



National Unit Specification: general information

UNIT Exercise and Fitness: Free Weight Training (SCQF level 6)

CODE F7JD 12

SUMMARY

This Unit is an optional Unit of the National Progression Award in Exercise and Fitness Leadership, but can also be taken as a free-standing Unit. The Unit is suitable for candidates with some previous experience in exercise and fitness training who wish to undertake regular exercise and fitness training or who wish to pursue a career in the fitness industry.

In this Unit candidates will gain underpinning knowledge of, and develop safe and effective practical skills in free weight resistance training.

On successful completion of this Unit candidates will be able to identify safe and effective free weight resistance exercises, and describe their advantages and disadvantages. Candidates will be able to demonstrate and evaluate both the exercises and their own technical abilities, and should be familiar with personal and facility equipment relating to the selected activities.

This Unit is designed to enhance candidates' interest in exercise and fitness training and aid progression to further study of the subject.

OUTCOMES

- 1 Describe free weight training exercises relating to major muscles.
- 2 Describe basic physiological effects of free weight training on the body.
- 3 State advantages and disadvantages of free weight exercises, and give a rationale for the selection of exercises for a specific client.
- 4 Demonstrate free weight training exercises and evaluate personal performance.

Administrative Information

Superclass: MD

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National Unit Specification: general information (cont)

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RECOMMENDED ENTRY

While access to this Unit is at the discretion of the centre, candidates would find it advantageous to have some competence in exercise and fitness training. This should include warm up and cool down, and general safety approaches for machine based exercise. The following Units would help develop this knowledge:

F40B 11	<i>Contemporary Exercise and Fitness Training Methods: An Introduction</i>
F40E 11	<i>Human Anatomy, Physiology, and Physical Activity</i>
F40J 11	<i>Sports Injuries: Identification, Prevention, and Treatment: An Introduction</i>
D678 11	<i>Exercise and Fitness: Resistance Training</i>
D681 12	<i>Human Physiology in the Development of Performance</i>

CREDIT VALUE

1 credit at SCQF level 6 (6 SCQF credit points at SCQF level 6).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

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

Opportunities for developing aspects of Core Skills are highlighted in Learning and Teaching Approaches for this Unit.

National Unit Specification: statement of standards

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

OUTCOME 1

Describe free weight training exercises relating to major muscles.

Performance Criteria

- (a) Identify major muscles and muscle groups of the body.
- (b) Explain the difference between concentric, eccentric, and isometric muscular contractions in terms of free weight exercises.
- (c) Describe basic joint actions relating to free weight exercises.

OUTCOME 2

Describe basic physiological effects of free weight training on the body.

Performance Criteria

- (a) Describe the physiological effects of endurance training on the muscular and skeletal systems.
- (b) Describe the physiological effects of strength and power training on the muscular system.
- (c) Describe the physiological effects of free weight training on the nervous system.

OUTCOME 3

State advantages and disadvantages of free weight exercises, and give a rationale for the selection of exercises for a specific client.

Performance Criteria

- (a) Advantages and disadvantages of free weight training methods are identified accurately.
- (b) Select exercises which meet the requirements of a specific client.

OUTCOME 4

Demonstrate free weight training exercises and evaluate personal performance.

Performance Criteria

- (a) Demonstrate the selected free weight training exercises effectively.
- (b) Evaluate the selected free weight training exercises demonstrations accurately.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

Evidence that covers all the Outcomes and Performance Criteria is required.

- ◆ For Outcome 1 this should take the form of written and/or oral recorded evidence obtained under controlled, supervised conditions. The assessment should be closed book, restricted response, and should last no more than one hour.
- ◆ For Outcome 2 this should take the form of written and/or oral recorded evidence obtained under controlled, supervised conditions. The assessment may be either:
 - closed book, restricted response, and should last no more than one hour.
 - closed book, case study related to the selected training methods, and should last no more than one hour.
- ◆ For Outcome 3 this should take the form of written and/or oral recorded evidence obtained under controlled, supervised conditions. At least three advantages and disadvantages should be identified. The importance of functional training associated with free weights should be covered. Outcome Performance Criteria 3(b) may be assessed by use of a case study: selected clients should be straightforward with no contra-indications or special requirements.
- ◆ For Outcome 4 this will take the form of performance evidence of practical application. This should be generated on at least two separate occasions to ensure consistency of performance. An assessor checklist should be generated and retained for the sessions assessed. This evidence may be supplemented by video recordings.

For the purposes of this Unit the following minimum evidence and definitions should be considered:

Major muscle groups including (but not confirmed to) rectus abdominus; transverse abdominus; erector spinae; triceps; biceps brachii; deltoids; iliopsoas; gluteals; adductor group; tensor fascia latae; internal and external obliques; quadriceps group; hamstrings group; gastrocnemius; soleus; pectoralis major; latissimus dorsi; trapezius; rhomboids, fibularis, tibialis anterior and posterior.

Joint actions including flexion and extension of knees, hips, elbows and spine; circumduction; inversion, eversion, plantar and dorsi flexion of the ankle; horizontal flexion and extension of the shoulder; adduction; abduction; rotation. (It should be noted that some of these actions occur during cable exercises. For the purpose of this Unit cable exercises are classed free due to their variable movement patterns. Candidates should be familiar with the movements).

A minimum of eight free weight resistance training exercises should be demonstrated on at least two occasions. Exercises should include at least 2 exercises using a barbell, 2 exercises using a cable machine, and 2 using dumbbells.

