

Next Generation Higher National Unit Specification

Applied Nutrition for Sport, Physical Activity and Health (SCQF level 8)

Unit code: J7CY 48
SCQF level: 8 (16 SCQF credit points)
Valid from: session 2024–25

Prototype unit specification for use in pilot delivery only (version 2.0) August 2024

This unit specification provides detailed information about the unit to ensure consistent and transparent assessment year on year.

This unit specification is for teachers and lecturers and contains all the mandatory information required to deliver and assess the unit.

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This edition: July 2024 (version 2.0)

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Unit purpose

This unit enhances learners' knowledge and understanding of key areas of nutrition so that exercise practitioners can support clients to become healthier and more active.

It develops learners' knowledge of the varying aspects of nutritional requirements and dietary behaviours, including:

- ◆ maintenance of health throughout different life stages
- ◆ prevention of illness and disease, including eating disorders, and disordered eating
- ◆ physical activity, exercise, and sports performance
- ◆ how the endocrine system and hormonal factors have an impact on health and energy utilisation

Learners apply knowledge in either a client or case study setting to further develop skills and critical analysis of nutrition, dietary practice and hormonal factors specific to their career or education aspirations.

Clients or case studies may include children; adolescents; antenatal and postnatal (mother and child); active and inactive populations; acute; chronic; low and high-risk physical and mental health conditions; sports performers; and eating disorders in different contexts.

Entry to the unit is at your centre's discretion; however, learners must have completed either Next Generation: Higher National Certificate (HNC) Physical Activity and Health or HNC Fitness, Health and Exercise. We recommend that learners have some experience and/or participate in a gym and/or fitness environment. We recommend that learners carrying out the unit have communication skills to a level equivalent to at least SCQF level 6.

The knowledge and skills that learners develop in the unit is transferable to employment and further study.

Unit outcomes

Learners who complete this unit can:

- 1 distinguish the functions and features of the endocrine system and associated hormones that have an impact on health, nutrition, energy utilisation, and dietary behaviours in different populations
- 2 critically evaluate the importance of nutrition for the maintenance of health
- 3 differentiate between applied nutrition and dietary practices that contribute to health, and practices that can prevent or diminish ill health, disease and morbidity
- 4 critically analyse the application of nutrition and dietary practices for physical activity, exercise, and sports performance

Evidence requirements

Learners can generate evidence through open book, stand-alone assignments, oral questioning, or an overall unit project.

Distinguish the functions and features of the endocrine system and associated hormones that have an impact on health, nutrition, energy utilisation, and dietary behaviours in different populations (outcome 1)

Learners must:

- ◆ identify key anatomical features of the endocrine system, detailing the location of major endocrine glands (hypothalamus; pituitary; thyroid; parathyroid; thymus; adrenal; pancreas)
- ◆ describe the functions of the major endocrine glands
- ◆ describe the functions of the main hormones produced by identified glands (antidiuretic hormone (ADH); growth hormone; adrenaline; noradrenaline; cortisol; insulin; glucagon; thyroid hormone; parathyroid hormone; calcitonin)
- ◆ interpret hormone and endocrine system impacts on nutrition, energy utilisations and dietary requirements
- ◆ interpret a range of data sets of blood chemistries and hormone levels that enable learners to demonstrate how two or more of these are involved in metabolic processes

Critically evaluate the importance of nutrition for the maintenance of health (outcome 2)

This may be cross-assessed with outcome 5 in J7CB 48 Exercise Practitioner 2.

Learners must:

- ◆ identify policy in relation to current guidelines for nutrition
- ◆ research peer-reviewed evidence for the maintenance of health involving components of nutrition and recommended dietary practices
- ◆ critically evaluate a range of influences on dietary practices

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- ◆ critically evaluate data collection and measurement techniques
- ◆ evaluate personal practice against the Association for Nutrition competency framework
- ◆ select reliable, evidence-based guidelines for healthy eating
- ◆ maintain integrity of client data in accordance with legislation and ethical practice

The following evidence requirement may be cross-assessed with outcome 4 in J7CB 48
Exercise Practitioner 2:

- ◆ critically evaluate data sets (non-clinical)

Differentiate between applied nutrition and dietary practices that contribute to health, and practices that can prevent or diminish ill-health, disease and morbidity (outcome 3)

This following evidence requirement may be cross-assessed with outcome 4 and 5 in J7CB
48 Exercise Practitioner 2.

