

Unit D514 Design, agree and adapt a physical activity programme with older adults with a history or high risk of falls

Introduction

In everyday clinical practice, presentation following a fall represents a critical point in the health of an older person. Falls are not accidents but are the symptomatic manifestation of underlying causal factors. Falls, fall related injuries and the fear associated with falling or postural instability have a significant cost to the National Health Service, the individual and their family and carers. Exercise has been shown to have a central role to play in preventing and managing falls. The provision of specific, progressive strength and balance exercises tailored to individual need and delivered by specialist exercise professionals is positioned as a core component of multi-factorial interventions to prevent and manage falls in frailer older people.

Advanced instructors who are responsible for designing, delivering, monitoring and evaluating structured, individualised physical activity programmes for patients/clients with a history or high risk of falls, must have a range of appropriate knowledge and skills that are aligned with current evidence-based, best practice guidelines. These instructors should have established close liaison with falls and fracture and rehabilitation services in their local area and with relevant carers where appropriate with agreement.

This unit is designed to cover the multi-factorial nature of falls prevention and management, including the skills and knowledge required to prescribe safe and effective exercise programmes for this patient/client group. These programmes must be based on relevant information from assessment, diagnosis and treatment/management as well as on a sound understanding of the risk factors and risk stratification involved. There are particular challenges associated with the physical activity management of this client group as they may have movement control, balance and gait problems associated with ageing, inactivity, significant loss of muscle strength and power; visual, vestibular or proprioceptive disorders and neuromuscular/cognitive effects resulting from inappropriate medication. They may also have psychological issues such as fear of falling, loss of confidence, feelings of isolation and dependence. An understanding of the aims of rehabilitation, and the potential effects of therapy led approaches, assessed through relevant outcomes will inform and integrate the physical activity intervention for both clients and professionals involved.

The unit is divided into two parts. The first part (pages 2 and 3) describes the two things you have to do. These are:

D514.1 Design and agree a physical activity programme with patient/client with a history or high risk of falls

D514.2 Deliver, review and adapt a physical activity programme with patient/client with a history or high risk of falls

The second part (pages 4 – 7) covers the unit specific knowledge and understanding you must have.

Target Group

This unit is for advanced fitness instructors who plan, conduct and review programmes to address the needs of patients/clients with a history or high risk of falls. They will normally be working without direct supervision.

Linked Units

This unit is one of a suite of Level 4 national occupational standards and should only be attempted on completion of the core Level 3 physical activity and exercise units.

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D514.1

Design and agree a physical activity programme with patients/clients with a history or high risk of falls

The National Standard

What you must do

To meet the national standard, you must:

1. establish an effective working relationship with the patient/client, relevant carers and appropriate health care professionals
2. collect, record and interpret **information** about your patients/clients with a history of falls or fracture or high risk of falls using safe and appropriate risk assessment **methods**
3. stratify and manage the patient/client according to current risk assessment and management guidelines and protocols
4. follow the correct procedures and protocols for working with health care professionals, including those for confidentiality
5. establish and agree the patient/client's readiness to participate and identify barriers to habitual physical activity
6. plan and agree goals that are appropriate to your patient/client's risk stratification and their current level of ability
7. plan and prepare objectives, activities and delivery methods that are appropriate to your patient/clients' risk stratification goals and condition
8. design and agree a programme adapted to your patient/clients using relevant principles of training

What you must cover

This element covers the following:

a information

- 1 personal goals
- 2 referral form
- 3 informed consent to transfer medical information/participate
- 4 medical and falls history and medication
- 5 functional capacity
- 6 assessment of risk during exercise
- 7 current and previous physical activity history and preferences
- 8 social and psychological considerations

and the following:

b methods

- 1 reports
- 2 interview
- 3 questionnaires
- 4 observations
- 5 functional and psychological assessments
- 6 risk assessment and management

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D514.2

Deliver, review and adapt a physical activity programme with patient/clients with a history or high risk of falls

The National Standard

What you must do

To meet the national standard, you must:

1. assess progress, monitor and manage risk to patient/clients throughout the programme
2. manage medical complications and emergencies until appropriate medical help is available
3. deliver planned activities to your patient/clients with a history or high risk of falls, adapting and tailoring activities according to individual risk stratification, needs, abilities and any assistance required
4. communicate and consult with patient/clients on issues to do with their physical activity programme and progress
5. provide appropriate attention to patient/clients with common co-morbidities
6. support patient/clients in a way which will promote sustained change in physical activity levels, including recommendation/referral to appropriate exit routes and involving relevant carers where appropriate with agreement
7. enable patient/clients in self-management, involving carers where appropriate and with agreement
8. monitor patient/clients progress against agreed goals, adapt the programme accordingly and where appropriate, refer on to other health or exercise settings
9. provide ongoing reports to communicate outcomes to the appropriate health care professional

What you must cover

You must meet the standard opposite.

