Higher National Unit specification

General information

Unit title: Nutrition for Fitness, Health and Exercise

Unit code: H4TF 34

Superclass: RH

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Unit purpose

This Unit is designed to enable the learner to gain knowledge and understanding of the nutrients found in foods, how those nutrients are processed by the body and how diet can contribute to health, fitness and lifestyle related degenerative diseases. This will allow the learner to offer simple dietary advice to clients in the role as a promoter of healthy living.

Outcomes

On successful completion of the Unit the learner will be able to:

1 Identify nutrients from food and describe their purposes within the body.
2 Describe the Anatomy and Physiology of the digestive system.
3 Describe the effects of diet on health and degenerative diseases.
4 Describe the effects of diet on fitness and exercise performance.

Credit points and level

1 Higher National Unit credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

Recommended entry to the Unit

Entry to this Unit is at the discretion of the delivering centre.

Higher National Unit specification: General information (cont)

Unit title: Nutrition for Fitness, Health and Exercise

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

There is no automatic certification of Core Skills or Core Skill components in this Unit.

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.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website **(http://www.sqa.org.uk/sqa/46233.2769.html)**

Equality and inclusion

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**

Higher National Unit specification: Statement of standards

Unit title: Nutrition for Fitness, Health and Exercise

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

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. Learners 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

Identify nutrients from food and describe their purposes within the body.

Knowledge and/or Skills

- Identification of food nutrients
- Basic molecular structures of Carbohydrates, Fats and Proteins
- Roles of food nutrients within the body
- Food sources of nutrients

Outcome 2

Describe the Anatomy and Physiology of the digestive system.

Knowledge and/or Skills

- Identification of major organs of the digestive system
- Functions of major organs of the digestive system
- Digestion and absorption of food

Outcome 3

Describe the effects of diet on health and degenerative diseases.

Knowledge and/or Skills

- Energy use, storage and balance
- Nutrition to support health
- Nutrition related to degenerative disease

Higher National Unit specification: Statement of standards (cont)

Unit title: Nutrition for Fitness, Health and Exercise

Outcome 4

Describe the effects of diet on fitness and exercise performance.

Knowledge and/or Skills

- Energy use, storage and balance
- Nutrition required for different training intensities

Evidence Requirements for this Unit

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes by showing that they can:

Outcome 1

- Identify and describe the roles of food nutrients within the body.
- Describe the basic molecular structures of Carbohydrates, Fats and Proteins.
- Identify major food sources of nutrients.

Outcome 2

- Identify the major organs of the digestive system.
- Describe the functions of the major organs of the digestive system.
- Describe the process of digestion and absorption of food.

Outcome 3

- Describe how food energy is used and stored by the body.
- Describe the 'energy balance equation' and its related factors.
- Describe the main features of a diet that promote good health.
- Identify the main features of diets that contribute to the development of the following degenerative diseases: Osteoporosis, Coronary Heart Disease, Obesity, Strokes, Type II Diabetes, Colon Cancer.

Outcome 4

- Describe the main features of diets required for training at different intensities.

Higher National Unit Support Notes

Unit title: Nutrition for Fitness, Health and Exercise

Unit Support Notes are offered as guidance and 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 is a core Unit delivered as part of the Group Award HNC Fitness, Health and Exercise. It could also be delivered as a stand-alone Unit. The Outcomes would be best delivered and assessed separately. This will give the learner the knowledge required to offer simple dietary advice to clients in their role as a promoter of healthy living.

Outcome 1

This Outcome is an introduction to the nutrients supplied by food and how they take part in the dynamic processes that keep us alive and well.

Nutrients: Carbohydrates (Monosaccharides, Disaccharides, Polysaccharides); Fats (saturated, unsaturated, Trans); Proteins; Vitamins (Fat and Water soluble); Minerals; Water.

Basic molecular structures of Carbohydrates, Fats and Proteins

Carbohydrates (monosaccharides, disaccharides, polysaccharides); Fats (triglycerides); Proteins (amino acid chains, polypeptides).