Learners must:

- ◆ compare nutritional intake with evidence-based recommendations, dependent on client needs
- ◆ recognise dietary practices and behaviours evidenced to contribute to illness, disease, and morbidity
- ◆ guide evidence-based changes to dietary practice and behaviours, intended to:
 - improve health outcomes which meet specific, measurable, achievable, relevant and time-bound (SMART) client goals
 - these goals will improve and sustain positive nutrition and dietary behaviours to minimise or prevent illness, disease and morbidity
- ◆ source research and policy literature on the contribution of nutrition to illness, disease, and morbidity
- ◆ conduct a client or case study assessment
- ◆ interpret data sets (clinical)
- ◆ identify referral routes for clinical support, recognising professional roles and responsibilities
- ◆ sustain awareness of contemporary societal factors and medical conditions that affect nutrition-related illness, disease, and morbidity
- ◆ apply principles and policy to help safeguard clients' wellbeing
- ◆ maintain professional standards and integrity of client data in accordance with legislation and ethical practice

Critically analyse the application of nutrition and dietary practices for physical activity, exercise, and sports performance (outcome 4)

Learners must:

- ◆ source peer-reviewed literature on performance nutrition

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- ◆ evaluate energy systems and energy requirements of different types of physical activity, exercise and sport, including positional demands and levels of sports performance
- ◆ differentiate nutritional demands on rest days, training days, competition days and for tournaments
- ◆ critically evaluate nutritional data and dietary practices that contribute to performance and recovery
- ◆ conduct a client or case study assessment
- ◆ compare nutritional intake with evidence-based recommendations, dependent on client needs
- ◆ guide evidence-based nutrition and dietary practices to promote and sustain performer health, performance and recovery
- ◆ apply principles and policy to help safeguard clients' wellbeing
- ◆ maintain professional standards and integrity of client data in accordance with legislation and ethical practice

Knowledge and skills

The following table shows the knowledge and skills covered by the unit outcomes:

Knowledge	Skills
<p>Outcome 1 Learners should understand:</p> <ul style="list-style-type: none"> ◆ functional anatomy and physiology of the endocrine system ◆ endocrine system glands that have an impact on: <ul style="list-style-type: none"> — appetite — absorption of nutrients — energy utilisation — uptake and release of glucose into the blood stream — thirst ◆ the impact of hormones on prenatal and postnatal nutrition, foetal development and subsequent development of the child ◆ the impact of hormones in adolescent development, such as: <ul style="list-style-type: none"> — in the menstrual cycle — increased testosterone ◆ the impact of hormones in the perimenopause and menopause ◆ phytoestrogens ◆ dysfunctions of the endocrine system, for example in the: <ul style="list-style-type: none"> — thyroid — pancreas 	<p>Outcome 1 Learners can:</p> <ul style="list-style-type: none"> ◆ identify key anatomical features of the endocrine system and endocrine glands (hypothalamus, pituitary, thyroid, parathyroid, thymus, adrenal, pancreas) ◆ explain the functions of the major endocrine glands ◆ explain the functions of the main hormones produced by identified glands, including: <ul style="list-style-type: none"> — antidiuretic hormone (ADH) — growth hormone — adrenaline — noradrenaline — cortisol — insulin — glucagon — thyroid hormone — parathyroid hormone — calcitonin ◆ interpret hormone and endocrine system impacts on nutrition, energy utilisations and dietary requirements

Knowledge	Skills
<p>Outcome 2 Learners should understand:</p> <ul style="list-style-type: none"> ◆ current nutrition guidelines in maintaining physical and mental health, including: <ul style="list-style-type: none"> — energy balance and components of energy expenditure — macro- and micronutrients — energy values of macronutrients, including units of measurement — alcohol ◆ food labelling and portion sizes ◆ nutritional supplementation, including vitamins, minerals, pre- and probiotics in food and drinks ◆ the definition and differentiation of: <ul style="list-style-type: none"> — recommended daily allowances — recommended dietary intakes — recommended nutritional intake — dietary reference values — estimated average requirement ◆ the efficacy of a range of data collection methodologies, including the use of digital and mobile technologies ◆ the limitations of normative data ◆ the efficacy of measurement techniques used to determine: <ul style="list-style-type: none"> — body composition: fat mass and lean mass — ratios such as body mass index and waist-hip ratio — endomorphy, mesomorphy, and ectomorphy ◆ subjective and objective assessment ◆ how dietary needs can differ depending on age, gender, physical activity levels and life stages 	<p>Outcome 2 Learners can:</p> <ul style="list-style-type: none"> ◆ identify policy in relation to current guidelines for nutrition ◆ research peer-reviewed evidence for the maintenance of health involving components of nutrition and recommended dietary practices ◆ critically evaluate a range of influences on dietary practices ◆ critically evaluate data collection and measurement techniques ◆ evaluate the competency framework against personal practice ◆ create a data collection tool