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What you must know and understand

To be competent in this unit, you must know and understand the following:

- K1 Government policy and published national guidelines for falls prevention and management.
- K2 Awareness of national agencies, organisations and literature relating to falls and fracture prevention and management and the adaptations for exercise for older adults.
- K3 Relevant medico-legal requirements.
- K4 How to interact appropriately with general practitioners, other health care professionals, personnel and relevant carers, where appropriate with agreement, involved in the process of falls prevention and management.
- K5 Ensure patient/client information and consent, meeting recommended guidelines, is received prior to advising, prescribing or instructing exercise.
- K6 The protocol to follow when dealing with patients/clients who have been transferred from a range of health settings and those who are self-referred.
- K7 Understand the importance of an agreed link with a named health professional(s) from the secondary and/or primary care setting and relevant carer(s).
- K8 Barriers to communication with referred patients/clients and the communication skills needed to overcome these, including relevant carers with agreement.
- K9 How to identify when to refer to other physical activity or health care professionals patient/clients whose relevant health risk factors fall outside the areas for which you are competent.
- K10 Ethical considerations involved in falls prevention and management, including respecting inter-professional boundaries and patient/client confidentiality.
- K11 Methods of information collection and interpretation, appropriate storage of confidential records and management processes encountered in running falls prevention and management exercise sessions.
- K12 Current relevant structures of the National Health Service, the names and functions of different relevant medical organisations and service providers.
- K13 Prevalence and consequences of falls and falls related injury.
- K14 Risk factors for falls and fractures.
- K15 How physical activity may influence the other risk factors.
- K16 Anatomy and physiology of the neurological, musculoskeletal, cardiovascular, pulmonary and endocrine systems.
- K17 Causes, presentation, assessment of treatment/intervention of the following:
 - General medical examination to exclude unrecognised illness which may explain fall (e.g.

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stroke, myocardial infarction, anaemia, thyroid disease etc)

- Cognition
- Postural blood pressure assessment
- Cardiovascular examination, ECG and other relevant tests
- Neurological examination
- Gait and balance assessment
- Locomotors system examination
- Visual assessment

K18 Investigations for patients who fall

- Mini-mental state questionnaire
- Confidence in balance questionnaire
- Blood tests
- Resting and standing BP
- Get up and go test (timed or untimed); 1800 turn, functional reach
- Muscle weakness; asymmetry; joint problems in lower limbs and feet
- Snellen vision chart; visual acuity e.g. depth perception
- Specialised investigations for falls (e.g. ECG and where appropriate, echocardiography and HOLTER monitoring and for falls associated with syncope, tilt table testing and carotid sinus massage etc)

K19 Interventions for falls prevention and management:

- Multi-factorial versus single interventions
- Targeted
- Individual versus population approaches

K20 The range of medication/co-morbidities and their exercise considerations.

K21 Components of falls management within the clinical setting (Phases 1-3).

K22 Stratifying and managing an individual's falls and fracture risk, risk during the exercise session and the risk as a result of future disease progression using the appropriate tools validated in a range of settings (e.g. community/nursing home).

K23 Acute responses and chronic adaptations to aerobic endurance, balance and strength training and the implications for individual cardiovascular, pulmonary, articular, neuromuscular or metabolic diseases.

K24 Beneficial effects of physical activity/exercises on the prevention and management of falls.

K25 Contra-indications to exercise which need to be taken into account for the patient a history or high risk of falls.

K26 Initial assessment including appropriate assessment of exercise level using recognised functional, submaximal assessment.

K27 On going screening process prior to each exercise session.

K28 How to set up and manage a safe physical activity environment relevant for a

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patient/client with a history or high risk of falls.

K29 Both group and individual exercise programming principles for patient/client with a history or high risk of falls, following guidelines.

K30 Monitoring intensity methods e.g. perceived exertion and degree of balance support.

