

Unit 5: Physical Preparation, Health and Lifestyle for the Public Services

Unit code:	M/600/6017
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours	60

● Aim and purpose

The aim of this unit is to enable learners to be able to provide advice on lifestyle improvement and plan a health-related fitness programme based on an understanding of the fitness requirements and major body systems in preparation for entry into the public services.

● Unit introduction

Workers in the public services need to be physically fit and lead a healthy lifestyle, as their roles are usually very active and physically demanding.

This unit gives learners the knowledge, understanding, skills and practical experience to be able to prepare for the uniformed public services.

This unit introduces learners to the fitness requirements of the public services and measures current fitness levels. Learners will examine the three major human body systems (muscular-skeletal, cardiovascular and respiratory) and the effects of exercise on these body systems, giving learners knowledge that will lead to an understanding of how the body works, especially in the context of physical activity.

Learners will look at the effects of different lifestyle factors on health and fitness, such as the effects of smoking, alcohol, drugs and diet; through this learners will see that fitness training isn't the only way of controlling health and fitness. Learners will learn how to provide advice on lifestyle improvement based on the guidelines and recommendations in leading a healthy lifestyle.

Learners will have the opportunity to assess the lifestyle of an individual and use the information gathered, to plan a health related physical activity programme.

● Learning outcomes

On completion of this unit a learner should:

- 1 Know the fitness requirements for entry into the public services
- 2 Know the major human body systems
- 3 Know the importance of lifestyle factors in the maintenance of health and wellbeing
- 4 Be able to provide advice on lifestyle improvement
- 5 Be able to plan a health-related physical activity programme in preparation for the public services.

Unit content

1 Know the fitness requirements for entry into the public services

Components of fitness: flexibility; strength; muscular endurance; power; aerobic endurance; speed; health related fitness (BMI, height and weight, body composition)

Fitness tests: flexibility eg sit and reach strength eg 1RM, grip dynamometer; aerobic endurance eg multi-stage fitness test, step test, maximal treadmill protocol; speed eg sprint tests; power eg vertical jump, Wingate test; muscular endurance eg one-minute press-ups, one-minute sit-ups; health (BMI, body composition eg skinfold callipers, bioelectrical)

Job specific public service fitness tests: eg Army, Fire, Police, Prison, Royal Air Force, Royal Marines

Test results: public service requirements; protocols; sequence; norms

Reasons: assess current levels; monitor; progression; set goals; motivation; feedback from training programme; benchmark after returning from injury; use of repeat tests to establish gains; annual fitness checks

2 Know the major human body systems

Muscular-skeletal system: structure and function of muscular and skeletal systems; skeletal system (structure, function); joints (fixed, slightly movable, synovial); muscular system – structure, types of muscle (cardiac, skeletal, smooth), types of muscle fibres, muscle movement; effects of exercise (short-term, long-term)

Cardiovascular system: structure of the heart (atria, ventricles, pulmonary artery, pulmonary vein, aorta, vena cava, bicuspid, tricuspid valve); blood vessels; function of the heart (blood flow, delivery of oxygen and nutrients, removal of waste products, thermoregulation oxygenated and deoxygenated)

Respiratory system: structure (pharynx, trachea, nose, mouth, ribs, intercostal muscles, lungs, diaphragm, bronchus, bronchiole, alveoli); function (diffusion of oxygen and carbon dioxide); mechanics of breathing (inspiration, expiration)

Effects of exercise on the systems: short-term, immediate effects eg raised heart rate, increased respiration, blood flow; long-term effects of muscle tone, lowered heart rate and blood pressure; improved strength and muscle tone; stamina; weight; cholesterol; digestion

3 Know the importance of lifestyle factors in the maintenance of health and wellbeing

Lifestyle factors: physical activity (recommendations and guidelines, health benefits, psychological benefits); alcohol (recommendations and guidelines, risks associated with excessive drinking eg malnutrition, cancer, stroke, cirrhosis, hypertension, depression, mood swings); smoking (health risks eg coronary heart disease, cancer, lung infections – bronchitis, emphysema); stress and post-traumatic stress disorder (health risks of excessive stress levels eg hypertension, angina, stroke, heart attack, ulcers, depression, colitis); drugs (risks associated, recreational, performance enhancing); diet (benefits of a healthy diet, effects of poor nutrition, recommendations and guidelines, balance of good health); personal hygiene (recommendations and guidelines, risk of infections in the workplace, effect of poor hygiene on others)