Knowledge	Skills
<p>Outcome 2 (continued) Learners should understand:</p> <ul style="list-style-type: none"> ◆ prenatal and postnatal stages, lactation, maternal nutrition and foetal development ◆ how body composition may be affected by age, gender, ethnicity, and physical activity levels ◆ the influences of ethical, cultural, and religious dietary practices that can affect nutrition and may lead to imbalance ◆ popular dietary practices and the perceived benefits, limitations, and potential risks of extreme or 'fad' diets ◆ drugs: prescribed and recreational to include alcohol, caffeine, and nicotine ◆ nutraceuticals ◆ vitamins, minerals and fortification of common foods ◆ water treatments ◆ nutrition and nutritional supplements as prophylactics to prevent degenerative conditions ◆ emergent trends in sustainable food production and environmental impact ◆ climate action ◆ food security ◆ food waste ◆ data sets and their applications and limitations 	
<p>Outcome 3 Learners should understand:</p> <ul style="list-style-type: none"> ◆ national policies relating to dietary practices that have an impact on physical and mental health, ill health, disease and morbidity ◆ the specialist organisations and accredited practitioners to support clients with clinical nutrition and dietary conditions 	<p>Outcome 3 Learners can:</p> <ul style="list-style-type: none"> ◆ source research and policy literature on the contribution of nutrition to illness, disease, and morbidity ◆ evidence awareness of contemporary societal factors and medical conditions that affect nutrition-related illness, disease and morbidity

Knowledge	Skills
<p>Outcome 3 (continued) Learners should understand:</p> <ul style="list-style-type: none"> ◆ food production, processing and preparation techniques that are detrimental to health, including: <ul style="list-style-type: none"> — trans fats — nutrient deficient foods — additives, preservatives, use of fillers and substitutes ◆ the influence of socioeconomic factors on affecting food choices and behaviours ◆ the psychological influences affecting food choices and behaviours ◆ the evidence of how chronic poor dietary practices have an impact on ill health, disease and morbidity, including: <ul style="list-style-type: none"> — sugar — salt — alcohol — portion control — vitamin and mineral deficiencies — fibre deficiencies ◆ data sets that imply dietary practices that are detrimental to health, including: <ul style="list-style-type: none"> — blood lipids — blood pressure — glucose — liver function (non-alcohol and alcohol related markers) — haemoglobin (Fe) 	<p>Outcome 3 (continued) Learners can:</p> <ul style="list-style-type: none"> ◆ conduct a client or case study assessment ◆ compare nutritional intake with evidence-based recommendations, dependent on client needs ◆ critically evaluate data sets (clinical) ◆ recognise dietary practices and behaviours evidenced to contribute to illness, disease, and morbidity ◆ guide evidence-based changes to dietary practice and behaviours that are intended to improve health outcomes that meet SMART client goals; to improve and sustain positive nutrition and dietary behaviours; to minimise or prevent illness, disease, and morbidity ◆ apply principles and policy to help safeguard client's wellbeing ◆ identify referral routes for clinical support, recognising professional roles and responsibilities

Knowledge	Skills
<p>Outcome 3 (continued) Learners should understand:</p> <ul style="list-style-type: none"> ◆ illness and disease attributed to poor nutrition and dietary practices, such as: <ul style="list-style-type: none"> — mental health — obesity (adult onset and child onset) — hyperlipidaemia — cardiovascular diseases, including hypertension, stroke, angina, coronary heart disease — diabetes (type 2) — cancers of the digestive system — alcohol and drug misuse — anaemia ◆ Illness or diseases that are exacerbated by nutrition choices, including: <ul style="list-style-type: none"> — diabetes (type 1) — allergies and intolerances — osteoporosis — Crohn's disease — coeliac disease — kidney disease ◆ the spectrum of eating disorders and disordered eating, including myths and misconceptions, psychological and behavioural signs and symptoms ◆ emerging trends that have an impact on nutrition related illness and disease, including the effects of antibiotics on gut microbiota 	
<p>Outcome 4 Learners should understand:</p> <ul style="list-style-type: none"> ◆ energy systems in sport and physical activity ◆ energy requirements for a range of daily physical activities and exercise practices ◆ post-exercise energy consumption to optimise recovery 	<p>Outcome 4 Learners can:</p> <ul style="list-style-type: none"> ◆ source peer-reviewed literature on exercise and performance nutrition ◆ evaluate energy systems and energy requirements of different types of physical activity, exercise, and sport, including positional demands and levels of sports performance

