

Pearson BTEC Level 3 Certificate in Personal Training

Specification

BTEC specialist qualification

First teaching March 2012

Issue 2

Edexcel, BTEC and LCCI qualifications

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This specification is Issue 2. Key changes are listed in the summary table on the next page. We will inform centres of any changes to this issue. The latest issue can be found on the Pearson website: qualifications.pearson.com

This qualification was previously known as:

Edexcel BTEC Level 3 Certificate in Personal Training (QCF)

The QN remains the same.

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All information in this specification is correct at time of going to publication.

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Summary of Pearson BTEC Level 3 Certificate in Personal Training specification Issue 2 changes

Summary of changes made between previous issue and this current issue	Section number
All references to QCF have been removed throughout the specification	
Definition of TQT added	Section 1
Definition of sizes of qualifications aligned to TQT	Section 1
TQT value added	Section 2
Reference to credit transfer within the QCF removed	Section 6
QCF references removed from unit titles and unit levels in all units	Section 11
Guided learning definition updated	Section 11

Earlier issue(s) show(s) previous changes.

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

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Purpose of this specification

This specification sets out:

- the qualification's objective
- any other qualification which a learner must have completed before taking the qualification
- any prior knowledge, skills or understanding which the learner is required to have before taking the qualification
- units which a learner must have completed before the qualification will be awarded and any optional routes
- any other requirements which a learner must have satisfied before the learner will be assessed or before the qualification will be awarded
- the knowledge, skills and understanding which will be assessed as part of the qualification (giving a clear indication of their coverage and depth)
- the method of any assessment and any associated requirements relating to it
- the criteria against which learners' level of attainment will be measured (such as assessment criteria)
- any specimen materials
- any specified levels of attainment.

1 Introducing BTEC Specialist qualifications

What are BTEC Specialist qualifications?

BTEC Specialist qualifications are work-related qualifications available from Entry to Level 3 in a range of sectors. They give learners the knowledge, understanding and skills they need to prepare for employment in a specific occupational area. The qualifications also provide career development opportunities for those already in work. The qualifications may be offered as full-time or part-time courses in schools or colleges. Training centres and employers may also offer these qualifications.

Sizes of Specialist qualifications

For all regulated qualifications, we specify a total number of hours that learners are expected to undertake in order to complete and show achievement for the qualification – this is the Total Qualification Time (TQT). The TQT value indicates the size of a qualification.

Within the TQT, we identify the number of Guided Learning Hours (GLH) that a centre delivering the qualification needs to provide. Guided learning means activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating learners, for example lectures, tutorials, online instruction and supervised study.

As well as guided learning, there may be other required learning that is directed by tutors or assessors. This includes, for example, private study, preparation for assessment and undertaking assessment when not under supervision, such as preparatory reading, revision and independent research.

As well as TQT and GLH, qualifications can also have a credit value – equal to one tenth of TQT, rounded to the nearest whole number.

TQT and credit values are assigned after consultation with users of the qualifications.

BTEC Specialist qualifications are available in the following sizes:

- Award – a qualification with a TQT value of 120 or less (equivalent to a range of 1–12 credits)
- Certificate – a qualification with a TQT value in the range of 121–369 (equivalent to a range of 13–36 credits)
- Diploma – a qualification with a TQT value of 370 or more (equivalent to 37 credits and above).

2 Qualification summary and key information

Qualification title	Pearson BTEC Level 3 Certificate in Personal Training
Qualification Number (QN)	600/4543/7
Date registrations can be made	01/02/2012
Age range that the qualification is approved for	18+ 19+
Credit value	36
Assessment	Centre-devised assessment (internal assessment)
Total Qualification Time (TQT)	360
Guided learning hours	245
Grading information	The qualification and units are at pass grade.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Pearson Access and Recruitment policy (see <i>Access and Recruitment, Section 9</i>).

Qualification title and Qualification Number

Centres will need to use the Qualification Number (QN) when they seek public funding for their learners. Qualifications eligible and funded for post-16-year-olds can be found on the funding Hub. The Skills Funding Agency also publishes a funding catalogue that lists the qualifications available for 19+ funding.

The qualification title, QN and URNs are on learners' final certification documentation. Learners need to know this when they are recruited by the centre and registered with Pearson. Further information about certification is in the *Pearson Information Manual* on our website, qualifications.pearson.com.

The QN for the qualification in this publication is **600/4543/7**.

Objective of the qualification

The Pearson BTEC Level 3 Certificate in Personal Training is for learners who work in, or want to work in the sports, leisure and recreation industries.

It gives learners the opportunity to:

- develop a range of skills and techniques, personal skills and attributes essential for successful performance in working life
- achieve a nationally-recognised level 3 qualification
- achieve a licence to practise
- develop their own personal growth and engagement in learning.

Apprenticeships

The SSC, SkillsActive approve the Pearson BTEC Level 3 Certificate in Personal Training as a knowledge component of the Advanced Level Apprenticeship Framework in Advanced Fitness.

This apprenticeship framework is required in the health and fitness industry to provide a highly-skilled workforce, including advanced instructors, personal trainers and studio coordinators; delivering the government agenda for a healthier nation.

The advanced level programme can provide a progression opportunity for apprentices on an intermediate level programme as well as progression for those already working in the sector. This advanced programme is also suitable for those who wish to change their careers and retrain to enter the sector at this level.

Apprentices will be given the opportunity to gain literacy and numeracy qualifications alongside their industry related skills and qualifications.

It is not a mandatory part of this framework to achieve ICT qualifications, although apprentices are encouraged to take every opportunity to broaden their skills base.

There are no pre-defined entry routes into the Advanced fitness apprenticeship, however learners wishing to progress into this apprenticeship programme could come from a variety of backgrounds with a variety of qualifications. These might include diplomas, GCSEs, A levels or vocational training routes such as intermediate level apprenticeships.

Learners can also progress into this advanced level apprenticeship from the Intermediate level apprenticeship in exercise and fitness or any other intermediate level apprenticeship in the active leisure and learning sector.

Learners can also progress into this advanced level apprenticeship if they are already employed in the sector and wish to develop their knowledge and skills to progress their careers.

Learners can also progress into this advanced apprenticeships programme from employment in a different sector as a career change.

On completion of this programme, apprentices can progress into full-time employment in a variety of roles, ranging from personal trainer to working alongside a GP doing GP referral. They can also progress onto a variety of vocational qualifications allowing them to further specialise for example in ante- and post-natal exercise or dealing with older adults.

Once level 3 qualifications are completed, there is a direct progression route for those interested in becoming specialist instructors for the conditions listed below:

- cardiac
- falls
- stroke
- mental health
- back pain
- obesity/diabetes
- military rehab.

On completion of this programme, learners can progress onto further or higher education institutes or to study a variety of subjects ranging from those which are sports and fitness specific, such as sports and exercise science or sports nutrition, to general subjects such as management or business studies.

Further details on these progression routes are available on the Register of Exercise Professionals website, www.exerciseregister.org

Please also check the SkillsActive Careers site for further information on progression opportunities: <http://www.skillsactive.com/careers/>

Relationship with National Occupational Standards

Where relevant, Pearson BTEC level 3 qualifications are designed to provide some of the underpinning knowledge and understanding for the National Occupational Standards (NOS), as well as developing practical skills in preparation for work and possible achievement of NVQs in due course. NOS form the basis of National Vocational Qualifications (NVQs). Pearson BTEC level 3 qualifications do not purport to deliver occupational competence in the sector, which should be demonstrated in a work context.

3 Centre resource requirements

As part of the approval process, centres must make sure that the resources requirements below are in place before offering the qualification.

General resource requirements

- Centres must have appropriate physical resources (for example equipment, IT, learning materials, teaching rooms) to support the delivery and assessment of the qualification.
- Staff involved in the assessment process must have relevant expertise and occupational experience.
- There must be systems in place to make sure continuing professional development for staff delivering the qualification.
- Centres must have appropriate health and safety policies in place relating to the use of equipment by learners.
- Centres must deliver the qualifications in accordance with current equality legislation.

4 Qualification structure

Pearson BTEC Level 3 Certificate in Personal Training

The learner will need to meet the requirements outlined in the box below before Pearson can award the qualification.

Number of credits that must be achieved	36
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Unit	URN	Mandatory units	Level	Credit	GLH
1	T/600/9016	Health, safety and welfare in a fitness environment	2	2	16
2	A/600/9017	Principles of exercise, fitness and health	2	4	28
3	M/600/9015	Know how to support clients who take part in exercise and physical activity	2	2	13
4	A/600/9051	Anatomy and physiology for exercise and health	3	6	43
5	F/600/9052	Programming Personal Training with Clients	3	7	40
6	J/600/9053	Delivering personal training sessions	3	9	58
7	L/600/9054	Applying the Principles of Nutrition to a Physical Activity Program	3	6	40

5 Assessment

Assessment method

All the units in this qualification are assessed through centre-devised assessments.

Centre-devised assessment (internal assessment)

Each unit has specified learning outcomes and assessment criteria. To pass an internally assessed unit, learners must meet all the assessment criteria. Centres may find it helpful if learners index and reference their evidence to the relevant learning outcomes and assessment criteria.

Centres need to write assignment briefs for the learners to show what evidence is required. Assignment briefs should indicate clearly, which assessment criteria are being targeted.

Assignment briefs and evidence produced by learners must also meet any additional requirements in the *Information for tutors* section of the unit.

Unless otherwise indicated within *Information for tutors*, the centre can decide what form assessment evidence will take (eg performance observation, presentations, projects, tests, extended writing) as long as the methods chosen allow learners to produce valid, sufficient and reliable evidence of meeting the assessment criteria.

Centres are encouraged to provide learners with realistic scenarios and maximise the use of practical activities in delivery and assessment.

Opportunities to link the delivery and assessment of units with other units should also be encouraged to avoid over assessment.

Further guidance about internal assessment is on the Pearson website. See *Section 12* for further details.

6 Recognising prior learning and achievement

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is a method of assessment (leading to the award of credit) that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

Pearson encourages centres to recognise learners' previous achievements and experiences in and outside the workplace, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning.

RPL enables recognition of achievement from a range of activities using any valid assessment methodology. If the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units or a whole qualification. Evidence of learning must be sufficient, reliable and valid.

Further guidance is available in the policy document *Recognition of Prior Learning Policy*, which is on the Pearson website.

7 Quality assurance of centres

Quality assurance is at the heart of vocational qualifications. The centre assesses BTEC qualifications. The centre will use quality assurance to make sure that their managers, internal verifiers and assessors are standardised and supported. Pearson use quality assurance to check that all centres are working to national standards. It gives us the opportunity to identify and provide support, if needed, to safeguard certification. It also allows us to recognise and support good practice.

For the qualifications in this specification, the Pearson quality assurance model will follow one of the processes listed below.

- 1 Delivery of the qualification as part of a BTEC apprenticeship (single click registration):
 - an annual visit by a Standards Verifier to review centre-wide quality assurance systems and sampling of internal verification and assessor decisions.
- 2 Delivery of the qualification outside the apprenticeship:
 - an annual visit to the centre by a Centre Quality Reviewer to review centre-wide quality assurance systems
 - Lead Internal Verifier accreditation. This involves online training and standardisation of Lead Internal Verifiers using our OSCA platform, accessed via Pearson Online. Please note that not all qualifications will include Lead Internal Verifier accreditation. Where this is the case, we will annually allocate a Standards Verifier to conduct postal sampling of internal verification and assessor decisions for the Principal Subject Area.

For further details, go to the UK BTEC Quality Assurance Handbook on our website: qualifications.pearson.com

8 Programme delivery

Centres are free to offer the qualifications using any mode of delivery (for example full time, part time, evening only, distance learning) that meets their learners' needs.

Whichever mode of delivery is used, centres must make sure that learners have access to the resources identified in the specification and to the subject specialists delivering the units.

Those planning the programme should aim to enhance the vocational nature of the qualification by:

- liaising with employers to make sure a course is relevant to learners' specific needs
- accessing and using non-confidential data and documents from learners' workplaces
- developing up-to-date and relevant teaching materials that make use of scenarios that are relevant to the sector
- giving learners the opportunity to apply their learning in practical activities
- including sponsoring employers in the delivery of the programme and, where appropriate, in the assessment
- making full use of the variety of experience of work and life that learners bring to the programme.

Where a unit is externally assessed, it is essential that learners have covered all of the *Unit amplification* before they are tested.

Centres must make sure that current legislation is included when it is part of a unit.

9 Access and recruitment

Pearson's policy regarding access to our qualifications is that:

- they should be available to everyone who is capable of reaching the required standards
- they should be free from any barriers that restrict access and progression
- there should be equal opportunities for all those wishing to access the qualifications.

Centres are required to recruit learners to BTEC specialist qualifications with integrity.

Applicants will need relevant information and advice about the qualification to make sure it meets their needs.

Centres should review the applicant's prior qualifications and/or experience, considering whether this profile shows that they have the potential to achieve the qualification.

For learners with disabilities and specific needs, this review will need to take account of the support available to the learner during teaching and assessment of the qualification. The review must take account of the information and guidance in *Section 10, Access to qualifications* for learners with disabilities or specific needs.

10 Access to qualifications for learners with disabilities or specific needs

Equality and fairness are central to our work. Pearson's Equality Policy requires that all learners should have equal opportunity to access our qualifications and assessments and that our qualifications are awarded in a way that is fair to every learner.

We are committed to making sure that:

- learners with a protected characteristic (as defined by the Equality Act 2010) are not, when they are undertaking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve from undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

Learners taking a qualification may be assessed in British sign language or Irish sign language where it is permitted for the purpose of reasonable adjustments.

Details on how to make adjustments for learners with protected characteristics are in the policy document Reasonable Adjustment and Special Considerations for BTEC and Pearson NVQ Qualifications, which are on our website:
<http://qualifications.pearson.com/en/home.html>

11 Units

Unit format

Units have the following sections.

Unit title

This is the formal title of the unit that will appear on the learner's certificate.

Unit reference number

Each unit is assigned a unit reference number that appears with the unit title on the Register of Regulated Qualifications.

Level

All units and qualifications have a level assigned to them. The level assigned is informed by the level descriptors by Ofqual, the qualifications regulator.

Credit value

When a learner achieves a unit, they gain the specified number of credits.

Guided Learning Hours

Guided Learning Hours (GLH) is the number of hours that a centre delivering the qualification needs to provide. Guided learning means activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating learners, for example lectures, tutorials, online instruction and supervised study.

Unit aim

This gives a summary of what the unit aims to do.

Essential resources

This section lists any specialist resources that are needed to deliver the unit. The centre will be asked to make sure that these resources are in place when it seeks approval from Pearson to offer the qualification.

Learning outcomes

The learning outcomes of a unit set out what a learner knows, understands or is able to do as the result of a process of learning.

Assessment criteria

The assessment criteria specify the standard required by the learner to achieve the learning outcome.

Unit amplification

This section gives further clarification on what a learner needs to know to achieve a learning outcome. Information in brackets gives exemplification for specific areas of knowledge.

Information for tutors

This section gives tutors' information on delivery and assessment. It usually contains the following subsections.

- *Delivery* – explains the content's relationship to the learning outcomes and offers guidance on possible approaches to delivery.
- *Assessment* – gives information about the evidence that learners must produce, together with any additional guidance if appropriate. This section should be read in conjunction with the assessment criteria.
- *Indicative resource materials* – lists resource materials that can be used to support the teaching of the unit, for example books, journals and websites.

Unit 1:

Health, Safety and Welfare in a Fitness Environment

Unit code: T/600/9016

Level: 2

Credit value: 2

Guided learning hours: 16

Unit aim

The aim of this unit is to develop learner knowledge and understanding of the requirements for health, safety and welfare in a fitness environment. The learner will understand how to assess and control any hazards and risks that compromise the health, safety and welfare of staff and customers. The unit also aims to develop learner knowledge and understanding of safeguarding children and vulnerable adults.

Learners will explore the organisational procedures, legislation and regulations in place to ensure a healthy, safe and secure work environment for employees, customers and visitors.

Learners will have the opportunity to investigate the main hazards, how to risk assess these hazards, how to control the associated risks and the security procedures that may be in place within fitness environments.

Finally, learners will explore the associated organisational procedures and policies, and the statutory agencies responsible, for safeguarding children and vulnerable adults.

Essential resources

For this unit, centres need to give learners access to:

- computers, the internet and library facilities to enable them to carry out research, for example on current legislation and regulations
- information on key factors that influence health and safety, specifically in the fitness sector. This information can be obtained from the Health and Safety Executive, governing bodies, local authorities and local education authorities.

It would also be beneficial for learners to see examples of the types of tools, equipment and materials needed to deal with the hazards found in a fitness environment.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand emergency procedures in a fitness environment	1.1	Identify the types of emergencies that may occur in a fitness environment	Depending on the type of workplace Types eg fire, chemical leaks, bomb scare, power cut, structural failure, medical emergency, accidents, threatening behaviour, missing persons
		1.2	Describe the roles that different staff and external services play during an emergency	Internal staff eg contacting and advising emergency services, informing colleagues when emergency services arrive, responding on site as situation occurs, responding within limits of own competence and authority, seeking help and advice as appropriate Specific roles of external services eg paramedics, police, fire service
		1.3	Explain the importance of following emergency procedures calmly and correctly	Importance eg maintain safety of other staff, customers and visitors, contact relevant emergency services, resolve emergency situation safely and quickly
		1.4	Describe how to maintain the safety of people involved in typical emergencies, including children, older people and disabled people	Take appropriate actions eg stop the activity, give clear and correct instructions, evacuate the area and move people to a safe area Ensure evacuation route accessible by all eg wheelchair users Contact relevant people eg parents, emergency services

Learning outcomes		Assessment criteria		Unit amplification
2	Understand health and safety requirements in a fitness environment	2.1	Outline why health and safety is important in a fitness environment	<p>Importance eg ensure staff work in a safe environment, ensure safety of areas used by customers and visitors, ensure equipment is safe to use, minimise risk of injury and accidents to staff, customers and visitors</p> <p>Compliance with legal requirements eg Health and Safety Executive guidelines, expected industry standards</p>
		2.2	Identify the legal and regulatory requirements for health and safety relevant to working in a fitness environment	<p>Legislation and regulations eg Health and Safety at Work Act, Control of Substances Hazardous to Health (COSHH) Regulations, Manual Handling Operations Regulations, Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations (RIDDOR), Management of Health and Safety at Work Act (Amendment) Regulations</p> <p>Regulatory bodies eg Health and Safety Executive, Register of Exercise Professionals, local authorities, authorities appropriate to specific activities or specific types of activities</p>
		2.3	Describe Duty of Care and professional role boundaries in relation to special population groups	<p>Special populations – 14-16 year olds, older people (50+), antenatal and postnatal women</p> <p>Duty of care — legal requirement that individuals adhere to a reasonable standard of care when carrying out activities that could harm self or others</p> <p>Professional boundaries relating to lack of appropriate qualifications eg cannot instruct exercise sessions for special populations, cannot advertise as a special populations instructor, cannot instruct special population clients 1:1 or in groups on a regular or progressive basis, cannot plan progressive long-term exercise programmes for special populations, clients to be made aware of any role boundary issues prior to participation</p>

Learning outcomes		Assessment criteria		Unit amplification
		2.4	Identify the typical roles of individuals responsible for health and safety in a fitness organisation	<p>Specific roles eg qualified first aiders, Health and Safety Executive inspectors, internal health and safety officers, local council health and safety advisers, facility managers, fitness instructors</p> <p>Responsibilities eg carrying out and reviewing risk assessments, monitoring health and safety, ensuring appropriate safety checks are carried out on facilities and equipment , maintaining safety during exercise sessions , reporting any incidents promptly and in line with organisational procedures</p>
		2.5	Describe the types of security procedures that may apply in a fitness environment	<p>Procedures eg restricting access to certain areas, ensuring all visitors sign in and out, use of CCTV, procedures for reporting incidents to the appropriate person</p> <p>Use of secure storage areas eg personal belongings, cleaning products</p>
		2.6	Describe the key health and safety documents that are relevant in a fitness environment	For example organisational policy and procedures for health and safety, risk assessments, records of external inspections, maintenance schedules
3	Understand how to control risks in a fitness environment	3.1	Identify possible hazards in a fitness environment, relating to: <ul style="list-style-type: none"> □ facilities □ equipment □ working practices, including lifting and handling of equipment □ client behaviour □ security □ hygiene 	<p>Hazards relating to facilities eg slippery floors, trailing cables, inadequate first aid facilities</p> <p>Hazards relating to equipment eg lack of regular testing, unclean and badly maintained equipment, equipment being left unattended</p> <p>Hazards relating to working practices eg lack of or poor training, no control of hazardous waste, untidy work area, inappropriate/unsafe lifting and handling of equipment, inappropriate exercise type or intensity</p> <p>Hazards relating to client behaviour eg poor attitude, unsafe behaviour, disregard for health and safety requirements and safety of others, aggressive behaviour</p>