4 Be able to provide advice on lifestyle improvement

Strategies: physical activity (ways to increase physical activity levels eg walking, stair climbing, cycling, jogging); alcohol eg seek alternatives, counselling and therapy, detoxification, self help groups, alternative treatment and therapies; smoking eg acupuncture, NHS smoking helpline, NHS stop-smoking services, nicotine replacement therapy; stress management techniques eg assertiveness, goal setting, time management, physical activity, positive self-talk, relaxation, breathing; drugs eg acupuncture, NHS helpline (FRANK), NHS choices; diet eg timing of food intake, eating more or less of certain foods, food preparation; personal hygiene eg cleansing and grooming, recognise the sensitivity, approaching others

5 Be able to plan a health-related physical activity programme in preparation for the public services

Collect information: eg personal goals, lifestyle, medical history, physical activity history, attitudes, motivation

Goal setting: goals (short-, medium- and long-term); targets (specific, measurable, achievable, realistic, time-based – SMART)

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

Appropriate activities: eg walking, cycling, hiking, swimming, jogging, gym (weight and cardiovascular exercises)

Exercise intensity: eg rating of perceived exertion (RPE), maximum heart rate reserve, talk test

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 a fitness assessment for each of the major components of fitness [EP, IE]	M1 explain the results of the fitness assessment and measure against relevant public service entrance test	D1 evaluate results of the fitness assessment, analyse strengths and recommend improvements
P2 describe the structure and function of the muscular-skeletal, cardiovascular and respiratory systems [SM]		
P3 undertake a fitness activity, record and identify the short-term effects of exercise on the major human body systems [CT, EP, IE, RL]	M2 explain the short and long-term effects of exercise on the major human body systems	
P4 describe the lifestyle factors that can affect health [CT, IE, TW]	M3 explain the effects of identified lifestyle factors on health and fitness, when applying for public service and long-term employment	D2 evaluate the effects of identified lifestyle factors on health and fitness, when applying for public service and long-term employment.
P5 provide lifestyle improvement strategies that can have a positive effect on health [CT, EP, IE]	M4 explain lifestyle improvement strategies to justify their positive effect on health.	
P6 plan a six week health-related physical activity programme based on personal results. [CT, EP, IE, RL]		

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

This unit should be practically based, encouraging personal fitness, positive health and lifestyle.

The unit should be introduced with the tutor identifying the components of fitness and requirements of the public services. Learners should gauge their current fitness levels by participating in a selected fitness test.

The theory should be provided through worksheets and aided by learner research on the major human body systems. The structure and function of the muscular-skeletal, cardiovascular and respiratory systems should be identified. Learners should then explore the short-term immediate effects of exercise on the body; this should also be evidenced practically. The tutor should also examine the long-term effects of exercise on the body; this could be implemented into the training programme and identified once carried out.

The tutor should identify different lifestyle factors that affect health. There is a wealth of information available and these areas could be investigated by learners working in groups. These groups should then feed back to the whole class on the information gained. Groups should be briefed on the range of information they need to research. This includes national recommended physical activity guidelines, physical activity levels in the population, benefits of physical activity, recommendations for alcohol consumption, risks of excessive drinking, health risks of smoking, benefits of a healthy diet, health risks of poor nutrition and health risks associated with excessive stress levels.

Learners need to be able to give advice on lifestyle improvement. Tutors should cover a range of lifestyle improvement strategies for increasing physical activity, stopping smoking, reducing alcohol consumption, improving diet and managing stress. Learners should develop their knowledge and skills through practical case studies and activities.

Linked to lifestyle improvement advice is the requirement for learners to plan a health-related physical activity programme. Before planning the programme, tutors should cover the theory behind programme design, including the principles of training, methods of monitoring intensity and suitable activities for a health related programme. The importance of collecting relevant information and of setting SMART goals also needs to be covered. Individual case studies will provide relevant examples to develop skills in planning. Practical activities using pedometers and heart rate monitors can give learners an appreciation of the amount of physical activity required for health benefits and the impact of small lifestyle changes.

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 the unit and assessment requirements.
Components of fitness – theory of components of fitness and requirements of the public services. Practical assessment of the components of fitness and relation to public service tests. Group research and feedback to class.
Explanation, evaluation and recommendations for improvements based on fitness assessment results – paired discussion.
Body systems: learners describe the muscular-skeletal, cardiovascular and respiratory systems – tutor introduces topic. Includes learner initiated private study and worksheet completion on the structure and function.
Practical activities exploring the short-term, immediate effects of exercise on the body – supervised exploration by learners in pairs and feedback to class.
Long-term effects of exercise on the body – tutor facilitates class discussion and small group case studies.
Assignment 1: Fitness, Body Systems and the Effects of Exercise (P1, P2, P3, M1, M2, D1)
Includes learner initiated private study.
Lifestyle factors affecting health. Physical activity recommendations and health benefits, alcohol recommendations, health risks of excessive drinking, health risks of smoking, health risks of excessive stress, healthy eating – group research and feedback to class. Includes learner initiated private study.
Lifestyle factors affecting working in public services – shift patterns, eating habits and links to stress relief. To include guest speakers from a range of public services.
Evaluation of personal lifestyle – individual evaluation of lifestyle including work completed in learners' own time – paired discussion.
Strategies on lifestyle improvement such as increasing physical activities – walking, cycling, jogging etc.
Smoking cessation, stress management techniques, dietary changes and hygiene. Case studies and practical activities – tutor led and facilitation of discussions. Recommendations of how to improve. Group and individual research and feedback to class.
Lifestyle questionnaire design. Group evaluation of questionnaires and self design of questionnaire. Includes individual work.
Role play and case studies – consultation skills.
Planning health-related exercise programmes – tutor-led introduction. Learners plan health-related exercise programme for an individual, case studies. Feedback to class. Includes individual work in own time.
Assignment 2: Lifestyle, Health and Improvement (P4, P5, P6, M3, M4, D2)
Lifestyle factors that have an effect on health and the lifestyle improvement strategies. Includes learner initiated private study.

Assessment

To meet grading criterion P1, learners must participate in a fitness assessment for each of the major components of fitness identified in the unit content. A description of the fitness assessment must address both entry and ongoing requirements, and the requirements of different roles and levels in the public services. M1 builds on P1, requiring learners to explain their results of the fitness assessment and relate them to public service entrance tests. For example the multi-stage fitness test and grip test used in the police force entrance test. Some tests are not covered in the public services, but the measurement of the results still required for the components identified. For D1, learners are required to evaluate their results by comparing their results to norms. They must also analyse strengths and recommend areas for improvement.

For P2, learners must describe the muscular-skeletal, cardiovascular and respiratory systems, as detailed in the unit content. This could be achieved through a combination of diagrams and written evidence.

P3 requires learners to participate safely in a physical activity and identify the short-term effects of exercise on the muscular-skeletal, cardiovascular and respiratory systems. M2 requires learners to explain the short-term effects identified for P3 and also to explain the long-term effects of exercise on the systems.

Grading criteria P4, P5 and P6 lend themselves to being assessed together. P4 requires learners to describe the lifestyle factors that can affect health. Physical activity, smoking, alcohol consumption, drugs, stress and diet must all be covered. Learners need to describe the benefits of physical activity, recommendations for alcohol consumption and the health risks of excessive drinking, high stress levels and an unhealthy diet. Evidence could be from an information booklet, leaflet or report. This criterion is focused on not only being able to enter the relevant uniformed public services but also the need to be fit enough to stay and progress in the uniformed public services. M3 builds on P4 and requires learners to explain the effects of lifestyle factors on health, including those listed in the *Unit content*.

This is further extended by D2, which requires learners to evaluate the effects that these lifestyle factors can have on health and fitness; this evaluation requires learners to make judgements, and should be related to the public services.

For P5, learners need to provide lifestyle improvement strategies based on the lifestyle factors identified in P4. Evidence could be in a written report, observation checklist or a video recording. M4 requires learners to build on information provided for P5 to explain lifestyle improvement strategies to justify a positive effect on health.