Knowledge	Skills
<p>Outcome 4 (continued) Learners should understand:</p> <ul style="list-style-type: none"> ◆ typical energy expenditure for different types of sport, for example: <ul style="list-style-type: none"> — endurance — intermittent sprint — strength and power — aesthetics ◆ energy requirements on training days, non-training days, and competition days, match days, or tournaments ◆ relative contributions of macronutrients to the demands of sport, based on the dominant energy systems, energy requirements and level of performance ◆ glycaemic index and glycaemic load ◆ dietary practices that are evidenced to: <ul style="list-style-type: none"> — promote performance in exercise or sport — have principles of periodised nutrition planning — promote recovery — sustain performance in competition — fulfil energy requirements and refuelling strategies ◆ relative energy deficiency in sport, for example low energy availability ◆ Female Athlete Triad ◆ the importance of hydration and the optimal use of hypertonic, isotonic, and hypotonic fluids ◆ the efficacy of supplements and ergogenic aids used for performance and recovery in sport and physical activity, for example: <ul style="list-style-type: none"> — whey protein — bicarbonate — creatine — beetroot — caffeine 	<p>Outcome 4 (continued) Learners can:</p> <ul style="list-style-type: none"> ◆ conduct a client or case study assessment ◆ differentiate nutritional demands on rest days, training days, competition days, and tournaments ◆ compare nutritional intake with evidence-based recommendations, dependent on client needs ◆ critically evaluate data sets (non-clinical) ◆ select reliable and evidence-based guidelines for healthy eating ◆ critically evaluate nutritional data and dietary practices that contribute to performance and recovery ◆ identify nutritional requirements to offset impacts of overtraining ◆ guide evidence-based nutrition and dietary practices to promote and sustain performer health, performance, and recovery

Knowledge	Skills
<p>Outcome 4 (continued) Learners should understand:</p> <ul style="list-style-type: none">◆ dietary practices that may compromise physical or mental health, or performance, for example:<ul style="list-style-type: none">— sports involving weight-making— disordered eating and eating disorders in sport— very low body fat for performance or aesthetic purposes— amenorrhea— taking substances or supplements that are banned, in particular those based on hormones or hormonal derivatives	

Meta-skills

Throughout the unit, learners develop meta-skills to enhance their employability in the physical activity and health sector.

Self-management

This meta-skill includes:

- ◆ focusing: development of a digital tool to capture a range of general and context-specific client data; collating and organising information gained from the client consultation process, including physical assessments, and conducting a needs analysis — in outcomes 1, 2, 3 and 4
- ◆ integrity: understanding ethics; being aware of acting on values and principles; work ethic; timekeeping; reliability; discipline; trustworthiness when working with clients during consultation and reporting and/or guidance process — in outcomes 2, 3 and 4
- ◆ adapting: adapting digital tools and resources to meet the specific needs of the live client and case study — in outcomes 2, 3 and 4
- ◆ initiative: independent thinking; motivation; self-belief; responsibility when preparing for working with a client during the consultation; reporting and guidance for clients in their own context; identifying and using assessment resources to evidence knowledge and skills — in outcomes 1, 2, 3 and 4

Social intelligence

This meta-skill includes:

- ◆ communicating: receiving information; giving information; listening to others when working with clients and peers, either on a one-to-one basis or in groups — in outcomes 2, 3 and 4
- ◆ feeling: sense of responsibility; empathy; understanding how others feel when working with clients; developing an understanding of when to show empathy; developing the ability to build relationships; working with clients and planning around their needs; accepting the perspectives of others to understand their feelings and motivations — in outcomes 2, 3 and 4
- ◆ collaborating: operating in different settings; building relationships with clients and peers; working towards shared goals; team working with other professionals — in outcomes 2, 3 and 4
- ◆ leading: inspiring and motivating others; influencing others and being a role model; developing others when working with clients — in outcomes 2, 3 and 4

Innovation

This meta-skill includes:

- ◆ curiosity: noticing significant information; asking questions; information sourcing; problem recognition; assessing own development — in outcomes 1, 2, 3 and 4
- ◆ creativity: creating digital tools, using proprietary software, that are engaging and informative; responding to different client needs and adapting; devising solutions to problems in different contexts; creating resources for information and guidance — in outcome 1, 2, 3 and 4
- ◆ sense-making: analysing client information gained from the consultation and physical assessment process; analysing client data and making sense of sometimes conflicting and contradictory information — in outcomes 2, 3 and 4
- ◆ critical thinking: analysing client information and data gathered from the consultation and assessment process and referencing this against peer-reviewed evidence — in outcomes 2, 3 and 4

Delivery of unit

You can contextualise and cross-assess:

- ◆ outcome 3 with Management of Long-Term Health Conditions for Exercise Practitioners (SCQF level 8) as a wider portfolio to reduce the volume of assessment
- ◆ outcome 4 with outcome 5 in Exercise Practitioner 2 (SCQF level 8).
- ◆ outcome 2 and 3 may be cross-assessed with outcome 4 and 5 in Exercise Practitioner 2 (SCQF level 8).

You should deliver the unit in parallel with client or case studies in Professional Development Awards (PDAs) as part of the HND in:

- ◆ PDA in Training Principles for Personal Trainers
- ◆ PDA in Management of Long-Term Health Conditions for Exercise Practitioners
- ◆ PDA in Physical Activity for Antenatal and Postnatal Clients (optional)
- ◆ PDA in Sport and Physical Activity for Children (optional)
- ◆ PDA in Working Inclusively with Participants with Disabilities (optional)

Additional guidance

The guidance in this section is not mandatory.

You should deliver the outcomes sequentially. Outcome 1 focuses on the endocrine system and hormonal communication and examples occur in outcomes 2,3 and 4. You may teach and assess this in context. Learners can cross-reference to other units where they are working with live clients or case studies.

Outcome 2 establishes a reference point for outcomes 3 and 4.

You should deliver nutrition for prenatal and postnatal clients including lactation and maternal nutrition's impact on foetal and child development, as part of normative health nutrition in outcome 2. You should cover eating disorders and disordered eating topics in both outcome 3 — illness, disease and morbidity, and in outcome 4 — performance nutrition.

The flexibility of using a live client or case study should support delivery and assessment across the unit. These are to be applied in context to enable the learner to tailor their applied research to their specialist interests or area of progression for employment or further education.

Approaches to delivery

Distinguish the functions and features of the endocrine system and associated hormones that have an impact on health, nutrition, energy utilisation and dietary behaviours in different populations (outcome 1)

You can link this outcome to any live or case study client in outcomes 2, 3 and 4, or you can cross-assess evidence that occurs naturally in the context of the learner's specialist interest or area of progression for employment or further education.

Learners should research the distinguishing functions and features of endocrine glands and associated hormones and their impact on nutrition, energy utilisation and dietary behaviours in different populations.

You should give learners a range of data sets of blood chemistries and hormone levels. Learners should demonstrate how two or more of these are involved in metabolic processes that have an impact on a healthy balanced diet and dietary behaviours at different life stages. Learners can also identify where they are evidenced to have an impact on illness, disease and morbidity and physical activity, exercise, sports performance and recovery.

Critically evaluate the importance of nutrition for the maintenance of health (outcome 2)

Teach learners how to critically evaluate the policy, accepted normative data, and best practice that influences nutrition and dietary practices at different life stages. Learners can apply this in the context of a live client or case study.

This outcome links closely with current government guidelines in order to apply principles of nutrition to ensure a healthy balanced diet through, for example, the NHS Eatwell Guide, and the Association for Nutrition Competence Framework in Nutrition for Fitness and Leisure.

Other sources you may include are:

- ◆ British Nutrition Foundation (BNF)
- ◆ World Health Organization (WHO)
- ◆ Public Health Scotland (PHS)
- ◆ Scottish Health Survey (SHS)
- ◆ Foods Standards Agency (FSA)
- ◆ Physical Activity and Health Alliance (PAHA)
- ◆ American College of Sports Medicine (ACSM)
- ◆ Scottish Index of Multiple Deprivation (SIMD)
- ◆ Association for Nutrition (AfN)

Teach learners about the importance of the fundamental principles of nutrition, terminology and food policy as identified in the 'Knowledge and skills' table. Teach learners how nutritional requirements change through different life stages, including how the endocrine system has an impact on these, and other individual and population level factors that can positively affect physical and mental health and wellbeing.

Learners establish a baseline for the contextualisation of outcomes 3 and 4, and apply their learning by constructing an evaluation tool that enables them to conduct a nutritional assessment of a client and case study, and to apply and critically evaluate the:

- ◆ data collection methodology
- ◆ proprietary nutrition analysis software
- ◆ factors influencing healthy nutrition, including current dietary trends and environmental influences

Learners can take an investigative approach, both individually and collaboratively. This provides opportunities for peer-to-peer learning, and to develop their digital skills for presentation and analysis.

Critical evaluation supports learners in devising applied methodologies to collect their own data. Learners construct and implement an evaluation tool that they can augment for the specific needs of different clients in outcomes 3 and 4.

Differentiate between applied nutrition and dietary practices that contribute to health, and practices that can prevent or diminish ill health, disease and morbidity (outcome 3)

Depending on the learner's specialist interest or area of progression for employment or further education, learners can apply their learning from outcome 2 to the context of a live client or case study linked to the PDA in Management of Long-Term Health Conditions for Exercise Practitioners or the PDA in Personal Training.

Learners can differentiate between health-promoting nutrition and dietary practices, and those that contribute to illness, disease, and morbidity.

Learners should connect causal links between suboptimal nutrition and dietary practices and illness, disease and multimorbidity, where they occur. For example, learners should include wider societal factors and physical, psychological, and emotional effects.

Sources may include:

- ◆ the National Health Service (NHS) topic-specific sources for pathological conditions
- ◆ the British Diabetic Association (BDA)
- ◆ the National Institute for Health and Clinical Excellence (NICE) (Scotland)
- ◆ the British Heart Foundation (BHF)

You should provide learners with opportunities to critique a range of clinical data sets, and differentiate these against current policy recommendations and evidence-based practice for a healthy balanced diet and dietary behaviours.