Health and Safety considerations including: safe lifting and moving of equipment in preparation for exercise, safe breathing; speed of movement; spinal/back safety; awareness of others; awareness of personal limitations.

National Unit Specification: support notes

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This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

For the practical elements of the Unit an appropriate environment is required. There should be access to relevant equipment and facilities, and instruction should allow candidates to work at their own level whilst developing personal competence in line with SCQF level 6. It should be emphasised that the Unit is designed to develop individual technical proficiency in the use of free weights equipment so that candidates can effectively demonstrate safe use. Teaching should cover the use of barbells, dumbbells and cable machines for strength, muscular endurance, and basic power training. It is *not* designed to allow candidates to use non routine practices or adapt techniques.

Since candidates are likely to wish to progress to higher level study and/or a career in the exercise and fitness industry, the Unit also emphasises the importance of good health and safety awareness both in a personal and group context.

Outcome 1: The major muscle groups should be identified and their influence on joint actions for different training methods and exercises explained. This may be done by analysing the different requirements of each exercise in terms of muscle action. The differences between concentric, eccentric and isometric muscle contraction should be covered, including muscle efficiency, and increased likelihood of Delayed Onset Muscle Soreness (DOMS) resulting from eccentric training.

Outcome 2: The following may be considered:

- ◆ Effects of endurance training on the on the muscular system: increased capillary density, mitochondria activity and lactate processing; improved muscular response during submaximal training; improved slow twitch fibre response; improved ability to synthesise Adenosine Triphosphate (ATP); improved body composition; increased basal metabolic rate; improved endurance and oxidative capacity of respiratory muscles.
- ◆ Effects of endurance training on the skeletal system: improved bone density; improved joint stability and competence of connective tissue; increased joint flexibility; decreased risk of osteoporosis.
- ◆ Effects of strength training on the on the muscular system: decreased risk of injury; increased physical capacity; increased intramuscular fuel stores.
- ◆ Effects of power training on the on the muscular system: increased maximal voluntary contraction (MVC); performance gains greater than for strength training; improved fast twitch fibre recruitment; improved balance and co-ordination; improved core stability and resistance to spinal shear forces.
- ◆ Effects of freeweight training on the nervous system: learned patterns of movement result in improved techniques, decreased inhibition of antagonistic muscles: increased motor unit recruitment, increased rate of nervous transmission, increased firing rate of motor units.

National Unit Specification: support notes (cont)

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Outcome 3: Clients should be straightforward without special requirements or complications. It is suggested throughout the course the requirements of a variety of different exercisers are used as case studies. The focus should be on training requirements for a specific activity or event.

- ◆ Advantages of free weight training may include (but are not limited to): effective and time-efficient; versatility; functionality; build whole body strength; easy to use at home; help maximise session effectiveness; develops synergistic muscles; improve balance and coordination; convenient and inexpensive; do not constrain users to specific movements; provide more variation in the range of motion; use natural movement; enable greater variety of power development exercises.
- ◆ Disadvantages of free weight training may include (but are not limited to): difficult and time consuming to learn; may cause confusion; increase injury risks if lifting with wrong form and technique; require a spotter.

Outcome 3(b) may be assessed by use of a case study: selected clients should be straightforward with no contra-indications or special requirements.

Outcome 4: Candidate performance should be in accordance with current best practice, and evaluation should consider technical aspects of exercise technique, posture, and awareness of personal limitations. Where appropriate the candidate may consider recommendations for performance improvement.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

The candidate should be encouraged to record his/her personal experience as well as details of his/her contribution to the design of an exercise and fitness training programme. Emphasis should be given to the correct performance and evaluation of each exercise, and a balanced programme of exercises should be carried out during each practical session.

Underpinning knowledge may be developed by the use of handouts, diagrams, videos and practical demonstration.

Centres should ensure that theoretical input covers the theoretical principles specified in all Outcomes, and that these are continually reinforced during delivery of the practical elements. It is important that candidates are aware of the importance of regular fitness based activity: current American College of Sports Medicine (ACSM) guidelines may be used here.

Candidates should maintain a logbook covering practical activities undertaken. This should include a section for personal evaluation and reflection which will aid in the assessment of Outcome 4(b).

National Unit Specification: support notes (cont)

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OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

The Unit requires some elements of feedback, review and reflection, there may be opportunities to develop both Oral/Written Communication skills and *Problem Solving*.

Throughout the Unit, candidates are required to research and analyse material both individually and in groups. There may be opportunities to use the internet and other information sources, leading to skill development in *Information and Communication Technology (ICT)* and *Communication*.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Centres must be satisfied that the evidence submitted is the work of individual candidates.

- ◆ Outcome 1 this should take the form of written and/or oral recorded evidence obtained under controlled, supervised conditions. The assessment should be closed book, restricted response, and should last no more than one hour.
- ◆ For Outcome 2 this should take the form of written and/or oral recorded evidence obtained under controlled, supervised conditions. The assessment may be either:
 - closed book, restricted response, and should last no more than one hour.
 - closed book, case study related to the selected training methods, and should last no more than 60 minutes.
- ◆ Outcome 3 this should take the form of written and/or oral recorded evidence obtained under controlled, supervised conditions. The importance of functional training associated with free weights should be covered. Outcome 3b may be assessed by use of a case study: selected clients should be straightforward with no contra-indications or special requirements.
- ◆ Outcome 4 this will take the form of performance evidence of practical application. This should be completed on at least two separate occasions to ensure consistency of performance. An assessor checklist should be completed and retained for the sessions assessed. This evidence may be supplemented by video recordings.

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by information and communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements