



Higher National Unit specification: general information

Unit title: Metabolic Considerations for Personal Trainers

Unit code: H1S1 34

Superclass: MD

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Version: 01

Unit purpose

This Unit is designed to enable the candidate to further develop their understanding of human anatomy and physiology, with particular emphasis on energy systems — their function and how diet may influence them. It includes a brief introduction to the endocrine system.

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

- 1 Describe the location and functions of the endocrine glands and associated hormones related to nutrition.
- 2 Describe current practice in terms of nutritional terminology, advice, and sources of reliable information.
- 3 Describe how to collect and use nutritional information.
- 4 Apply principles of nutrition to a physical activity programme.

This is one of a suite of Units developed to allow candidates the opportunity to achieve the National Occupational Standard for Personal Training at level 3. Further information is available through the Sector Skills Council (Skillsactive), and centres are advised to check that candidates have completed appropriate aspects of the NOS. Units within this suite fall within the HNC/D award in Fitness, Health and Exercise. Other specialist Units within this suite are:

- ◆ *Working Effectively and Safely with Clients*
- ◆ *Core Strength and Posture*
- ◆ *Planning and Management of Personal Training*
- ◆ *Deliver Personal Training Sessions*

General information (cont)

Recommended prior knowledge and skills

It is recommended that prior to undertaking this Unit candidates should be familiar with human anatomy and physiology, the role and contributions of nutrients, and health screening procedures. The following HN Units would give this knowledge base:

DW60 34	<i>Exercise Physiology and Anatomy</i>
DT4W 34	<i>Nutrition for Fitness, Health and Exercise</i>
DP2L 34	<i>Health Screening</i>

Credit points and level

0.5 Higher National Unit credit at SCQF level 7: (4 SCQF credit points at SCQF level 7*)

**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.*

Core Skills

There are opportunities to develop the Core Skills of *Problem Solving, Working with Others* and *Communication* in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery

This Unit is an option within the Group Awards HNC/D Fitness, Health and Exercise. 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.

Higher National Unit specification: statement of standards

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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

Describe the location and functions of the endocrine glands and associated hormones related to nutrition.

Knowledge and/or Skills

- ◆ Endocrine system anatomy and physiology.
- ◆ Hormone function.

Evidence Requirements

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

- ◆ Locate endocrine glands (hypothalamus; pituitary; thyroid; parathyroid; thymus; adrenal; pancreas)
- ◆ Identify key anatomy of the endocrine system
- ◆ Describe the functions of the major endocrine glands,
- ◆ Describe the functions of the major hormones produced by identified glands (anti-diuretic hormone (ADH); growth hormone; adrenaline; noradrenaline; cortisol; insulin; glucagon; thyroid hormone; parathyroid hormone; calcitonin)

Higher National Unit specification: statement of standards (cont)

Unit title: Metabolic Considerations for Personal Trainers

Outcome 2

Describe current practice in terms of nutritional terminology, advice, and sources of reliable information

Knowledge and/or Skills

- ◆ The role of professionals and professional bodies in offering nutritional advice.
- ◆ Health and performance risks associated with extreme diets.
- ◆ Nutritional influences of cultural and religious dietary practices.
- ◆ Potential dangers, safety, effectiveness and contraindications of protein and vitamin supplements.

Evidence Requirements

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

- ◆ Identify the roles of professionals and professional bodies in the area of nutritional guidance
- ◆ Describe how to access reliable (evidence based) sources of nutritional information
- ◆ Identify the health risks associated with extreme diets
- ◆ Describe how cultural and religious dietary practices can influence nutrition and may lead to imbalances
- ◆ Describe uses and potential dangers of protein and vitamin supplementation

Outcome 3

Describe how to collect and use nutritional information.

Knowledge and/or Skills

- ◆ Development of clients' nutritional profile.
- ◆ Analysis and interpretation of collected information.
- ◆ National food model/guide recommendations.
- ◆ Signs and symptoms of disordered eating.
- ◆ Current guidance on managing users with suspected eating disorders.