Roles of nutrients: Learners should have knowledge of the primary roles of nutrients within the body, eg.

Carbohydrates: Energy provision (Fibre — Weight loss, delayed onset of hunger, lowered blood cholesterol, reduced risk of Colon Cancer, reduced risk of Type II Diabetes, ease of stool passage and reduced risk of constipation, reduced risk of haemorrhoids and diverticulitis).

Fats: Energy provision, insulation, protection, carriage of fat — soluble vitamins

Proteins: Growth and repair of tissue, hormones, enzymes, antibodies, transporters

Higher National Unit Support Notes (cont)

Unit title: Nutrition for Fitness, Health and Exercise

Vitamins: General health and wellbeing, eg help the body gain energy from food; provide chemicals needed for new tissue growth; keep nerves, muscles and skin healthy; help form red blood cells; forms part of the immune system; helps with wound healing, aids vision, aids bone and tooth growth, acts as anti–oxidants; aids blood clotting.

Minerals: As for vitamins.

Water: Carry nutrients and waste products throughout the body; helps to form the structure of large molecules; actively participates in many chemical reactions; serves as a solvent (medium) for: vitamins, minerals, amino acids, glucose; acts as a lubricant and cushion around the joints; serves as a shock absorber inside: eyes, spinal cord, uterus during pregnancy; aids in the body's temperature regulation (via sweating); maintains blood volume (via plasma).

Food sources: Learners should be able to identify the main nutrients in the following food groups:

- Breads and cereals
- Fruit and vegetables
- Milk and dairy
- Fats and sugars
- Meat and fish

Outcome 2

This Outcome is an introduction to the digestive system and its way of getting the nutrients discussed in Outcome 1 ready for absorption.

Major organs of the digestive system:

Primary Organs: Mouth; Oesophagus; Stomach; Duodenum; Jejunum; Ileum; Colon; Rectum.

Accessory Organs: Salivary glands; Liver; Gallbladder; Pancreas.

Functions: Learners should be able to discuss the functions of the major organs within the digestive system in relation to the digestion and absorption of food.

Digestion of food: Physical breakdown (mechanical breakdown in mouth, stomach and small intestine); chemical breakdown (enzyme action in mouth, stomach and small intestine).

Absorption of food: Structure of small intestinal lining (folds, villi, microvilli, capillaries, lacteal).

Higher National Unit Support Notes (cont)

Unit title: Nutrition for Fitness, Health and Exercise

Outcome 3

This Outcome is an introduction to the necessity of a balanced diet as the basis for general health and well-being as well as helping to prevent degenerative diseases.

Energy use: At rest; during activity; factors affecting use during activity (intensity of activity, duration of activity, oxygen availability, muscle fibres used, pre–activity nutrition status).

Energy storage: Glycogen (Muscle and Liver), Adipose tissue.

Energy balance: Energy balance equation (energy in — energy out).

Related factors: (Energy in) — Environmental influences; disease state; emotional state; taste of foods; social influences; learned preferences; metabolic factors. (Energy out) — Basal metabolic rate; physical activity; thermic effect of food.

Main features of a healthy diet: Learners should be able to discuss the main features of the Food Standard Agency's current healthy eating guidelines model.

Main features of diets that contribute degenerative diseases: Osteoporosis (Calcium and Vitamin D); Coronary Heart Disease (high sugar, saturated fat, high salt); Stroke (high sugar, saturated fat, high salt); Obesity (high sugar, saturated fat, high salt, excess kcals); Type II Diabetes (high sugar, saturated fat, high salt, excess kcals); Bowel Cancer (high saturated fat, low fibre).

Outcome 4

This Outcome should introduce the learner to the subtle differences in nutrient intake depending on the type/intensity of training being undertaken. The role of the Glycaemic Index and common supplements should be covered.

Main features of diets required for exercising at different intensities: Carbohydrate intake; Glycaemic Index; Protein intake; hydration strategies; Supplements, eg Protein shakes, Creatine (not exclusive).

