



**Australian Government**

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

# **SISFFIT524A Deliver prescribed exercise to clients with metabolic conditions**

**Release: 2**

## **SISFFIT524A Deliver prescribed exercise to clients with metabolic conditions**

### **Modification History**

Not Applicable

### **Unit Descriptor**

This unit describes the performance outcomes, skills and knowledge required to deliver prescribed exercise programs to stable clients with metabolic 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 metabolic 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, legislative, 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 metabolic conditions.

- 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. Consult with a relevant medial or allied health professional as necessary.
- 1.5. Discuss with the client their complete exercise history and their ***metabolic condition*** and co-morbidities and record information according to ***relevant legislation*** and ***organisational policies and procedures***.
- 1.6. Explain the physiology of the metabolic condition and associated ***risk factors*** to the client in simple terms and confirm client understanding.
- 1.7. Explain to the client the causes and consequences of the different components of the metabolic condition in the context of their effect on exercise capacity and condition.
- 1.8. Explain to the client the role of physical activity in managing metabolic conditions and enhancing health.
- 1.9. Confirm the outcomes of goals ***and needs analysis*** in collaboration with the client and the ***medical or allied health professionals*** if appropriate.
- 1.10. Explain to the client their need to be referred back to a medical or allied health professional if their condition becomes unstable.
- 1.11. Identify any ***potential barriers*** to exercise and discuss ***methods to enhance exercise adherence*** with the client.

**ELEMENT****PERFORMANCE CRITERIA**

- 1.12. Clarify any areas of concern with the referring *accredited exercise physiologist*, or relevant medical or allied health professional in conjunction with the client.
- 1.13. Obtain the informed consent of the client and maintain the client's *records* according to relevant legislation and organisational policies and procedures.

ELEMENT	PERFORMANCE CRITERIA
2. Deliver prescribed exercise programs.	<ul style="list-style-type: none"><li>2.1. Undertake appropriate <i>fitness assessments</i> as required.</li><li>2.2. Work with <i>medical or allied health professionals</i> to deliver an exercise plan in accordance with recognised exercise recommendations, fitness test results, client limitations, and potential interactions of medications.</li><li>2.3. Explain to the client the role of <i>muscular conditioning</i>, and the reasons for their inclusion as part of the client's exercise prescription.</li><li>2.4. Apply <i>instructional techniques</i> to ensure safe and appropriate application of the <i>exercise program</i> by the client.</li><li>2.5. Explain to the client the exercise variables to be delivered in the context of managing their specific metabolic conditions.</li><li>2.6. Demonstrate the safe and appropriate use of selected <i>exercise equipment</i> and report or address any unsafe equipment according to organisational policies and procedures.</li></ul>
3. Monitor and review clients responses to the prescribed exercise program	<ul style="list-style-type: none"><li>3.1. Monitor perceived exercise intensity and make adjustment as required.</li><li>3.2. Assess the client's performance and explain and correct any unsafe exercise procedures.</li><li>3.3. <i>Monitor client responses</i> for any typical signs and <i>symptoms requiring intervention</i> that may occur during exercise.</li><li>3.4. Apply <i>procedures to respond to signs and symptoms requiring intervention</i> as required according to relevant legislation and organisational policies and procedures.</li><li>3.5. Recognise <i>signs of an unstable condition</i> and refer the client back to a relevant <i>medical or allied health professional</i>.</li><li>3.6. Report outcomes to the referred source as well as the client.</li><li>3.7. Revise the client's record and advise the referral source of suggested changes to the exercise program if required.</li></ul>
4. Provide advice regarding additional <i>lifestyle modifications</i> to enhance the management of the	<ul style="list-style-type: none"><li>4.1. Obtain information about the client's current lifestyle.</li><li>4.2. Identify to <i>client</i> appropriate and non-appropriate methods of managing body composition.</li><li>4.3. Explain to the client the <i>negative health effects</i> of poor management of body composition.</li></ul>

**ELEMENT****PERFORMANCE CRITERIA**

- condition.
- 4.4. Provide information in accordance with healthy eating guidelines to improve general health and enhance the management of the metabolic condition.
- 4.5. Discuss the physiological mechanisms of decreasing adipose tissue in a method that is understandable to the client.
- 4.6. Explain the importance of healthy eating for body composition management to the client.
- 4.7. Explain the effect of exercise on management of body composition.
- 4.8. Recommend other lifestyles changes to improve current disease status.
- 4.9. Discuss possible barriers to behaviour change and implementation of healthy eating practices.
5. Apply extensive knowledge of the anatomy and physiology of the endocrine system to the delivery of exercise programs for moderate risk clients
- 5.1. Apply knowledge of the structure and function of the **endocrine system** to the delivery of exercise for relevant medical conditions or injuries.
- 5.2. *Apply knowledge of the effects of **hormones** on metabolism and energy production when providing information to clients regarding exercise, healthy eating and body composition management.*
- 5.3. Explain the interrelationship between the **nervous system** and the endocrine system to control body systems to **moderate risk clients**.
- 5.4. Explain the effects of some of the **medical conditions and disorders** on homeostasis of the endocrine system.
6. Apply knowledge of the structure and function of the digestive system when providing advice about healthy eating and body composition to moderate risk clients
- 6.1. Explain clearly the structure and function of the **digestive system** when providing advice relating to healthy eating, metabolism and body composition management to clients.
- 6.2. Use an understanding of the process of digestion and absorption of food in relation to energy production when providing information to clients.

## Required Skills and Knowledge

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

### Required skills

- communication skills appropriate to the age and values of referred clients with metabolic conditions
- skills to identify adverse signs and symptoms requiring intervention and unsafe exercise performance and to recommend appropriate changes in consultation with an appropriate medical or allied health professional.
- problem-solving skills to identify symptoms requiring interjection and unsafe exercise performance and to recommend appropriate changes
- teamwork skills to work collaboratively with medical or allied health professionals according to all legal and ethical considerations
- analytical skills to interpret information on the health and functional status of clients with metabolic conditions in terms of their medical conditions, risk factors, medical treatments and exercise history.
- decision making skills to determine appropriate instructional techniques.
- literacy and numeracy skills to enable the accurate interpretation of referrals and to record client exercise programs and calculate and adjust exercise duration and frequency.

### Required knowledge

- components of metabolic conditions and the associated risk factors
- the pathology of metabolic conditions and considerations in relation to the needs of the client
- structure and function of the endocrine system to enable understanding of physiological responses to exercise and their relationship to the condition and needs of clients
- risk factors and contraindications associated with metabolic conditions and metabolic syndrome to enable the provision, monitoring and adjustment of safe and effective exercise
- effects of hormones on metabolism and energy production and the regulation of basic physiological responses to exercise to enable the provision of accurate information to clients regarding exercise
- medical and anatomical terminology to interpret referrals from medical or allied health professionals
- relationship between metabolic conditions and other conditions such as cardiovascular disease
- recognised recommendations for exercise testing and prescription for metabolic conditions
- categories of medications used to manage metabolic conditions such as oral hypoglycaemic agents, including insulin, antihypertensives, lipid-lowering agents and their effects on the condition
- effect of metabolic conditions on the acute response to exercise to enable

assessment of the individual's functional capacity when developing exercises

- relevant legislation and organisational policies and procedures to maintain the safety of clients and the confidentiality of client information
- motivational psychology to enable identification and mitigation of barriers to exercise adherence
- industry recognised guidelines associated with exercise prescription and delivery
- the role of physical activity in managing metabolic conditions and enhancing health.



