



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **SISFFIT526A Deliver prescribed exercise to clients with musculoskeletal conditions**

**Release: 2**

## **SISFFIT526A Deliver prescribed exercise to clients with musculoskeletal conditions**

### **Modification History**

Not Applicable

### **Unit Descriptor**

This unit describes the performance outcomes, skills and knowledge to deliver prescribed exercise programs to stable clients with musculoskeletal conditions, in collaboration with medical or allied health professionals.

### **Application of the Unit**

This unit applies to specialised exercise trainers, whose clients have been provided an exercise prescription from an accredited exercise physiologist or relevant medical or allied health professional.

The specialised exercise trainer applies the understanding and skills to deliver the program and modify the program in terms of frequency, mode, intensity and volume to accommodate the progression of the client within the parameters prescribed by the accredited exercise physiologist or relevant medical or allied health professional.

They apply self directed application of knowledge and skills related to musculoskeletal conditions, and exercise judgment in delivering the prescribed exercise. The specialised exercise trainer demonstrates the ability to analyse the clients responses to exercise and where appropriate consult with the accredited exercise physiologist or relevant medical or allied health professional.

### **Licensing/Regulatory Information**

No licensing, regulatory or certification requirements apply to this unit at the time of endorsement.

### **Pre-Requisites**

Nil

### **Employability Skills Information**

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

### Elements and Performance Criteria

#### ELEMENT

#### PERFORMANCE CRITERIA

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

1. Consult with referred clients presenting with stable musculoskeletal considerations.

- 1.1. Receive exercise referral from an accredited exercise physiologist or relevant ***medical or allied health professional***.
- 1.2. Confirm exercise referral has sufficient detail to allow flexibility for modifications to accommodate progression of the ***client***.
- 1.3. Become familiar with typical adverse signs and symptoms that may arise during exercise for this pathology.
- 1.4. Discuss with the client their complete exercise history and their ***musculoskeletal condition*** and record relevant information according to ***relevant legislation*** and ***organisational policies and procedures***.
- 1.5. Explain the physiology of musculoskeletal considerations and associated ***risk factors*** to the client in simple terms and confirm client understanding.
- 1.6. Explain to the client the causes and consequences of specific musculoskeletal conditions in the context of their effect on exercise capacity and conditions.
- 1.7. Explain to the client the role of physical activity in managing musculoskeletal conditions and enhancing health.

2. Deliver prescribed exercise programs.

- 2.1. Undertake appropriate ***fitness assessments*** as required.
- 2.2. Work with ***medical or allied health professional*** to deliver an exercise plan in accordance with recognised exercise recommendations, fitness test results, client limitations, and potential interactions of medications.
- 2.3. Explain to the client the role of ***muscular conditioning***, and the reasons for their inclusion as part of the client's exercise prescription.
- 2.4. Explain to the client the exercise variables to be

**ELEMENT****PERFORMANCE CRITERIA**

- delivered in the context of managing their specific musculoskeletal conditions.
- 2.5. Apply *instructional techniques* to ensure safe and appropriate application of the *exercise program* by the client.
- 2.6. Demonstrate the safe and appropriate use of selected *exercise equipment* and report or address any unsafe equipment according to organisational policies and procedures.
3. Monitor and review clients responses to the prescribed exercise program
- 3.1. Monitor perceived exercise intensity and make adjustment as required.
- 3.2. Assess the client's performance and explain and correct any unsafe exercise procedures.
- 3.3. *Monitor client responses* for any typical signs and *symptoms requiring intervention* that may occur during exercise.
- 3.4. Recognise *signs of an unstable condition* and refer the client back to an appropriate *medical or allied health professional*.
- 3.5. Report outcomes to referral source as well as client.
- 3.6. Discuss the information obtained through observation of the client's static and dynamic *posture* with the referring accredited exercise physiologist, or relevant medical or allied health professional to deliver an exercise program to reduce the progression of *postural variances* and to minimise the risk of injury during fitness activities.
4. Apply extensive knowledge of musculoskeletal anatomy and physiology to the delivery of exercise for moderate risk clients.
- 4.1. Identify major bones, joints and their related connective tissue structures, and the major muscles acting on these joints when delivering exercise programs for clients.
- 4.2. Identify and describe to clients the *functional anatomy of the major joints* when delivering rehabilitation exercise programs for clients with musculoskeletal conditions.
- 4.3. Apply knowledge of the structure and function of the *musculoskeletal system* and basic biomechanics to posture, functional stability and locomotion when delivering exercise programs for *moderate risk clients*.
- 4.4. Apply an understanding of the fundamental structural and functional differences affecting the mobility and stability of the pectoral girdle, pelvic girdle and vertebral column when undertaking screening and programming for clients with postural

**ELEMENT****PERFORMANCE CRITERIA**

- concerns.
- 4.5. Apply the structural adaptations of musculoskeletal tissue in response to exercise, mechanical stress and disease to exercise programming for moderate risk clients.
  - 4.6. Explain to clients the process of bone remodelling and muscle tissue repair in response to injury when dealing with musculoskeletal conditions.
  - 4.7. Describe the effects of ageing and inactivity on musculoskeletal tissue and apply to exercise delivery to clients.
  - 4.8. Apply the effect of individual structural differences on exercise performance to the delivery of exercise programs for moderate risk clients.