Learning outcomes		Assessment criteria		Unit amplification
				<p>Hazards relating to security eg open gates, doors or other barriers, unauthorised use of equipment, suspicious packages or persons, vandalism to premises or equipment</p> <p>Hazards relating to hygiene eg risk of infection, cross contamination</p>
		3.2	Describe how to risk assess the types of possible hazards in a fitness environment	<p>Identify items/area to be assessed eg equipment operation, public area</p> <p>Carry out risk assessment eg identify hazards, identify those at risk, assess chance of hazard causing harm, grade risks, record findings</p>
		3.3	Describe how to control risks associated with hazards in a fitness environment	<p>Take action to reduce the risk of a hazard actually causing harm eg following correct procedures, putting up warning signs when cleaning, removing an unsafe piece of equipment from use, do not carry out an activity or exercise session, provide appropriate safety equipment, provide appropriate supervision for participants, seek advice from relevant colleagues</p>
		3.4	Identify the appropriate person/position to contact within a fitness organisation when hazards and risks cannot be controlled personally	<p>Internal eg health and safety officer, supervisor, manager, qualified first aider, relevant colleagues</p> <p>External eg local authority health and safety advisers, Health and Safety Executive officers</p>
4	Understand how to safeguard children and vulnerable adults	4.1	Describe what is meant by safeguarding the welfare of children and vulnerable adults	<ul style="list-style-type: none"> □ Taking reasonable measures to ensure the risk of harm to the welfare of children and vulnerable adults is minimised, □ Taking all appropriate actions to address concerns about children and vulnerable adults
		4.2	Describe the responsibilities and limitations of a fitness instructor in regard to safeguarding children and vulnerable adults	<ul style="list-style-type: none"> □ Responsibilities eg duty of care, report suspected or disclosed abuse to the appropriate person within the organisation □ Limitations eg referral of suspected or disclosed abuse only

Learning outcomes		Assessment criteria		Unit amplification
		4.3	Identify the types of abuse which an instructor may encounter: physical, emotional, neglect, bullying and sexual	<ul style="list-style-type: none"> □ Physical eg hitting, kicking, biting, forced participation □ Emotional eg negative criticism, use of sarcasm, deliberate isolation □ Neglect eg no regard for safety □ Bullying eg calling names, deliberate humiliation, physical threats □ Sexual eg inappropriate sexual behaviour, exposure to inappropriate images
		4.4	Identify possible signs of abuse: physical, emotional, neglect, bullying and sexual	<ul style="list-style-type: none"> □ Physical eg bruising, unexplained injuries, fractures, burns, scalds, refusal to explain injuries, avoidance of physical contact □ Emotional eg passive or compliant behaviour, withdrawn, aggressive behaviour, low self-esteem □ Neglect eg poor hygiene, dirty clothes, hunger reluctance to go home □ Bullying eg unexplained injuries, low self-confidence and esteem, withdrawn, distress, poor appetite □ Sexual eg displays sexual behaviour
		4.5	Describe a fitness organisation's policies and procedures in relation to safeguarding children and vulnerable adults, including typical reporting procedures	<ul style="list-style-type: none"> □ Clarification of roles and responsibilities eg lines of communication, systems for recording information □ Provision of staff training eg ensure staff have adequate induction, training and up-to-date information, train and advise staff how to identify and manage risk □ Reflect relevant legislation and regulations eg Safeguarding Vulnerable Groups Act, Mental Health Act, Mental Capacity Act, Equality Act 2010, Race Relations Act, Human Rights Act, Data Protection Act, NSPCC standards for safeguarding and protecting

Learning outcomes		Assessment criteria		Unit amplification
				<ul style="list-style-type: none"> □ Specific policies and procedures eg activity areas designed to be transparent, ensure staffing levels are appropriate, procedures for reporting any concerns or issues, guidance on confidentiality and information sharing, guidance on appropriate/expected standards of behaviour, processes for dealing with behaviour that is unacceptable and/or discriminatory
		4.6	Describe the procedures to follow to protect oneself from accusations of abuse	<ul style="list-style-type: none"> □ Relevant organisational policies and procedures
		4.7	Identify the statutory agencies responsible for safeguarding children and vulnerable adults	<ul style="list-style-type: none"> □ Relevant statutory agencies eg Local Safeguarding Children Boards, Local Adult Safeguarding Boards, the Independent Safeguarding Authority (ISA), social services, police, NSPCC
		4.8	Explain when it may be necessary to contact statutory agencies	<ul style="list-style-type: none"> □ In cases when abuse is suspected or has been disclosed
		4.9	Describe how to maintain the confidentiality of information relating to possible abuse	Follow organisational policies and procedures regarding confidentiality and information sharing eg referral to the appropriate member of staff, discuss issues in an appropriate area

Information for tutors

Delivery

This unit should be delivered in a way that develops knowledge and understanding of health, safety and welfare within a fitness environment. Learners need to know and understand:

- the requirements for health, safety and security within a fitness environment, including organisational procedures and legal and regulatory requirements
- the type of emergencies that can occur within fitness environments and how to respond to them correctly
- hazards and risks within a fitness environment and how to deal with them
- safeguarding children and vulnerable adults, including organisational policies and procedures and the associated statutory agencies.

A useful opening would be small-group discussions, during which learners can exchange their experiences of health, safety and security within fitness environments. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

Although this unit is predominantly theoretical, it is recommended that centres combine it with a practical unit that requires learners to instruct an exercise session/physical activity. This will give learners a real situation on which to base their learning.

Learners should be encouraged to engage with employers and, where possible, other employees to gain knowledge and understanding of how to maintain health, safety and security within fitness environments.

Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible through learners working with those responsible for ensuring that any environment used for exercise and physical activities is healthy, safe and secure, for example, a gym instructor and through the use of guest speakers and video/DVD training programmes.

A presentation by a sports centre manager, will support delivery, as well as adding vocational relevance and currency by illustrating real situations that have occurred relating to health and safety. The visiting speaker could deliver a summary of the policies and procedures within their organisation relating to health, safety and security, the associated legal and regulatory requirements and the responsibilities of employers and employees to follow these procedures and meet legal requirements.

This could be supported by examples drawn from industry or through developed case studies that highlight the:

- emergency situations that can occur within fitness environments, the importance of following emergency procedures calmly and correctly, and the possible consequences if this does not happen
- hazards and risks that can occur in a fitness environment and the importance of carrying out appropriate risk assessments

- importance of having procedures in place to safeguard children and vulnerable adults, including procedures for reporting, dealing with statutory agencies and maintaining confidentiality of information.

This unit could be delivered through distance learning. However, this will involve additional, and different, considerations, such as planning, and other measures to ensure learners can gain the required knowledge and understanding.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

A variety of assessment methods could be used. Learners could produce written reports or give verbal presentations, supported by witness testimony. Alternatives could be logbooks or workbooks completed in the workplace or during visits.

Assessment tasks and activities should enable learners to produce valid, sufficient and reliable evidence that relates directly to the assessment criteria. Centres are encouraged to emphasise the practical application of the assessment criteria.

Indicative resource materials

Books

Crouch M – *Protecting Children: A Guide for Sports People* (Coachwise, 2002)
ISBN 9780947850500

Duncan M, Cahill F, Heighway P – *Health and Safety at Work Essentials: The One-stop Guide for Anyone Responsible for Health and Safety Issues in the Workplace* (Lawpack Publishing Ltd, 5th revised edition, 2006) ISBN 9781905261246

Frosdick S et al – *Safety and Security at Sports Grounds* (Paragon Publishing, 2005)
ISBN 9781899820146

Gervis M and Brierley J – *Effective Coaching for Children* (The Crowood Press, 1999)
ISBN 9781861261373

Health and Safety Executive – *Essentials of Health and Safety at Work* (HSE Books, 2006) ISBN 9780717661794

Journals

Occupational Safety and Health

Policy and Practice in Health and Safety

Websites

Adventurous Activities Licensing Authority	www.aals.org.uk
Central Council for Physical Recreation	www.ccpr.org.uk
Health and Safety Executive	www.hse.gov.uk
National Society for the Prevention of Cruelty to Children (NSPCC)	www.nspcc.org.uk
Royal Society for the Prevention of Accidents	www.rosipa.com
Safe Sport	www.safesport.co.uk
SkillsActive	www.skillsactive.com

Unit 2: Principles of Exercise, Fitness and Health

Unit code: A/600/9017

Level: 2

Credit value: 4

Guided learning hours: 28

Unit aim

The aim of this unit is to develop knowledge and understanding of the key principles of exercise, fitness and health, including the components, principles and variables of fitness, the health benefits of physical activity and the importance of healthy eating.

Learners will cover the effects of exercise on the musculoskeletal, cardiovascular and respiratory systems, including how the various body systems adapt to training and the health benefits of physical activity.

Learners will have the opportunity to investigate how the principles and variables of fitness are applied in practice, including the principles of progression, adaptation, modification and regression, and exercise contraindications and key safety guidelines for working with special populations.

Finally, learners will explore key health eating advice, key nutrients and their sources, and the health risks associated with poor nutrition.

Essential resources

For this unit, centres need to give learners access to computers, the internet and library facilities to enable them to carry out research. Centres could invite independent health and fitness experts to be guest speakers.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand the effects of exercise on the body	1.1	Describe cardiovascular and respiratory adaptations to endurance/aerobic training	Cardiovascular adaptations eg increased heart rate, decreased blood pressure, increase in stroke volume, increase in cardiac output, decrease in resting heart rate, increase in blood volume, improved blood flow Respiratory adaptations eg increase in breathing rate, decrease in resting breathing rate, increased tidal volume, increased strength of respiratory muscles, increase in oxygen diffusion rate, improved lung capacity
		1.2	Identify the short and long term effects of exercise on blood pressure	Short-term effect eg systolic pressure rises, diastolic pressure stays almost the same Long-term effect eg systolic and diastolic pressures are reduced
		1.3	Describe the 'blood pooling' effect following exercise	Force pushing the blood back to the heart stops Blood and waste products stay in the muscles Causes swelling and pain
		1.4	Describe the effects of exercise on bones and joints including the significance of weight bearing exercise	Effects eg increased range of movement, improved bone density Weight bearing exercise eg running, resistance training; Significance eg prevention of osteoporosis

Learning outcomes		Assessment criteria		Unit amplification
		1.5	Describe delayed onset of muscle soreness (DOMS)	DOMS eg muscle pain, soreness or stiffness occurring in the day or two after exercise, structural muscle damage
		1.6	Identify exercises or techniques likely to cause delayed onset of muscle soreness	Causes eg eccentric exercise, lowering weights, the downward motion of squats and push-ups, unaccustomed or strenuous exercise, dramatic increase to duration or intensity of an exercise routine
		1.7	Describe the short and long term effects of different types of exercise on muscle	Short term effects eg heat generation, increased elasticity, increased excitability, increased production of synovial fluid, improved blood flow to muscles, improved range of joint movement Long-term effects eg increased muscle strength, increased strength of tendons and ligaments, increased myoglobin stores, increased number of mitochondria
		1.8	Describe different exercises that can improve posture	Strengthening core muscles eg basic crunches, side planks, back extensions Stretches eg leg, wall, simple chest Progression eg increased range of motion, increase speed, combined movements
2	Understand the components of fitness	2.1	Define the components of health related fitness	Components eg aerobic endurance, muscular endurance, flexibility, speed, strength, body composition
		2.2	Define the components of skill related fitness	Components eg agility, balance, coordination, power, reaction time
		2.3	Identify the factors that affect health and skill related fitness	Physical factors eg diet, weight, gender, body type, medical history Lifestyle factors eg stress, alcohol, smoking, drugs, demands of work, level of activity, sports participation (training and competition)

Learning outcomes		Assessment criteria	Unit amplification
3	Understand how to apply the principles and variables of fitness to an exercise programme	3.1 Describe the physiological implications of: <ul style="list-style-type: none"> □ specificity □ progressive overload □ reversibility □ adaptability □ individuality □ recovery time 	<p>Specificity eg muscles adapt specifically to the nature of the exercise stress, muscle exercised is the muscle that adapts to training</p> <p>Progressive overload eg stimulates muscle hypertrophy, development of stronger and denser bones, ligaments, tendons and cartilage, more responsive nerve connection between the brain and the muscles involved</p> <p>Reversibility eg extended rest intervals reduce physical fitness, physiological effects of fitness training diminish over time, decreased strength and muscle mass</p> <p>Adaptability eg body adapts to the stress of exercise with increased fitness, muscles and cardiorespiratory system adapt through consistent training or activity sessions</p> <p>Individuality eg people have different physical and physiological constitutions, tolerate training in different ways</p> <p>Recovery time eg allows the body to replenish energy stores, repair damaged tissues, short term recovery eg immediately after intense exercise, low-intensity exercise during cool-down phase, long term recovery eg techniques that are built in to a seasonal training programme</p>
		3.2 Explain the principles of FITT (Frequency, Intensity, Time and Type)	<p>Frequency – how often exercise is carried out</p> <p>Intensity – how hard a person works during exercise</p> <p>Time – length of the exercise session</p> <p>Type – the type of activity/exercise</p>

Learning outcomes		Assessment criteria	Unit amplification
		3.3 Explain the principles of a progressive training programme in developing components of fitness	<p>Application of FITT principles</p> <p>Progressive training eg identifying training needs, making progress with each session, increasing the intensity of sessions, increasing range of motion, changing sessions (adding new exercises, deleting old ones, changing the order of exercises), setting SMART goals</p>
		3.4 Explain how to recognise when and how to regress a training programme	<p>When eg when participants are hitting a 'plateau', coming back from an injury, training with joint pain, working the same routine for long periods of time, frustrated or not seeing results, have been inactive for long periods</p> <p>How eg recognise signs and symptoms, follow appropriate guidelines to avoid over training, adapt principles and variable of training, stress the importance of adequate recovery time</p>
		3.5 Explain the principles of adaptation, modification and progression for each component of FITT (Frequency, Intensity, Time and Type)	<p>Modification eg making an exercise more or less difficult, adjusting exercise to meet client's physical capabilities</p> <p>Adaptation eg exercise/training forces adaptation to increase performance, varies according to the initial level of fitness</p> <p>Progression eg build up the level of work intensity over a period of time, progress through increasing levels of fitness over several weeks or months</p>
		3.6 Describe the effect of speed on posture, alignment and intensity	<p>Effect of slow speeds eg build muscle strength, posture easier to control, alignment easier to control</p> <p>Effect of faster speeds eg increased risk of injury, increased intensity of exercise</p>
		3.7 Describe the effect of levers, gravity and resistance on exercise	<p>Levers eg classification (class 1, class 2, class 3)</p> <p>Effects of levers eg torque, pushes, pulls</p> <p>Effect of gravity eg movement control</p> <p>Effect of resistance eg intensity</p>

Learning outcomes		Assessment criteria		Unit amplification
		3.8	Describe the differences between programming exercise for physical fitness and for health benefits	<p>Programming exercise for physical fitness eg improving skill levels, increasing intensity, increasing strength</p> <p>Programming exercise for health benefits eg using muscles, maintaining bone strength, maintaining good blood flow, controlling blood pressure</p>
4	Understand the Exercise contraindications and key safety guidelines for special populations	4.1	Describe the exercise contraindications and key safety guidelines for working with older people (50 plus)	<p>Absolute contraindications eg recent ECG changes, recent heart attack, unstable angina</p> <p>Relative contraindications eg high blood pressure, joint stiffness, poor balance and posture, sensory decline</p> <p>Key safety guidelines eg appropriate screening prior to exercise, seek/refer to specialist advice, longer and gradual warm up and cool down, ensure intensity level is appropriate and safe, emphasise correct use of exercise techniques, simplify/adapt exercise as required</p>
		4.2	Describe the exercise contraindications and key safety guidelines for working with antenatal and postnatal clients	<p>Absolute contraindications eg heart disease, a history of spontaneous abortions or miscarriages</p> <p>Relative contraindications eg high blood pressure, anaemia, diabetes, thrombosis, pelvic floor problems</p> <p>Key safety guidelines eg appropriate screening prior to exercise, seek/refer to specialist advice, ensure the environment is at the correct temperature and humidity, avoid activity which places undue strain on vulnerable areas of the body, avoid excessive stretching, avoid heavy resistance exercise, avoid high impact exercise, minimise risks of falls or slips, monitor if joints have regained strength and stability in good alignment, emphasise use of correct exercise techniques, retraining motor skills (balance, coordination)</p>

Learning outcomes		Assessment criteria		Unit amplification
		4.3	Describe the exercise contraindications and key safety guidelines for working with young people (14-16)	Contraindications eg stage of development, injuries, fractures Key guidelines eg appropriate screening prior to exercise , seek/refer to specialist advice, take regular breaks, emphasise use of correct exercise techniques, avoid heavy resistance training, avoid flexibility training, ensure participants hydrate before, during and after exercise
		4.4	Describe the key safety considerations for working with disabled people	Considerations eg appropriate screening prior to exercise, seek/refer to specialist advice, ensure the environment is appropriate and accessible, ensure goals are realistic and motivating, provide appropriate level of support and supervision, provide specialist equipment
5	Understand how to safely monitor exercise intensity	5.1	Describe the benefits and limitations of different methods of monitoring exercise intensity including: <ul style="list-style-type: none"> □ the talk test □ Rate of Perceived Exertion (RPE) □ heart rate monitoring and the use of different heart rate zones 	Benefits and limitations eg used to meet client needs, easy to administer, reliability of results, validity of results
6	Understand the health benefits of physical activity	6.1	Describe the health benefits of physical activity	Reduce risk of developing health conditions eg heart disease, hypertension, type 2 diabetes, obesity, back pain, osteoporosis Improve overall quality of life and wellbeing eg improved circulation, increased energy, increased self-confidence, increased motor skills, reduced risk of injury, improved posture

Learning outcomes		Assessment criteria		Unit amplification
		6.2	<p>Describe the effect of physical activity on the causes of certain diseases including:</p> <ul style="list-style-type: none"> □ coronary heart disease □ some cancers □ type 2 diabetes □ hypertension □ obesity □ Osteoporosis 	<p>Coronary heart disease eg strengthens heart muscle, lowers blood pressure, improves cholesterol levels, improves blood flow</p> <p>Some cancers eg promotes lifestyle changes</p> <p>Type 2 diabetes eg reduces body fat, improves regulation of insulin and blood glucose</p> <p>Hypertension eg lowers blood pressure, reduces body fat, improves blood flow, reduces muscular tension, reduces stress level</p> <p>Obesity eg reduces body fat, builds or preserves muscle mass, improves body's ability to use calories</p> <p>Osteoporosis eg weight-bearing exercise promotes bone formation, prevents bone loss associated with age, improves bones density, reduces risk of injury</p>
7	Understand the importance of healthy eating	7.1	Describe the national food model/guide	<ul style="list-style-type: none"> □ Guidance on healthy eating and nutrition eg dietary intake guidelines, Food Standards Agency (FSA) Nutrient and Food Based Guidelines for UK Institutions, FSA Eatwell plate, Health Eating – Live Well (NHS), British Nutrition Foundation Guidelines, five-a-day recommendations
		7.2	Describe key healthy eating advice that underpins a healthy diet	<ul style="list-style-type: none"> □ Meal plans eg type, amount, preparation □ Strengths and areas for improvement eg eating less or more food, eating less or more of a particular food group, eating at different times, preparing food in a different way, drinking more fluid or drinking different types of fluid
		7.3	Explain the importance of adequate hydration	<ul style="list-style-type: none"> □ For example to maintain internal conditions within the body(homeostasis), enhance performance(physical and mental), avoid dehydration, pre, during and post-session □ Sources eg water, sports drinks

