

Unit 4: Fitness Training and Programming

Unit code:	D/502/5619
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

The aim of this unit is for learners to be able to plan fitness training sessions and design fitness training programmes.

● Unit introduction

Fitness is vital to achieving success in sport and individuals who are serious about their sports performance will carry out a fitness training programme. Elite athletes develop and maintain high levels of fitness and take fitness training very seriously. Many elite athletes have a designated fitness coach. In addition, a large number of individuals want to improve their fitness in order to participate in community sports activities and competitions. Fitness is also important for active leisure pursuits such as outdoor activities. It is therefore important for individuals working in the sports sector to have an understanding of how to plan fitness training sessions and how to design fitness training programmes.

This unit is particularly relevant for those who aspire to working in sports coaching, fitness instructing or elite sport.

The first part of the unit involves learners examining different methods of fitness training. These include methods of training to improve flexibility, strength, muscular endurance, power, aerobic endurance and speed. Learners will develop the ability to prescribe appropriate exercise intensities, work/rest ratios, resistance, repetitions, sets, number of exercises, order of exercises, speed of movement and systems of training depending on the nature of the session and client needs.

The second part of the unit involves learners planning a fitness training programme for a selected individual. Learners will examine the principles of training and the concept of periodisation. Learners are required to set goals for a fitness training programme and plan the training year. They are also required to monitor and evaluate a fitness training programme. This involves using a training diary and/or feedback and reviews then evaluating the extent to which the programme is achieving goals set.

● Learning outcomes

On completion of this unit a learner should:

- 1 Know different methods of fitness training
- 2 Be able to plan a fitness training session
- 3 Be able to plan a fitness training programme
- 4 Be able to review a fitness training programme.

Unit content

1 Know different methods of fitness training

Components of physical fitness: flexibility; strength; muscular endurance; power; aerobic endurance; speed

Methods of training: flexibility, eg static stretching, ballistic stretching, proprioceptive neuromuscular facilitation (PNF) stretching; strength, eg free weights, resistance machines; muscular endurance, eg circuit training, core stability training, medicine ball training; power, eg plyometrics, anaerobic hill sprints; aerobic endurance, eg continuous training, fartlek training, interval training; speed, eg interval training, sport-specific speed training

2 Be able to plan a fitness training session

Plan: frequency; intensity; time; type

Individuals: eg elite, trained, untrained, individuals, groups

Cardiovascular training: exercise intensities; monitor intensity, eg observation, talk test, Rating of Perceived Exertion, heart rate monitoring – maximum heart rate, heart rate reserve/karvonen formula; anaerobic threshold; work/rest ratios

Resistance training: choice of exercises; number of exercises; order of exercises; resistance; repetitions; sets; rest between sets; speed of movement; systems of training

Flexibility training: choice of exercises; number of exercises; order of exercises; repetitions; time

Speed training: time/distance; repetitions; sets; rest between sets; work/rest ratio

3 Be able to plan a fitness training programme

Collect information: goals (short-, medium- and long-term goals); SMART (specific, measurable, achievable, realistic, time-bound) targets; lifestyle; medical history; physical activity history

Principles of training: overload; specificity; progression; individual differences; variation; reversibility; FITT (frequency, intensity, time and type) principles

Periodisation: macrocycle; mesocycle; microcycle; individual training sessions

Training diary: eg progression, attitude, motivation, links to goals

4 Be able to review a fitness training programme

Monitor: training diary, eg date and details of sessions, progression, attitude, motivation, links to goals, competition results; coach/instructor feedback and reviews

Review: extent to which programme has achieved goals set; modification of programme to achieve planned goals

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 describe one method of fitness training for six different components of physical fitness	M1 explain one method of fitness training for six different components of physical fitness	
P2 produce training session plans covering cardiovascular training, resistance training, flexibility training and speed training [CT1, CT3]	M2 produce detailed session plans covering cardiovascular training, resistance training, flexibility training and speed training	D1 justify the training session plans covering cardiovascular training, resistance training, flexibility training and speed training
P3 produce a six-week fitness training programme for a selected individual that incorporates the principles of training and periodisation [CT1, CT3]		
P4 monitor performance against goals during the six-week training programme		
P5 give feedback to an individual following completion of a six-week fitness training programme, describing strengths and areas for improvement. [RL1, TW6]	M3 give feedback to an individual following completion of a six-week fitness training programme, explaining strengths and areas for improvement.	D2 give feedback to an individual following completion of a six-week fitness training programme, evaluating progress and providing recommendations for future activities.

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

The unit has a large practical component with methods of fitness training being best covered practically with learners participating in a range of fitness training sessions. Aerobic endurance training practical activities could cover continuous training, fartlek training and interval training. Learners should also be given the opportunity to monitor exercise intensity using a variety of methods such as observation, talk test, RPE and heart rate monitoring. Strength and muscular endurance practical activities could cover free weights, resistance machines, medicine balls and circuit training. Learners should experience different weights and repetition ranges needed for strength, power and muscular endurance. Learners should also experience and practise a range of core stability exercises. In terms of power training learners should be given the opportunity to experience plyometric training. A flexibility session could cover static, ballistic and PNF stretching. Speed training could be covered by a practical session involving interval training and sport-specific speed training. Learners can develop their skills in planning a fitness training session by undertaking group activities involving both the evaluation of session plans and the planning of sessions using case study information provided.

Prior to planning the fitness training programme tutors should cover the theory behind programme design. Learners need to understand the principles of training and periodisation. The importance of collecting relevant information and of setting SMART goals needs to be covered. Learners can practise planning fitness training programmes by working in groups and using case studies, then feeding back to the whole class. A range of sporting activities and levels of performance should be covered to give breadth of knowledge.

The final part of the unit requires learners to monitor and evaluate a fitness training programme. Learners should be introduced to the benefits of training diaries and the information that should be recorded. It would be useful to see examples of training diaries kept by elite athletes. Skills in evaluating a fitness training programme and making recommendations for modification/development can be developed using case studies. A range of sports and levels of performance should be covered to give a breadth of knowledge.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Tutor introduces unit and assessment requirements.
Aerobic endurance training – practical activities covering continuous training, fartlek training and interval training.
Monitoring exercise intensity – tutor introduces topic. Practical activities giving learners the opportunity to monitor exercise intensity using different methods: observation, talk test, RPE and heart rate monitoring.
Strength and muscular endurance training: practical activities covering free weights, resistance machines, medicine balls and circuit training.
Core stability training: practical sessions giving learners the opportunity to experience a range of core stability exercises.
Assignment 1: Methods of Fitness Training and Session Design (P1, P2, M1, M2, D1). Tutor introduces the assignment brief. Includes work completed in learners' own time.
Power training: practical sessions giving learners the opportunity to experience plyometric training
Flexibility training: practical activities covering static stretching and PNF stretching.
Speed training: practical activities covering interval training and sport-specific speed training
Planning a fitness training session – tutor introduces topic. Group activities and case studies. Learners evaluate session plans provided and work in groups to plan sessions. Feed back to class.
Assignment 2: Plan, Monitor and Review a Fitness Training Programme (P3, P4, P5, M3, D2). Tutor introduces the assignment brief. Includes work completed in learners own time.
Planning a fitness training programme – tutor introduces topic and facilitates class discussion.
Individual evaluation of training programmes: application of principles of training and periodisation – activity completed in learners own time. Tutor-led class discussion.
Group activity to plan a fitness training programme and feedback to class.
Monitoring and reviewing a training programme – tutor introduces topic. Individuals share their experiences. Tutor examples of training diaries and reviews.
Review of unit and assessment activities.

Assessment

For P1, learners need to describe one method of fitness training for six different components of physical fitness. A method of training to improve flexibility, strength, muscular endurance, power, aerobic endurance and speed should be covered. For P2, learners need to produce training session plans covering cardiovascular training, resistance training, speed training and flexibility training. The session plans should include appropriate intensity, time and type of training. Examples produced by coaches would help learners with the layout. For P3, learners need to plan a safe and effective six-week fitness training programme for a selected individual. The programme must be suitable for the individual's needs and goals, apply the principles of training and the concept of periodisation, and include suitable methods of training. For P4, learners need to monitor and evaluate performance against goals during the six-week fitness training programme. Monitoring can be carried out using a training diary. For P5, learners must give feedback to an individual describing the strengths of the fitness training programme and areas for improvement. For this, information such as training and competition performances, coach/instructor reviews and feedback, training diary information and/or fitness test results should be used. The feedback can be written or verbal.

For M1, which builds on P1, learners need to explain a method of fitness training for each of the six components of physical fitness. More detail is required, with appropriate examples provided. For M2, learners need to produce detailed session plans including the warm-up and cool down and detailed information of timings (including work:rest ratios), intensity and type of training. As an example for resistance training the number of reps, sets and rest between sets should be specified. For M3, learners need to give feedback to a selected individual, explaining the strengths of the training programme and areas for improvement, in relation to goals set. Relevant information should be used, for example training and competition performances, coach/instructor reviews, training diary information and feedback. More detail is required with examples provided where appropriate.