Higher National Unit specification: statement of standards (cont)

Unit title: Metabolic Considerations for Personal Trainers

Evidence Requirements

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

- ◆ Identify information required to develop nutritional advice to clients
- ◆ Describe basic dietary assessment methods
- ◆ Describe how to analyse and interpret client information giving cognisance to national recommendations
- ◆ Describe how to recognise the signs and symptoms of disordered eating
- ◆ Describe current guidance for managing users with suspected eating disorders

Outcome 4

Apply principles of nutrition to a physical activity programme.

Knowledge and/or Skills

- ◆ Collection, recording and analysis of information required to provide clients with appropriate healthy eating advice.
- ◆ Establishment of SMART nutritional goals with clients which are compatible with national guidelines.
- ◆ Integration of nutritional goals with other programme components.
- ◆ Monitoring, evaluation and review of clients' progress.

Evidence Requirements

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

- ◆ Identify and utilise credible sources of information to establish nutritional goals with clients
- ◆ Design and agree nutritional goals that are compatible with the analysis of client information, accepted good practice and national guidelines
- ◆ Integrate nutritional goals with other programme components
- ◆ Monitor, evaluate and review the clients' progress towards their nutritional goals

Higher National Unit specification: support notes

Unit title: Metabolic Considerations for Personal Trainers

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 20 hours.

Guidance on the content and context for this Unit

This Unit is designed to enable the candidate to further develop their understanding of human anatomy and physiology, with particular emphasis on the collection and application of information in order to provide nutritional guidance to clients. The endocrine system is briefly considered due to its role in the storage and release of glycogen.

Outcome 1: Describe the location and functions of the endocrine glands and associated hormones related to nutrition

- ◆ Candidates should be able to identify and describe anatomy and physiology of the endocrine system: this should include
 - Glands: hypothalamus; pituitary; thyroid; parathyroid; thymus; adrenal; pancreas
 - Hormones: anti-diuretic hormone (ADH); growth hormone; adrenaline;
 - Noradrenaline; cortisol; insulin; glucagon; thyroid hormone; parathyroid hormone; calcitonin

Outcome 2: Describe current practice in terms of nutritional terminology, advice, and sources of reliable information

- ◆ Candidates should be able to identify the roles of professionals and professional bodies involved in the area of nutrition: for example the British Nutrition Foundation (BNF), World Health Organisation (WHO), British Diabetic Association (BDA), Health Education Authority (HEA) (England), National Institute for Health and Clinical Excellence (NICE) (Scotland), British Heart Foundation (BHF), Foods Standards Agency (FSA), Physical Activity and Health Alliance (PAHA). This list is not exhaustive.
- ◆ Candidates should be able to explain how to access reliable (evidence based) sources of nutritional information, identify the health risks associated with extreme diets, and explain how cultural and religious dietary practices can influence nutrition. Short term health risks may include fatigue, dizziness, blurred vision, weight loss/gain, dehydration, ketosis, and mood swings. Long term health risks may include increased risk of Coronary Heart Disease, cancers, amenorrhea, female athlete triad, osteoporosis, kidney problems. This list is not exhaustive.
- ◆ Candidates should be able to describe safety, effectiveness and contraindications relating to protein and vitamin supplementation

Higher National Unit specification: support notes (cont)

Unit title: Metabolic Considerations for Personal Trainers

Outcome 3: Describe how to collect and use nutritional information

- ◆ Candidates should be able to identify information required to develop a nutritional profile for clients, and describe basic dietary assessment methods
- ◆ Candidates should be able to explain how to analyse and interpret collected information
- ◆ Candidates should be able to explain how to recognise the signs and symptoms of disordered eating — for example frequency, quantity, and quality of meals, consistency, attitude to eating, visiting bathroom after meals, unexplained changes in behaviour
- ◆ Candidates should be able to describe current guidance on managing users with suspected eating disorders

Outcome 4: Apply principles of nutrition to a physical activity programme

- ◆ Candidates should be able to identify and utilise credible sources of information in establishing nutritional goals with clients. This will involve research into current guidelines as suggested by bodies identified in Outcome 2 above, and its application.
- ◆ Candidates should be able to design and agree SMART nutritional goals that are compatible with the analysis, accepted good practice and national guidelines. Again this may involve agencies identified above and generalised guidelines on healthy eating.
- ◆ It is essential that candidates are able to integrate nutritional goals with other programme components (such as training or competition times) in order that clients are able to reach identified targets. Candidates must be able to effectively monitor, evaluate and review the clients' progress towards their nutritional goals

Guidance on the delivery of this Unit

This Unit should be delivered as one of a number of optional Units that will fully prepare the candidate for work as an exercise professional. This Unit is intended to provide candidates with a further knowledge and understanding of the anatomy and physiology of the body in terms of nutritional status. This will enhance the skills of the exercise professional by increasing their awareness of common issues encountered by clients, and to enable a more personalised approach to the development of programmes for optimising performance.