Guidance on approaches to delivery of this Unit

This Unit provides numerous opportunities for the learner to be involved in individual and group research, individual and/or group presentations and provide information in a variety of formats which will help develop all Core Skills.

Underpinning knowledge for Outcome 1 can be achieved through investigation from a variety of published sources and internet searches especially, for example, sites such as Food Standards Agency in Scotland, nhs.uk/LiveWell/, foodafactoflife.org.uk. Exercises/quizes using food labels can also contribute to this knowledge.

Anatomy & physiology of the digestive system and the process of digestion (Outcome 2) can be assimilated through the many podcasts and Youtube clips available and reinforced through text-based or on-line quizzes.

Higher National Unit Support Notes (cont)

Unit title: Nutrition for Fitness, Health and Exercise

Outcome 3 provides opportunities for learners to consider their own/peers' diet in the light of the Food Standard Agency's guidelines on healthy eating. It also offers the opportunity for group work investigating one of the degenerative diseases and presentation of that material to the class. Group presentations can then form the basis of material used for assessment of the ER.

A good opportunity exists within Outcome 4 for presentations from outside speakers who had changed their diet in order to increase performance. Individual/group investigations into the advantages/disadvantages of certain supplements would allow for class debate. Case studies set should reflect the interests and likely clientele of the group.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Outcome 1

An extended response answer (minimum 1,000 words) divided into sections covering the nutrients and water. The response should include a brief introduction and brief conclusion.

Outcome 2

A supervised, closed-book, restricted response paper, with supporting diagrams to aid identification of anatomical structures and physiological processes.

Outcome 3

A supervised, closed-book, restricted response paper should cover bullet points 1–3. A group presentation (maximum 10 minutes on one degenerative disease) and a time-limited (one hour), open-book restricted response paper (minimum four diseases) should be set to cover bullet point 4. Learners may bring two A4 sides of hand-written notes to the assessment which must be submitted at the same time as the assessment paper.

Outcome 4

A minimum of two case studies should form this assessment. Each case study should present a different training intensity scenario.

Higher National Unit Support Notes (cont)

Unit title: Nutrition for Fitness, Health and Exercise

Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at **www.sqa.org.uk/e-assessment**

Opportunities for developing Core and other essential skills

The Unit allows the learner to develop their formal written skills in the form of an extended response answer for Outcome 1. Oral communication can be developed through a variety of exercises across all Outcomes. There is the opportunity for group research, oral presentation tasks and class debate, which would enable the learner to work co-operatively with others, access, provide and create information and apply some critical thinking skills. Outcome 3 and 4 require learners to consider and apply more technical numerical data in their understanding of nutritional requirements for health and fitness. These Outcomes also require that learners review and evaluate the information learnt in Outcomes 1 and 2 in order to adequately and appropriately apply it for assessment.

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: Nutrition for Fitness, Health and Exercise

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

The science of nutrition is relatively new and involves the study of the nutrients in foods and the body's handling of those nutrients. Because it is a science in its infancy, there are many new and exciting discoveries taking place every year for us to broaden our knowledge base.

Nutrition plays a significant role in all of our lives, even though we are not always aware of it and it will continue to affect us in major ways, depending on how we choose our foods. It is now becoming common knowledge that good choices bring about health benefits whilst careless choices bring about many of today's degenerative diseases such as obesity, heart disease and type II diabetes.

As a promoter of healthy living you will be expected to advise clients on matters of a nutritional nature. This Unit offers you the knowledge and skill base required to do so. You will learn to identify sources of food nutrients, and understand their structure and roles within the body. You will build on your knowledge of human anatomy, learning about the digestive system and its function with particular reference to digestion, absorption and usage of food. Finally you will learn how an effective diet can contribute to health and fitness; and how an ineffective diet can contribute to degenerative disease.

There are four Outcomes in the Unit. During the delivery, you will be expected to undertake a variety of tasks some of these will be individual and some will be group investigations. It is likely that you will be involved in class presentations and debates, and you will need to apply all of this knowledge in formal assessments.

Assessments will comprise an extended response (report type) paper, closed-book questions, open-book questions, oral presentation and case studies.