Learning outcomes		Assessment criteria	Unit amplification
		7.4 Explain professional role boundaries in relation to offering nutritional advice	<ul style="list-style-type: none"> Identify need to refer client eg to GP, registered dietician
		7.5 Explain the dietary role of the key nutrients	<ul style="list-style-type: none"> Proteins eg make enzymes, antibodies, body fluids, hormones, important in building ,maintaining and repairing body tissues and cells, important for growth and development during childhood, adolescence, and pregnancy Fats eg necessary for good health, make certain vitamins (eg A, D, E, K) available for use in the body, cushion vital organs, help maintain body temperature, important for proper growth and development Fibre eg keep digestive system healthy and functioning properly, aids and speeds up the excretion of waste and toxins from the body Carbohydrates eg provide the body with a source of fuel and energy, important for the correct working of brain, heart and the nervous, digestive and immune systems
		7.6 Identify the common dietary sources of the key nutrients	<p>Proteins eg lean meat products, poultry, fish, eggs, milk, cheese, dried beans</p> <p>Fats saturated eg butter, cheese, whole milk, ice cream, cream, fatty meats; unsaturated eg most vegetable oils, fish (salmon, tuna, mackerel, herring, trout, sardines), avocados, olives ,nuts</p> <p>Fibres insoluble eg bran, wholemeal flour and breads, brown rice, whole grain cereals, vegetables, edible peels of fruit, nuts and seeds; soluble eg fruits, vegetables, lentils, peas, beans, oats, barley, oatmeal, potatoes, dried fruit, soya milk and soya products</p> <p>Carbohydrates complex eg in most grains, cereals, potatoes, brown rice, bread, pasta, legumes and certain fruits and vegetables; simple eg natural (fruit, milk), refined (cakes, chocolate, jam, fruit juice)</p>

Learning outcomes		Assessment criteria		Unit amplification
		7.7	Describe the energy balance equation	<ul style="list-style-type: none"> □ Factors affecting energy balance eg basal metabolism, age, gender, climate, physical activity □ Energy balance equation –differences between energy intake (from food) and energy output eg neutral energy balance (calories taken in equal to calories expended, weight is maintained), positive energy balance (calories taken in are greater than calories expended, weight is gained, fat stores are increased), negative energy balance (calories taken in are less than calories expended)
		7.8	Explain the health risks of poor nutrition	<p>Health risks eg lower core strength, increased body fat, slower mental problem solving, less alertness, slower muscle response time</p> <p>Young adults- affect potential growth and development</p> <p>Increased risk of developing serious diseases and conditions eg type 2 diabetes, heart disease, high blood pressure, high cholesterol, obesity, osteoporosis, cancer</p>

Delivery

This unit should be delivered in a way that develops knowledge and understanding of the principles of exercise, fitness and health. Learners need to know and understand:

- the effects of exercise on the main body systems, including how these systems adapt to training
- components of and factors affecting health and skill-related fitness
- how the principles and variables of fitness can be applied in practice
- the special requirements associated with working with special populations, including exercise contraindications and key guidelines
- the health benefits of physical activity and importance of healthy eating.

A useful opening would be small-group discussions, during which learners can exchange their experiences of exercise, fitness and health-related issues, either as employees or clients in the sector. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

Learners can carry out activities where they identify the main nutrient(s) in a range of different foods, and discuss healthy eating guidelines and how to ensure a balanced diet.

Learners should be encouraged to engage with employers and, where possible, employees to gain knowledge and understanding of the principles of exercise, fitness and health.

Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible by learners working with others whose role it is to deliver fitness and exercise programmes to clients and work with them to maintain their health and fitness, for example a fitness instructor, where possible, and through the use of guest speakers and video/DVD training programmes.

For example, a presentation by a personal trainer will support delivery, as well as adding vocational relevance and currency. The visiting speaker could deliver a summary of the effects of exercise on the body, how the body's systems adapt to training and the health benefits of physical activity. They could also provide real-life examples of applying the principles and variables of training and of, for example, progressing or regressing exercise/fitness programmes. This should be supported by examples drawn from industry or through developed case studies that highlight:

- the components of health and skill-related fitness
- working with special populations and what can happen if exercise contraindications or key guidelines are ignored
- the importance of healthy eating and how a well-balanced diet contributes to health, including the effects of poor nutrition.

This unit could be delivered through distance learning. However, this will involve additional, and different, considerations, such as planning, and other measures to ensure learners can gain the required knowledge and understanding.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

A variety of assessment methods could be used. Learners could produce written reports or give verbal presentations, supported by witness testimony. Other alternatives could be logbooks or workbooks completed in the workplace or during visits.

Assessment tasks and activities should enable learners to produce valid, sufficient and reliable evidence that relates directly to the assessment criteria. Centres are encouraged to emphasise the practical application of the assessment criteria.

Indicative resource materials

Books

Allen M B – *Sports Exercise and Fitness: A Guide to Reference and Information Sources* (Libraries Unlimited Inc, 2005) ISBN 9781563088193

American Council on Exercise – *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (American Council on Exercise, 1998) ISBN 9780880119429

Bean A – *Food for Fitness* (A&C Black, 2008) ISBN 9780713681284

Buckley J, Holmes J and Mapp G – *Exercise on Prescription: Cardiovascular Activity for Health* (Butterworth-Heinemann, 1999) ISBN 9780750632881

Burke L – *Practical Sports Nutrition* (Human Kinetics, 2007) ISBN 9780736046954

Dalglish J and Dollery S – *The Health and Fitness Handbook* (Longman, 2001) ISBN 9780582418790

DiFiore J – *The Complete Guide to Postnatal Fitness* (Complete Guides) (A&C Black Publishers Ltd, May 2010) ISBN 9781408124550

Griffin J – *Food for Sport: Eat Well, Perform Better* (Crowood, 2001) ISBN 9781861262165

Griffin S – *Training the Over 50s: Developing Programmes for Older Clients* (Fitness Professionals) (A&C Black Publishers Ltd, 2006) ISBN 9780713672015

Manore M et al – *Sport Nutrition for Health and Performance* (Human Kinetics, 2000) ISBN 9780873229395

Sharkey B J and Gaskill S E – *Fitness and Health* (Human Kinetics, 2006) ISBN 9780736056144

Williamson P – *Exercise for Special Populations* (Lippincott Williams and Wilkins, 2010) ISBN 9780781797795

Winnick P – *Adapted Physical Education and Sport* (Human Kinetics Publishers, October 2010) ISBN 9780736089180

Journals

American College of Sport Medicine's Health and Fitness Journal

International Journal of Sports Nutrition

International Journal of Sports Science and Coaching

Journal of Nutrition

Journal of Sports Nutrition

Research Quarterly for Exercise and Sport

Websites

British Association of Sport and Exercise Sciences

www.bases.org.uk

British Nutrition Foundation

www.nutrition-org.uk

Coachwise

www.1st4sport.com

Peak Performance

www.pponline.co.uk

Sports Coach UK

www.sportscoachuk.org

Unit 3:

Know How to Support Clients who Take Part in Exercise and Physical Activity

Unit code: M/600/9015

Level: 2

Credit value: 2

Guided learning hours: 13

Unit aim

The aim of this unit is to develop knowledge and understanding of how to develop effective working relationships with clients, how to provide ongoing customer service, and how to support clients to adhere to exercise/physical activity.

This unit will give learners an overview of customer service within a fitness environment. Learners will explore the importance of meeting client needs to ensure client satisfaction, how to exceed client expectations and how to deal with client complaints promptly and effectively.

Learners will look at the communication skills that can help to motivate clients and at the importance of valuing equality and diversity when working with clients.

In this unit learners will consider the barriers to exercise clients face and the strategies that can be used to help clients overcome these barriers.

Essential resources

For this unit, centres need to give learners with access to computers, the internet and library facilities to enable them to carry out research.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand how to form effective working relationships with clients	1.1	Explain why it is important to form effective working relationships with clients	<p>Importance eg build client trust and confidence, clients feel valued and motivated, clients more likely to adhere to exercise and physical activity programmes, clients understand your role and responsibilities, develop mutual trust and respect</p> <p>Requirements eg in line with good practice, ethical requirements, professional conduct</p> <p>Characteristics eg objectivity, patience, persistence, empathy, approachable, consistent, committed, empowering</p>
		1.2	Explain why it's important to present oneself and the organisation positively to clients	<p>Importance eg creates positive impression of the organisation as a whole, builds trust with the client, client feels at ease and assured, client confidence in organisation and its services</p> <p>Client loyalty eg repeat business, client recommendations to friends and family</p>
		1.3	Describe how different communication skills can be used to assist clients with motivation	<p>Verbal communication eg appropriate tone and pitch of voice, language appropriate to client, use of positive language, use of praise and encouragement, avoid use of slang/jargon, opportunities to discuss client needs</p> <p>Non-verbal communication eg posture, expression, gestures, eye contact, positive body language</p> <p>Listening eg asking appropriate questions, seeking client views on their performance</p> <p>Taking the initiative in communicating with clients eg if they seem unsure, recognising when clients need help and assistance</p>

Learning outcomes		Assessment criteria		Unit amplification
		1.4	Explain the importance of valuing equality and diversity when working with clients	<p>Compliance with legal requirements eg Race Relations Act 2010, Sex Discrimination Act, Equality Act 2010, Gender Recognition Act, age discrimination legislation, REP Exercise and Fitness Code of Ethical Practice</p> <p>Importance eg maintain individual's respect and dignity, serve the needs of the whole community, ensure fair and equal treatment, ensure inclusive provision, encourage participation, remove barriers to participation, provide specialist equipment to enable participation</p>
2	Understand how to address barriers to exercise/physical activity that clients experience	2.1	Identify the typical barriers to exercise/physical activity that clients experience	Typical barriers eg health issues, age, fear of injury, time, access, transport, cost, facilities, lack of self-motivation, lack of self-esteem, lack of self-confidence, lack of encouragement or support
		2.2	Explain how incorporating clients' exercise/physical activity preferences into their programme can strengthen motivation and adherence	<p>Opportunity to identify and discuss client preferences for exercise eg health, fitness, social</p> <p>Supports motivation and adherence eg increase client confidence and autonomy, allow client to take responsibility for own fitness</p>
		2.3	Describe different incentives and rewards that can strengthen clients' motivation and adherence	<p>Incentives eg enjoyment, social interaction, related health benefits, improvement in fitness and skill levels</p> <p>Rewards eg achievement of goals, praise and encouragement from others, positive feedback</p> <p>Services eg free exercise sessions, crèche, discounts</p>
		2.4	Describe different strategies that can help clients overcome typical barriers to exercise/physical activity	Strategies eg inform client of benefits of taking part in exercise and physical activity, look at different types of physical activity appropriate for client, refer client to other relevant professionals, implement enjoyable activities, hold activities at appropriate times; provide appropriate facilities

Learning outcomes		Assessment criteria		Unit amplification
3	Understand how to support clients to adhere to exercise/physical activity	3.1	Explain why it is important for a client to take personal responsibility for their own fitness and motivation	Importance eg client more likely to adhere to exercise, client feels empowered, promotes self-reflection on progress and identification of any necessary improvements/changes to goals
		3.2	Describe how to assist clients to develop their own strategy for motivation and adherence	Discuss issues with client eg client needs, barriers to exercise Build client confidence eg select situations or environments they enjoy exercising in, set achievable goals with clients, provide support and reinforcement, offer alternatives and rewards for achieving goals
		3.3	Identify different behaviour change approaches/strategies to encourage adherence to exercise/physical activity	Stages in behaviour change eg pre-contemplation, contemplation, preparation, action, maintenance, relapse Approaches/strategies eg providing positive feedback, encouragement and support, setting and reviewing goals, working with client to remove barriers, providing advice and information
		3.4	Describe how to set short, medium and long term SMART goals	SMART (specific, measureable, achievable, realistic, time bound) goals Short, medium and long terms goals eg increase number of press-ups from 10 to 30 over two week period commencing next Saturday
		3.5	Describe how to review and revise short, medium and long term SMART goals	Review and revise eg against client targets, in response to changing client needs and preferences, update targets
4	Understand how to provide ongoing customer service to clients	4.1	Explain the importance of client care both for the client and the organisation	For the organisation eg keep existing clients, repeat clients and business, client recommendations to family and friends, develop a good reputation For the client eg client satisfaction, ensure client safety, responsive to client needs, client exercise and fitness goals are met

Learning outcomes		Assessment criteria		Unit amplification
		4.2	Explain why it is important to deal with clients needs to their satisfaction	Importance eg maintain client satisfaction and trust, client more likely to attend exercise sessions, client recommendations to family and friends
		4.3	Identify where to source relevant and appropriate information to meet clients needs	Sources eg internet, textbooks, journals, REP publications Appropriate professionals eg GP, physiotherapist
		4.4	Explain the importance of dealing with any delay in meeting clients needs timely and effectively	Importance eg client is aware of progress, to maintain client trust and confidence, to maintain client satisfaction, to maintain professional reputation of the organisation, suggest appropriate alternatives
		4.5	Give examples of how to exceed customer expectations, when appropriate	Providing additional help and assistance Dealing promptly with problems Offering discounts or additional products or services Exceptional help and assistance for customers with special requirements Delivering excellent standards of service and facilities
		4.6	Explain the importance of handling client complaints positively following an organisation's procedure	Importance eg maintain client trust and confidence, maintain client satisfaction, maintain professional reputation of the organisation

Information for tutors

Delivery

This unit should be delivered in a way that develops learner knowledge and understanding of supporting clients who are taking part in exercise and physical activity. Learners need to know and understand:

- the importance of customer service within a fitness environment and of making a positive impression with clients
- how to develop effective working relationships with clients, including valuing equality and diversity within the sector
- typical barriers to exercise and physical activity, how to help clients overcome these barriers and adhere to exercise and physical activity.

A useful opening would be small-group discussions, during which learners can exchange their experiences of customer service and supporting clients within a fitness environment, including issues relating to equality and diversity. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

Learners should be encouraged to engage with employers and, where possible, employees to gain knowledge and understanding of the importance of effective customer service and of supporting clients taking part in exercise and physical activity within a fitness environment.

Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible by learners working with others who work directly with clients within a fitness environment, for example a health fitness instructor, and through the use of guest speakers and video/DVD training programmes.

A presentation by a personal trainer will support delivery, as well as adding vocational relevance and currency. The visiting speaker could deliver a summary of how they develop effective working relationships with their clients and provide ongoing customer service. They could also provide real-life examples of how they have helped clients to overcome barriers to exercise and physical activity. This should be supported by examples drawn from industry or through developed case studies that highlight:

- the importance of making a positive impression on clients
- the typical barriers to exercise and physical activity clients face
- the different strategies that can be used to help overcome these barriers, motivate clients and support them in adhering to exercise and physical activity.

This unit could be delivered through distance learning. However, this will involve additional, and different, considerations, such as planning, and other measures to ensure learners can gain the required knowledge and understanding.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

A variety of assessment methods could be used. Learners could produce written reports or give verbal presentations, supported by witness testimony. Alternatives could be logbooks or workbooks completed in the workplace or during visits.

Assessment tasks and activities should enable learners to produce valid, sufficient and reliable evidence that relates directly to the assessment criteria. Centres are encouraged to emphasise the practical application of the assessment criteria.

Indicative resource materials

Books

Allen M B – *Sports Exercise and Fitness: A Guide to Reference and Information Sources* (Libraries Unlimited Inc, 2005) ISBN 9781563088193

Bird S R et al – *Exercise Benefits and Prescription* (Stanley Thornes, 1998) ISBN 9780743733156

Carlaw P & Deming V K – *The Big Book of Customer Service Training Games* (McGraw Hill, 2007) ISBN 139780077114763

Dick F W – *Sports Training Principles* (A&C Black, 2007) ISBN 9780713682786

Howley E T and Franks B D – *Health Fitness Instructor's Handbook* (Human Kinetics Europe, 2003) ISBN 9780736042109

Jarvis, M – *Sport Psychology: A Student's Handbook* (Routledge, 2006) ISBN 9781841695822

Leland K and Bailey K – *Customer Service for Dummies* (John Wiley & Sons, 2006) ISBN 139780471768692

Sharkey B J and Gaskill S E – *Fitness and Health* (Human Kinetics, 2006) ISBN 9780736056144

Timm P – *Customer Service: Career Success Through Customer Loyalty* (Prentice Hall, 2010) ISBN 139780135063972

Journals

Customerfirst (Institute of Customer Service)

Exercise and Sport Sciences Reviews

International Journal of Sports Science and Coaching

Websites

BBC Sport

www.bbc.co.uk/sportBritish

British Association of Sport and Exercise Sciences

www.bases.org.uk

Sports Coach UK

www.sportscoachuk.org

Unit 4: Anatomy and Physiology for Exercise and Health

Unit code: A/600/9051

Level: 3

Credit value: 6

Guided learning hours: 43

Unit aim

The aim of this unit is to develop learner knowledge and understanding of the anatomy and physiology of the human body and how this relates to exercise and health, including postural and core stability.

In this unit learners will explore the anatomy and physiology of the main body systems (circulatory system, endocrine system, musculoskeletal system, energy system and nervous system) and how they affect and are affected by exercise.

Learners will also have the opportunity to investigate what is meant by postural and core stability and how this relates to exercise and health.