For D1, learners need to justify the training session plans covering cardiovascular training, resistance training, flexibility training and speed training. They need to give reasons for the timings, intensity and type of training selected. For D2, learners need to give feedback to a selected individual, evaluating the fitness training programme and progress, and providing recommendations for improvement. When evaluating the programme learners need to make some judgements about the strengths and areas for improvement, with evidence. Recommendations should be put forward for changes to the fitness training programme. These could include changes to the frequency, intensity, time or type of training carried out.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, M1, M2, D1	Methods of Fitness Training and Session Design	You are training to become a health fitness instructor. Describe methods of fitness training and produce training session plans for different methods of fitness training.	Journal article on methods of fitness training. Production of training session plans.
P3, P4, P5, M3, D2	Plan, Monitor and Review a Fitness Training Programme	As a health fitness instructor you are going to plan and review a six-week fitness training programme for a selected individual.	Production of a training programme and training diary. Practical observation of feedback on strengths and areas for improvement. Witness statement/observation record.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Sport sector suite and the BTEC Sport and Exercise Sciences sector suite. This unit has particular links with the following unit titles in the BTEC Sport suite and the BTEC Sport and Exercise Sciences suite:

Level 2 Sport	Level 3 Sport	Level 3 Sport and Exercise Sciences
Fitness Testing and Training	Principles of Anatomy and Physiology in Sport	Anatomy for Sport and Exercise
Anatomy and Physiology for Sport	Fitness Testing for Sport and Exercise	Sport and Exercise Physiology
Exercise and Fitness Instruction	Sports Coaching	Exercise, Health and Lifestyle
Development of Personal Fitness	Exercise, Health and Lifestyle	Fitness Testing for Sport and Exercise
	Instructing Physical Activity and Exercise	Instructing Physical Activity and Exercise
	Research Investigation in Sport and Exercise Sciences	Applied Sport and Exercise Physiology
	The Physiology of Fitness	Sports Coaching
		Research Investigation in Sport and Exercise Sciences

This unit links with the National Occupational Standards (NOS) for:

- Achieving Excellence in Sports Performance at Level 3
- Coaching, Teaching and Instructing at Level 3
- Instructing Physical Activity and Exercise at Level 3.

Essential resources

Learners need access to free weights, resistance machines, stability balls, medicine balls, heart rate monitors and activity space for circuit and flexibility training.

Employer engagement and vocational contexts

This unit will provide learners with the background knowledge and skills needed to work in sports coaching, fitness instructing or elite sport. Centres are encouraged to develop links with sports clubs, leisure clubs and gyms. This could be via talks, demonstrations, workshops or visits.

Indicative reading for learners

Textbooks

Adams M et al – *BTEC Level 3 National Sport (Performance and Excellence) Student Book* (Pearson, 2010) ISBN 9781846906510

Adams M et al – *BTEC Level 3 National Sport (Development, Coaching and Fitness) Student Book* (Pearson, 2010) ISBN 9781846906503

Adams M et al – *BTEC Level 3 National Sport Teaching Resource Pack* (Pearson, 2010) ISBN 9781846906541

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

Heyward V H – *Advanced Fitness Assessment and Exercise Prescription* (Human Kinetics, 2006) ISBN 9780736057325

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

Lawrence M – *The Complete Guide to Core Stability* (A&C Black, 2007) ISBN 9780713683479

Watson A W S – *Physical Fitness and Athletic Performance; A Guide for Students, Athletes and Coaches* (Longman, 1996) ISBN 9780582091108

Journals

American College of Sport Medicine's Health and Fitness Journal

Exercise and Sport Sciences Reviews

International Journal of Sports Science and Coaching

Journal of Sports Science and Physical Fitness

Peak Performance

Research Quarterly for Exercise and Sport

Websites

American College of Sports Medicine	www.acsm.org
British Association of Sport and Exercise Sciences	www.bases.org.uk
Coachwise	www.lst4sport.com
Human Kinetics	www.humankinetics.com
Sport Science	www.sportsci.org
Sports Coach UK	www.sportscoachuk.org
Top End Sports	www.topendsports.com

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Creative thinkers	producing training session plans covering cardiovascular training, resistance training, flexibility training and speed training producing a six-week fitness training programme for a selected individual that incorporates the principles of training and periodisation
Reflective learners	giving feedback to an individual following completion of a six-week fitness training programme, describing strengths and areas for improvement
Team workers	giving feedback to an individual following completion of a six-week fitness training programme, describing strengths and areas for improvement.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	researching methods of fitness training
Creative thinkers	producing training session plans and training programmes using case study information.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	producing training session plans, training programmes and a training diary describing methods of fitness training
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	producing training session plans, training programmes and a training diary
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching methods of fitness training
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	researching methods of fitness training
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	producing training session plans, training programmes and a training diary describing methods of fitness training
Bring together information to suit content and purpose	producing training session plans, training programmes and a training diary describing methods of fitness training
Present information in ways that are fit for purpose and audience	producing training session plans, training programmes and a training diary
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	giving feedback to an individual on strengths and areas for improvement following completion of a six-week training programme
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	describing methods of fitness training
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	describing methods of fitness training.