Candidates should develop a holistic awareness of the role of different energy systems in exercise; therefore the learning and teaching process should involve a holistic approach including practical case studies. The purpose of this Unit is also to encourage candidates to look beyond the immediately obvious issues, and start to apply the concept of an evidence-based approach. The Unit terminology involved is scientific in nature and it is important that students become comfortable and competent in the use of scientific and medical terminology, whilst at the same time being able to explain issues to clients in everyday terms.

Higher National Unit specification: support notes (cont)

Unit title: Metabolic Considerations for Personal Trainers

Guidance on the assessment of this Unit

Outcomes 1, 2 and 3 should be assessed through restricted response questions in a closed-book, supervised assessment, though Outcome 3 may be assessed in the form of questions related to a case study.

Outcome 4 forms the major element of this Unit, and it is likely that centres would assess it using case studies.

Assessment Guidelines

Outcome 1

This assessment should be completed under supervised, closed-book conditions.

Outcome 2

This assessment should be completed under supervised, closed-book conditions.

Outcome 3

This assessment should be completed under supervised, closed-book conditions. This may be done either as a series of restricted response questions or as a series of case studies.

Outcome 4

It is likely that this assessment would be completed as a practical case study. It could potentially be integrated with the assessment for the Unit 'Deliver Personal Training Sessions' and/or 'Planning and Management of Personal Training'.

Online and Distance Learning

If this Unit is delivered by open learning methods, additional planning resources may be required for candidate support, assessment and quality assurance.

Opportunities for developing Core Skills

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

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date

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General information for candidates

Unit title: Metabolic Considerations for Personal Trainers

Personal trainers must be able to prepare personalised exercise programmes, and this Unit aims to develop your skills and knowledge of the anatomy and physiology of the human body and how correct nutritional guidance can influence the effectiveness of training programmes. The Unit will help you to identify and understand current guidance on a variety of issues which affect personal training clients.

Outcome 1: Describe the location and functions of the endocrine glands and associated hormones related to nutrition

After completion of this Outcome you should be able to identify and describe the functions of major glands (hypothalamus; pituitary; thyroid; parathyroid; thymus; adrenal; pancreas), and the hormones which they produce (anti-diuretic hormone (ADH); growth hormone; adrenaline; noradrenaline; cortisol; insulin; glucagon; thyroid hormone; parathyroid hormone; calcitonin)

Outcome 2: Describe current practice in terms of nutritional terminology, advice, and sources of reliable information

After completion of this Outcome you should be able to identify the roles of professionals and professional bodies involved in the area of nutrition, explain how to access reliable (evidence based) sources of nutritional information, identify the health risks associated with extreme diets, and explain how cultural and religious dietary practices can influence nutritional advice. You will also examine safety, effectiveness and contraindications relating to protein and vitamin supplementation

Outcome 3: Describe how to collect and use nutritional information

After completion of this Outcome you should be able to identify information required to develop nutritional advice to clients, describe basic dietary assessment methods, and explain how to analyse and interpret collected information. You'll look at the signs and symptoms of disordered eating and healthy eating patterns, and understand current guidance on managing users with suspected eating disorders. All of this will enable you to effectively carry out the assessment in Outcome 4.

Outcome 4: Apply principles of nutrition to a physical activity programme

This Outcome requires you to put into practice all of the information which you have considered in Outcomes 1 to 3. You will need to collect and analyse information, research into current guidelines, and use them in establishing and agreeing nutritional goals with clients. To produce a successful programme you will need to integrate nutritional goals with other programme components, and effectively monitor, evaluate and review the clients' progress towards their overall goals.