Essential resources

For this unit, centres need to provide learners with access to:

- diagrams of the musculoskeletal, circulatory, endocrine and nervous systems. Models of each body system would be beneficial but are not essential for unit delivery
- laboratory equipment and/or models/ images relating to the body systems
- computers and the internet to enable them to carry out research as required.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand the heart and circulatory system and its relation to exercise and health	1.1	Explain the function of the heart valves	<ul style="list-style-type: none"> □ Valves – atrioventricular (mitral valve, tricuspid valve), semilunar (aortic valve, pulmonary valve) □ Function — ensure blood flows in one direction only through the heart, prevent the backward flow of blood.
		1.2	Describe coronary circulation	<ul style="list-style-type: none"> □ Systemic circulation eg part of the cardiovascular system, carries oxygenated blood from the lungs away from the heart to the body, returns deoxygenated blood to the heart □ Pulmonary circulation eg part of cardiovascular system, carries de-oxygenated blood away from the heart to the lungs, returns oxygenated blood to the heart
		1.3	Explain the effect of disease processes on the structure and function of blood vessels	<ul style="list-style-type: none"> □ Causes changes in both structure and function of blood vessels. □ Atherosclerotic processes eg abnormal deposition of lipids in the vessel wall, plaque formation, thickening of the vessel wall, restricted blood flow, endothelial cell dysfunction □ Arteriosclerotic process eg hardening of arteries, loss of elasticity, build up of fat and cholesterol in arteries, plaque formation
		1.4	Explain the short and long term effects of exercise on blood pressure, including the valsalva effect	<ul style="list-style-type: none"> □ Short-term effect eg systolic pressure rises, diastolic pressure stays almost the same □ Long-term effect eg systolic and diastolic pressures are reduced □ Valsalva effect

Learning outcomes		Assessment criteria		Unit amplification
		1.5	Explain the cardiovascular benefits and risks of endurance/aerobic training	<ul style="list-style-type: none"> □ Benefits eg increased heart efficiency, decreased blood pressure, increase in stroke volume, increase in cardiac output, decrease in resting heart rate, increase in blood volume, improved blood flow, improved cholesterol levels □ Risks eg overuse injuries, aggravation of existing injuries or medical conditions
		1.6	Define blood pressure classifications and associated health risks	<ul style="list-style-type: none"> □ Classifications — low, normal, high-normal, mild hypertension (grade 1), moderate hypertension (grade 2), severe hypertension (grade 3) □ Health risks eg coronary heart disease, damage to the arteries, strokes, kidney damage
2	Understand the musculoskeletal system and its relation to exercise	2.1	Explain the cellular structure of muscle fibres	<ul style="list-style-type: none"> □ Endomysium — fine sheath of connective tissue layer that surrounds each single muscle fibre, includes capillaries and nerves. □ Myofibril — cylindrical structures that extend along the complete length of the muscle fibre, consists of two types of protein filaments — thick filaments, and thin filaments □ Nucleus — contains DNA in the form of genes, and also information for the formation of proteins. □ Sarcolemma — cell membrane that encloses each muscle fibre, contains extensions transverse tubules, □ Sarcoplasm — cytoplasm of muscle cells surrounding the nucleus, contain mitochondria □ Sarcoplasmic reticulum — network of membrane-enclosed tubules, extends throughout the sarcoplasm of the cell □ Myosin and actin — contractile protein filaments

Learning outcomes		Assessment criteria		Unit amplification
		2.2	Describe the sliding filament theory	<ul style="list-style-type: none"> □ Explanation of how muscles produce force □ Myosin (thick) and actin (thin) filaments within the sarcomere slide between each other to produce a muscle contraction □ Length of sarcomere shortened
		2.3	Explain the effects of different types of exercises on muscle fibre type	<ul style="list-style-type: none"> □ Muscle fibre type — type I slow oxidative fibres, type IIa fast oxidative fibres, type IIb fast glycolytic fibres □ Aerobic eg recruits slow oxidative (type I) fibres, increased storage of energy molecules such as fats and carbohydrate, increased endurance, capillaries and other blood vessels expand (vasodilation), increased glycogen stores, able to use increased amount of fat as a source of fuel, increased mitochondria □ Resistance eg recruits fast glycolytic (type II) fibres, increased muscular size and strength, promotes oxygen delivery and utilisation, increased contractile protein (actin and myosin), tougher connective tissue, number of muscle fibres may increase
		2.4	Identify and locate the muscle attachment sites for the major muscles of the body	<ul style="list-style-type: none"> □ Attachment sites and major muscles — rotator cuff (teres minor, supraspinatus, subscapularis, infraspinatus), shoulder girdle levator scapulae, pectoralis minor, serratus anterior, trapezius, rhomboids major/minor, teres major), spinal extensors(erector spinae: iliocostalis, longissimus, spinalis, multifidus lumborum) hip flexors (iliopsoas) (iliacus, psoas major), adductors (magnus, brevis, longus, pectinius, gracilis, sartorius), abductors (gluteus medius, gluteus minimus, piriformis, tensor fascia latae), abdominals (internal and external obliques, transverse abdominis), quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius), hamstrings (semitendinosus, semimembranosus, biceps femoris)

Learning outcomes		Assessment criteria		Unit amplification
		2.5	Name, locate and explain the function of skeletal muscle involved in physical activity	<ul style="list-style-type: none"> □ Anterior skeletal muscles eg biceps, rectus abdominis, obliques, transverse abdominis pectoralis, hip flexors major, anterior deltoids, medial deltoids, quadriceps, adductors, anterior tibialis □ Posterior skeletal muscles eg latissimus dorsi, erector spinae, gluteals, trapezius, rhomboids, triceps, medial deltoids, posterior deltoids abductors, hamstrings, gastrocnemius, soleus □ Functions eg enable body movement, maintain stable body posture □ Muscle contraction — isometric (muscle tension and length remain constant), isotonic (muscle tension remains constant and muscle length varies), isokinetic (varying muscle tension and length) □ Muscle roles eg antagonist acts in contrast to agonist, stabiliser holds a joint in place, assistors help the agonist
		2.6	Identify the anatomical axis and planes with regard to joint actions and different exercises	<ul style="list-style-type: none"> □ Planes — frontal, transverse, sagittal □ Axis — anteroposterior, transverse, longitudinal □ Joint actions — transvers axis and sagittal planes eg flexion, dorsiflexion, plantar flexion, extension, hyperextension anteroposterior axis and frontal plane eg adduction, abduction, radial deviation/flexion, ulnar deviation/flexion, inversion, eversion, elevation, depression, lateral flexion, longitudinal axis and transvers plane eg internal and external rotation, supination, horizontal extension and flexion, rotation

Learning outcomes		Assessment criteria		Unit amplification
		2.7	Explain the joint actions brought about by specific muscle group contractions	<ul style="list-style-type: none"> □ Muscles contractions and joint actions eg quads (hip and knee flexion), gluteus maximus (hip extension, external rotation), adductors (adduction and external rotation, adduction, flexion and internal rotation), gastrocnemius (plantar flexion at ankle), rectus abdominus (forward spinal flexion), external and internal obliques (torso rotation), erector spinae (trunk extension), pectoralis major (flexion, adduction, internal rotation), deltoid (flexion, internal rotation, extension, external rotation), trapezius (elevation, adduction, depression), rhomboid major (adduction and elevation), biceps (elbow flexion), triceps (extension at the elbow), latissimus dorsi (extension, adduction, internal rotation)
		2.8	Describe joints/joint structure with regard to range of motion/movement and injury risk	<ul style="list-style-type: none"> □ Synovial joints-freely moveable, synovial cavity, synovial membrane, synovial fluid, articular capsule, ligaments, articular cartilage □ Fibrous joints – fixed/immovable, no joint cavity, connected via fibrous connective tissue, skull and pelvis held together by these joints □ Cartilaginous joints- slightly moveable, joints in which the bones are attached by cartilage, allow for only a little movement (in the spine or ribs) □ Range of movement of synovial joints- gliding (gliding or sliding movements only) eg carpals, hinge (flexion and extension in one plane) eg the elbow, ellipsoidal (flexion, extension, abduction, adduction) eg the wrist, saddle joints (flexion, extension, abduction, adduction) eg thumb between the metacarpal and carpal, ball and socket joints (all movements except gliding) eg the shoulder, pivot (rotation) eg arms outward or inward □ Injury risks eg if the joint is over extended, if the joint is not aligned correctly

Learning outcomes		Assessment criteria		Unit amplification
		2.9	Describe joint movement potential and joint actions	<ul style="list-style-type: none"> □ Joint movement and potential action eg flexion/bending the elbow, extension/straightening the elbow, horizontal flexion/adduction/extension/abduction/shoulder movements, lateral flexion/moving spine left to right, inversion and eversion /turning the ankle, rotation/arms inward and outward, abduction/lifting an arm horizontally adduction/returning the arm from the horizontal position to the side of the body, retraction/pulling the chin backwards, protraction/ thrusting the chine forward, elevation/shoulder shrugs, depression/dropping the jaw
		2.10	Describe the structure of the pelvic girdle and associated muscles and ligaments	<ul style="list-style-type: none"> □ Structure eg illium, ischium pubis □ Muscles eg rectus abdominus, iliopsoas, gluteus maximus, pectineus, rectus femoris , sartorius □ Ligaments- anterior sacroiliac, posterior sacroiliac, interosseous sacroiliac, sacrotuberous, sacrospinous
3	Understand postural and core stability	3.1	Describe the structure and function of the stabilising ligaments and muscles of the spine	<ul style="list-style-type: none"> □ Key ligaments (anterior and posterior longitudinal, supraspinous, interspinous, ligamentum flavum), fibrous bands of connective tissue that attach to bone, some elasticity □ Functions -protect the spine from injury eg hyper- extension and flexion movements, keep joints stable during rest and movement, stop joints bending the wrong way □ Key muscles eg lumbar multifidius, transversus abdominus (TA), internal and external obliques, rectus abdominus, erector spinae, quadararus lumborium, gluteus maximus hip flexors □ Functions eg keep each spinal segment from shifting and sliding during activity, <i>feed forward loop</i> (nerves to the TA alert the muscle in advance of movement), extend and rotate the spine, provide protection and stability

Learning outcomes		Assessment criteria		Unit amplification
		3.2	Describe local muscle changes that can take place due to insufficient stabilisation	<ul style="list-style-type: none"> Changes eg weak or inactive muscles, overactive muscles, compensation, decrease in movement efficiency
		3.3	Explain the potential effects of abdominal adiposity and poor posture on movement efficiency	<ul style="list-style-type: none"> Effects eg some muscles overwork, shift in centre of gravity, restricts movement efficiency and performance, increases risk of injury, increased tension, fatigue
		3.4	Explain the potential problems that can occur as a result of postural deviations	<ul style="list-style-type: none"> Deviation eg kyphosis, scoliosis, lordosis Potential problems eg fatigue, headaches, muscular tension, poor circulation and digestion, lower back pain, limited flexibility and range of motion, joint stiffness and pain, increased risk of injury.
		3.5	Explain the impact of core stabilisation exercise and the potential for injury/aggravation of problems	<ul style="list-style-type: none"> Core stabilisation exercise eg static and dynamic floor exercise, medicine ball exercises Impact eg muscles of the arms and legs have a more stable base to work from, improves the quality of movement, improves muscular co-ordination during movement, help to maintain appropriate posture and reduce strain on the spine, correct postural imbalances, develop functional fitness; Potential for injury/aggravation of problems eg with some resistance stretching, risk of lumbar injury with full spinal flexion, postural problems may prevent use of some exercises, need to maintain neutral spine alignment

Learning outcomes		Assessment criteria		Unit amplification
		3.6	<p>Explain the benefits, risks and applications of the following types of stretching:</p> <ul style="list-style-type: none"> □ static (passive and active) □ dynamic □ proprioceptive neuromuscular facilitation 	<ul style="list-style-type: none"> □ Active stretching eg increases flexibility, increases range of motion in the joints, strengthens the agonistic muscles, can weaken muscles and make them more prone to injury □ Passive stretching eg useful in relieving spasms in muscles that are healing after an injury, 'cooling down' after a workout, reduces post-workout muscle fatigue, and soreness □ Proprioceptive neuromuscular facilitation eg encourages flexibility and coordination across entire range of motion, supplements daily stretching, not recommended for children and people whose bones are still growing, very strenuous, adds stress to targeted muscle group, increases risk of soft tissue injury. □ <i>Dynamic stretching</i> eg gentle build up to the limits of range of motion, improves dynamic flexibility, useful as part of warm-up for an aerobic workout, increases core and muscle temperature, helps decrease the chance of injury
4	Understand the nervous system and its relation to exercise	4.1	<p>Describe the specific roles of:</p> <ul style="list-style-type: none"> □ the central nervous system (CNS) □ the peripheral nervous system (PNS) including somatic and autonomic systems 	<ul style="list-style-type: none"> □ Central nervous system eg integrates information received from all parts of the body, coordinates activity of all parts of the body, controls the various body functions (eg movement, sensation, thinking, memory, speech), visual and spatial skills □ Peripheral nervous system (autonomic nervous system, somatic nervous system, sympathetic system, parasympathetic system) eg connects central nervous system to limbs and organs, coordinates body movements, receives external stimuli, regulates activities under conscious control, manages all aspects of digestion, response to impending danger (increased of heartbeat and blood pressure, 'fight or flight' responses), in a resting and relaxed person responsible for eg constriction of pupils, dilation of the blood vessels

Learning outcomes		Assessment criteria		Unit amplification
		4.2	Describe nervous control and transmission of a nervous impulse	<ul style="list-style-type: none"> □ Impulses transmitted as electrical signals □ Neuron receives an impulse and transmits it to the next neuron □ Stages — polarised membrane (sodium on the outside, and potassium on the inside), resting neuron and resting potential, action potential (sodium ions move inside the membrane) as neuron receive a stimulus, repolarisation (potassium ions move outside, and sodium ions stay inside membrane), refractory period – return to resting state
		4.3	Describe the structure and function of a neuron	<ul style="list-style-type: none"> □ Structure — nucleus, dendrites, axon, soma, axon hillock, myelin sheath, Nodes of Ranvier, terminal buttons □ Function — transmit information throughout the body. in both chemical and electrical forms
		4.4	Explain the role of a motor unit	<ul style="list-style-type: none"> □ Basic functional units of skeletal muscle (small and large motor units) □ Role in muscle contraction (number of motor units in a muscle determines the strength of muscle contraction) eg groups of motor units often work together to coordinate the contractions of a single muscle □ Functional role largely defined by properties eg tasks requiring prolonged muscle force carried out by slow, fatigue-resistant motor units □ Motor unit recruitment, increased firing of recruited motor units.
		4.5	Explain the process of motor unit recruitment and the significance of a motor unit's size and number of muscle fibres	<ul style="list-style-type: none"> □ Motor unit recruitment — progressive activation of a muscle through recruiting motor units to strengthen muscle contractions, measure of how many motor neurons are activated in a particular muscle, the higher the recruitment the stronger the muscle contraction □ Significance of size and number of muscle fibres – size principle ie motor units generally recruited in order of smallest/fewest fibres to largest/most fibres as contraction increases

Learning outcomes		Assessment criteria		Unit amplification
		4.6	Explain the function of muscle proprioceptors and the stretch reflex	<ul style="list-style-type: none"> □ Muscle proprioceptors types eg muscle spindles, golgi tendon organ, pacinian corpuscle □ Functions — relay information about motion or position, create awareness of body position and movement in space, detect subtle changes in movement, position, tension, and force within the body, can trigger certain protective reflexes eg stretch reflex □ Stretch reflex (myotatic reflex) – dynamic and static components □ Function — muscle contraction in response to stretching within the muscle, provides automatic regulation of skeletal muscle length, helps to maintain muscle tone and to protect the body from injury.
		4.7	Explain reciprocal inhibition and its relevance to exercise	<ul style="list-style-type: none"> □ Reciprocal inhibition — reflex causing the antagonist muscle to relax when the synergist contracts □ Can be used in flexibility training to increase range of motion
		4.8	Explain the neuromuscular adaptations associated with exercise/training	<ul style="list-style-type: none"> □ Neuromuscular adaptations eg hypertrophy, increase in tendon strength, increased myoglobin stores, increased numbers of mitochondria, increased storage of glycogen and triglycerides, improved ability to recruit motor units, improved muscle coordination, increased nervous system connections
		4.9	Explain the benefits of improved neuromuscular coordination/efficiency to exercise performance	<ul style="list-style-type: none"> □ Benefits eg improved muscle coordination, improved strength, movements more efficient, stability improved
5	Understand the endocrine system and its relation to exercise and health	5.1	Describe the functions of the endocrine system	<ul style="list-style-type: none"> □ Maintain a stable environment within the body (homeostasis) □ Regulate mood, growth and development, tissue function, metabolism □ Hormone production

Learning outcomes		Assessment criteria		Unit amplification
		5.2	Identify the major glands in the endocrine system	<ul style="list-style-type: none"> Major glands — hypothalamus (main link between the endocrine and nervous systems), pituitary gland (controls several other endocrine glands), thyroid (controls the rate at which cells burn fuels from food to produce energy), parathyroid (regulate the level of calcium in the blood), adrenal glands (regulate salt and water balance in the body, the body's response to stress, metabolism, the immune system, and sexual development and function), pineal body (may help sleeping at night and waking in the morning, reproductive glands (which include the ovaries and testes)
		5.3	Explain the function of hormones including: <ul style="list-style-type: none"> growth hormone thyroid hormones corticosteroids catecholamines insulin glucagon 	<ul style="list-style-type: none"> Function of hormones — coordinate the activities of specific cells in certain areas of the body Growth hormone eg stimulates growth of new cells, stimulates the growth of all internal organs, stimulates the immune system, specific differentiation of certain types of cells, active in the metabolism of proteins, carbohydrates and fats Thyroid hormones eg increase basal metabolic rate, ensure proper development and differentiation of all cells (eg skeletal development in children), regulate protein, fat, and carbohydrate metabolism, stimulate vitamin metabolism, stimulates the formation of red blood cells, control of nervous system Corticosteroids eg control salt and water balance in the body, regulate carbohydrate, fat, and protein metabolism, enable the body to cope with stress (eg infection, trauma, surgery, emotional problems), support the immune system (block production of substances that trigger allergic and inflammatory actions) Catecholamines eg regulate a variety of the central nervous system functions, general physiological changes that prepare the body for physical activity (fight-or-flight response) eg increases in heart rate, blood pressure, blood glucose levels, sympathetic nervous system control

Learning outcomes		Assessment criteria		Unit amplification
				<ul style="list-style-type: none"> □ Insulin eg maintains low blood glucose levels, stimulates conversion of excess glucose to glycogen, regulates carbohydrate and fat metabolism, influences other body functions □ Glucagon- raises blood glucose levels (opposite effect to opposite insulin), stimulates production of glucose from amino acids and lactic acid in the liver, stimulates the release of fatty acids from adipose tissue
6	Understand energy systems and their relation to exercise	6.1	Identify the contribution of energy according to: <ul style="list-style-type: none"> □ duration of exercise/activity being performed □ type of exercise/activity being performed □ intensity of exercise/activity being performed 	<ul style="list-style-type: none"> □ Energy systems — aerobic, creating phosphate, glycolytic □ Duration of exercise/activity — aerobic long duration energy system, creatine phosphste system — short `explosive` durations, glycolytic system — supplies energy for exercises lasting less than about two minutes □ Type of exercise — eg aerobic system main contributor to marathon running, creatine phosphate system main energy source eg 100 m sprint, short set of weight lifting exercise, glycolytic system main energy source in 400 m sprint, single shift in ice hockey □ Intensity — aerobic system low to moderate intensity, creatine phosphate system high intensity `explosive` exercise, glycolytic system high intensity
		6.2	Identify the by-products of the three energy systems and their significance in muscle fatigue	<ul style="list-style-type: none"> □ <i>By products — lactic acid (glycolytic), water and carbon dioxide (aerobic)</i> □ <i>Significance in muscle fatigue eg interference with muscle contraction, accumulation of lactic acid within the muscles causing pain and fatigue.</i>

Learning outcomes		Assessment criteria		Unit amplification
		6.3	Describe the effect of endurance training/advanced training methods on the use of fuel for exercise	<ul style="list-style-type: none"> □ Uses oxygen more efficiently to metabolise carbohydrates and fat □ Makes body more efficient at using fat as fuel □ Decreases the reliance on carbohydrate as a fuel □ Increased lactate threshold □ Affects body's ability to 'clear' lactic acid

Information for tutors

Delivery

This unit should be delivered in a way that develops knowledge and understanding of anatomy and physiology in relation to exercise and health. Learners need to know and understand:

- how the following body systems – circulatory, musculoskeletal, nervous, endocrine, energy- relate to exercise and health
- postural and core stability and the impact of core stabilisation exercises and stretching on the body.

A useful opening would be small-group discussions focusing on the anatomy and physiology of the body and how they relate to, and impact on, exercise and health. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

A variety of delivery methods could be used including lectures, tutorials, presentations, videos, worksheets, anatomy models, laboratory work and internet research. There will be a great deal of scientific anatomical language within the unit so practical application should be used wherever possible.

Study of the musculoskeletal system requires the use of diagrams, and preferably a life-sized, hinged model skeleton. X-rays can be used to illustrate the different joints of the skeleton. Learners will also need access to pictures of, or access to microscopes and slides so they can see the cellular structure of muscle fibres. Diagrams showing all the named muscle attachment sites and the skeletal muscles involved in exercise will also be required.

Learners should be encouraged to engage with employers and, employees to gain a broad knowledge and understanding of the relationship between anatomy and physiology and exercise and health. Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible by learners working with those for whom this knowledge and understanding is a key requirement of their job role, for example a health fitness instructor, where possible, and through the use of guest speakers and video/DVD training programmes.

A presentation by a health education professional will support delivery, adding vocational relevance and currency. The visiting speaker could deliver a summary of how the main body systems affect and are affected by exercise and physical activity and how this impacts on the overall health of individuals. This should be supported by examples drawn from industry or through developed case studies that highlight:

- specific example for each of the required body systems
- postural and core stability including the stabilising muscles and ligaments of the spine, postural deviations and the associated problems.

This unit may be delivered through distance learning. However, this will involve additional considerations, such as planning, and other measures to ensure learners gain the required knowledge and understanding.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

A variety of assessment methods could be used. Learners could produce written reports or give verbal presentations, supported by witness testimony. Alternatives could be logbooks or workbooks completed in the workplace or during visits.

Assessment tasks and activities should enable learners to produce valid, and reliable evidence that relates directly to the assessment criteria. Centres are encouraged to emphasise the practical application of the assessment criteria.

Indicative resource materials

Books

Clegg C – *Exercise Physiology and Functional Anatomy* (Studies in Sport & Physical Education) (Feltham Press Ltd; Revised edition, 1994) ISBN 9780952074311

Hazeldine R – *Fitness for Sport* (The Crowood Press, 2000) ISBN 9781861263360

Howley E T and Franks B D – *Health Fitness Instructor's Handbook* (Human Kinetics Europe, 2003) ISBN 9780736042109

Palastanga N – *Anatomy and Human Movement* (Butterworth-Heinemann, 2006) ISBN 9780750688147

Rowett H G Q – *Basic Anatomy and Physiology* (Hodder Murray, 1999) ISBN 9780719585920

Sharkey B and Gaskill E – *Fitness and Health* (Human Kinetics, 2006) ISBN 9780736056144

Sharkey B J – *Physiology of Fitness, 3rd Edition* (Human Kinetics, 1990) ISBN 9780873222679

Tortora G J and Derrickson B H – *Principles of Anatomy and Physiology* (John Wiley and Sons, 2008) ISBN 9780470233474

Journals

Exercise and Sport Sciences Reviews

International Journal of Sports Science and Coaching

Research Quarterly for Exercise and Sport

Websites

BBC Health	www.bbc.co.uk/health
British Association of Sport and Exercise Sciences	www.bases.org.uk
British Heart Foundation	www.bhf.org.uk
Coachwise	www.1st4sport.com
Health Development Agency	www.nice.org.uk
NHS Information Centre	www.ic.nhs.uk/

Unit 5: Programming Personal Training with Clients

Unit reference number: F/600/9052

Level: 3

Credit value: 7

Guided learning hours: 47

Unit aim

The aim of this unit is to develop an understanding of and skills in planning, managing, adapting and reviewing personal training programmes for clients.

In this unit, learners will explore the principles of preparing personal training programmes. This will involve including the importance of clients committing to long-term behaviour change, the principles of collecting information to plan personal training programmes and how to identify personal training goals with clients. They will also look at how to adapt and monitor personal training programmes with clients.

Leaners will have the opportunity to put their knowledge and understanding into practice through collecting client information, agreeing goals with clients and planning, managing and adapting a personal training programme with clients. They will also have the opportunity to review client progress, including reviewing goals set, client monitoring progress and giving clients constructive and motivational feedback.

Essential resources

For this unit, centres need to provide learners with access to:

- examples of informed consent forms and to normative data for interpreting fitness test results
- the appropriate equipment and an appropriate area to carry out the practical activities required by this unit
- computers, the internet and library facilities to enable them to carry out research as required.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand how to prepare personal training programmes	1.1	Describe the range of resources required to deliver a personal training programme, including: <ul style="list-style-type: none"> □ environment for the session □ portable equipment □ fixed equipment 	<ul style="list-style-type: none"> □ Environment eg gym, health/leisure centre, health club, sports hall, client's home, client's workplace, outdoor area □ Portable equipment eg resistance bands, mats, skipping ropes, gym balls/Swiss balls, dumbbells, barbells, medicine balls, step □ Fixed equipment eg treadmills, cross trainers, cycles, rowing machines
		1.2	Explain how to work in environments that are not specifically designed for exercise/physical activity	<ul style="list-style-type: none"> □ Health and safety considerations □ Environments eg client's home , client's workplace, outdoor areas □ Exercise/physical activity appropriate for the environment
2	Understand the importance of long term behaviour change for personal training	2.1	Explain why it is important for clients to understand the advantages of personal training	<ul style="list-style-type: none"> □ Advantages eg motivation, support and encouragement, health-related benefits, fitness-related benefits □ Importance eg adherence to personal training programme, commitment
		2.2	Explain why it is important for a personal trainer to work together with clients to agree goals, objectives, programmes and adaptations	<ul style="list-style-type: none"> □ Importance eg ensure client understanding, inclusion, motivation and adherence □ Take account of relevant factors eg age, ability, gender, medical issues, specific needs, client goals and other commitments, barriers to achievement

Learning outcomes		Assessment criteria		Unit amplification
3		2.3	Explain the importance of long-term behaviour change in developing client fitness	<ul style="list-style-type: none"> □ Stages in behaviour change eg , contemplation, preparation, action, maintenance, relapse □ Importance eg promotes adherence and motivation, client can see how behaviour change affects their fitness levels and progress
		2.4	Explain how to ensure clients commit themselves to long-term change	<ul style="list-style-type: none"> □ Approaches eg providing positive feedback, encouragement and support, setting realistic, achievable goals, reviewing goals, working with client to remove barriers, providing advice and information
	Understand the principles of collecting information to plan a personal training programme	3.1	Explain the principles of informed consent	<ul style="list-style-type: none"> □ Explain the process and its purpose □ Ensure client is fully aware of what the personal training programme involves eg, type of exercise/physical activities involved, physical and technical demands, aims and objectives, benefits, identify any potential risks
		3.2	Explain why informed consent should be obtained before collecting information for a personal training programme	<ul style="list-style-type: none"> □ Establish client understanding eg give the client the opportunity to consider information provided and to ask questions □ Obtain signed consent □ Legal requirements eg data protection and standard industry practice eg REP Code of Conduct
		3.3	Summarise the client information that should be collected when designing a personal training programme to include: <ul style="list-style-type: none"> □ personal goals □ lifestyle □ medical history □ physical activity history 	<ul style="list-style-type: none"> □ Client information to include personal goals, lifestyle, medical history, physical activity history, physical activity likes and dislikes, motivation and barriers to participation, current fitness level, stage of readiness, posture and alignment, functional ability

Learning outcomes		Assessment criteria	Unit amplification
		<ul style="list-style-type: none"> □ physical activity likes and dislikes □ motivation and barriers to participation □ current fitness level □ stage of readiness □ posture and alignment functional ability	
	3.4	Explain how to select the most appropriate methods of collecting client information according to client need	<ul style="list-style-type: none"> □ Safe and appropriate methods (strengths and weaknesses of various methods), available resources, appropriate to the client and their needs □ Questionnaire eg PAR-Q, lifestyle □ Interview (questioning, listening) □ Observation eg client carrying out set exercise, signs of fatigue or discomfort □ Physical assessment (eg blood pressure height, weight, BMI, waist circumference, waist to hips ratio), body composition cardiovascular fitness range of motion muscular fitness
	3.5	Explain the legal and ethical implications of collecting client information, including confidentiality	<ul style="list-style-type: none"> □ Organisational requirements and procedures □ Legal requirements eg data protection □ Industry regulations eg REP Code of Conduct □ Safeguarding confidentiality eg secure storage arrangements

Learning outcomes		Assessment criteria		Unit amplification
4	Understand how to screen clients prior to a personal training programme	4.1	Explain how to interpret information collected from the client in order to identify client needs and goals	<ul style="list-style-type: none"> □ Interpret information eg needs and goals, type, duration and intensity of exercise, any necessary adaptations, possible exclusion from certain exercise/physical activity, referral to other professionals □ Use of norms for comparisons □ Analyse client responses to the Physical Activity Readiness Questionnaire (PAR-Q)
		4.2	Explain how to analyse client responses to the Physical Activity Readiness Questionnaire (PAR-Q)	<ul style="list-style-type: none"> □ Determine the safety or possible risk of exercising for an individual based on their answers to specific health history questions eg need for any adaptations or progression, need for referral
		4.3	Describe the types of medical conditions that will prevent personal trainers from working with a client unless they have specialist training and qualifications	<ul style="list-style-type: none"> □ Medical conditions eg coronary heart disease, respiratory conditions, type 2 diabetes, obesity, osteoporosis/bone problems joint problems, depression □ Contraindications for special populations eg older clients ante and post natal clients, young people , people with disabilities
		4.4	Explain how and when personal trainers should refer clients to another professional	<ul style="list-style-type: none"> □ Follow organisational procedures □ Outside limits of own competence and authority, need for specialist advice, contraindications to exercise or medical conditions □ Professionals eg GP, physiotherapist, special populations instructor

Learning outcomes		Assessment criteria		Unit amplification
5	Understand how to identify personal training goals with clients	5.1	Explain how to identify clients' short, medium and long term goals to include: <ul style="list-style-type: none"> □ general health and fitness □ physiological □ psychological □ lifestyle □ social □ functional ability 	<ul style="list-style-type: none"> □ Goals to include general health and fitness, physiological, psychological, lifestyle, social, functional ability □ Based on analysis of client information and needs eg goal appropriate to client, take account of any real or perceived barriers to participation, take account of client concerns or reservations
		5.2	Identify when personal trainers should involve others, apart from their clients, in goal setting	<ul style="list-style-type: none"> □ Outside limits of own competence and authority eg need for specialist advice, contraindications to exercise or medical conditions □ Provide further information and support for the client
		5.3	Explain how to use specific, measurable, achievable, realistic and time bound (SMART) objectives in a personal training programme	<ul style="list-style-type: none"> □ Specific, measurable, achievable, realistic and time bound (SMART) objectives □ Clear links to the programme objectives
6	Understand how to plan a personal training programme with clients	6.1	Identify credible sources of guidelines on programme design and safe exercise	<ul style="list-style-type: none"> □ Sources based on evidence which supports their claims eg journals, websites, books □ Current guidelines on programme design and safe exercise
		6.2	Summarise the key principles of designing programmes to achieve short, medium and long term goals, including the order and structure of sessions	<ul style="list-style-type: none"> □ FITT principles (frequency, intensity, time, type) □ Training principles eg adaptation, modification, progression, regression, specificity, reversibility, individuality, recovery time □ Order and structure of exercise making up sessions

Learning outcomes		Assessment criteria	Unit amplification
		<p>6.3 Describe a range of safe and effective exercises/physical activities to develop:</p> <ul style="list-style-type: none"> □ cardiovascular fitness □ muscular fitness □ flexibility □ motor skills □ core stability 	<ul style="list-style-type: none"> □ Safe and appropriate exercise to help clients achieve their goals □ Cardiovascular fitness eg cycling, walking, use of machines eg upright cycle, treadmill, stepper, rowing machine, elliptical trainer, cross trainer □ Muscular fitness eg specific exercise eg push-ups, chin-ups, arm curls, leg lifts, leg extension, leg press, back extension. sit ups/crunches, free weights, use of resistance machines □ Flexibility – stretching eg static, dynamic □ Motor skills – exercises that involve eg agility, coordination, balance, reaction time □ Core stability eg static and dynamic floor exercise, medicine ball exercise, to improve muscles associated with stabilisation (local) or mobilisation (global)
		<p>6.4 Explain how to include physical activities as part of the client's lifestyle to complement exercise sessions</p>	<ul style="list-style-type: none"> □ Build into daily routine eg walking instead of driving/taking public transport
		<p>6.5 Explain how to design programmes that can be run in environments not designed specifically for exercise</p>	<ul style="list-style-type: none"> □ Health and safety considerations □ Environments eg client's home , client's workplace, outdoor areas □ Exercise/physical activity appropriate for the environment
		<p>6.6 Identify when it might be appropriate to share the programme with other professionals</p>	<ul style="list-style-type: none"> □ Outside limits of own competence and authority eg need for specialist advice, concern over medical conditions or injuries, contraindications to exercise □ Provide further information and support for the client

Learning outcomes		Assessment criteria		Unit amplification
7	Understand how to adapt a personal training programme with clients	7.1	<p>Explain how the principles of training can be used to adapt the programme where:</p> <ul style="list-style-type: none"> □ goals are not being achieved □ new goals have been identified 	<ul style="list-style-type: none"> □ FITT principles (frequency, intensity, time, type) eg adaptation, modification, progression, regression, specificity, reversibility, individuality, recovery time □ Adaptations eg number of exercises, order of exercise, addition of new exercises, intensity, repetitions, duration
		7.2	Describe the different training systems and their use in providing variety and in ensuring programmes remain effective	<ul style="list-style-type: none"> □ Cardiovascular approaches-eg continuous training, fartlek training, interval training □ Muscular strength/endurance eg resistance machines, free weights, resistance approaches (pyramid systems, super-setting, giant sets, tri sets, forced repetitions, pre /post exhaust, negative/eccentric training, muscular strength endurance/muscular fitness) □ Flexibility eg static stretching, dynamic stretching, proprioceptive neuromuscular facilitation (PNF) stretching; □ Core stability eg static and dynamic floor exercise, medicine ball exercise, to improve muscles associated with stabilisation (local) or mobilisation (global)
		7.3	Explain why it is important to keep accurate records of changes and the reasons for change	<ul style="list-style-type: none"> □ Importance eg comply with industry standards, inform future personal training programmes and goal setting, ensure client safety and minimise risk of future injuries, motivate clients □ Reasons eg can see their progress, clear why changes have been made

Learning outcomes		Assessment criteria		Unit amplification
8	Be able to collect information about clients	8.1	Establish a rapport with the client	<ul style="list-style-type: none"> □ Importance eg build client trust and confidence, clients feel valued and motivated, more likely to adhere to exercise and physical activity programmes □ Adopt approachable manner eg encourage clients to ask questions, to express concerns, provide clients with accurate information, positive feedback, active listening
		8.2	Explain own role and responsibilities to clients	<ul style="list-style-type: none"> □ Role eg to facilitate an appropriate training programme safely and effectively to meet client needs and goals □ Responsibilities eg to ensure health and safety of clients during planned exercise/physical activities , monitor client progress, provide constructive feedback and support
		8.3	Collect the information needed to plan a programme using appropriate methods, to include physical/fitness assessments	<ul style="list-style-type: none"> □ Client information eg personal goals, lifestyle, medical history, physical activity history, physical activity likes and dislikes, motivation and barriers to participation, current fitness level, stage of readiness, posture and alignment, functional ability □ Questionnaire eg PAR-Q, lifestyle □ Interview (questioning, listening) □ Observation eg client carrying out set exercise, signs of fatigue or discomfort □ Physical assessment (eg blood pressure height, weight, BMI, waist circumference, waist to hips ratio), body composition cardiovascular fitness range of motion muscular fitness

Learning outcomes		Assessment criteria		Unit amplification
		8.4	Show sensitivity and empathy to clients and the information they provide	<ul style="list-style-type: none"> □ Appropriate verbal and non-verbal communication □ Appropriate manner eg positive, focus on steps that client can take, discuss any barriers to participation
		8.5	Record the information using appropriate formats in a way that will aid analysis	<ul style="list-style-type: none"> □ Clearly record information eg progress charts , graphs, visual representation of data to display progress over given period. Formats eg Paper, computer-based records
		8.6	Treat confidential information correctly	<ul style="list-style-type: none"> □ Legal requirements for confidentiality and data protection □ Industry regulations eg REP Code of Conduct □ Safeguarding confidentiality eg secure storage arrangements
	9	9.1	Work with clients to agree short, medium and long-term goals appropriate to their needs	<ul style="list-style-type: none"> □ Goals eg general health and fitness, physiological, psychological, lifestyle, social, functional ability □ Analysis of client information and needs eg identify any barriers to participation and encourage clients to find a solution □ Gain agreement eg ensure client understanding, ensure client ready to participate, use appropriate communication and interpersonal skills, give client opportunity to ask questions and make suggestions
		9.2	Ensure the goals are: <ul style="list-style-type: none"> □ specific, measurable, achievable, realistic and time bound □ consistent with industry good practice 	<ul style="list-style-type: none"> □ SMART (specific, measurable, achievable, realistic and time bound) □ Consistent eg REP guidelines and codes of practice

Learning outcomes		Assessment criteria		Unit amplification
		9.3	Agree with clients their needs and readiness to participate	<ul style="list-style-type: none"> □ Gain agreement eg ensure client understanding, ensure client ready to participate, discuss any potential barriers to participation, use appropriate communication and interpersonal skills
10	Be able to plan a personal training programme with clients	10.1	Plan specific outcome measures, stages of achievement and exercises/physical activities that are: <ul style="list-style-type: none"> □ appropriate to clients' goals and level of fitness □ consistent with accepted good practice 	<ul style="list-style-type: none"> □ Order of exercises and activities in the programme □ Structure of the sessions which make up the programme □ Stages of achievement eg short term, medium term, long terms □ Appropriate to client goals (general health and fitness, physiological, psychological, lifestyle, social, functional ability) and level of fitness □ Consistent eg REP guidelines and codes of practice
		10.2	Ensure the components of fitness are built into the programme	<ul style="list-style-type: none"> □ Health-related fitness eg aerobic endurance, muscular endurance, flexibility, speed, strength, body composition □ Skill-related fitness eg agility, balance, coordination, power, reaction time
		10.3	Apply the principles of training to help clients to achieve short-, medium- and long-term goals	<ul style="list-style-type: none"> □ FITT principles (frequency, intensity, time, type) eg adaptation, modification, progression, regression, specificity, reversibility, individuality, recovery time □ Built into training programme to allow short-, medium- and long-term achievement
		10.4	Agree the demands of the programme with clients	<ul style="list-style-type: none"> □ Demands eg physical, technical, potential risks □ Gain agreement eg ensure client understanding, ensure client ready to participate, use appropriate communication and interpersonal skills, give client opportunity to ask questions and make suggestions

Learning outcomes		Assessment criteria		Unit amplification
		10.5	Agree a timetable of sessions with clients	<ul style="list-style-type: none"> □ Appropriate to clients eg other commitments, available time □ Progressive timetable of sessions
		10.6	Agree appropriate evaluation methods and review dates	<ul style="list-style-type: none"> □ Evaluation methods eg observation, fitness test, □ Client clear about what will take place at each review eg short-, medium-, long-term
		10.7	Identify the resources needed for the programme, including the use of environments not designed for exercise	<ul style="list-style-type: none"> □ Environment eg gym, health/leisure centre, health club, sports hall, client's home, client's workplace, outdoor area □ Portable equipment eg resistance bands, mats, skipping ropes, gym balls/Swiss balls, dumbbells, barbells, medicine balls, step, □ Fixed equipment eg treadmills, cross trainers, cycles, rowing machines
		10.8	Record plans in a format that will help clients and others involved to implement the programme	<ul style="list-style-type: none"> □ Format eg training diary, paper based, digital, verbal □ Programme eg goals, timescales, exercises, review points
		10.9	Agree how to maintain contact with the client between sessions	<ul style="list-style-type: none"> □ Appropriate to the client eg telephone , email, at home, at work, at particular times, on particular days □ Gain agreement eg ensure client understanding, use appropriate communication and interpersonal skills

Learning outcomes		Assessment criteria		Unit amplification
11	Be able to manage a personal training programme	11.1	Monitor effective integration of all programme exercises/physical activities and sessions	<ul style="list-style-type: none"> □ Cardiovascular fitness eg cycling, walking, use of machines eg upright cycle, treadmill, stepper, rowing machine, elliptical trainer, cross trainer □ Muscular fitness eg specific exercise eg push-ups, chin-ups, arm curls, leg lifts, leg extension, leg press, back extension. sit ups/crunches, free weights, use of resistance machines □ Flexibility – stretching eg static, dynamic □ Motor skills – exercises that involve eg agility, coordination, balance, reaction time □ Core stability eg static and dynamic floor exercise, medicine ball exercise, to improve muscles associated with stabilisation (local) or mobilisation (global) □ Methods appropriate for the client and exercise programme
		11.2	Provide alternatives to the programmed exercises/physical activities if clients cannot take part as planned	<ul style="list-style-type: none"> □ Appropriate to client eg modifications, new exercise/physical activities □ Ensure client understanding
		11.3	Monitor clients' progress using appropriate methods	<ul style="list-style-type: none"> □ Appropriate methods eg observations, discussions, fitness assessments □ Monitor progress against programme objectives and client goals
12	Be able to review progress with clients	12.1	Explain the purpose of review to clients	<ul style="list-style-type: none"> □ Purpose eg monitor progress, highlight achievements/success, identify any further development needs, adapt exercise programme, motivate clients □ Ensure clients understand the purpose of review and how it fits into their programme

Learning outcomes		Assessment criteria	Unit amplification
		12.2 Review short, medium and long term goals with clients at agreed points in the programme, taking into account any changes in circumstances	<ul style="list-style-type: none"> □ Amend existing goals or set new goals □ Changes in circumstance eg new outside commitments, cost issues, health-related changes
		12.3 Encourage clients to give their own views on progress	<ul style="list-style-type: none"> □ Adopt approachable manner eg encourage clients to ask questions, to express concerns □ Positive verbal and non-verbal communication, active listening
		12.4 Use suitable methods of evaluation that will help to review client progress against goals and initial baseline data	<ul style="list-style-type: none"> □ Goals to include general health and fitness, physiological, psychological, lifestyle, social, functional ability □ Observations and physical/fitness assessments
		12.5 Give feedback to clients during their review that is likely to strengthen their motivation and adherence	<ul style="list-style-type: none"> □ Feedback – positive, timely, motivational, encouraging eg progress made, strengths, positive encouragement in relation to areas for development, alternative or additional exercises □ Appropriate verbal and non-verbal communication □ Ensure clients understand the feedback
		12.6 Agree review outcomes with clients	<ul style="list-style-type: none"> □ Gain agreement eg ensure client understanding, use appropriate communication and interpersonal skills, agree any changes/adaptions to exercise, client clear about need for any changes
		12.7 Keep an accurate record of reviews and their outcome	<ul style="list-style-type: none"> □ Record eg paper, digital records

Learning outcomes		Assessment criteria		Unit amplification
13	Be able to adapt a personal training programme with clients	13.1	Identify goals and exercises/physical activities that need to be redefined or adapted	<ul style="list-style-type: none"> Identify goals that are not being achieved (amend/ set new goals) Adapt exercise/physical activities to enable achievement
		13.2	Agree adaptations, progressions or regressions to meet clients' needs to optimise achievement	<ul style="list-style-type: none"> In relation to client goals, programme objectives, individual exercise/physical activity Gain agreement eg ensure client understanding, use appropriate communication and interpersonal skills, client clear about need for any changes
		13.3	Identify and agree any changes to resources and environments with the client	<ul style="list-style-type: none"> Changes eg more appropriate to client needs and achievement of goals, to take account of client preferences Gain agreement eg ensure client understanding, use appropriate communication and interpersonal skills, client clear about need for any changes
		13.4	Introduce adaptations in a way that is appropriate to clients and their needs	<ul style="list-style-type: none"> Explain adaptations to clients fully and clearly Ensure client understanding Ensure client is comfortable with the changes
		13.5	Record changes to programme plans to take account of adaptations	<ul style="list-style-type: none"> Follow organisational procedures, comply with industry standards Clearly specify changes/adaptations, revised goals, timescales eg training diary Clear to client, yourself and others who may be involved
		13.6	Monitor the effectiveness of adaptations and update the programme as necessary	<ul style="list-style-type: none"> Monitor against objectives of the programme and client goals Discuss any issues with clients Introduce new adaptations as necessary

Information for tutors

Delivery

This unit should be delivered in a way that develops knowledge and understanding of and skills in programming personal training sessions for clients. Learners need to know and understand:

- how to prepare, plan and adapt safe and effective personal training programmes, including working in environments not specifically designed for exercise/physical activity and the importance of clients committing to long-term behaviour change
- the principles of collecting client information and of screening clients before a personal training programme
- the process of identifying and agreeing appropriate personal training goals with clients.