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

- communication skills to elicit and convey information to clients with musculoskeletal conditions to enable the delivery and modification of appropriate and effective exercise prescription
- problem-solving skills to;
  - identify adverse signs and symptoms requiring intervention and
  - unsafe exercise performance
  - recommend appropriate changes in consultation with an appropriate medical or allied health professional
- team work skills to work collaboratively with medical or allied health professionals according to legal and ethical considerations
- analytical skills to interpret information on the health and functional status of clients with musculoskeletal conditions in terms of their medical conditions, risk factors, medical treatments and exercise history
- decision making skills to determine appropriate instructional techniques
- literacy skills to accurately document and report on client progress.

### Required knowledge

- anatomy of the musculoskeletal system and its supporting systems
- function of the musculoskeletal systems to enable design of appropriate programs
- the pathology of musculoskeletal conditions and considerations in relation to the conditions of the client
- directional and movement terminology to enable effective communication with medical or allied health professionals
- range of motion and stretching techniques to enable the inclusion of exercise variables to suit client's functional capacity
- structural and physiological changes consistent with the pathology of disease states or conditions affecting the musculoskeletal system
- risk factors and contraindications associated with musculoskeletal conditions to enable the provision, monitoring and adjustment of safe and effective exercise
- effect of musculoskeletal conditions on the acute response to exercise to enable assessment of the individual's functional capacity when developing exercises
- categories of medications used to manage musculoskeletal conditions such as nonsteroidal anti-inflammatory drugs (NSAIDs) and their effects on the condition
- medical and anatomical terminology to interpret referrals from medical or allied health professionals
- relevant legislation and organisational policies and procedures to maintain the safety of clients and the confidentiality of client information
- causes and consequences of specific musculoskeletal considerations in the context of their effect on exercise capacity

- principles of biomechanics to enable the application of appropriate exercise techniques for specific fitness activities
- the role of physical activity in managing musculoskeletal conditions and enhancing health
- use, care and maintenance of facility equipment to maintain safety of clients and other facility users.

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

### Overview of assessment

#### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- communicates effectively with accredited exercise physiologist or relevant medical or allied health professional regarding health and functional status of the referred client
- effective communication skills to discuss aspects of exercise prescription with clients
- when appropriate, react to adverse events to deal with exercise program problems and issues
- ability to correctly interpret the exercise prescription and make modifications consistent with prescribed parameters and scope of practice
- safely and effectively delivers exercise for referred clients with musculoskeletal conditions and recommends appropriate alterations according to client's physical and motivational responses
- monitors and maintains the safety of clients, exercise equipment and the exercise setting and applies effective contingency management techniques to deal with problems and issues that may arise during the exercise program
- applies all relevant legal and ethical requirements when discussing and recording client information
- demonstrates appropriate manner, empathy and patience when working with clients

#### Context of and specific resources for assessment

Assessment must ensure demonstration of skills over a period of time within a facility where a variety of exercise modes and equipment are available to support effective musculoskeletal exercise.

Assessment must also ensure access to:

- facility where a variety of exercise modes and equipment are available, such as exercise machines, weight machines, exercise mats and adequate floor space
- a range of clients with real or simulated musculoskeletal conditions from a range of ages
- a range of real or simulated medical or allied health professionals referrals for a range of clients with



musculoskeletal conditions and risk factors

- demonstration of skills on sufficient occasions to determine competence in interpreting relevant information and delivering the prescribed exercise program for a range of clients with a range of musculoskeletal conditions
- relevant documentation such as client record forms.

## **Method of assessment**

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- observation of consulting with clients and adjusting standard exercise prescriptions in consultation with an appropriate medical or allied health professional, to account for a range of musculoskeletal conditions and risk factors to focus on functional capacity and health rather than physical fitness
- observation of dealing effectively with a range of contingencies such as real or simulated client injuries or inability to complete the exercise prescription
- oral and or written questioning to assess knowledge of the physiology of musculoskeletal conditions, medications and associated risk factors
- third-party reports from a supervisor detailing work performance.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- SISFFIT523A Deliver prescribed exercise to clients with cardiorespiratory conditions

## Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Medical or allied health professional*** may include:

- sports physician
- sports doctor
- general practitioner
- physiotherapist
- accredited exercise physiologist
- occupational therapist
- remedial massage therapist
- chiropractor
- osteopath
- accredited practising dietician
- psychologist
- aboriginal health worker
- diabetes educator.