## 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 professionals* regarding relevant health and functional status of the referred clients and discusses aspects of exercise prescription with clients.
- when appropriate, reacts to adverse events to deal with exercise program problems and issues.
- correctly interprets the exercise prescription and make modifications consistent with prescribed parameters and scope of practice
- safely and effectively delivers exercise for referred clients with cardiorespiratory conditions and recommends appropriate alterations according to client's physical and motivational response
- 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 exercise for clients with metabolic conditions. Assessment must also ensure access to:

- a range of clients with real or simulated metabolic conditions from a range of ages
- a range of real or simulated medical or allied health professionals referrals for a range of referred clients with metabolic 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

metabolic 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 needs 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 or written questioning to assess knowledge of the physiology of metabolic conditions and associated risk factors and the use and effect of medications
- 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
- SISFFIT530A Deliver prescribed exercise to children and young adolescents with specific chronic 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.

***Client*** may include:

- older
- sedentary
- overweight and obese
- presenting with additional medical or psychological conditions.

***Metabolic condition*** must include:

- dyslipidaemias
- obesity
- hyperglycaemia
- hyperinsulinaemia
- pre-diabetes
- hyperparathyroidism
- diabetes Type I or Type II: controlled
- polycystic ovary
- Hyperthyroidism and or Graves Disease
  - Hypothyroidism

***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 such as diabetes
- smoking
- hypertension; systolic blood pressure of  $\geq 140$  mm hg or diastolic  $\geq 90$  mm hg confirmed by measurement on at least two separate occasions, or taking any antihypertensive medication
- hypercholesterolaemia; total serum cholesterol of  $\geq 200$  mg/dl [5.2 mmol/l] or high density lipoprotein cholesterol of  $< 35$  mg/dl [0.9 mmol/l], or on lipid-lowering medication
- impaired fasting glucose; fasting blood glucose of  $\geq 110$  mg/dl confirmed by measurements on at least 2 separate occasions
- obesity; body mass index of  $\geq 30$  kg/m<sup>2</sup> or waist girth of  $\geq 100$  cm for males,  $\geq 88$  cm for women or waist/height ratio of  $\geq 0.5$  cm
- sedentary lifestyle; persons not participating in a regular exercise program or accumulating 30 minutes or more of moderate physical activity most days of the week
- heart conditions.

**Goals and needs analysis** may include:

- timeframes
- appropriate exercise program adjustments
- barriers
- motivation.

**Methods to enhance exercise adherence** may include:

- rewards for attendance and participation
- statement of intent
- perceived choice
- goal setting.

**Potential barriers** may include:

- perceived versus actual barriers
- initial low fitness level and probable overweight or obesity
- time and access to facilities
- self-consciousness in client
- concerns for health.

**Fitness assessment** may include:

- range of movement
- strength
- girth measurements
- body mass.
- waist to height ratio.

**Muscular conditioning** may include:

- muscular strength
- muscular power
- muscular endurance.

- Records** may include:
- electronic
  - hand written.
- Exercise program** may include:
- exercise selection
  - exercise sequence
  - exercise variety
  - logical progression.
- Exercise equipment** may include:
- cardiovascular equipment:
    - stepper
    - rowing machine
    - stationary bicycle
    - treadmill
  - free weight equipment
  - resistance training machines
  - hydraulic machines
  - aquatic equipment
  - resistance bands.
- 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 intervention** may include:
- shortness of breath at rest or with mild exertion
  - dizziness or syncope
  - orthopnea or paroxysmal nocturnal dyspnea
  - palpitations or tachycardia
  - symptoms of hypoglycaemia and hyperglycaemia
  - intermittent claudication
  - unusual fatigue or shortness of breath with usual activities
  - illness or sickness
  - unaccustomed lack of functional strength
  - soreness or strain
  - pain on movement of any body part.
- Procedures to respond to symptoms requiring intervention** must include:
- cessation 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.

***Negative health effects*** may include:

- eating disorders:
  - bulimia
  - anorexia
- obesity
- diabetes
- hypertension
- cardiovascular disease
- cancer
- joint degeneration.

***Lifestyle modifications*** may include:

- moderation of alcohol consumption
- cessation of smoking
- increased incidental activity
- stress reduction
- provision of health eating guidelines
- provision of healthier choices.

***Endocrine system*** may include:

- role and function of the endocrine system
- endocrine glands
  - pituitary
  - adrenal
  - parathyroid
  - pancreas
  - gonads
  - thymus
- hormones
  - types
  - hormone transport in the blood
  - hormone action
  - control of hormone action
  - control of hormone secretion
  - abnormal secretion
- role of endocrine system in stress and disease
- effects of ageing on the endocrine system
- disorders or homeostatic imbalances
- diabetes.

***Hormones*** may include:

- human growth hormone
- anti-diuretic hormone (vasopressin)
- calcitonin
- aldosterone
- insulin.

***Nervous system*** may include:

- divisions:
  - central nervous system



- peripheral nervous system:
  - somatic nervous system
  - autonomic nervous system
- central nervous system:
  - brain
  - spinal cord
- peripheral nervous system:
  - cranial nerves
  - spinal nerves
  - peripheral nerves
  - plexus
- neurons:
  - afferent
  - efferent
  - motor
  - sensory
- histology of nerve tissue:
  - neuron:
    - axon
    - dendrites
    - nucleus
    - cell body
    - node of ranvier
    - neurilemma
    - myelin sheath
    - scwann cell
  - neuroglia
- brain:
  - structure
  - brain stem
  - cerebral hemispheres
  - ventricles
  - cranial nerves
  - meninges
  - cerebrospinal fluid
  - blood supply:
    - sensory areas and pathways
    - motor areas and pathways
- nerve impulses:

- resting membrane potentials
- graded potentials
- action potentials
- refractory period
- subthreshold stimulation
- all or none law
- summation:
  - spatial
  - temporal
- neuromuscular transmission:
  - neuromuscular junction
  - transmission
- synaptic transmission:
  - synapse
  - excitation at synapse
  - inhibition at synapse
- spinal reflexes:
  - reflex arc
  - receptors
  - reflex action
  - types of reflexes
- spinal cord:
  - structure
  - spinal nerves
- peripheral nerves:
  - cervical plexus
  - brachial plexus
  - lumbosacral plexus
- regeneration and repair of nervous tissue
- effects of ageing on the nervous system
- disorders of the nervous system:
  - multiple sclerosis
  - epilepsy
  - nerve injuries
  - cerebrovascular accident
- sensory receptors:
  - interoceptors
  - exteroceptors
- sensory organs:
  - eye:

- structure
- accessory organs
- vision:
  - formation of image
- proprioceptors:
  - visual acuity
  - visual fields
  - visual pathways
  - visual defects
- ear:
  - structure
  - hearing
  - conduction of sound
  - auditory pathway
  - hearing defects
  - equilibrium

***Moderate risk clients*** may include:

- chronic disease state
- medical condition or injury
- under prescribed medication
- symptoms of cardiorespiratory disease
- those identified by medical or allied health professionals
- older and sedentary.

***Digestive system*** may include:

- structure:
  - mouth
  - oesophagus
  - stomach
  - small intestine
  - large intestine
  - rectum
  - anus
  - sphincters
- glands:
  - salivary glands
  - pancreas
  - liver
  - gall bladder
- blood supply
- innervation
- role in energy production
- digestion:
  - breakdown
  - motor functions:
    - mastication
    - peristalsis
    - segmentation
    - deglutition
    - gastric motility
    - intestinal motility
  - secretion of enzymes
  - secretion of juices
- enzymes:
  - secretion
  - function
- absorption:
  - carbohydrate

- lipids
- protein
- water and electrolytes
- vitamins
- chemical composition of foods
- metabolism of foodstuffs:
  - oxidation of food
  - by-products
  - storage
  - regulation of metabolism:
    - choice of metabolic pathway
    - carbohydrate metabolism
    - fat metabolism
- protein metabolism
- conditions affecting the endocrine system:
  - diabetes
- conditions affecting the nervous system:
  - retinopathy
  - peripheral neuropathy
  - quadriplegia
  - paraplegia
  - cerebral palsy
  - muscular dystrophy
  - Parkinson's disease

***Medical conditions and disorders*** may include:

## **Unit Sector(s)**

Fitness

## **Competency Field**

Fitness