polluted environments.
- Range gathering information on environment prior to arrival, modifying training to minimise effects of pollutants, use of equipment.

Planned review date	31 December 2012
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 May 1996	31 December 2012
Revision	2	19 February 1998	31 December 2012
Review	3	30 August 1999	31 December 2012
Review	4	12 February 2001	31 December 2012
Rollover and Revision	5	20 November 2006	31 December 2012
Rollover and Revision	6	20 May 2011	N/A

Consent and Moderation Requirements (CMR) reference	0099
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMRs). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Skills Active Aotearoa Limited info@skillsactive.org.nz if you wish to suggest changes to the content of this unit standard.