***Client*** may include:

- aged
- sedentary
- overweight
- presenting with additional medical or psychological conditions (including trauma)
- athletes.

***Relevant legislation*** may include:

- Occupational Health and Safety
- duty of care
- privacy
- codes of practice
- fair trading.

***Organisational policies and procedures*** may include:

- Occupational Health and Safety
- emergency procedures
- risk management
- use of client record systems
- collection and use of client information
- equipment use and maintenance
- client supervision
- incident reporting
- client screening procedures
- client referral procedures.

- Risk factors*** may include:
- family history
  - obesity
  - joint trauma and injury
  - menopause in females
  - repetitive occupational use
  - physical inactivity
  - eating disorders
  - low body weight and calcium intake
  - smoking.
- Fitness assessment*** may include:
- cardiovascular response to exercise
  - range of movement
  - strength
  - girth measurements.
  - posture.
- Muscular conditioning*** may include:
- muscular strength
  - muscular power
  - muscular endurance.
- Instructional techniques*** may include:
- establishing rapport
  - instructional position
  - demonstration and motivational strategies
  - positive feedback.
- Exercise program*** may include:
- exercise selection, sequence and variety
  - logical progression
  - warm-up and cool-down
  - stretching.
- Exercise equipment*** may include:
- cardiovascular equipment
  - resistance training machines:
  - hydraulic machines
  - aquatic equipment
  - resistance bands
  - free weights.
- Monitor client responses*** may include:
- rating of perceived exertion (RPE)
  - heart rate measures
  - 'talk test'
  - possible fluctuations in blood glucose levels and dehydration.
- Symptoms requiring interjection*** may include:
- shortness of breath at rest or with mild exertion
  - dizziness or syncope
  - orthopnea or paroxysmal nocturnal dyspnea
  - palpitations or tachycardia
  - intermittent claudication

- unusual fatigue or shortness of breath with usual activities
- illness or sickness
- lack of functional strength
- neck soreness or strain
- pain on movement of any body part.

***Procedures to respond to symptoms requiring interjection*** include:

- cessation and modification of activity
- first aid
- emergency medical assistance
- referral.

***Signs of unstable condition*** may include:

- fatigue and weakness
- cardiac pain
- breathlessness
- oedema
- palpitations
- claudication pain
- dizziness.

***Posture*** may include:

- static
- dynamic
- standing
- sitting
- supine
- specific observations of standing posture:
  - head and neck
  - thoracic spine
  - rib cage
  - shoulder position
  - scapula position
  - elbow position
  - lumbar spine
  - pelvis
  - abdominals
  - femur
  - knee
  - patella
  - foot position.

***Postural variances*** may include:

- structural
- functional
- kyphosis
- rounded shoulders
- winging of scapula
- scoliosis
- increased lordosis
- decreased lordosis
- excessive posterior pelvic tilt
- excessive anterior pelvic tilt
- genu varum

- genu valgum
- increased pronation of foot and or ankle complex
- increased supination of foot and or ankle complex
- hyperextension of knees
- lateral tilt of pelvis
- lateral tilt of head.

***Functional anatomy of the joints***

may include:

- glenohumeral
- bones:
  - humerus
  - scapula
  - clavicle
- ligaments:
  - coracohumeral
  - corococlavicular
  - glenohumeral
  - transverse humeral
- related structures:
  - subscapular bursa
  - subacromial bursa
  - subdeltoid bursa
  - subcorocoid bursa
  - muscles acting on the joint
- elbow
- bones:
  - humerus
  - ulna
  - radius
- ligaments:
  - ulnar collateral
  - radial collateral
- related structures:
  - olecranon bursa
- muscles acting on the joint
- lumbo-sacral:
  - bones
  - 5th lumbar vertebrae
  - 1st vertebrae of sacrum
  - ligaments
  - muscles acting on the joint
- intervertebral:
  - bones
  - vertebral bodies:
    - ligaments
- muscles acting on the joint
- hip (coxal)
- bones:

- femur
- hip:
- ligaments:
  - pubofemoral
  - iliofemoral
  - ischiofemoral
  - *transverse ligament of acetabulum*
  - *ligament of head of femur*
- muscles acting on the joint
- knee (tibiofemoral and or patellofemoral)
- bones:
  - tibia
  - femur
  - patella
- ligaments:
  - patella
  - oblique popliteal
  - arcuate popliteal
  - tibial collateral
  - fibular collateral
  - posterior cruciate
- related structures:
  - tendons of the quadriceps femoris and fascia latae
  - medial meniscus
  - lateral meniscus
  - prepatellar bursa
  - intrapatellar bursa
  - suprapatellar bursa
- muscles acting on the joint
- ankle (talocrural):
  - bones:
    - talus
    - tibia
    - fibula
  - ligaments:
    - deltoid
    - anterior talofibial
    - posterior talofibial
    - calcaneofibular



- related structures:
  - achilles tendon
- muscles acting on the joint

**Major joints** may include:

- intervertebral
- glenohumeral
- elbow
- radiocarpal
- sacroiliac
- hip (coxal)
- tibiofemoral
- patello-femoral
- ankle.

**Joint movement** may include:

- flexion
- extension
- dorsiflexion
- plantar flexion
- horizontal flexion
- horizontal extension
- abduction
- adduction
- circumduction
- rotation
- supination
- pronation
- inversion
- eversion
- protraction
- retraction
- elevation
- depression.

**Muscles** may include:

- erector spinae
- trapezius
- rectus abdominis
- internal obliques
- external obliques
- multifidus
- quadratus lumborum
- iliopsoas
- latissimus dorsi
- rhomboid major
- rhomboid minor
- pectoralis major
- pectoralis minor
- serratus anterior
- levator scapulae

- teres major
- teres minor
- subscapularis
- supraspinatus
- infraspinatus
- gluteus maximus
- gluteus medius
- gluteus minimus
- pelvic floor
- iliotibial tract
- tensor fascia latae
- piriformis
- rectus femoris
- vastus lateralis
- vastus medialis
- vastus intermedius
- sartorius
- biceps femoris
- semitendinosus
- semimembranosus
- gastrocnemius
- soleus
- tibialis anterior
- adductor magnus
- adductor longus
- gracilis
- sartorius.

***Musculoskeletal conditions*** may include:

- osteopaenia
- sub acute soft tissue injury and or sprain and or strain
- osteoporosis
- epicondylitis
- tendonitis
- osteoarthritis
- repetitive strain injuries

***Musculo-skeletal system*** may include:

- functions
- types of bones:
  - long
  - short
  - flat
  - irregular
- growth and development of long bones
- structure of long bones
- classification of joints:
  - fibrous
  - cartilagenous
- synovial structure of a synovial joint:
  - bones
  - articular or hyaline cartilage
  - joint capsule
  - joint cavity
  - ligaments
  - synovial membrane
  - synovial fluid
  - bursae
  - meniscus
- connective tissue:
  - fascia
  - tendons
  - ligaments
- muscular system
- function of muscle tissue
- properties of muscle tissue:
  - excitability
  - contractility
  - extensibility
  - elasticity

- types of muscles:
  - smooth
  - cardiac
  - skeletal
- structure of skeletal muscle tissue:
  - muscle belly
  - tendon
  - fascicle
  - muscle fibre
  - myofibril
  - microscopic anatomy:
    - sarcomere
    - filaments
    - actin
    - myosin
    - tropomyosin
    - troponin
    - sarcolemma
    - sarcoplasm
    - sarcoplasmic reticulum
    - T-tubules
    - Z lines
    - A band
    - I band
- muscle contraction:
  - sliding filament theory
  - length-tension relationship
- attachments:
  - origin
  - insertion
- role of muscle contraction:
  - agonist
  - antagonist
  - fixator
  - synergist
- skeletal muscle fibre types:
  - slow twitch oxidative
  - fast twitch oxidative-glycolytic
  - fast twitch glycolytic
  - distribution and recruitment of different

fibre types

- physiological adaptations due to training:
  - hypertrophy
  - increased strength
  - increased extensibility
- muscle actions of major muscles.

***Moderate risk client*** may include:

- chronic disease state
- medical condition or injury
- under prescribed medication
- symptoms of cardiorespiratory disease
- moderate or high risk as identified by medical or allied health professional
- aged and sedentary
- musculoskeletal moderate risk includes:
  - history of injury to back or neck or joints or muscles of arms and legs requiring assessment and or treatment by a medical or allied health professional but is now fully resolved
  - previous surgery to back or neck or joints or muscles of arms and legs
  - recurrent injury
  - injury to musculoskeletal system in the past 8 weeks even if it has resolved
  - recent low level of physical activity
  - hyper mobile

## **Unit Sector(s)**

Fitness

## **Competency Field**

Fitness