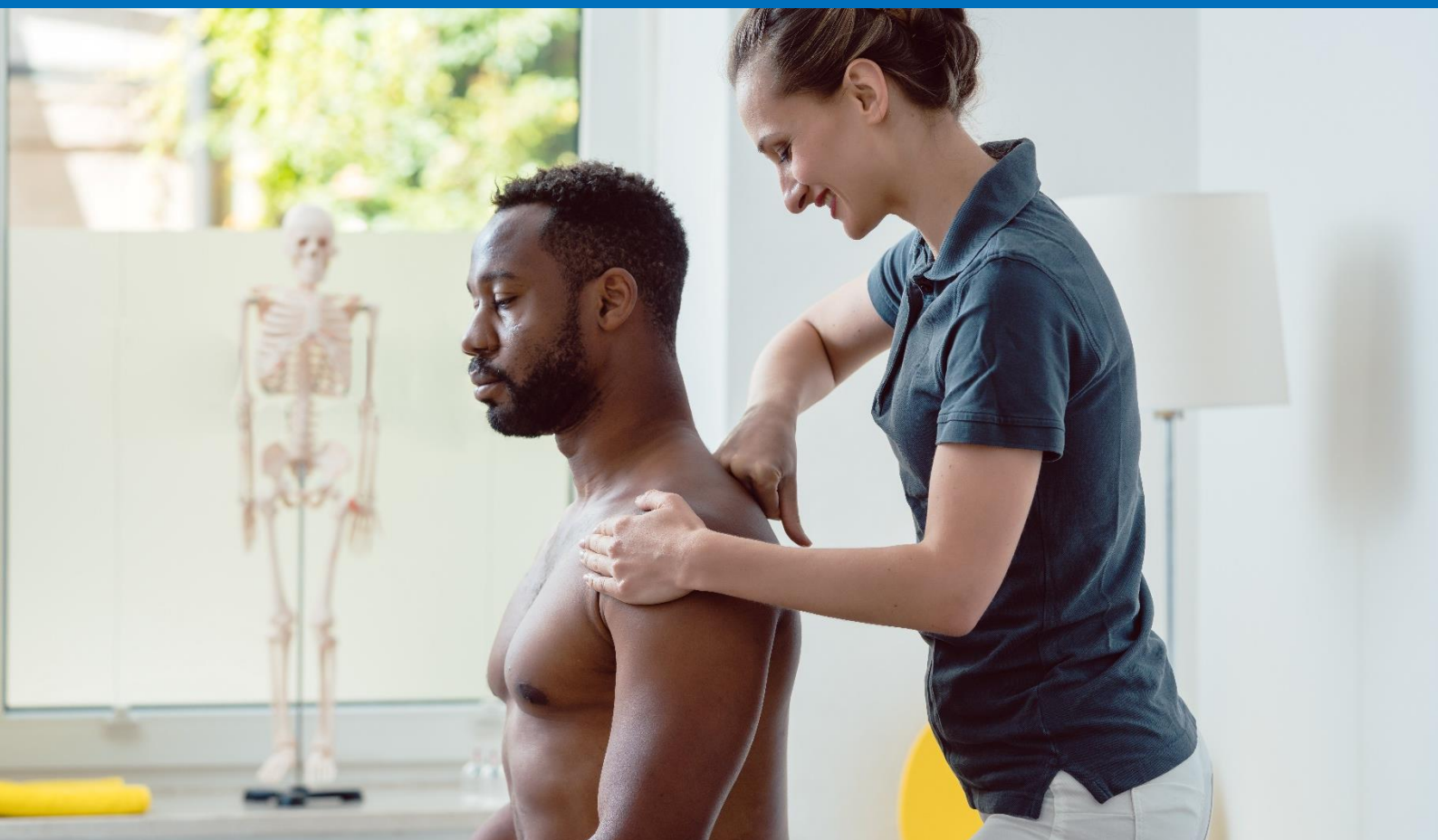
YMCA Level 3 Diploma in Performance Massage (610/0701/8)

Operational start date: 01/03/2023

YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) (610/0736/5)

Operational start date: 01/03/2023

Qualification Specification



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Contents

Introduction

YMCA Awards is part of Central YMCA – the world's first YMCA – a national charity that's been helping people make positive changes in their lives since 1844.

We're experts in education, health, and wellbeing with over 20 years of experience developing UK-regulated and globally recognised qualifications.

We work closely with industry experts, employers, and training providers to make sure that our products and services deliver life-changing opportunities. With over half a million qualifications awarded, 300,000 people have advanced their careers with the YMCA Awards.

Aim

YMCA Level 3 Diploma in Performance Massage (610/0701/8)

This qualification provides the learner with the knowledge and skills necessary to provide massage for preparation and recovery from strenuous activities.

It will allow the learner to perform massage at a fundamental level on nonpathological tissue, perhaps as an adjunct to a personal training or gym session.

YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) (610/0736/5)

This qualification provides the learner with the knowledge and skills necessary to provide sports massage therapy to clients to treat conditions resulting from soft tissue dysfunction, ease muscular tension and treat minor injuries sustained during physical activity.

Progression opportunities

The YMCA Level 3 Diploma in Performance Massage is a pre-entry requirement for the YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction). The Level 4 qualification is required for industry recognition as a sports massage therapist.

These qualifications may be used to support access towards degree studies related to Sports Therapy and/or Sport and Exercise Sciences.

Stakeholder engagement

These qualifications are mapped to National Occupational Standards (NOS):

- CNH1 Explore and establish the client's needs for complementary and natural healthcare
- CNH2 Develop and agree plans for complementary and natural healthcare with clients
- CNH27 Plan, apply and evaluate massage to prevent and manage injury

Qualification	National Occupational Standards (NOS)		
	CNH1	CNH2	CNH27
YMCA Level 3 Diploma in Performance Massage (610/0701/8)	Fully mapped	Fully mapped	Partially mapped
YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) (610/0736/5)	Fully mapped	Fully mapped	Fully mapped

These qualifications were developed in association with:

- General Council for Soft Tissue Therapies (GCMT)
- The Association for Soft Tissue Therapies (SMA).

Entry requirements, prerequisites, and availability

These qualifications have been designed for learners who:

- are 16+ years old.
- are fit enough to perform massage.
- have basic communication skills.

Learners can take these qualifications in:

Location	Regulated by
England	Ofqual
Wales	Qualifications Wales
Other UK regions and outside of the UK	Ofqual

Grading and structure

YMCA Level 3 Diploma in Performance Massage (610/0701/8)

This qualification is graded as Pass or Refer.

To achieve a Pass, for the **YMCA Level 3 Diploma in Performance Massage (610/0701/8)**, learners must obtain 8 mandatory units:

UN	Unit title	Level
M/650/4982	Fundamentals of Anatomy and Physiology	3
K/616/7949	Lifestyle management and health awareness	2
L/650/1361	Further Anatomy and Physiology for Performance Massage	3
M/650/1362	Massage Professional Practice	3
A/650/6136	The principles of soft tissue dysfunction	3
R/650/1363	Assessing clients and treatment planning	3
Y/650/1365	Application of performance massage	3
T/650/1364	Providing post-treatment care advice	3

Guided learning hours (GLH): 271

Total qualification time (TQT): 455

YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) 610/0736/5

This qualification is graded as Pass or Refer.

To achieve a Pass, for the **YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction**) **610/0736/5**, learners must obtain the following 4 mandatory units in addition to the pre-entry requirement of YMCA Level 3 Diploma in Performance Massage (610/0701/8) or equivalent

UN	Unit title	Level
D/650/1401	Anatomy and aetiology of soft tissue dysfunction	4
F/650/1402	Clinical assessment methods and strategic planning	5
H/650/1403	The use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction	4
J/650/1404	Providing post treatment care	4

Guided learning hours (GLH): 172

Total qualification time (TQT): 290

Find out more about GLH and TQT on our website:

ymcaawards.co.uk/qualifications/glh-and-tqt

Using this document

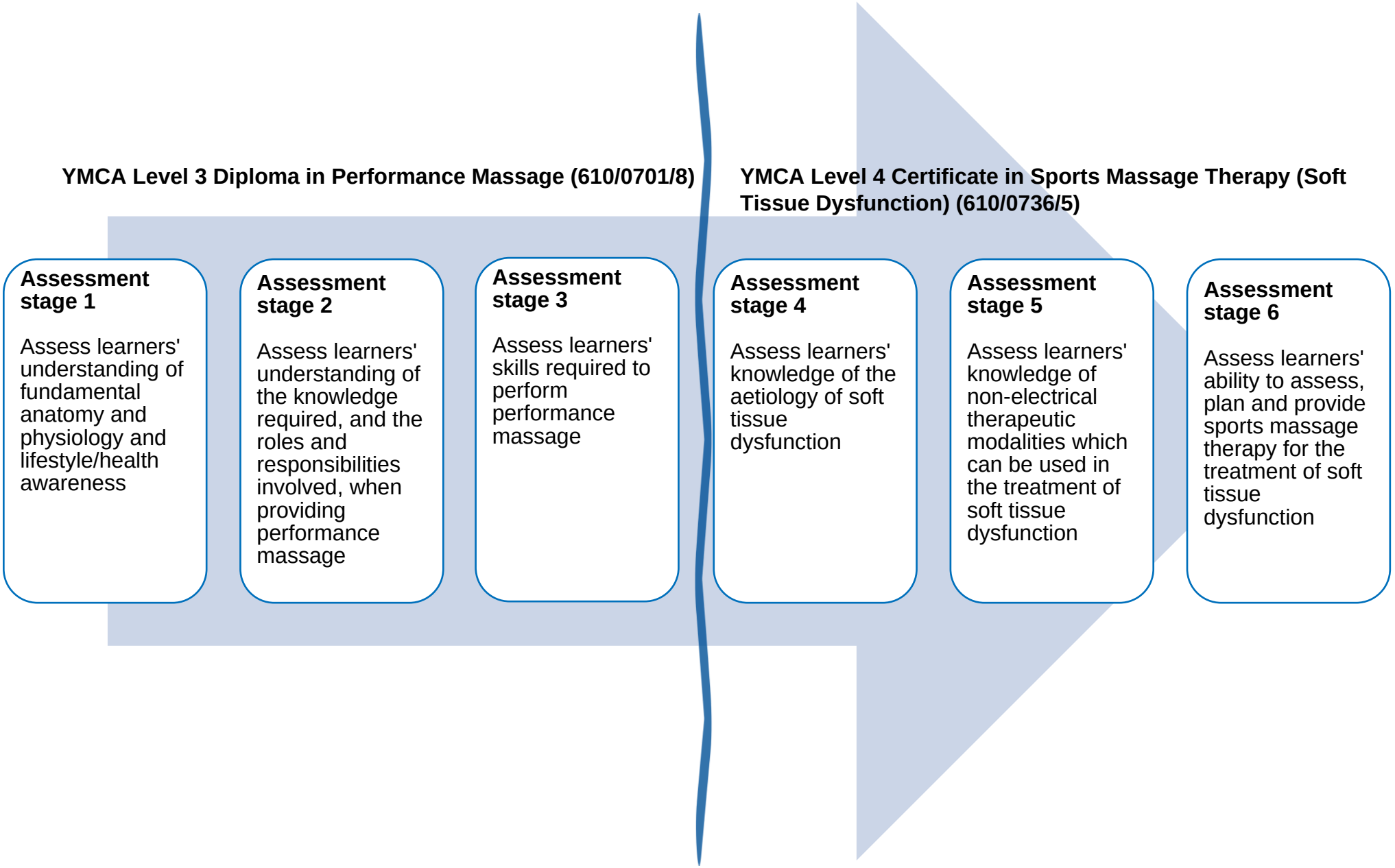
The following pages provide the unit content for this qualification. Each unit includes learning outcomes, assessment criteria and relevant content for delivery. These are set out below.

Learning outcome ('The learner will')	
Assessment criteria ('The learner can') What a learner is expected to know, understand or be able to do following their learning.	**Relevant content** (additional delivery guidance) Suggestions on depth and breadth of content to cover

Assessment overview

This qualification is designed to be assessed in stages with learners demonstrating the knowledge, skill and behaviours outlined in one stage before proceeding to the next.

- Learners completing Assessment Stages 1-3 will meet the requirements for the YMCA Level 3 Diploma in Performance Massage (610/0701/8).
- Learners completing Assessment Stages 4-6 will meet the requirements for the YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) (610/0736/5).
- Learners must have achieved the YMCA Level 3 Diploma in Performance Massage (610/0701/8) or equivalent before commencing Assessment stages 4-6.


YMCA Level 3 Diploma in Performance Massage (610/0701/8)
YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) (610/0736/5)
Assessment stage 1
Assess learners' understanding of fundamental anatomy and physiology and lifestyle/health awareness
Assessment stage 2
Assess learners' understanding of the knowledge required, and the roles and responsibilities involved, when providing performance massage
Assessment stage 3
Assess learners' skills required to perform performance massage
Assessment stage 4
Assess learners' knowledge of the aetiology of soft tissue dysfunction
Assessment stage 5
Assess learners' knowledge of non-electrical therapeutic modalities which can be used in the treatment of soft tissue dysfunction
Assessment stage 6
Assess learners' ability to assess, plan and provide sports massage therapy for the treatment of soft tissue dysfunction

The table below provides details of the tasks within each assessment stage.

Assessment Stage and Task	Details	Unit(s) assessed
1.1 Questions/ answers on anatomy and physiology	Learners need to answer questions designed to assess their knowledge of: • Anatomical terminology • Classification, structure, and function of the: – Skeletal system – Muscular system – Respiratory system – Nervous system – Circulatory system – Endocrine system – Digestive system – Energy systems. • Interrelationship between the anatomical and physiological systems • Lifespan changes which affect the body system, health, and wellbeing All questions must be answered correctly. The assessment workbook is available: • Digitally (auto-marked) through YMCA Awards' online system. • In print (centre-marked) from our web shop. Centres wishing to create their own questions or use their own platform must seek prior approval from YMCA Awards.	Fundamentals of Anatomy and Physiology (M/650/4982)

1.2 Questions/ answers on lifestyle management and health awareness	Learners will be required to complete workbook 'Lifestyle management and health awareness' All questions must be answered correctly. The assessment workbook is available: • Digitally (auto-marked) through YMCA Awards' online system. • In print (centre-marked) from our web shop. Centres wishing to create their own questions or use their own platform must seek prior approval from YMCA Awards.	Lifestyle management and health awareness (K/616/7949)
2.1 Internally assessed worksheet	Learners will be required to complete the 'Further anatomy and physiology for performance massage' worksheet contained in their Learner Assessment Record (LAR). All questions need to be fully completed. The work must be their own and group completion is not permitted.	Further Anatomy and Physiology for Performance Massage (L/650/1361)
2.2 Internally assessed worksheet	Learners will be required to complete the 'Massage professional practice' worksheet contained in their Learner Assessment Record (LAR). All questions need to be fully completed. The work must be their own and group completion is not permitted.	Massage Professional Practice (M/650/1362)
2.3 Internally assessed worksheet	Learners will be required to complete the 'The principles of soft tissue dysfunction' worksheet contained in their Learner Assessment Record (LAR). All questions need to be fully completed. The work must be their own and group completion is not permitted.	The principles of soft tissue dysfunction (A/650/6136)
2.4 Internally assessed worksheet	Learners will be required to complete the 'Assessing clients and treatment planning' worksheet contained in their Learner Assessment Record (LAR). All questions need to be fully completed. The work must be their own and group completion is not permitted.	Assessing clients and treatment planning (R/650/1363)

2.5 Internally assessed worksheet	Learners will be required to complete the 'Application of performance massage' worksheet contained in their Learner Assessment Record (LAR). All questions need to be fully completed. The work must be their own and group completion is not permitted.	Application of performance massage (Y/650/1365)
2.6 Internally assessed worksheet	Learners will be required to complete the 'Providing post-treatment care advice' worksheet contained in their Learner Assessment Record (LAR). All questions need to be fully completed. The work must be their own and group completion is not permitted.	Providing post-treatment care advice (T/650/1364)
3.1 Observation **(synoptic)**	Learners will be observed applying a massage treatment on 2 occasions (See Learner Assessment Record for details of range requirements)	Assessing clients and treatment planning (R/650/1363) Application of performance massage (Y/650/1365) Providing post-treatment care advice (T/650/1364)
4.1 Internally assessed worksheet	Learners will be required to complete the 'anatomy and aetiology of soft tissue dysfunction' worksheet contained in their learner assessment record (LAR). All questions need to be fully completed.	Anatomy and aetiology of soft tissue dysfunction (D/650/1401)
4.2 Observation	The learner will be required to demonstrate their knowledge of anatomy and aetiology of dysfunction by locating and stating the function of key anatomical structures.	Anatomy and aetiology of soft tissue dysfunction (D/650/1401)
4.3 Written task (invigilated)	Learners will be required to demonstrate their understanding of how biomechanical dysfunction / faulty movement patterns can result in injury by successfully completing 5tables about 5 common biomechanical dysfunctions. This will be under invigilated conditions.	Anatomy and aetiology of soft tissue dysfunction (D/650/1401)

5.1 Internally assessed worksheet	Learners will be required to complete the 'clinical assessment methods and strategic planning' worksheet contained in their learner assessment record (LAR). All questions need to be fully completed.	Clinical assessment methods and strategic planning (F/650/1402)
5.2 Internally assessed worksheet	Learners will be required to complete the 'the use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction' worksheet contained in their learner assessment record (LAR). All questions need to be fully completed.	The use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction (H/650/1403).
5.3 Internally assessed written task	Learners will be required to complete the 2 treatment modalities tables contained in their learner assessment record (LAR) with sufficient detail provided to demonstrate knowledge and understanding. All questions need to be fully completed.	The use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction (H/650/1403).
5.4 Internally assessed worksheet	Learners will be required to complete the 'providing post treatment care' worksheet contained in their learner assessment record (LAR). All questions need to be fully completed.	Providing post treatment care (J/650/1404
6.1 Observation **(synoptic)**	Learners will be observed applying a massage treatment on 3 occasions. See the learner assessment record for details of range requirements.	Clinical assessment methods and strategic planning (F/650/1402). The use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction (H/650/1403). Providing post treatment care (J/650/1404

Due to the synoptic nature of assessment tasks, learners may generate evidence across multiple units within a single task. However, the minimum requirements for assessment are outlined below.