K31 Exercise considerations for patient/client with, for example

- Parkinson's Disease
- Cerebrovascular Disease e.g. Stroke
- Dementia
- Osteoporosis
- Osteo/rheumatoid arthritis
- Ischemic Heart Disease
- Peripheral Vascular Disease
- Chronic Obstructive Pulmonary Disease (COPD)
- Peripheral neuropathy (Diabetic)
- Visual/proprioceptive/vestibular disorders
- Visual Impairment (cataracts, glaucoma, macular degeneration etc)
- Auditory impairment

K32 How to determine and adapt appropriate progressive physical activity programmes appropriate to falls management and medical condition(s) using results from the physical / exercise assessments, medical information, national guidelines, consultation and patient/client aims.

K33 The motivational processes, models and techniques involved in behavioural change for the referred patient/client to encourage long term beneficial lifestyle changes.

K34 Mental health and mental health promotion in a population with a history or high risk of falls.

K35 How to communicate and consult effectively with the referred patient/client about their programme and progress.

K36 How to manage medical complications until appropriate medical help is available e.g. postural hypotension, hypoglycaemic event.

K37 How to manage emergencies until appropriate medical help is available e.g. a fall or fall-related injury.

K38 The management, evaluation and reporting of information, in verbal and written formats.

K39 How to use and adapt a system for monitoring and recording the patient/clients progress and updating their physical activity programme.

K40 How to evaluate the effectiveness of a falls exercise service (i.e. community-based/ 'Phase IV').

D467 Adapt a physical activity programme to the needs of older adults

Introduction

Summary

Physical activity and physical fitness can make a major contribution to the continued health and functional capacity of people aged 50 and over. Increased, regular physical activity improves physical fitness despite the physical decline associated with ageing. It also helps to preserve functional capacity and improve quality of life which will become increasingly important with advanced age. It is crucial that instructors who work with this age group understand the ageing process and its implications for practice in order to meet the higher duty of care. Instructors need to be able to apply this knowledge when conducting pre-participation screening, and developing, adapting and implementing appropriate physical activity programmes to meet the diverse needs of older adults. Highly competent communication skills are also important. This unit, however, only covers working with apparently healthy (i.e. asymptomatic) older adults or those with medical conditions carrying a low risk of adverse, exercise-related events.

The document is divided into two parts. The first part describes what you have to do. This is:

D467.1 Adapt a physical activity programme to the needs of older adults

The second part covers the specific knowledge and understanding you must have.

Target Group

This standard is for fitness instructors/personal trainers who plan, conduct and review programmes to address the needs of older adults. They will normally be working without direct supervision.

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D467.1

Adapt a physical activity programme to the needs of older adults

The National Standard

What you must do

To meet the national standard, you must:

- 1 Establish and maintain effective communication and rapport with older adults
- 2 Conduct pre-exercise screening with the older adult (using internationally recommended tools including the PARQ-R or the AHA/ACSM Health/Fitness Facility Pre-Participation Screening Questionnaire)
- 3 Collect, record and interpret **information** about older adults using safe and appropriate **methods**
- 4 Using collected information decide whether the older adult should be referred to an appropriate health care professional before involving them in physical activity
- 5 Establish the older adult's consent to a) participate in additional assessment of functional ability to enable more effective adaptation of exercise(s) to individual need and b) in the adapted physical activity session
- 6 Plan and agree short and long-term **goals** that are appropriate to older adults and their current level of health, fitness and physical activity levels
- 7 Plan and prepare objectives, activities, formats and teaching techniques that are appropriate to the personal **goals**, interests, preferences and levels of physical ability characteristic of older adults.
- 8 Adapt the session structure, content and the

What you must cover

This element covers the following:

a information

- 1 personal goals
- 2 medical history and medication
- 3 functional capacity (i.e. markers that may indicate certain exercises, types or intensities of physical activity are contraindicated)
- 4 current activity levels
- 5 baseline strength and power
- 6 balance and postural stability (dynamic)
- 7 auditory, visual and other sensory function (i.e. use of hearing aid, glasses, foot orthotics)
- 8 real and perceived barriers to physical activity
- 9 exercise preferences and economic status (as appropriate)
- 10 peer/ family support

b methods

- 1 interview
- 2 questionnaire
- 3 adapted fitness assessments
- 4 observation and recording

c goals

- 1 physical/functional
- 2 psychological
- 3 social
- 4 lifestyle
- 5 adherence

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overall programme to meet the needs of older adults (including the adaptation or exclusion of contraindicated exercise)

- 9 Maintain the older adult's' motivation using safe and appropriate techniques
- 10 Observe and monitor performance on a sessional basis, progress against agreed goals and adjust the programme accordingly
- 11 Re-assess, monitor and manage risk to older adults effectively throughout the programme
- 12 Provide opportunities to socialise, allow extra time for individual discussion, follow up absences and, where appropriate, facilitate additional support (e.g. telephone contact, peer mentoring support etc)
- 13 Provide information about exercise and health related matters specific to older adults e.g. bone health throughout the lifespan; healthy ageing, peer mentor opportunities etc)

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What you must know and understand

K1 Anatomy and physiology including:

- The coronary circulation
- The effect of disease processes on the structure and function of blood vessels
- The short and long term effects of exercise on blood pressure, including the valsalva effect
- Blood pressure classifications and associated health risks
- Joints/joint structure with regard to range of motion/movement and injury risk
- Delayed onset of muscle soreness (DOMS) and its likely causes
- Joint movement potential and joint actions
- The endocrine system and its relationship to exercise
- The nervous system and its relationship to exercise
- Neuromuscular adaptations to exercise resulting in improved performance (endurance/aerobic, strength/anaerobic and motor skills training adaptations)

K2 Overview of ageing and physical activity

- demographic aspects (for example, gender, culture and ethnicity)
- definitions – theories of ageing, chronological, biological, functional, successful, pathological
- the benefits of physical activity throughout the lifespan for disease prevention, health promotion, preservation of function and quality of life
- current research on physical activity, exercise inactivity and ageing

K3 Age associated physiological and biomechanical changes and their implications for the older adult's ability to perform physical activity with optimal benefits and minimum risk (e.g. of a trip, fall, injury or a cardiac event) including:

- Skeletal system changes associated with ageing :
 - decreased bone mineral content and increased fracture risk
 - long-term stress on joints
 - decreased availability of synovial fluid/calcification of cartilage
 - reduced joint stability and range of movement
 - thinned intervertebral discs
 - associated postural and postural stability problems
- Muscular system changes associated with ageing:
 - reduced motor function (reduced motor unit size and loss of fine control)
 - decreased size and number of muscle fibres
 - fewer fast twitch fibres
 - reduced concentration of protein
 - reduced size and number of mitochondria
 - reduced capillarity
 - increased connective tissue
 - reduced elasticity in ligaments and tendons
 - reduced strength and power
- Respiratory system changes associated with ageing :
 - decreased elasticity of the lungs
 - reduced flexibility in the thoracic cage
 - reduced vital capacity

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- poor posture leading to reduced lung capacity
- Cardiovascular system changes associated with ageing :
 - decreased cardiac muscle and heart volume
 - decreased maximal heart rate
 - reduced efficiency of the circulatory system
 - increased blood pressure
 - reduced capillary network
 - reduced amount of oxygen in the blood/delivered to cells
 - reduced oxygen exchange in muscle
 - reduced tolerance to fatigue and acidity
 - reduced maximal oxygen uptake
 - slower recovery rate
- Nervous system changes associated with ageing :
 - decreased number of nerves
 - decreased speed of transmission
 - decreased speed of central processing
 - decreased mass and strength in eye muscles
 - decreased elasticity in eye
 - decreased hydration of eye
 - increased eye infections
 - decreased vestibular and proprioception
 - reduced motor learning and control

K4 Psychological and socio-cultural aspects of physical activity and ageing:

- Considerations when establishing and developing an effective working relationship with older clients:
- The particular health and functional benefits of habitual physical activity and exercise for old age (prevention of falls, osteoporosis joint stiffness, minimises muscle loss, isolation maintenance of independence and role in peer mentoring etc)
- The barriers (e.g. attitudes, beliefs ,anxieties, myths, opinions formed by past experiences, cultural restrictions, etc) that older clients may have to physical activity and how to take account of these
- The relationship between habitual physical activity and psychosocial well-being

K5 Pre-exercise screening assessment and goal setting:

- The added importance of pre-exercise screening older adults prior to participation and the legal and ethical role and responsibilities pre-exercise screening places on the instructor
- The types of information to collect when screening older adults and how to interpret this information in a way that will enable you to decide whether to proceed with a physical activity programme or, whether, in the first instance, to refer the older adult to a health care professional, to acknowledge their suitability to participate
- The types of information you should provide to the health care professional if you need their acknowledgement of the older persons suitability to participate in a physical activity programme
- The types of assessments and observations that are suitable when evaluating older clients' readiness (i.e. suitability and willingness) to participate