A useful opening would be small-group discussions, during which learners can exchange their experiences of personal training programmes, either as employees in the sector or as clients. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

Learners should be encouraged to engage with employers and employees to gain knowledge and understanding of the importance of planning and preparing personal training programmes correctly to meet the needs of individual clients, including how to adapt and review these programmes.

Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible by learners working with others for whom designing and monitoring personal training programmes with clients is a key part of their role, for example a personal trainer, where possible, and through the use of guest speakers and video/DVD training programmes.

A presentation by a health fitness instructor will support delivery, as well as adding vocational relevance and currency. The visiting speaker could deliver a summary of how they plan, prepare and manage personal training programmes with clients and how they ensure that all planned exercise sessions are safe and effective. This could include the importance of knowing when and how to adapt personal training programmes and of reviewing client progress in a structured way.

They could also talk about the methods they use to collect client information and to screen clients prior to any exercise/physical activity.

This should be supported by examples drawn from industry or through developed case studies that highlight:

- the importance of collecting the correct client information and what could happen if this is not carried out
- the importance of agreeing appropriate and realistic personal training goals with clients, including methods of review and evaluation
- safe and unsafe practice.

To meet the practical aspect of collecting client information learners could either use documentation from their place of work or the tutor could supply learners with standard templates.

The importance of health and safety, for both clients and instructors, needs to be emphasised throughout the delivery of this unit. Appropriate risk assessments must be carried out before learners undertake any practical activities.

Tutors need to ensure that there are appropriate and sufficient opportunities to observe learners planning and managing personal training programmes with clients and that the appropriate records are kept to evidence learner ability and achievement.

Learners can produce exemplar case studies, logbooks/diaries, witness testimonies and presentations that demonstrate their involvement in personal training programmes.

This unit could be delivered through distance learning. However, this will involve additional, and different, considerations, such as planning, and other measures to ensure learners can gain the required knowledge and understanding.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

There must be evidence that the learner has carried out appropriate screening (eg. use of the PARQ and informed consent) and taken physical measurements as for the client, from the following:

- blood pressure (manual and digital where available)
- anthropometrics (eg height and weight, BMI, waist circumference or waist to hips ratio)
- body composition (eg callipers, bio-electrical impedance etc.)
- cardiovascular fitness (using validated/recognised protocols such as Astrand bike test, Rockport walking test etc)
- range of motion (eg. using validated/recognised protocols such as sit and reach test, visual assessment during stretch positions etc)
- muscular fitness (eg. using validated/recognised protocols such as abdominal curl/sit-up test, press-up test etc).

The learner should demonstrate the ability to provide sensitive feedback and any relevant healthy lifestyle advice to clients (within the limits of their knowledge and competence) based on collected information and test results/'norms'.

There must be evidence that a learner has planned for exercise/physical activity that can be run in environments not designed specifically for exercise. This should include physical activities the client can undertake as part of their lifestyle (eg at home or outdoors) to complement exercise sessions.

Learners must provide evidence that they have planned a progressive programme for a client ensuring effective integration of all exercises and physical activities to allow clients to achieve short-, medium- and long-term goals.

There must be evidence that a learner has planned for the use of the following type of equipment:

- cardiovascular machines.

Learners must also show planning for a minimum of two of the following cardiovascular approaches to training:

- interval
- fartlek
- continuous.

There must be evidence that a learner has planned for the use of the following types of equipment:

- resistance machines
- free weights including barbells and dumbbells and cables where available.

Learners must also show planning the use of different resistance machines and free weights, of a minimum of four of the following resistance approaches to training:

- pyramid systems
- super-setting
- giant sets
- tri sets
- forced repetitions
- pre/post exhaust
- negative/eccentric training
- muscular strength endurance/muscular fitness.

NB The number of machines/items of equipment will depend upon the learners plan but the minimum number of training approaches must be adhered to.

They should demonstrate their ability to review client progress and make any necessary adaptations to the programme where goals are not being achieved or new goals are identified.

Indicative resource materials

Books

American College of Sports Medicine – *ACM's Resources for the Personal Trainer* (Lippincott Williams and Wilkins, 2009) ISBN 9780781797726

Brooks D – *The Complete Book of Personal Training* (Human Kinetics, 2004) ISBN 9780736000130

Coulson M – *The Fitness Instructor's Handbook: A Complete Guide to Health and Fitness – Fitness Professionals* (A&C Black, 2007) ISBN 9780713682250

Dalglish J, Dollery S – *The Health and Fitness Handbook* (Longman, 2001) ISBN 9780582418790

Franks B D and Howley E T – *Fitness Leader's Handbook* (Human Kinetics Europe, 1998) ISBN 9780880116541

Howley E T and Franks B D – *Health Fitness Instructor's Handbook* (Human Kinetics Europe, 2003) ISBN 9780736042109

O' Brien T S – *The Personal Trainer's Handbook* (Human Kinetics Publishers, 2003) ISBN 978 0736045018

Journals

Exercise and Sport Sciences Reviews

International Journal of Sports Science and Coaching

Journal of Physical Activity and Health

Websites

American College of Sports Medicine

www.acsm.org/

British Association of Sport and Exercise Sciences

www.bases.org.uk

Human Kinetics

www.humankinetics.com

Sports Coach UK

www.sportscoachuk.org

Unit 6:

Delivering Personal Training Sessions

Unit reference number: J/600/9053

Level: 3

Credit value: 9

Guided learning hours: 58

Unit aim

The aim of this unit is to develop understanding of and skills in preparing, instructing, adapting and reviewing personal training sessions with clients.

In this unit, learners will explore why it is important to instruct, adapt and review exercise during personal training sessions to meet client needs. This will include communicating with and motivating clients, monitoring client progress and giving clients constructive feedback during and after the personal training session.

Learners will then have the opportunity to put their knowledge and understanding into practice through preparing, instructing and adapting personal training sessions, using a range of exercises and physical activities to meet client goals and objectives.

The final part of the unit focuses on reviewing the outcomes of the exercise session, including client feedback. Learners will have the opportunity to reflect on their practice and identify how to improve.

Essential resources

For this unit, centres need to give learners access to:

- the appropriate equipment and an appropriate area to carry out the practical activities required by this unit
- computers, the internet and library facilities to enable them to carry out research.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand how to instruct exercise during personal training sessions	1.1	Explain the importance of non-verbal communication when instructing clients	<ul style="list-style-type: none"> □ Non-verbal communication eg demonstrations, posture, expression, gestures, eye contact, positive body language, □ Importance eg provides accurate visibility of how exercise should be carried out, correct positioning of body to minimise risk of injury, promotes, positive practice and behaviour
		1.2	Describe how to adapt communication to meet clients' needs	<ul style="list-style-type: none"> □ Modify communication eg ensure client understanding of instructions, demonstrations, observation, explanations, access to information, to meet client needs
		1.3	Evaluate different methods of maintaining clients' motivation, especially when clients are finding exercises difficult	<ul style="list-style-type: none"> □ Methods of motivation eg use of alternative exercise, adjust intensity, observe signs of fatigue, provide positive feedback during session to boost client self-confidence, , recognition and reward of achievements, praise, help clients develop and maintain their own motivational strategies
		1.4	Explain the importance of correcting client technique	<ul style="list-style-type: none"> □ Importance eg ensure client safety, minimise risk of injury, reinforces correct techniques for use in future sessions
2	Understand how to adapt exercise to meet client needs during personal training sessions	2.1	Explain why it is important to monitor individual progress especially if more than one client is involved in the session	<ul style="list-style-type: none"> □ Importance eg Ensure clients exercise safely, respond appropriately to signs of fatigue or possible injury, provide individual feedback □ Ensure clients are making progress ,motivate and encourage clients

Learning outcomes		Assessment criteria		Unit amplification
		2.2	Describe different methods of monitoring clients' progress during exercise	<ul style="list-style-type: none"> Types of monitoring eg rate of perceived exertion (RPE), talk test, target heart rate zones, timed exercise
		2.3	Explain when it may be necessary to adapt planned exercises to meet clients' needs	<ul style="list-style-type: none"> To meet client needs eg health, safety, fitness levels, , injuries, medical conditions, change in timescale, resource issues, number of participants,
		2.4	Explain how to adapt exercise/exercise positions as appropriate to individual clients and conditions	<ul style="list-style-type: none"> Adapt exercise eg adjust correct posture, use different exercises/physical activities, adjust intensity, adjust time adapt sessions to suit the exercise environment
		2.5	Explain how to modify the intensity of exercise according to the needs and response of the client	<ul style="list-style-type: none"> Modification eg adjust difficulty of exercise to meet client needs and ability, observe signs of fatigue. observe signs of possible injury,, vary range of movement in relation to recovery time
3	Understand how to review personal training sessions with clients	3.1	Explain why personal trainers should give clients feedback on their performance during a session	<ul style="list-style-type: none"> Give client feedback eg Identify progress strengths, areas for improvement, additional/alternative exercise, provide encouragement, motivation and positive feedback
		3.2	Explain why clients should be given the opportunity to ask questions, provide feedback and discuss their performance	<ul style="list-style-type: none"> Provide feedback eg effectiveness of session understanding of , instructions, their experience. Ask questions eg discuss their performance, reflect on the session, update progress towards meeting their goals, express areas of concern, gain, improve knowledge, to adapt future session
		3.3	Explain how to give clients feedback on their performance in a way that is accurate but maintains client motivation and commitment	<ul style="list-style-type: none"> Giving clients feedback eg provide timely, clear and constructive feedback , use positive tone and language, positive body language, highlight strengths and good practice, reinforcement of correct/good techniques, positive presentation of areas for development, ensure client understanding

Learning outcomes		Assessment criteria		Unit amplification
		3.4	Explain why clients need to see their progress against objectives in terms of their overall goals and programme	<ul style="list-style-type: none"> □ Motivation, builds self-confidence □ Identify distance from achieving goal □ Identify areas for development
		3.5	Explain why clients need information about future exercise and physical activity, both supervised and unsupervised	<ul style="list-style-type: none"> □ Exercise information eg objectives of exercise sessions, importance of not over exercising, timings of supervised and unsupervised exercise , building exercise into daily routines
4	Be able to plan and prepare personal training sessions	4.1	Plan a range of exercises/physical activities to help clients achieve their objectives and goals, covering: <ul style="list-style-type: none"> • cardiovascular fitness • muscular fitness • flexibility • motor skills • core stability 	<ul style="list-style-type: none"> □ Clients eg individuals, groups, with specific fitness needs □ Exercises eg safe and appropriate for clients, help clients to achieve their goals □ Cardiovascular fitness eg upright cycle, treadmill, stepper, rowing machine, elliptical trainer, cross trainer, cardiovascular approaches (interval, continuous, fartlek) □ Muscular – eg free weights, use of resistance machines, resistance approaches (pyramid systems, super-setting, giant sets, tri sets, forced repetitions, pre/post exhaust, negative/eccentric training, muscular strength endurance/muscular fitness) □ Flexibility – stretching eg static, dynamic □ Motor skills – exercises that involve eg agility, coordination, balance, reaction time □ Core stability eg static and dynamic floor exercise, medicine ball exercise, to improve muscles associated with stabilisation (local) or mobilisation (global) □ Use of appropriate exercises for clients eg to maximise client progress and motivation

Learning outcomes		Assessment criteria		Unit amplification
				<ul style="list-style-type: none"> □ Plan realistic timings, intensities and sequences of exercises □ Ensure effective balance of instruction, activity and demonstrations
		4.2	Identify, obtain and prepare the resources needed for planned exercises/physical activities, improvising safely where necessary	<ul style="list-style-type: none"> □ Environment eg gym, studio, sports hall, places not designed specifically for exercise (client's home, outdoor area) □ Portable equipment eg resistance bands, mats, skipping ropes, gym balls/Swiss balls, dumbbells, barbells, medicine balls, step □ Fixed equipment eg treadmills, cross-trainers, cycles, rowing machines □ Safe preparation of resources eg follow organisational procedures, industry standards, manufacturer's instructions
5	Be able to prepare clients for personal training sessions	5.1	Help clients feel at ease in the exercise environment	<ul style="list-style-type: none"> □ Professional behaviour eg dress, punctuality □ Adopt approachable manner eg encourage clients to ask questions, to express concerns, provide clients with accurate information □ Collect any new information from clients about their response to previous activity and any changes since then □ Environment eg gym, studio, sports hall, client's home, outdoor area
		5.2	Explain the planned objectives and exercises/physical activities to clients	<ul style="list-style-type: none"> □ Exercises/physical activities eg cardiovascular fitness, muscular fitness, flexibility, motor skills, core stability □ Any screening/testing requirements □ Ensure client understanding eg how objectives/activities relate to their goals

Learning outcomes		Assessment criteria		Unit amplification
		5.3	Explain to clients how objectives and exercises/physical activities support their goals	<ul style="list-style-type: none"> □ Goals eg health and fitness, l, , lifestyle, social, functional ability □ Links to achievement of client goals
		5.4	Explain the physical and technical demands of the planned exercises/physical activities to clients	<ul style="list-style-type: none"> □ Physical demands eg cardiovascular fitness, muscular fitness, flexibility, motor skills, core stability □ Technical demands eg skill or technique □ Check client understanding and give client opportunity to ask questions
		5.5	Explain to clients how planned exercise/physical activity can be progressed or regressed to meet their goals	<ul style="list-style-type: none"> □ Adapt exercise programme eg type of exercise, duration, intensity, add new exercise, change order of exercise, reduce exercise □ Set SMART (specific, measurable, achievable, realistic, time-bound) targets to meet client goals
		5.6	Assess clients' state of readiness and motivation to take part in the planned exercises/physical activities	<ul style="list-style-type: none"> □ Methods eg one-to-one discussions with clients, fitness test, health checks □ Level of preparation eg correct clothing/footwear, followed advice on diet prior to the session □ Level of motivation and commitment to achieve goal
		5.7	Negotiate and agree with clients any changes to the planned exercises/physical activities that: <ul style="list-style-type: none"> □ meet their goals and preferences □ enable them to maintain progress 	<ul style="list-style-type: none"> □ Goals eg health and fitness, lifestyle, social, functional ability □ Agreement for changes eg ensure client understanding, give client opportunity to ask questions, client clear about need for any changes use appropriate communication and interpersonal skills

Learning outcomes		Assessment criteria		Unit amplification
		5.8	Record changes to clients plans	<ul style="list-style-type: none"> □ Keep client diary, changes clear to client, yourself and others who may be involved □ Records eg paper, digital,
6	Be able to instruct and adapt planned exercises	6.1	Use motivational styles that: <ul style="list-style-type: none"> □ are appropriate to the clients □ are consistent with accepted good practice 	<ul style="list-style-type: none"> □ Motivational styles eg use of positive tone and language, positive body language, recognition and reward for correct/good techniques □ Appropriate to the client eg building client self-confidence, encouragement, praise, help clients develop and maintain their own motivational strategies □ Consistent eg REP guidelines and codes of practice
		6.2	Explain the purpose and value of a warm-up to clients	<ul style="list-style-type: none"> □ Explain purpose and value eg prepare body for exercise, enhance flexibility, minimise discomfort, prevent injury
		6.3	Provide warm-ups appropriate to the clients, planned exercise and the environment	<ul style="list-style-type: none"> □ Warm up structure eg mobility, pulse raising, static stretching □ Appropriate for clients eg number of warm-up exercises, intensity of warm-up session, duration □ Appropriate for the environment eg available space, available resources
		6.4	Make best use of the environment in which clients are exercising	<ul style="list-style-type: none"> □ Environment eg gym, studio, sports hall, client's home, outdoor area □ Health and safety of clients eg ensure environment suitable for the planned exercise session

Learning outcomes		Assessment criteria		Unit amplification
		6.5	Provide instructions, explanations and demonstrations that are technically correct, safe and effective	<ul style="list-style-type: none"> □ Techniques eg lifting and passing techniques □ Demonstrations of movements and techniques appropriate to the environment, appropriate teaching points and positions □ Technically correct verbal explanations , provide accurate information □ Check client understanding of instructions, explanations and demonstrations
		6.6	Adapt verbal and non-verbal communication methods to make sure clients understand what is required	<ul style="list-style-type: none"> □ Use appropriate communication methods to ensure clients interpret information incorrectly eg verbal and non verbal □ Clear explanations and demonstrations
		6.7	Ensure clients can carry out the exercises safely on their own	<p>Provide clear instructions and demonstrations on how to exercise safely, provide necessary information and instructions on how exercise can be adapted, explain the importance of not over exercising, demonstrate how to carry out exercise</p> <ul style="list-style-type: none"> □ reinforce correct techniques to minimise risk of injury
		6.8	Analyse clients' performance, providing positive reinforcement throughout	<ul style="list-style-type: none"> □ Ensure all clients taking part are observed and their needs met eg correct technique, clients are exercising safely, level of participation, exercises appropriate for clients
		6.9	Correct techniques at appropriate points	<ul style="list-style-type: none"> □ Identify and correct poor technique eg use of explanations, demonstrations □ Regulate teaching points to meet individual needs
		6.10	Progress or regress exercises according to clients' performance	<ul style="list-style-type: none"> □ Appropriate progressions and regressions eg amount of exercises, speed, intensity, repetitions, duration □ Client performance eg fitness and skill levels, adapting respond appropriately to signs of discomfort or injury

Learning outcomes		Assessment criteria		Unit amplification
7	Be able to bring exercise sessions to an end	7.1	Allow sufficient time for the closing phase of the session	<ul style="list-style-type: none"> □ Plan timings eg safe and effective cool down activities for clients □ Opportunity for client to ask questions, □ Provide positive feedback to clients on the session
		7.2	Explain the purpose and value of cool-down activities to clients	<ul style="list-style-type: none"> □ Explain the importance of cool-down and ensure client understanding □ Purpose and value eg enhance flexibility, minimise discomfort, prevent injury, avoid delayed onset of muscle soreness, provide recovery time
		7.3	Select cool-down activities according to the type and intensity of physical exercise and client needs and condition	<ul style="list-style-type: none"> □ Cool down structure eg pulse lowering, static stretching, developmental stretching □ Appropriate for clients eg number of cool-down exercises, intensity of cool-down session, duration, according to type and intensity of physical exercise, client needs and conditions
		7.4	Provide clients with feedback and positive reinforcement	<ul style="list-style-type: none"> □ Feedback eg provide encouragement and motivation, reinforce good/correct techniques, strengths, positive presentation of areas for development
		7.5	Explain to clients how their progress links to their goals	<ul style="list-style-type: none"> □ Goals eg health and fitness, lifestyle, social, functional ability □ Progress to achieve their overall goals □ performance eg short-, medium-, long-term goals □ Provide advice and information eg alternative activities, additional activities
		7.6	Leave the environment in a condition suitable for future use	<ul style="list-style-type: none"> □ Correct procedures for checking and handling equipment used eg clearing the area, storing and cleaning equipment correctly, reporting any faults □ Environment eg clean, safe, tidy, inform appropriate person about any health and safety issues

Learning outcomes		Assessment criteria		Unit amplification
8	Be able to reflect on providing personal training sessions	8.1	Review the outcomes of working with clients including their feedback	<ul style="list-style-type: none"> □ Review client progress eg offer fitness advice in response to changing needs of clients, in relation to goals/objectives □ Client opportunity to ask questions and provide feedback
		8.2	Identify: <ul style="list-style-type: none"> □ how well the sessions met clients' goals □ how effective and motivational the relationship with the client was □ how well the instructing styles matched the clients' needs 	<ul style="list-style-type: none"> □ How well the exercises met client goals eg effectiveness of planned activities, achievement of goal/objectives □ How effective and motivational the session was eg client felt supported, encouraged and motivated, clear and appropriate communication, mutual respect □ Use of appropriate instructing style eg demonstrations, clear, accurate explanations, motivation and support
		8.3	Identify how to improve personal practice	<ul style="list-style-type: none"> □ Identify strengths and areas for improvement □ Set SMART (specific, measurable, achievable, realistic, time-bound) targets □ Personal development plan □ Development opportunities eg training, courses; modify exercise programmes eg future planning to ensure fitness progression
		8.4	Explain the value of reflective practice	<ul style="list-style-type: none"> □ Learning from own experiences □ Important source of personal professional development and improvement □ Allows for continuous updating of skills and knowledge eg to plan and instruct more effective exercise sessions and personal training programmes

Information for tutors

Delivery

This unit needs to be delivered in a way that enables learners to demonstrate the ability to prepare, instruct and adapt personal training sessions safely and effectively. Learners need to demonstrate that they can:

- communicate effectively with clients, including explaining the purpose and demands of the exercise/physical activity and how these support client goals
- instruct and adapt exercise sessions safely and effectively, providing technically correct instructions and demonstrations and progressing or regressing exercises in response to client performance
- instruct and observe clients, correcting poor technique as necessary and ensuring clients carry out exercise safely.

A useful opening would be small-group discussions, during which learners can exchange their experiences of personal training sessions, either as employees in the sector or as clients. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

Tutor input will need to cover the theoretical aspect of the unit relating to the principles of instructing and adapting exercise and of reviewing personal training sessions.

Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible by learners working with others for whom preparing, instructing and adapting personal training sessions is a key part of their role, for example a personal trainer, where possible, and through the use of guest speakers and video/DVD training programmes.

Guest speakers, for example a health fitness instructor, will support delivery, as well as adding vocational relevance and currency. The visiting speaker could deliver a summary of how they prepare the environment and clients for personal training sessions, how they ensure that the sessions they instruct are safe and effective and how they adapt exercises to meet client needs. They could include the use of appropriate motivational styles and communication methods, how to analyse client performance during the session and the importance of reinforcing good technique and of correcting poor technique as appropriate. This could be supported by examples drawn from industry or through developed case studies which highlight safe and unsafe practice.

The importance of health and safety, for both clients and instructors, needs to be emphasised throughout delivery of this unit. Appropriate risk assessments must be carried out before learners undertake any practical activities.

Tutors need to ensure that there are appropriate and sufficient opportunities to observe learners instructing and adapting personal training sessions with clients and that the appropriate records are kept to evidence learner ability and achievement.

Learners should be encouraged to reflect positively on the outcomes of the exercise session and use client feedback constructively when identifying how to improve their personal performance.

Learners can produce exemplar case studies, logbooks/diaries, witness testimonies and presentations that demonstrate their involvement in personal training sessions.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

This unit must involve a practical assessment.

There must be evidence that a learner has planned and instructed participants in the use of the following type of equipment:

- cardiovascular machines.

Learners must also show planning and instructing of a minimum of two of the following cardiovascular approaches to training:

- interval
- Fartlek
- continuous.

There must be evidence that a learner has planned and instructed participants in the use of the following types of equipment:

- resistance machines
- free weights including barbells and dumbbells and cables where available.

Learners must demonstrate correct lifting and passing techniques, including dead lifting the barbell safely from the floor and spotting.

Learners must also show planning and instructing using different resistance machines and free weights, of a minimum of four of the following resistance approaches to training:

- pyramid systems
- super-setting
- giant sets
- tri sets
- forced repetitions
- pre/post exhaust
- negative/eccentric training
- muscular strength endurance/muscular fitness.

N.B. the number of machines/items of equipment will depend upon the learner's plan but the minimum number of training approaches must be adhered to.

There must be evidence that a learner has planned and instructed participants in a minimum of one core stability exercise (eg an exercise to improve muscles associated with stabilisation (local) and mobilisation (global)).

Indicative resource materials

Books

- Adams G M – *Exercise Physiology Laboratory Manual: Health and Human Performance* (McGraw Hill Higher Education, 2001) ISBN 9780072489125
- Allen M B – *Sports Exercise and Fitness: A Guide to Reference and Information Sources* (Libraries Unlimited Inc, 2005) ISBN 9781563088193
- American College of Sports Medicine – *Resources for the Personal Trainer* (Lippincott Williams and Wilkins, 2009) ISBN 9780781797726
- Brooks D – *The Complete Book of Personal Training* (Human Kinetics, 2004) ISBN 9780736000130
- Buckley J, Holmes J, Mapp G – *Exercise on Prescription: Cardiovascular Activity for Health* (Butterworth- Heinemann, 1999) ISBN 9780750632881
- Coulson M – *The Fitness Instructor's Handbook: A Complete Guide to Health and Fitness – Fitness Professionals* (A&C Black, 2007) ISBN 9780713682250
- Dalglish J, Dollery S – *The Health and Fitness Handbook* (Longman, 2001) ISBN 9780582418790
- Franks B D and Howley E T – *Fitness Leader's Handbook* (Human Kinetics Europe, 1998) ISBN 9780880116541
- Howley E T and Franks B D – *Health Fitness Instructor's Handbook* (Human Kinetics Europe, 2003) ISBN 9780736042109
- O' Brien T S – *The Personal Trainer's Handbook* (Human Kinetics Publishers, 2003) ISBN 978 0736045018

Journals

- Exercise and Sport Sciences Reviews*
- International Journal of Sports Science and Coaching*
- Journal of Physical Activity and Health*

Websites

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| American College of Sports Medicine | www.acsm.org/ |
| British Association of Sport and Exercise Sciences | www.bases.org.uk |
| Human Kinetics | www.humankinetics.com |
| Sports Coach UK | www.sportscoachuk.org |

Unit 7:

Applying the Principles of Nutrition to a Physical Activity Programme

Unit reference number: L/600/9054

Level: 3

Credit value: 6

Guided learning hours: 40

Unit aim

The aim of this unit is to develop understanding of nutrition in relation to physical activity programmes and of the strong links between diet and physical activity.

In this unit learners will explore the principles of nutrition, including key terminology, the main food groups and the relationship between nutrition, physical activity and health.

They will also look at the key guidelines which relate to nutrition and the national recommended practice to follow when providing nutritional advice.

To ensure that any physical activity programme is safe it is important that accurate nutritional information is obtained from clients. In this unit learners will develop an understanding of how to collect and use this information and of how to set nutritional goals with clients.

Learners will then have the opportunity to apply their knowledge and understanding through collecting and analysing nutritional information and applying the principles of nutrition when designing physical activity programmes with clients.

Essential resources

For this unit, centres need to ensure that learners have access to computers, the internet and library facilities to enable them to carry out research.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Understand the principles of nutrition	1.1	Describe the structure and function of the digestive system	<ul style="list-style-type: none"> □ Structure: gastrointestinal tract ie the mouth, pharynx, oesophagus, stomach, small intestine and large intestine; accessory organs ie teeth, tongue, salivary glands, gallbladder, liver and pancreas □ Function: digestion eg to break down food into a form the body can use for nourishment. growth, repair and energy; absorption; excretion
		1.2	Explain the meaning of key nutritional terms including: <ul style="list-style-type: none"> □ diet □ healthy eating □ nutrition □ balanced diet 	<ul style="list-style-type: none"> □ Diet eg amount and type of food and drink intake or planned intake to meet specific requirements of the individual, including or excluding certain foods □ Healthy eating eg diet based on sound nutritional principles eg high consumption of fruits and vegetables, inclusion of low protein foods □ Nutrition eg process of obtaining energy from food and drink for the purpose of healthy body growth and maintenance □ Balanced diet eg a variety of foods from each food group in the right proportions for good health

Learning outcomes		Assessment criteria		Unit amplification
		1.3	Describe the function and metabolism of: <ul style="list-style-type: none"> □ macro nutrients □ micro nutrients 	<ul style="list-style-type: none"> □ macronutrients eg carbohydrates (simple, complex), proteins, fats □ Function eg to provide the body with bulk calories or energy needed for growth, metabolism, and for other body functions. Metabolism eg broken down into glucose or fatty acids and either used immediately by the body or stored and used when stores of other nutrients are depleted □ Micronutrients eg vitamins, minerals □ Function eg to help maintain normal metabolism growth, maintain healthy body functions, aid mental sharpness and fight off disease □ Metabolism eg helps with the metabolism of fats proteins and carbohydrates
		1.4	Explain the main food groups and the nutrients they contribute to the diet	<ul style="list-style-type: none"> □ Grains eg rice, breads, pasta, potatoes, provide carbohydrates, fibre □ Fruits and vegetables –provide fibre, vitamins and minerals □ Milk and dairy products-provide protein and calcium □ Meat, fish, eggs, nuts and beans- provide protein, zinc and iron, vitamins and minerals □ Food containing fats, oils and sugars, unsaturated fats provide fatty acids, little nutritional value in general

Learning outcomes		Assessment criteria		Unit amplification
		1.5	Identify the calorific value of nutrients	<ul style="list-style-type: none"> Measures eg calories, joules, kilocalories, kilojoules Protein: 4 calories per gram Carbohydrate: 4 calories per gram Fat: 9 calories per gram
		1.6	Explain the common terminology used in nutrition including: <ul style="list-style-type: none"> UK dietary reference values (DRV) recommended daily allowance (RDA) recommended daily intake (RDI) glycaemic Index 	<ul style="list-style-type: none"> Dietary reference values (DRVs) — series of estimates of the amount of energy and nutrients needed by different groups of healthy people, three parts- reference nutrient intake (RNI) , estimated average requirement (EAR), lower recommended nutritional intake (LRNI) Recommended daily allowance (RDA) — amount of a nutrient that is needed for most people to stay healthy Recommended daily intake (RDI) — estimate of daily dietary intake of a nutrient Glycaemic index (GI) — ranking of foods based on their overall effect on blood glucose levels.
		1.7	Interpret food labelling information	<ul style="list-style-type: none"> Nutritional labels — nutritional analysis of macronutrients, micronutrients, RDA, RDI, DRV information on energy value (kJoules/kcals) May provide additional information on amount of saturated fat, sugars, sodium, salt and fibre eg traffic light colour coding Information provided per 100 grams or per portion of food Additional information eg allergy advice, use by date, best before, storage advice, origin of the product, health benefits based on science/research

Learning outcomes		Assessment criteria		Unit amplification
		1.8	Explain the significance of healthy food preparation	<ul style="list-style-type: none"> □ Significance eg retain nutrients during the preparation/cooking process, □ Healthy food preparation methods eg steaming, grilling, blanching, baking, stir frying, poaching, raw, diminish use of fat substitutes and cooking oils that can lead to a build-up of cholesterol
		1.9	Explain the relationship between nutrition, physical activity, body composition and health including: <ul style="list-style-type: none"> □ links to disease/disease risk factors □ cholesterol □ types of fat in the diet 	<ul style="list-style-type: none"> □ Links to disease eg heart disease, hypertension, type 2 diabetes, obesity, back pain, osteoporosis □ Cholesterol – desirable levels of HDL, total cholesterol, LDL:HDL ratio □ Types of fat – link to body composition, reducing fat levels in the body
	2	Understand key guidelines in relation to nutrition	2.1	Identify the range of professionals and professional bodies involved in the area of nutrition <ul style="list-style-type: none"> □ Professionals eg nutritional therapists, dieticians, registered nutritionist, nutrition/dietary adviser □ Professional bodies eg British Association for Applied Nutrition and Nutritional Therapy (BANT), Association for Nutrition, The Federation of Nutritional Therapy Practitioners, Complementary and Natural Healthcare Council (CNHC), Health Professions Council (HPC), The Nutrition Society
			2.2	Explain key healthy eating advice that underpins a healthy diet <ul style="list-style-type: none"> □ Key advice eg base meals on starchy foods, eat at least five portions of fruit and vegetables every day, include a varied balance of foods from the five main food groups daily, stay within the recommended calorie intake, 2500 for men 2000 for women

Learning outcomes		Assessment criteria		Unit amplification
		2.3	Describe the nutritional principles and key features of the National food model/guide	<ul style="list-style-type: none"> □ Eatwell plate, Balance of Good Health □ Nutritional principles and key features eg make healthy food choices, eat the right proportions of each food group that make up a balanced diet
		2.4	Define portion sizes in the context of the national food model/guide	<ul style="list-style-type: none"> □ Grains – six to eleven servings a day □ Fruits and vegetables – at least five portions of a variety of fruit and vegetables every day □ Meat and protein – two to three servings a day □ Milk and dairy products – two to three servings a day □ Foods contain fat, oil and sugar – moderate intake □ Department of Health advice for proportions of food groups – 35% from fat, 50% from carbohydrates and 15% from protein each day, 18gm of fibre
		2.5	Explain how to access reliable sources of nutritional information	<ul style="list-style-type: none"> □ National, established organisations eg Food Standards Agency (FSA) Nutrient and Food Based Guidelines for UK Institutions, FSA Eatwell plate- Balance of Good Health, Health Eating – Live Well (NHS), British Nutrition Foundation Guidelines, Department of Health □ Sources based on evidence which supports claims eg journals, websites, books
		2.6	Distinguish between evidence-based knowledge versus the unsubstantiated marketing claims of suppliers	<ul style="list-style-type: none"> □ Evidence-based eg claims based on scientific research, claims supported by nutritional content □ unsubstantiated marketing claims eg misleading claims, claims not based on facts

Learning outcomes		Assessment criteria		Unit amplification
3	Understand nationally recommended practice in relation to providing nutritional advice	3.1	Explain professional role boundaries with regard to offering nutritional advice to clients	<ul style="list-style-type: none"> □ refer client eg to GP, registered dietician/nutritionist , comply with rules of REPs Code of Conduct
		3.2	Explain the importance of communicating health risks associated with weight loss fads and popular diets to clients	<ul style="list-style-type: none"> □ associated risks eg , some claims are unsupported, advise on benefits of a health diet, encourage safe practice in relation to weight management
		3.3	Evaluate the potential health and performance implications of severe energy restriction, weight loss and weight gain	<ul style="list-style-type: none"> □ Severe energy restriction eg decreased BMR, reduced fat, muscle or bone mass, cramps, fatigue, dizziness □ Weight loss eg reduced ability to fight off infection, osteoporosis, decreased muscle strength, trouble regulating body temperature □ Weight gain eg increased risk for diabetes, coronary heart disease, hypertension, reduced movement
		3.4	Identify clients at risk of nutritional deficiencies	<ul style="list-style-type: none"> □ Clients at risk eg those on severely energy restricted diets, extreme dieters, those with certain diagnosed medical conditions/diseases
		3.5	Explain how cultural and religious dietary practices can influence nutritional advice	<ul style="list-style-type: none"> □ Influences eg fasts, festivals, food restrictions and laws, dietary and food preparation practices associated with rituals
		3.6	Describe safety, effectiveness and contraindications relating to protein and vitamin supplementation	<ul style="list-style-type: none"> □ Safety eg purchase supplements from reputable sources, stick to the correct dosage as per recommended guidelines □ Effectiveness eg supplement diets that exclude certain products or food groups □ Contraindications eg pregnancy, medical condition such as diabetes, hypertension or heart disease, interaction with medication eg calcium with heart medicine, vitamin K with blood thinners

Learning outcomes		Assessment criteria		Unit amplification
		3.7	Explain why detailed or complex dietary analysis that incorporates major dietary change should always be referred to a Registered Dietician	<ul style="list-style-type: none"> □ Ensure safety of client – refer to source of specialist, expert advice □ Conforms to recommended national practice □ Outside own authority and competence
4	Understand the relationship between nutrition and physical activity	4.1	Define the role of carbohydrate, fat and protein as fuels for aerobic and anaerobic energy production	<ul style="list-style-type: none"> □ Carbohydrate — main fuel for exercise of a moderate to higher intensity, anaerobic energy pathway (glycolysis) creates energy exclusively from carbohydrates, used in aerobic system □ Fat- fuel lower intensity exercise for long periods of time, used in aerobic system □ Protein- generally used to maintain and repair body tissues, as a fuel represents only a very small contribution. used when stores of other nutrients are depleted
		4.2	Explain the components of energy expenditure and the energy balance equation	<ul style="list-style-type: none"> □ Components eg basal metabolic rate (BMR), thermogenesis (thermogenic effect of food), physical activity (all muscle movement) □ Energy balance equation –differences between energy intake (from food) and energy output eg neutral energy balance (calories taken in equal to calories expended, weight is maintained), positive energy balance (calories taken in are greater than calories expended, weight is gained, fat stores are increased), negative energy balance (calories taken in are less than calories expended)

Learning outcomes		Assessment criteria		Unit amplification
		4.3	Explain how to calculate an estimate of Basal Metabolic Rate (BMR)	<ul style="list-style-type: none"> □ Factors affecting BMR eg gender, age, weight, body surface area, diet, exercise □ Use of equations eg Schofield, Harris-Benedict, Mifflin-St Jeor □ Indirect calorimetry
		4.4	Explain how to estimate energy requirements based on physical activity levels and other relevant factors	<ul style="list-style-type: none"> □ Factors affecting daily energy expenditure eg age, gender, weight, height, physical activity level, lifestyle □ Based on the energy intake needed to maintain energy balance in individuals with healthy weights □ Use of predictive equations
		4.5	Identify energy expenditure for different physical activities	<ul style="list-style-type: none"> □ Physical activities eg swimming, running, jogging, team sports □ Depends on duration and type of activity □ Metabolic equivalent of task (MET) — physiological measure expressing the energy cost of physical activities □ Number of kcals used

Learning outcomes		Assessment criteria		Unit amplification
		4.6	Evaluate the nutritional requirements and hydration needs of clients engaged in physical activity	<ul style="list-style-type: none"> □ Clients eg with specific fitness needs, with general health needs □ Evaluation appropriate to client eg age, level of ability and skill, weight, medical conditions, level of physical activity □ Evaluation appropriate to physical activity (before , during and after) □ How to ensure clients are aware of these requirements
5	Understand how to collect information relating to nutrition	5.1	Explain why it is important to obtain clients' informed consent before collecting nutritional information	<ul style="list-style-type: none"> □ Establish client understanding eg give the client the opportunity to consider information provided and to ask questions, reduce risk of misunderstandings □ Legal requirements, standard industry practice eg REP Code of Conduct
		5.2	Describe the information that needs to be collected to offer nutritional advice to clients	<ul style="list-style-type: none"> □ Information eg personal goals, lifestyle, medical history, physical activity history, diet history, food preferences, supplement use, nutritional knowledge
		5.3	Explain the legal and ethical implications of collecting nutritional information	<ul style="list-style-type: none"> □ Confidentiality □ Legal requirements eg data protection □ Industry regulations eg REP Code of Conduct
		5.4	Describe different formats for recording nutritional information	<ul style="list-style-type: none"> □ Format enables interpretation and analysis of information □ Food diary/record, questionnaires □ Paper or computer-based records