Learners should augment and apply the digital tool they created in outcome 2. They should analyse data sets, including clinical information, so that they may ascertain the appropriate nutrition and dietary practices, including hormonal influences, that are causing or contributing to, illness disease or morbidity. They should refer to evidence and current best practice.

Learners should research the epidemiology, aetiology, pathophysiology and treatment of the client or case study, and identify any hormonal factors.

Learners can research and produce digital artefacts for peer-to-peer learning activities in two or more areas of nutritional and dietary practices that contribute to, or exacerbate, illness, disease or morbidity. Learners can do this either individually or collaboratively, and their evidence can form part of their assessment portfolio.

Critically analyse the application of nutrition and dietary practices for physical activity, exercise, and sports performance (outcome 4)

Learners can draw on their learning in outcome 2 and can link to any live or case study client who is connected to the PDA in Management of Long-Term Health Conditions for Exercise Practitioners or the PDA in Personal Training and involved in competitive sports performance, sustained exercise or physical activity that would benefit from a complementary nutritional intervention. This may be in the context of the learner's specialist interest or area of progression for employment or further education.

Sources may include:

- ◆ American College of Sports Medicine (ACSM)
- ◆ British Association of Sport and Exercise Sciences (BASES)
- ◆ British Journal of Sports Medicine (BJSM)
- ◆ national governing body nutrition publications
- ◆ other peer-reviewed sources

Give learners opportunities to critique a range of data sets that are related to physical activity, exercise and sport-specific energy demands, and energy replacement strategies.

Learners differentiate these data sets against current recommendations and evidence-based practice for a healthy balanced diet and good dietary behaviours.

Learners augment and apply the digital tool they created in outcome 2. They analyse data sets to elicit the nutrition and dietary practices, including hormonal influences, which are required for optimal performance and recovery. They should reference evidence and current best practice.

Learners can research and produce digital artefacts for peer-to-peer learning activities in two or more areas of nutritional and dietary practices that enhance physical activity, exercise, sports performance, and recovery in a specific area of sport performance, exercise or physical activity. This may be achieved individually or collaboratively and form part of their assessment portfolio and be drawn from the following:

- ◆ energy systems and energy requirements in sport performance, exercise and physical activity, including:
 - post-exercise energy consumption
 - differentiation of energy requirements on training days, non-training days, and in competition, matches or tournaments
- ◆ the relative contributions of macronutrients to the demands of sport based on the dominant energy systems, energy requirements, and level of performance, and exploring the importance of glycaemic index and glycaemic load
- ◆ dietary practices that are evidenced to promote performance in exercise or sport, including, where applicable, the principles of periodised nutrition planning and sustaining performance in competition and training by identifying energy requirements and refuelling strategies
- ◆ the importance of hydration and the optimal use of hypertonic, isotonic, and hypotonic fluids
- ◆ the efficacy of supplements and ergogenic aids used for performance and recovery in sport and physical activity
- ◆ dietary practices that may compromise physical or mental health or performance

Learners can examine the following, including hormonal influences, if these are applicable to the client or case study:

- ◆ relative energy deficiency in sport and low energy availability
- ◆ Female Athlete Triad
- ◆ sports involving weight-making
- ◆ disordered eating and eating disorders in sport
- ◆ very low body fat for performance or aesthetic purposes
- ◆ amenorrhoea
- ◆ substances or supplements that are banned, particularly those based on hormones or hormonal derivatives

Learners can do this individually or collaboratively and include this as part of their assessment portfolio.

Approaches to assessment

All assessments are open book, and all written evidence should include a declaration of validity that the content is the learner's own work, unless cited otherwise. Learners should sign and date their submissions and where possible, you should encourage digital submissions through your centre's virtual learning environment (VLE) using anti-plagiarism software. Learners must observe the data protection legislation and Creative Commons licensing.

A learner's portfolio of evidence includes a range of digital artefacts using appropriate, accessible technologies, such as presentations, a web page, a series of blog or vlog posts, or podcasts, and **one** report that demonstrates formal evidence-based academic writing. Learners can use open-source software or an industry-recognised application for dietary analysis.

Case studies should be sufficiently complex to enable learners to meet the assessment criteria as set out in the 'Knowledge and skills' table.

The data collection tools developed in outcome 2 should be augmented to capture the specific conditions for the client or case study in a client consultation for outcomes 3 and 4.

Skills from outcome 2 should be evidenced in the report for outcomes 3 or 4.

Distinguish the functions and features of the endocrine system and associated hormones that have an impact on health, nutrition, energy utilisation and dietary behaviours in different populations (outcome 1)

Learners must interpret a range of data sets of blood chemistries and hormone levels and demonstrate how two or more of these are involved in metabolic processes that have an impact on a healthy balanced diet and dietary behaviours, illness, disease and morbidity, and physical activity, exercise, sports performance and recovery.

The evidence may be included as part of a closed-book assessment and/or cross-assessed where it occurs naturally in other units in the HND or in outcomes 3 or 4.

You can link this outcome to any live or case study client in outcomes 3 and 4, or cross-assess where evidence occurs naturally in the context of the learner's specialist interest or area of progression for employment or further education.

Critically evaluate the importance of nutrition for the maintenance of health (outcome 2)

This outcome establishes the baseline for learners to critically evaluate policy and accepted normative data, and recommend best practice that influences nutrition and dietary practices at different life stages.

Learners produce a digital form using nutritional analysis software to capture client (or case study) information by means of a consultation. This baseline data capture tool may be further developed and contextualised for use with a specific live client in outcomes 3 and 4.

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With informed consent and consideration for client confidentiality, the data capture tool should capture individual:

- ◆ nutrition goals and nutritional awareness
- ◆ detailed dietary practice, including timings, portion sizes and hydration
- ◆ supplements, and prescribed and recreational drugs, including caffeine, nicotine and alcohol
- ◆ age, gender, and religious or cultural beliefs that have an impact on nutritional and dietary practices
- ◆ kinanthropometry, including quantitative measurement of somatotypes
- ◆ information on influences, such as life stages, physical activity, and socioeconomic factors

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By deploying this digital tool in an applied setting, learners should practice and develop a wide range of professional skills, techniques, and practices that help them to support long-term healthy food choices and dietary behaviours.

This enables learners to:

- ◆ critically evaluate a range of influences on dietary practices
- ◆ demonstrate critical evaluation of data collection and measurement techniques
- ◆ critically evaluate tools
- ◆ critically evaluate data sets (non-clinical)
- ◆ conduct a client or case study assessment in outcomes 3 and 4
- ◆ compare nutritional intake with evidence-based recommendations that are dependent on client needs
- ◆ select reliable, evidence-based guidelines for healthy eating
- ◆ guide evidence-based, health-promoting food choices

Learners can examine the following if these are applicable to the client or case study:

- ◆ hormonal changes at different life stages
- ◆ hormonal changes in pre- and postnatal clients

You can assess outcomes 3 and 4 by similar means, however we recommend that you avoid duplication in assessment methodology so that learners can develop their skills in the use of digital communication technology and formal report writing.

Learners should:

- ◆ undertake a closed-book assessment for outcome 1
- ◆ produce a digital artefact using appropriate accessible technologies, such as a website, a series of web pages, a series of blog or vlog posts, or podcasts for outcome 3 and 4

Learners must demonstrate a wide range of professional skills, techniques, and practices to support a client or client group to sustain dietary practices intended to prevent illness, disease, or morbidity.

Differentiate between applied nutrition and dietary practices that contribute to health, and practices that can prevent or diminish ill health, disease and morbidity (outcome 3)

Learners expand on their learning from outcome 2 and can apply their learning in the context of a live client or case study that is linked to the unit Management of Long-Term Health Conditions for Exercise Practitioners. This depends on the learner's specialist interest or area of progression for employment or further education.

NextGen: HN published prototype unit specification for use in pilot delivery only (version 2.0)
August 2024

Learners should produce a digital artefact using appropriate, accessible technologies such as a website, or a series of web pages, a series of blog or vlog posts, or podcasts. They must:

- ◆ differentiate between applied nutrition and dietary practices that are evidenced to contribute to ill health, disease morbidity and dietary practices which can prevent or diminish illness, disease, and morbidity

Learners demonstrate:

- ◆ the ability to source research and policy literature on the contribution of nutrition to illness, disease, and morbidity
- ◆ that they can evidence awareness of contemporary societal factors and medical conditions that affect nutrition-related illness, disease and morbidity
- ◆ the ability to recognise dietary practices and behaviours evidenced that contribute to illness, disease, and morbidity
- ◆ that they can interpret data sets (clinical) against normative data (outcome 2)
- ◆ guide evidence-based changes to dietary practice and behaviours, intended to:
 - improve health outcomes which meet specific, measurable, achievable, relevant and time-bound (SMART) client goals
 - these goals will improve and sustain positive nutrition and dietary behaviours
 - to minimise or prevent illness, disease and morbidity
- ◆ that they can apply principles and policy to help safeguard the client's wellbeing.
- ◆ that they can identify referral routes for clinical support, recognising professional roles and responsibilities

Learners can examine the following, if these are applicable to the client or case study, including any hormonal influences:

- ◆ insulin
- ◆ thyroid hormone
- ◆ chronic conditions as a result of diseases of the endocrine system

Critically analyse the application of nutrition and dietary practices for physical activity, exercise, and sports performance (outcome 4)

Learners expand on their learning from outcome 2. They can link to any live or case study client who is involved in sports performance, or sustained exercise or physical activity, and would benefit from a complementary nutritional intervention. This may be in the context of the learner's specialist interest or area of progression for employment or further education.

Learners should produce a digital artefact using appropriate, accessible technologies such as a website, or a series of web pages, a series of blog or vlog posts, or podcasts. They must:

- ◆ critically analyse the application of nutrition and dietary practices for physical activity, exercise, and sports performance

Learners demonstrate they can:

- ◆ source peer-reviewed literature on exercise and performance nutrition
- ◆ evaluate energy systems and energy requirements of different types of physical activity, exercise and sport, including positional demands and levels of sports performance
- ◆ differentiate nutritional demands and dietary practices on rest days, training days, and competition and tournament days
- ◆ critically evaluate nutritional data and dietary practices that contribute to performance and recovery
- ◆ identify nutritional requirements to offset impacts of overtraining
- ◆ guide evidence-based nutrition and dietary practices to promote and sustain performer health, performance and recovery

Learners can examine the following if these are applicable to the client or case study, including any hormonal influences:

- ◆ relative energy deficiency in sport and/or low energy availability
- ◆ Female Athlete Triad
- ◆ sports involving weight-making
- ◆ disordered eating and eating disorders in sport
- ◆ very low body fat for performance or aesthetic purposes
- ◆ amenorrhea
- ◆ substances or supplements that are banned, in particular those based on hormones or hormonal derivatives

Equality and inclusion

This unit is designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

You should take into account the needs of individual learners when planning learning experiences, selecting assessment methods or considering alternative evidence.

Guidance on assessment arrangements for disabled learners and/or those with additional support needs is available on the assessment arrangements web page:

www.sqa.org.uk/assessmentarrangements.

Information for learners

Applied Nutrition for Sport, Physical Activity and Health (SCQF level 8)

This information explains:

- ◆ what the unit is about
- ◆ what you should know or be able to do before you start
- ◆ what you need to do during the unit
- ◆ opportunities for further learning and employment

Unit information

In this unit you learn about nutritional requirements and dietary behaviours at different stages of life and the influence of hormones in maintaining physical and mental health and wellbeing.

You also learn about illness, disease and morbidity that can be a consequence of sub-optimal nutrition and poor dietary behaviours, or health conditions that are made worse because of poor diet. You analyse nutrition and dietary behaviours and interpret information to guide positive nutritional choices and dietary behaviours.

You examine the specific demands of nutrition for physical activity, exercise, and sports performance in detail, and you can differentiate the requirements for different levels of activity and performance.

You develop a range of skills in researching evidence-based best practice and producing evidence that develops your digital and academic writing skills. You gain experience of working with clients in an applied setting and draw on your experience and learning from other units.

Before you start the unit, you should understand the structure and function of the digestive system, energy systems and energy balance, and the components of energy expenditure. You should know the calorific values of macronutrients and the role of micronutrients in nutritional health.

During the unit you engage in learning activities individually and in collaboration with others. You evaluate, design, and use data collection methodologies and carry out research specific to a live client and case study, and share your learning with peers and clients. You develop your use of digital technologies to generate evidence-based content to demonstrate your learning.

The knowledge and skills you develop in an applied context is transferable to employment and further study.

Meta-skills

Throughout the unit, you develop meta-skills to enhance your employability. Meta-skills include self-management, social intelligence and innovation.

Self-management

This meta-skill includes developing the ability to focus. You sort information into categories and understand the relationship between that information. You develop your adaptability, where you refine the ability to critically reflect on new knowledge and experiences to gain a deeper understanding and embed and extend your learning. The unit supports your ability to make decisions and employ a considered choice, after appropriately using intuition and careful thought. This is achieved within outcomes 1 to 4.

Social intelligence

This includes developing your level of communication through the ability to receive, understand and process verbal or written communication. You develop the meta-skill of collaboration through the application of unit knowledge and understanding in client work. You can build relationships when supporting and educating your client. You identify and initiate connections, developing mutual benefit. This is achieved within outcomes 2, 3 and 4.

Innovation

The unit encourages curiosity, critical thinking and creativity by asking questions, researching, generating ideas, visualising, problem solving, and engaging with and understanding industry practice. Sense-making is developed through the process of organising, manipulating, pruning and filtering gathered data into cohesive structures for information-building. This is achieved within all outcomes.

Administrative information

Published: August 2024 (version 2.0)

Superclass: NH

History of changes

Version	Description of change	Date
2.0	<ul style="list-style-type: none">◆ Change of outcomes – outcome order has been amended.◆ Guidance added to 'Evidence requirements' in outcome 2 and 3 to support cross-assessment.◆ Wording added to 'Approaches to assessment' for all outcomes.	June 2024

Note: please check [SQA's website](#) to ensure you are using the most up-to-date version of this document.