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- How to respond to the common physical and psychological barriers to physical activity that older people may face and how to respond to these in a way that will motivate and involve older clients
- The specific types of physical, psychological and social goals older clients may have

K6 An awareness of the medical conditions common in old age that impact on safety during physical activity and exercise including:

- Vascular disease
- Ischaemic heart disease
- Peripheral vascular disease
- Cerebrovascular disease (stroke)
- Hypertension
- Arrhythmias
- Heart failure
- Respiratory disease
- Asthma
- Chronic obstructive pulmonary disease
- Brain disease
- Parkinsonism and Parkinson's disease
- Depression
- Dementia
- Musculoskeletal disorders
- Osteoarthritis
- Rheumatoid arthritis
- Endocrine and metabolic disorders
- Diabetes (Type 2)
- Osteoporosis
- Sensory system abnormalities and nervous system integration (cataracts, glaucoma, senile macular degeneration, Menieres disease)

K7 Programme design and management for healthy older adults

- The variables (frequency, intensity, time, type and principles of training, progression/regression, functional relevance, challenge) of exercise applied to older adults in both individual and group settings
- The guidelines to consider when analysing and adapting movement and selecting the warm-up, strength/power, dynamic balance, flexibility and aerobic, training components of a programme for older clients
- Systematic approaches to motivational, environmental and other factors that may assist

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older clients to uptake and adhere to physical activity

- The integration of supervised step by step functional (life-related) movement patterns and activities into all sessions (e.g. correct lifting technique; getting up and down from the floor in and out of chairs etc)
- Methods for client reassessment and programme evaluation

K8 Further considerations for programme design for older adults with medical conditions carrying a low risk of exercise-related events:

- The appropriate adaptations to the structure and content of sessions required for participants with medical conditions commonly associated with old age which may be adversely affected by physical activity
- The types of physical (functional) limitations associated with ageing that may lead to injury and will need specific adaptation for exercise
- How to use pre-participation assessments to risk stratify (i.e. asymptomatic or low risk etc) and manage the risks associated with any conditions and limitations during physical activity

K9 The importance of proper nutrition, hydration and fluid replacement, particularly when participating in physical activity

K10 Teaching and instructing skills

- Developing and refining the teaching skills through application of motor learning principles (for example, visual and verbal instruction, observation, movement analysis and specific adaptation and communication skills through tutor led, peer evaluated teaching and technique practice workshops)
- Monitoring and adaptation of exercise variables
- Observation and correction of poor exercise technique
- Development of safe, effective, enjoyable and elder-friendly exercise and physical activity environments (e.g. use of equipment, music, transport where applicable)
- Development of planning and group organisational and motivational skills (e.g. lesson plans, pre session rest and individual preparation time and post session tea and socialise/ recovery time)
- Formative self evaluation (e.g. of teaching effectiveness, communication skills)
- Development of communication strategies; listening and response skills; functional client-centred goal setting and progress review

K11 Communication, marketing strategies and skills

- Development of effective motivational communication strategies relating to individual and group dynamics in a range of settings associated with the delivery of exercise for older participants (e.g. sheltered housing, residential homes, community centres, leisure and recreation facilities and health and fitness clubs).
- Translation of technical terminology into client friendly language and of intimidating equipment into accessible modalities (e.g. resistance bands rather than dumbbells in the first instance in care settings)
- Incorporating leadership/games skills into personal training and group physical activity sessions to enhance professional skill mix and effectiveness with a wider range of older clients as well as increase client enjoyment and satisfaction
- Development of social support strategies to enable long-term participation (e.g. buddy system, home based exercise options, peer mentor support training, telephone support to

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maintain links with and access to the 'mainstream' seniors' fitness session)

- Listening skills and addressing participants feedback
- Development of effective age-friendly marketing strategies , images, messages and events calendar

K12 Client safety and first aid

- Signs that indicate that exercise should be discontinued immediately and/or medical consultation sought
- Extension of the standard appropriate response to emergency situation (for example, accompany home; telephone follow up and support; reassurance for other participants; establishment of a specific emergency action plan with and for, the senior exercise group)
- Identification of a safer and older adult friendly exercise environment (for example, accessibility/transport, floor surfaces, footwear, lighting, access to toilet facilities and drinking water, temperature control and safe, comfortable refreshment facilities