For P6, learners need to plan a safe and effective six week health related physical activity programme for themselves. A copy of the programme should be provided as evidence. The principles of training should have been applied and the programme must be suitable for the needs and goals of the learner. It is also important that suitable activities have been selected and a suitable exercise intensity has been prescribed.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the 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, P3, M1, M2, D1	Fitness, Body Systems and the Effects of Exercise	As a fitness instructor, you have been asked to produce an information manual on how to measure current fitness levels and show an awareness of the body systems and effects of exercise in preparation for the public services.	Information booklet, practical observation and record of fitness assessment and short-term effects of exercise. Report on the long-term effects of exercise.
P4, P5, P6, M3, M4, D2	Lifestyle, Health and Improvement	As a fitness instructor for the public services, you have been asked to produce an information booklet highlighting lifestyle factors that affect health and the lifestyle improvement strategies.	Information booklet. Practical assessment and observation of the identification of lifestyle strengths and areas for improvement and providing lifestyle improvement strategies. Written health-related exercise programme.

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

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

Level 1	Level 2	Level 3
Improving Health and Fitness for Entry into the Uniformed Public Services	Improving Health and Fitness for Entry to the Uniformed Public Services	Outdoor and Adventurous Expeditions
Managing your Health at Work	Health and Safety in the Workplace	Practical Team Sports
	The Value of Sport and Recreation in the Public Services	Exercise, Health and Lifestyle
		Instructing Physical Activity and Exercise

Employer engagement and vocational contexts

This unit will give learners the background knowledge and skills needed to work in the exercise and fitness industry or in health promotion. It will also equip learners with the essential knowledge and skills needed to work and live healthily as an employee in the public services. Centres are encouraged to develop links with local public services, health and fitness centres and Primary Care Trusts (PCTs). This could include guest speakers, visits, demonstrations, workshops or visits.

This unit is designed to be vocationally relevant and has links to the Level 3 National Occupational Standards (NOS) for:

- Instructing Physical Activity and Exercise
- Fitness Testing and Training for the Public Services.

Indicative reading for learners

Textbooks

American College of Sports Medicine – *ACSM's Guidelines for Exercise Testing and Prescription, 8th edition* (Lippincott Williams & Wilkins, 2009) ISBN 0781769027/9780781769020

Bird S R, Smith A and James K – *Exercise Benefits and Prescription* (Nelson Thornes, 1998) ISBN 0748733159/9780748733156

Coulson M – *The Fitness Instructor's Handbook, A Complete Guide to Health and Fitness – Fitness Professionals* (A&C Black, 2007) ISBN 0713682256/9780713682250

Franks B D and Howley E T – *Fitness Leader's Handbook* (Human Kinetics Europe, 1998) ISBN 0880116544/9780880116541

Heyward V H – *Advanced Fitness Assessment and Exercise Prescription* (Human Kinetics, 2006) ISBN 0736057323/9780736057325

Howley E T and Franks B D – *Health Fitness Instructor's Handbook* (Human Kinetics Europe, 2003) ISBN 0736042105/9780736042109

Volpe S L, Sabelawski S B and Motir C R – *Fitness Nutrition for Unique Dietary Needs* (Human Kinetics Europe, 2007) ISBN 073604812X/9780736048125

Journals

American College of Sports Medicine's Health & Fitness Journal

British Medical Journal

Heathex Specialist

Jane's Police review

Journal of Sports Medicine and Physical Fitness

Journal of Physical Activity and Health

Websites

Ambulance 999	www.ambulance999.co.uk
Army jobs	www.armyjobs.mod.uk
BBC website – Science and Nature: Human, Body and Mind	www.bbc.co.uk/science/humanbody
British Association of Sport and Exercise Sciences	www.bases.org.uk
British Nutrition Foundation	www.nutrition.org.uk
Department of Health	www.doh.gov.uk
Eat Well – Food Standards Agency	www.eatwell.gov.uk
Fire Service	www.fireservice.co.uk
Food Standards Agency	www.food.gov.uk
HM Prison Service	www.hmprisonservice.gov.uk
Human Kinetics	www.humankinetics.com
Institute of Food Research	www.ifrn.bbsrc.ac.uk
Patient UK	www.patient.co.uk
Police Service information	www.policecouldyou.co.uk
Royal Air Force	www.raf.mod.uk
Royal Navy	www.royal-navy.mod.uk
Topend Sports	www.topendsports.com
World Health Organization	www.who.int

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 ...
Independent enquirers	undertaking fitness assessments for each of the major components carrying out fitness activities, recording and identifying short-term effects describing the lifestyle factors that can affect health providing lifestyle improvement strategies planning a six-week health-related physical activity programme
Creative thinkers	carrying out fitness activities, recording and identifying short-term effects describing the lifestyle factors that can affect health providing lifestyle improvement strategies planning a six-week health-related physical activity programme
Reflective learners	carrying out fitness activities, recording and identifying short-term effects planning a six-week health-related physical activity programme
Team workers	describing the lifestyle factors that can affect health providing lifestyle improvement strategies planning a six-week health-related physical activity programme.
Self-managers	describing the structure and function of the body systems
Effective participators	undertaking fitness assessments for each of the major components carrying out fitness activities, recording and identifying short-term effects providing lifestyle improvement strategies planning a six-week health-related physical activity programme.

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 fitness assessments and major components of fitness researching activities and short-term effects of exercise researching lifestyle factors and effects on health researching lifestyle improvement strategies researching lifestyle questionnaires researching health-related physical activity programmes
Creative thinkers	participating in fitness activities and experimentation and monitoring of short-term effects of exercise practising providing lifestyle improvement strategies practising describing strengths and areas for improvement for lifestyle
Reflective learners	practising carrying out fitness activities and recording and identifying short-term effects of exercise on the body practising planning a six-week health-related physical activity programme by setting goals
Team workers	working with others in practising describing lifestyle factors based on scenario practising providing verbal lifestyle improvement strategies practising using lifestyle improvement in designing a six-week health-related physical activity programme
Self-managers	researching and describing the structure and function of the body systems completing unit assignments.

● 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	<ul style="list-style-type: none"> researching fitness assessments and major components of fitness researching lifestyle factors and effects on health researching lifestyle questionnaires researching health-related physical activity programmes
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	<ul style="list-style-type: none"> researching fitness assessments and major components of fitness researching activities and short-term effects of exercise researching lifestyle factors and effects on health researching lifestyle improvement strategies researching lifestyle questionnaires researching health-related physical activity programmes
Manage information storage to enable efficient retrieval	<ul style="list-style-type: none"> researching fitness assessments and major components of fitness researching activities and short-term effects of exercise researching lifestyle factors and effects on health researching lifestyle improvement strategies researching lifestyle questionnaires researching health-related physical activity programmes
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	<ul style="list-style-type: none"> researching fitness assessments and major components of fitness researching activities and short-term effects of exercise researching lifestyle factors and effects on health researching lifestyle improvement strategies researching lifestyle questionnaires researching health-related physical activity programmes
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	<ul style="list-style-type: none"> researching fitness assessments and major components of fitness researching activities and short-term effects of exercise researching lifestyle factors and effects on health researching lifestyle improvement strategies researching lifestyle questionnaires researching health-related physical activity programmes

Skill	When learners are ...
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 	<p>providing evidence when participating in fitness activities and experimentation and monitoring of short term effects of exercise</p> <p>providing evidence to demonstrate the practicing providing lifestyle improvement strategies</p> <p>providing evidence to justify the practising describing strengths and areas for improvement for lifestyle</p>
Bring together information to suit content and purpose	<p>providing evidence of participating in fitness activities and experimentation and monitoring of short-term effects of exercise</p> <p>providing evidence of producing lifestyle improvement strategies</p> <p>providing evidence of describing strengths and areas for improvement for lifestyle</p>
Present information in ways that are fit for purpose and audience	<p>providing evidence of participating in fitness activities and experimentation and monitoring of short-term effects of exercise</p> <p>providing evidence of producing lifestyle improvement strategies</p> <p>providing evidence of describing strengths and areas for improvement for lifestyle</p>
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	<p>working with others in describing lifestyle factors based on scenario</p> <p>providing verbal lifestyle improvement strategies</p>
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	<p>researching fitness assessments and major components of fitness</p> <p>researching activities and short-term effects of exercise</p> <p>researching lifestyle factors and effects on health</p> <p>researching lifestyle improvement strategies</p> <p>researching lifestyle questionnaires</p> <p>researching health-related physical activity programmes</p>
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	<p>describing lifestyle improvement strategies and in designing a six-week health-related physical activity programme.</p>