



## Higher National Unit specification

### General information for centres

**Unit title:** Nutrition for Sports Performance

**Unit code:** F50B 35

**Unit purpose:** This Unit is designed to enhance the candidate's knowledge of the nutritional requirements of various athletes involved in sports competition. This will include an appreciation of the dietary needs and purported benefits of nutritional modification for sports of differing nature. The Unit will consider the role of nutrition in both competition and training and will cover preparation, mid-event and recovery strategies.

On completion of the Unit the candidate should be able to:

- 1 Critically evaluate current fuelling and refuelling strategies for sustained performance and repeated bouts of physical work.
- 2 Review research that highlights the importance of adequate hydration, re-hydration and the effects of de-hydration.
- 3 Critically evaluate current use of a range of nutritional ergogenic aids

**Credit points and level:** 1 HN credit at SCQF level 8: (8 SCQF credit points at SCQF level 8\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

**Recommended prior knowledge and skills:** While access to this Unit is at the discretion of the centre, it may be beneficial if candidates have already completed an HNC in Fitness, Health and Exercise

**Core Skills:** There are opportunities to develop the Core Skills (SCQF level 6) of *Communication, Information Technology, Problem Solving* and *Working with Others* in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

**Context for delivery:** If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

**Assessment:** Outcome 1 could be assessed by a comparative case study; Outcome 2 could be by setting a research task and Outcome 3 by candidates delivering a presentation on a selected supplement or ergogenic aids of interest to them and additional evidence of two other ergogenic aids.

## Higher National Unit specification: statement of standards

**Unit title:** Nutrition for Sports Performance

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### Outcome 1

Critically evaluate current fuelling and refuelling strategies for sustained performance and repeated bouts of physical work

#### Knowledge and/or Skills

- ◆ Storage and breakdown of fats and carbohydrates
- ◆ Depletion of fuel
- ◆ Fuelling and refuelling strategies
- ◆ Metabolism of Energy

#### Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ explain the storage and breakdown of fats and carbohydrates and the role that both play in the metabolism of energy during competition at high and low intensities
- ◆ explain how depletion of fats and carbohydrates influences fatigue during training or sports competition
- ◆ compare and critically evaluate at least two contemporary strategies used by athletes for fuelling and refuelling, before, during and after training and competition

#### Assessment Guidelines

**It is recommended that the entire content of Outcome 1 be assessed by a comparative case study.** It is conceivable that the delivery centre presents the candidate with a physiological profile of differing athletes in terms of gender, nature of competition, training intensity and volume. The candidate could then be expected to compare and discuss the dietary needs of each and provide a rationale for any differences. For the purpose of this Outcome, the candidate should be allowed to comment on athletes with significant fuelling and refuelling needs as part of their normal training and competition pattern.

## Higher National Unit specification: statement of standards (cont)

**Unit title:** Nutrition for Sports Performance

### Outcome 2

Review research that highlights the importance of adequate hydration, re-hydration and the effects of de-hydration

#### Knowledge and/or Skills

- ◆ Reasons for dehydration
- ◆ Effect of dehydration on the physiological systems during training and competition
- ◆ Strategies used to maintain adequate hydration

#### Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ reasons for Hydration — identify athletes that are of particular risk of dehydration and explain at least two circumstances under which this might occur
- ◆ explain the effect that dehydration has on heat dissipation capabilities and the cardiovascular system during training and competition
- ◆ research and outline possible hydration and re-hydration strategies employed by such athletes referring to current guidelines using secondary research

#### Assessment Guidelines

**Outcome 2 — Research Task.** Candidates should be able to show sound knowledge regarding this area and the importance of good hydration with particular mention of the benefits of hydration to certain athletes and the adverse affect of dehydration to such athletes. Candidates could investigate secondary sources of research and provide a summary of findings. It is expected that such findings would include; the benefits of hydration, affects of dehydration for selected performers and hydration strategies for pre, mid and post exercise.

## Higher National Unit specification: statement of standards (cont)

**Unit title:** Nutrition for Sports Performance

### Outcome 3

Critically evaluate current use of a range of nutritional ergogenic aids

#### Knowledge and/or Skills

- ◆ Types of nutritional ergogenic aids
- ◆ Physiological and psychological mechanisms
- ◆ Current guidelines for effectiveness
- ◆ Ethical, legal and safety issues

#### Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ analyse the expected benefits of at least three nutritional ergogenic aids with reference to underlying physiological and psychological mechanisms and explain their current use
- ◆ investigate and describe current guidelines regarding effective dietary supplementation and critically evaluate the effectiveness of a minimum of three supplements
- ◆ explain the ethical, legal and safety issues surrounding dietary supplementation

#### Assessment Guidelines

Because of the scope of the area, **it may be appropriate for Outcome 3 that candidates present on a selected supplement of ergogenic of interest to them.** Such a presentation is likely to include proposed benefits for certain athletes, mechanisms of such benefits, consumption methods, dosage advice, comparison with other supplements and any side effects. It is likely that any psychological effects would not extend further than placebo effect.

The candidate may concentrate on one of the three ergogenic aids offered and produce evidence of understanding of the remaining two.

Various *nutritional* products may be considered at the discretion of the centre such as; protein, creatine, sodium bicarbonate, iron, calcium, antioxidants, vitamins (various), branch chain amino acids, fats, diuretics and caffeine. Please note that this is not an exhaustive list.

## Administrative Information

**Unit code:** F50B 35  
**Unit title:** Nutrition for Sports Performance  
**Superclass category:** RH  
**Original date of publication:** August 2008  
**Version:** 01

### History of changes:

| Version | Description of change | Date |
|---------|-----------------------|------|
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## Higher National Unit specification: support notes

### Unit title: Nutrition for Sports Performance

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

### Guidance on the content and context for this Unit

This Unit covers the rather broad and commonly discussed areas of Fuelling, Hydration and Supplementation and by covering each of these areas individually it is hoped that the candidate will develop greater appreciation of the complexities of each. Throughout each Outcome, attempts should be made to highlight, where possible, examples of athletes or sports that are particularly affected by such dietary modification. Since each principle does not affect all sports universally with equal consequence, relevance to certain types of sport should be emphasised.

On completion of the Unit the candidate should have developed sufficient knowledge to discuss the impact of various nutritional modifications on sports performance. This will range from the adverse affect of dietary inadequacies and excesses, to the advantages gained from appropriate supplementation. With confirmation of relevance to certain sports, this will allow the candidate to recognise athletic needs and understand the nature of dietary advice which may be given to a range of athletes within the competitive sports and fitness training industries.

It is recommended that Outcome 1 will consider the normal fuelling requirements of endurance athletes or athletes involved in repeated bouts of physical work or training. It would therefore be useful if knowledge of the energy systems and fuel utilisation (fats & carbohydrates) were underpinned at the outset of this Unit. This will allow the candidate to then appreciate the potential impact that fuel storage or lack of will have on fatigue rates in sports completion and training. The Outcome will culminate with consideration of fuelling and refuelling: this may consider carbohydrate loading, snacking and carbohydrate intake combined with fluid solution. Where carbohydrate replacement drinks are considered, the different optimal concentrations for before, during and after exercise should be mentioned.

Outcome 2 introduces the principle of hydration and dehydration. This may include mention of all athletes but especially those involved in sustained competition or training and those taking part in warm climates. To highlight the effect of dehydration it is likely that impairment of physiological systems such as heat dissipation and cardiovascular stress (CV drift) could be addressed. The role of sweating and ambient air temperature and humidity will be reaffirmed in *exercise physiology* Units. This Unit will provide the candidate with knowledge of how to maintain hydration/re-hydrate and could include the role of sodium and electrolytes in sports drinks.

Outcome 3 considers dietary modification and will cover the most commonly used supplements; Protein, Creatine and Sodium Bicarbonate although others may also be discussed. It is expected that within each area, the following considerations will be addressed: proposed benefits, physiological mechanisms of such benefits, effective administration methods and safety/ethical issues.

## Higher National Unit specification: support notes (cont)

**Unit title:** Nutrition for Sports Performance

### Guidance on the delivery and assessment of this Unit

This Unit will naturally be delivered as three separate Outcomes and can be delivered in any order, however, it may be advisable to progress logically from Outcome 1 to Outcome 3 — this will allow re-cap of the macronutrients before addressing the complexities of supplementation. It is worth emphasising the independence of each Outcome to avoid confusion between supplementation strategies and their relevance to certain athletes. Assessment could follow in a similar fashion to allow the candidate to properly appreciate how such strategies can be implemented to maximise athletic potential.

Due to the breadth of each subject, a closed-book test may not be appropriate for any Outcome. Alternatively, it would be recommended that the candidate investigate the area (individually per Outcome) assisted with substantial support from class contact time and conventional lecturing.

**Assessment (1): It is recommended that the entire content of Outcome 1 be assessed by a comparative case study.** It is conceivable that the delivery centre presents the candidate with a physiological profile of differing athletes in terms of gender, nature of competition, training intensity and volume. The candidate could then be expected to compare and discuss the dietary needs of each and provide a rationale for any differences. For the purpose of this Outcome, the candidate should be allowed to comment on athletes with significant fuelling and refuelling needs as part of their normal training and competition pattern.

**Assessment (2):** Outcome 2 covers the key issues relating to hydration and dehydration. Candidates should be able to show sound knowledge regarding this area and the importance of good hydration with particular mention of the benefits of hydration to certain athletes and the adverse affect of dehydration to such athletes. **A possible assessment method for Outcome 2 could be by setting a research task.** Candidates could investigate secondary sources of research and provide a summary of findings. It is expected that such findings would include; the benefits of hydration, effects of dehydration for selected performers and hydration strategies for pre, mid and post exercise.

**Assessment (3):** Outcome 3 introduces the rather broad area of nutritional supplements and ergogenic aids. Because of the scope of the area, **it may be appropriate for Outcome 3 that candidates present an oral presentation on a selected supplement or ergogenic of interest to them.** Such a presentation is likely to include proposed benefits for certain athletes, mechanisms of such benefits, consumption methods and dosage advice and any side effects. **To broaden the scope of this Outcome it is expected that candidates also provide evidence pertaining to a further two ergogenic aids.**

The centre *may* consider assessing all Outcomes of this Unit by an in-depth investigation of a sport or athlete and subsequent production of findings pertaining to appropriate nutritional strategies for that sport/athlete. If the candidate desires, they may include their research findings for either Outcome(s) to other research/support based Units such as the Graded Unit.

## Higher National Unit specification: support notes (cont)

**Unit title:** Nutrition for Sports Performance

### *Opportunities for developing Core Skills*

In order to develop the Core Skills mentioned early in the Unit specification the following opportunities could be taken.

*Written Communication* — candidates will have the opportunity to develop written communication through the answers within the suggested assessment guidelines. This may be in the form of reporting research findings or a justification for a detailed recommendation.

*Oral Communication* — opportunity for Oral Communication arises from class discussion regarding each of the issues covered in all Outcomes and by a possible assessment method.

*Information Technology* — candidates are encouraged to conduct background reading regarding the general subject or investigate intervention strategies. This may involve CD-ROM or internet based activities and the use of software for the production of any IT based presentations.

*Numeracy* — candidates may be shown how to, and be invited to calculate calorific values and supplementation measures and recommend suitable interventions based on such data.

*Working with Others* — group work will form the basis of class discussions and allow examples from personal experiences to be shared amongst the group.

### **Open learning**

It is possible that this Unit may lend itself to an open learning style of delivery. It would be recommended that candidates could be directed to relevant areas of study to prepare them for all assessments. It would be emphasised however that this would require a mature and independent approach from the candidate who would otherwise suffer from reduced contact time.

### **Candidates with disabilities and/or additional support needs**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* ([www.sqa.org.uk](http://www.sqa.org.uk)).

## General information for candidates

### Unit title: Nutrition for Sports Performance

By the end of the Unit you should be equipped with the Knowledge and Skills to understand how sports performance can be affected by various dietary modifications and be able to offer advice regarding how to maximise athletic potential by nutritional means.

The Outcomes that you cover are:

- 1 Critically evaluate current fuelling and refuelling strategies for sustained performance and repeated bouts of physical work.
- 2 Review research that highlights the importance of adequate hydration, re-hydration and the effects of de-hydration.
- 3 Critically evaluate current use of a range of nutritional ergogenic aids

During Outcome 1 you will discover the role that fuel plays when training and competing and how a lack of fuel leads to fatigue in certain sports. You will also be taught how fats and carbohydrates are broken down and stored and you will develop an appreciation of which sports especially require this process to assist sustained performance. By the end of the Unit you should be able to offer some advice regarding how an athlete will maintain adequate fuel storage by influencing their diet before, during and after exercise.

Outcome 2 introduces hydration and de-hydration. Throughout this Unit you will develop and understanding vital role that water plays in the body, especially to regulate the physiological function in response to exercise. Again, this will be especially relevant to certain sports and will be demonstrated by highlighting the dangers of de-hydration. Hydration and re-hydration plays a significant commercial role in the sports industry and you will be able to select appropriate re-hydration strategies relevant to a performer.

Outcome 3 covers protein and other forms of supplementation. Many products claim to have benefits that may or may not be true. This Outcome will give you a better understanding of who could take supplements and how they would be best administered. Again, many strategies are specific to certain sports performers and you will develop the knowledge to offer appropriate advice in this area.

It is possible across all Outcomes that you will be able to refer to Knowledge and Skills gained from other Units that you have studied thus far.

If the Unit is delivered prior to or concurrently with a Graded Unit or any other in which you will be required to research/investigate a particular area of study or work with a client in an applied context, you may consider expanding your submission to ensure that it meets the assessment criteria of more than one Unit.