Learning outcomes		Assessment criteria		Unit amplification
		5.5	Explain why confidentiality is important when collecting nutritional information	<ul style="list-style-type: none"> □ Client feels reassured and likely to share information □ Legal requirements □ Industry regulations eg REP Code of Conduct
		5.6	Describe issues that may be sensitive when collecting nutritional information	<ul style="list-style-type: none"> □ Relating to weight and body composition □ Relating to health eg medical conditions, smoking, alcohol consumption □ Relating to quality of an individual's diet eg yoyo dieting □ Relating to eating disorders
		5.7	Explain different methods that can be used to measure body composition and health risk in relation to weight	<ul style="list-style-type: none"> □ Methods eg body mass index (BMI), waist to hip ratio, waist circumference, skin-fold tests (calipers), bioelectrical impedance, hydrostatic (underwater) weighing- □ Location of body fat in relation to health risk eg around the abdomen may present a greater risk of health problems □ Health risks in relation to weight — overweight and obese individuals increased risk of eg hypertension, coronary heart disease, type 2 diabetes; underweight eg infertility in women, type 1 diabetes, osteoporosis, anaemia

Learning outcomes		Assessment criteria		Unit amplification
6	Understand how to use nutritional information	6.1	Describe basic dietary assessment methods	<ul style="list-style-type: none"> □ Method depends on intended purpose eg measure nutrients, foods or eating habits □ Food diary/record (weighed or estimated) eg time of consumption, preparation and cooking methods, portion sizes □ Dietary recall — trained interviewer asks individual to remember food and drink consumed over a period of time □ Food frequency questionnaires □ Diet history – used over a longer period of time than other methods
		6.2	Explain how to analyse and interpret collected information so that clients' needs and nutritional goals can be identified with reference to the National food model/guide recommendations	<ul style="list-style-type: none"> □ Calculate intake (energy, calorific) and expenditure (energy) □ Comparison of intakes eg to estimated average requirement, to recommended daily allowance/intake, evaluation in terms of adequacy □ How client's diet relates to national guidelines and recommendations
		6.3	Describe how to interpret information gained from methods used to assess body composition and health risk in relation to weight	<ul style="list-style-type: none"> □ Use of norms for comparisons □ Health risks in relation to weight — overweight and obese individuals increased risk of eg hypertension, coronary heart disease, type 2 diabetes; underweight eg infertility in women, type 1 diabetes, osteoporosis, anaemia

Learning outcomes		Assessment criteria		Unit amplification
		6.4	Explain how to sensitively divulge collected information and 'results' to clients	<ul style="list-style-type: none"> □ Ensure privacy and confidentiality when speaking with clients □ Appropriate verbal and non-verbal communication □ Appropriate manner eg positive, focus on steps that client can take
		6.5	Explain how to recognise the signs and symptoms of disordered eating and healthy eating patterns	<ul style="list-style-type: none"> □ Disordered eg dramatic weight loss in a relatively short period of time, obsession with weight and complaining of weight problems, obsession with calories and fat content of foods, excuses to avoid eating, hair loss, dizziness and headaches, complaints of often feeling cold, bloodshot eyes; light bruising under the eyes and on the cheeks, mood swings, depression, fatigue, low self-esteem □ Healthy eating eg balanced diet, stable weight
		6.6	Describe the key features of the industry guidance note on 'Managing users with suspected eating disorders'	<ul style="list-style-type: none"> □ Signs and symptoms of eating disorders □ What to do if you suspect someone using your facility has an eating disorder eg do not use aggressive language or threaten to take their membership away, do not comment on their weight or appearance, encourage them to contact their GP □ Appropriate education and training for staff within the industry □ Duty of care to individuals using your facility □ Operational implications
		6.7	Explain the circumstances in which a client should be recommended to visit their GP about the possibility of referral to a Registered Dietician	<ul style="list-style-type: none"> □ Suspected eating disorder □ Underlying medical conditions eg heart disease □ Weight-related issues eg obese, underweight

Learning outcomes		Assessment criteria		Unit amplification
7	Understand the principles of nutritional goal setting with clients	7.1	Explain how to apply the principles of goal setting when offering nutritional advice	<ul style="list-style-type: none"> □ Goalseg healthy eating, weight management, improved fitness, improved self-image, SMART □ Short, medium and long-term goals □ Reflect accepted good practice
		7.2	Explain how to translate nutritional goals into basic healthy eating advice that reflects current National guidelines	<ul style="list-style-type: none"> □ Use terms that clients understand □ Avoid use of technical terms and jargon
		7.3	Explain when people other than the client should be involved in nutritional goal setting	<ul style="list-style-type: none"> □ Outside level of own competence and authority □ Suspected eating disorder or medical conditions □ Provide further information or support for the client
		7.4	Define which other people could be involved in nutritional goal setting	<ul style="list-style-type: none"> □ Other people eg Registered nutritionist, Nutritional therapist, Dietary/nutrition adviser, Dietician, GP
		7.5	Identify the barriers which may prevent clients achieving their nutritional goals	<ul style="list-style-type: none"> □ Barriers eg time constraints , cost factors, dietary habits, eating junk foods or convenience foods , following a restricted diet, limited knowledge of diet and nutrition, lack of support, cultural or religious factors
		7.6	Explain how to apply basic motivational strategies to encourage healthy eating and prevent non-compliance or relapse	<ul style="list-style-type: none"> □ Provide clients with appropriate information and advice eg reinforce benefits of health eating □ Positive encouragement eg highlight positive aspects, recognise and highlight achievements and progress □ Set goals and involve clients in goal setting

Learning outcomes		Assessment criteria		Unit amplification
		7.7	Explain the need for reappraisal of clients' body composition and other relevant health parameters at agreed stages of the programme	<ul style="list-style-type: none"> □ Opportunity to review client progress and achievements □ Opportunity to review issues relating to client health □ Revise or add nutritional goals □ Motivate and encourage clients
8	Be able to collect and analyse nutritional information	8.1	Collect information needed to provide clients with appropriate healthy eating advice	<ul style="list-style-type: none"> □ Information eg personal goals, lifestyle, medical history, physical activity history, diet history, food preferences, supplement use, nutritional knowledge, attitudes and motivation, stage of readiness □ Clients – with specific fitness needs, with general health needs □ Methods eg questionnaires, one-to-one discussion with clients, food diary/record □ Importance of collecting accurate nutritional information □ Use of information to give clients safe and effective nutritional advice
		8.2	Record information about clients and their nutritional goals in an approved format	<ul style="list-style-type: none"> □ Clear to client, yourself and others who may be involved □ Format enables interpretation and analysis of information □ Format eg paper, digital □ Goals- eg healthy eating, weight management, improved fitness, improved self-image

Learning outcomes		Assessment criteria		Unit amplification
		8.3	Analyse collected information including nutritional needs and preferences in relation to the clients current status and nutritional goals	<ul style="list-style-type: none"> □ Use of norms for comparisons □ Calculate intake (energy, calorific) and expenditure (energy) □ Comparison of intakes eg to estimated average requirement, to recommended allowances/intakes, evaluation in terms of adequacy □ How client's diet relates to national guidelines and recommendations
9	Be able to apply the principles of nutrition to a physical activity programme	9.1	Access and make use of credible sources of educational information and advice in establishing nutritional goals with clients	<ul style="list-style-type: none"> □ Client receives up-to-date information and advice □ National, established organisations eg Food Standards Agency (FSA) Nutrient and Food Based Guidelines for UK Institutions, FSA Eatwell plate — Balance of Good Health, Health Eating – Live Well (NHS), British Nutrition Foundation Guidelines, Department of Health □ Sources based on evidence which supports their claims eg journals, websites, books
		9.2	Design and agree nutritional goals that are compatible with the analysis, accepted good practice and national guidelines	<ul style="list-style-type: none"> □ Design diet plan in relation to client's dietary requirements, explain t processes, ensure balance of main food groups included in diet plan, set and agree Specific, measurable, achievable, realistic and time bound (SMART) goals
		9.3	Ensure that the nutritional goals support and integrate with other programme components	<ul style="list-style-type: none"> □ Enable achievement of programme components eg exercise □ Client can see the relationship between goals and the programme components

Learning outcomes		Assessment criteria		Unit amplification
		9.4	Agree review points with the clients	<ul style="list-style-type: none"> □ Appropriate to the client □ Appropriate to the physical activity programme □ Client clear about what will take place at each review eg short, medium, long term
		9.5	Review the clients understanding of how to follow the nutritional advice as part of their physical activity programme	<ul style="list-style-type: none"> □ Ask clients questions in a sensitive manner □ Give client opportunities to ask questions □ Ensure appropriate time allocated for discussion
		9.6	Monitor, evaluate and review the clients' progress towards their nutritional goals	<ul style="list-style-type: none"> □ In relation to previously set goals □ Review client's fitness levels □ Ensure client understanding □ Ensure client has opportunity to ask questions □ Revise and add nutritional goals eg based on identified strengths and areas for improvement

Information for tutors

Delivery

This unit should be delivered in a way that develops knowledge and understanding of how to apply the principles of nutrition to a physical activity programme.

Learners need to know and understand:

- the principles of nutrition, including the key terminology used and the relationship between nutrition, physical activity and health
- the key guidelines and recommended national practice relating to nutrition and providing nutritional advice
- the methods used to collect nutritional information, including legal and ethical implications and issues of sensitivity and confidentiality
- how to analyse and use this information to set nutritional goals for clients, including barriers to achievement and the use of motivational strategies with clients.

A useful opening would be through small-group discussions, during which learners can exchange their knowledge and experience of applying the principles of nutrition when planning physical activity programmes with clients. Tutors can take feedback on a flipchart or board to share the discussions of individual groups.

Learners should be encouraged to engage with employers and, where possible, other employees to gain knowledge and understanding of the importance of collecting, analysing and using nutritional information correctly to meet the needs of individual clients.

Knowledge of issues gained through engaging with employers and employees, rather than through a purely theoretical context, is key. This should be made possible by learners working with others for whom this is a key part of their role, for example a personal trainer, where possible, and through the use of guest speakers and video/DVD training programmes.

For example, a presentation by a health fitness instructor will support delivery, as well as adding vocational relevance and currency. The visiting speaker could deliver a summary of the methods they use to analyse nutritional information and how they then use this information to design and agree nutritional goals with clients.

They could also talk about the importance of ensuring nutritional goals are compatible with accepted good practice and national guidelines, and of monitoring and reviewing client progress towards their goals. This should be supported by examples drawn from industry or through developed case studies that highlight:

- the importance of collecting the correct nutritional information and what could happen if this is not carried out
- how nutritional information affects the setting of nutritional goals in the context of physical activity programmes, including referring clients to other professionals
- the importance of working within the associated key guidelines and nationally recommended practice
- the methods trainers and instructors use to interpret nutritional information supplied by clients.

To meet the practical aspect of the unit, in terms of analysing nutritional information and using it to set nutritional goals with clients, learners could either use documentation from their place of work or the tutor could supply learners with standard templates.

Learners need to be observed agreeing nutritional goals and how they will be reviewed with clients and confirming client understanding of how to follow the nutritional advice they have been given.

This unit could be delivered through distance learning. However, this will involve additional, and different, considerations, such as planning, and other measures to ensure learners can gain the required knowledge and understanding.

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

Learners must provide evidence of their ability to apply the principles of nutrition to a physical activity programme by collecting and analysing appropriate information and agreeing nutritional goals with clients that are compatible with the analysis, accepted good practice and national guidelines.

A variety of assessment methods could be used. Learners could produce written reports or give verbal presentations, supported by witness testimony. Other alternatives could be logbooks or workbooks completed in the workplace or during visits.

Assessment tasks and activities should enable learners to produce valid, sufficient and reliable evidence that relates directly to the assessment criteria. Centres are encouraged to emphasise the practical application of the assessment criteria.

Indicative resource materials

Books

Bean A – *Food for Fitness* (A&C Black, 2008) ISBN 9780713681284

Burke L – *Practical Sports Nutrition* (Human Kinetics, 2007) ISBN 9780736046954

Dalglish J, Dollery S – *The Health and Fitness Handbook* (Longman, 2001)
ISBN 9780582418790

Griffin J – *Food for Sport, Eat Well, Perform Better* (Crowood, 2001)
ISBN 9781861262165

McArdle W et al – *Sports and Exercise Nutrition* (Lippincott, Williams and Wilkins, 2005) ISBN 9780781749930

Sharkey B J and Gaskill S E – *Fitness and Health* (Human Kinetics, 2006)
ISBN 9780736056144

Journals and/or magazines

American College of Sport Medicine's Health and Fitness Journal

British Journal of Nutrition

International Journal of Sports Nutrition

Journal of Nutrition

Journal of Sports Nutrition

Websites

British Association of Sport and Exercise Sciences	www.bases.org.uk
British Nutrition Foundation	www.nutrition-org.uk
Food Standards Agency	www.foodstandards.gov.uk
Institute of Food	www.ifrn.bbsrc.ac.uk

12 Further information and useful publications

To get in touch with us visit our 'Contact us' pages:

- Edexcel, BTEC and Pearson Work Based Learning contact details: qualifications.pearson.com/en/support/contact-us.html
- books, software and online resources for UK schools and colleges: www.pearsonschoolsandfecolleges.co.uk

Key publications

- Adjustments for candidates with disabilities and learning difficulties, Access and Arrangements and Reasonable Adjustments, General and Vocational qualifications (Joint Council for Qualifications (JCQ))
- Supplementary guidance for reasonable adjustments and special consideration in vocational internally assessed units (Pearson)
- General and Vocational qualifications, Suspected Malpractice in Examination and Assessments: Policies and Procedures (JCQ)
- Equality Policy (Pearson)
- Recognition of Prior Learning Policy and Process (Pearson)
- UK Information Manual (Pearson)
- Pearson Edexcel NVQs, SVQs and competence-based qualifications – Delivery Requirements and Quality Assurance Guidance (Pearson)

All of these publications are available on our website: qualifications.pearson.com

Further information and publications on the delivery and quality assurance of NVQ/Competence-based qualifications are available at our website on the Delivering BTEC pages. Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please go to the resources page of our website.

13 Professional development and training

Pearson supports UK and international customers with training related to BTEC qualifications. This support is available through a choice of training options offered in our published training directory or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing student-centred learning and teaching approaches
- building Functional Skills into your programme
- building in effective and efficient quality assurance systems.

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Annexe A

Progression opportunities

Progression opportunities within the framework.

Level	General qualifications	BTEC full vocationally-related qualifications	BTEC specialist courses	NVQ/occupational
5			<p>Pearson BTEC Level 5 HND Diploma in Sport and Exercise Sciences</p> <p>Pearson BTEC Level 5 HND Diploma in Sport (Coaching and Sports Development)</p> <p>Pearson BTEC Level 5 HND Diploma in Sport (Leisure Management)</p>	
4			<p>Pearson BTEC Level 4 HNC Diploma in Sport (Health, Fitness and Exercise)</p> <p>Pearson BTEC Level 4 HNC Diploma in Sport (Coaching and Sports Development)</p> <p>Pearson BTEC Level 4 HNC Diploma in Sport (Leisure Management)</p>	

Level	General qualifications	BTEC full vocationally-related qualifications	BTEC specialist courses	NVQ/occupational
3		Pearson Advanced Subsidiary GCEs Physical Education and Leisure Studies Pearson Advanced GCEs Physical Education and Leisure Studies	Pearson BTEC Level 3 Certificate in Sport Pearson BTEC Level 3 Subsidiary Diploma in Sport Pearson BTEC Level 3 Diploma in Sport Pearson BTEC Level 3 Extended Diploma in Sport	Pearson BTEC Level 3 Tech Cert in Personal Training Pearson BTEC Level 3 Tech Cert in Leisure Operations
2		Pearson GCSE Physical Education (full and short course)	Pearson BTEC Level 2 Certificate in Sport Pearson BTEC Level 2 Extended Certificate in Sport Pearson BTEC Level 2 Diploma in Sport	Pearson BTEC Level 2 Tech Cert in Leisure Operations Pearson BTEC Level 2 Subsidiary Certificate and Certificate in Sailing and Watersports
1			Pearson BTEC Introductory Certificate and Diploma in Sport and Leisure	Pearson BTEC Award/Certificate/Diploma in Sport and Active Leisure
Entry		Pearson Entry Level Certificate in Physical Education	Pearson Entry level Certificate in Skills for Working Life (Sport and Recreation) Pearson Entry level BTEC Award in Sport and Active Leisure	

Annexe B

Wider curriculum mapping

Pearson BTEC level 3 qualifications give learners opportunities to develop an understanding of spiritual, moral, ethical, social and cultural issues as well as an awareness of citizenship, environmental issues, European developments, health and safety considerations and equal opportunities issues.

Spiritual, moral, ethical, social and cultural issues

Throughout the delivery of these qualifications learners will have the opportunity to actively participate in different kinds of decision making. They will have to consider fair and unfair situations and explore how to resolve conflict. Working in small groups they will learn how to respect and value others' beliefs, backgrounds and traditions.

Citizenship

Learners undertaking these qualifications will have the opportunity to develop their understanding of citizenship issues.

Environmental issues

Developing a responsible attitude towards the care of the environment is an integral part of this qualification. Learners are encouraged to minimise waste and discuss controversial issues.

European developments

Much of the content of the qualification applies throughout Europe, even though the delivery is in a UK context.

Health and safety considerations

Health and safety is embedded within many of the units in this qualification. Learners will consider their own health and safety at work, how to identify risks and hazards and how to minimise those risks.

Equal opportunities issues

There will be opportunities throughout this qualification to explore different kinds of rights and how these affect both individuals and communities, for example learners will consider their rights at work and the rights of employers and how these rights affect the work community.

Annexe C

National Occupational Standards/mapping with NOS

The grid below maps the knowledge covered in the Pearson BTEC Level 3 Specialist qualification in Personal Training against the underpinning knowledge of the Level 3 National Occupational Standards in Advanced Fitness.

KEY

3 indicates partial coverage of the NVQ unit

a blank space indicates no coverage of the underpinning knowledge

Units	A355	B242	C22	C317	D459	D460	D461	D462
Health, Safety and Welfare in a Fitness Environment			3					
Principles of Exercise, Fitness and Health								
Know How to Support Clients Who Take Part in Exercise and Physical Activity				3				
Anatomy and Physiology for Exercise and Health								
Programming Personal Training with Clients						3		
Delivering Personal Training Sessions							3	
Apply the Principles of Nutrition as Part of a Personal Training Programme								3

Annexe D

Mapping to Level 2 Functional Skills

Level 2	Unit Number						
English – Speaking, Listening and Communication	1	2	3	4	5	6	7
Make a range of contributions to discussions in a range of contexts, including those that are unfamiliar, and make effective presentations							3
English – Reading							
Select, read, understand and compare texts and use them to gather information, ideas, arguments and opinions				3	3	3	
English – Writing							
Write a range of texts, including extended written documents, communicating information, ideas and opinions, effectively and persuasively	3	3	3	3		3	3

Level 2	Unit Number						
Mathematics – Representing	1	2	3	4	5	6	7
Understand routine and non-routine problems in familiar and unfamiliar contexts and situations							
Identify the situation or problems and identify the mathematical methods needed to solve them					3		
Choose from a range of mathematics to find solutions							

Mathematics – Analysing							
Apply a range of mathematics to find solutions					3		
Use appropriate checking procedures and evaluate their effectiveness at each stage							
Mathematics – Interpreting							
Interpret and communicate solutions to multistage practical problems in familiar and unfamiliar contexts and situations							
Draw conclusions and provide mathematical justifications							

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