UN	Diploma in Performance Massage Units	Assessment task 1.1	1.2	2.1	2.2	2.3	2.4	2.5	2.6	3.1
M/650/4982	Fundamentals of Anatomy and Physiology	x								
K/616/7949	Lifestyle management and health awareness		x							
L/650/1361	Further Anatomy and Physiology for Performance Massage			x						
M/650/1362	Massage Professional Practice				x					
A/650/6136	The principles of soft tissue dysfunction					x				
R/650/1363	Assessing clients and treatment planning						x			x
Y/650/1365	Application of performance massage							x		x
T/650/1364	Providing post-treatment care advice								x	X

UN	Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) Units	Assessment task 4.1	4.2	4.3	5.1	5.2	5.3	5.4	6.1
D/650/1401	Anatomy and aetiology of soft tissue dysfunction	x	x	x					
F/650/1402	Clinical assessment methods and strategic planning				x				x
H/650/1403	The use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction					x	x		x
J/650/1404	Providing post treatment care							x	x

Qualification content: YMCA Level 3 Diploma in Performance Massage (610/0701/8)

Fundamentals of Anatomy and Physiology (M/650/4982)

Unit aim

To provide the fundamental knowledge of the structure and function of the human body.

Content

1. Understand anatomical terminology	
1.1 Identify terms of location.	Definition of terms and anatomical examples of: • superior and inferior • anterior and posterior • medial and lateral • proximal and distal • superficial and deep.

1.2 Identify planes of movement.	• Three planes which divide the body.
	• Joint actions and exercise examples in each plane:
	  ○ Frontal (coronal) plane:
	  - Passes from side to side at right angles to the sagittal plane.
	  - Divides the body into front and back sections.
	  - Related terminology – anterior and posterior.
	  - Joint actions include abduction and adduction.
	  - Exercise examples include side leg lifts (abduction), lateral raises, jumping jacks.
	  ○ Sagittal vertical plane:
	  - Passes from front to rear dividing the body into two symmetrical halves, left and right.
	  - Joint actions include flexion and extension.

	- Exercise examples include knee raises, leg curls, walking, running, forward lunge, biceps curl and bench press. ○ Transverse: - Any horizontal plane of the body that is parallel to the diaphragm. - Divides the body upper and lower. - Joint actions include rotation, pronation, and supination. - Exercise examples – spine rotations, oblique curls/crunches, twisting movement such as boxing jabs.

2. Understand the classification, structure, and function of the skeletal system	
2.1 Summarise the classification (types) of bones.	Function and examples of each type of bone: • long – femur • short – tarsals • flat – scapula • sesamoid – patella • irregular – vertebrae
2.2 Outline the structure of bones.	Different types of bone tissue: • Compact and spongy/cancellous tissue • Long bone structure ○ articular cartilage at ends of bones (where joints are formed) ○ epiphysis ○ diaphysis ○ periosteum ○ epiphyseal plates ○ bone marrow.
2.3 Name and locate major bones: • axial • appendicular	• axial: ○ cranium, cervical vertebrae, thoracic vertebrae, lumbar vertebrae, sacral vertebrae, coccyx, sternum, ribs • appendicular

	○ scapula, clavicle, humerus, ulna, radius, carpals, metacarpals, phalanges, ilium, ischium, pubis, femur, patella, tibia, fibula, tarsals, metatarsals.
2.4 Outline the structure and function of the spine.	Structure of the vertebral column: • Regions - cervical, thoracic, lumbar, sacral and coccygeal. • The number of vertebrae in each spinal section. • Four natural curves (two kyphotic, two lordotic). • Function of curves. • The roles that lordotic and kyphotic curves play in posture and achieving a 'neutral spine'. • Potential ranges of movement in different spinal regions, including joint actions.
2.5 Outline abnormal degrees of curvature of the spine and their implications for exercise.	• Curvatures that deviate from optional posture/alignment and their implications on movement: ○ scoliosis ○ hyper lordosis ○ hyper kyphosis ○ flat back ○ sway back. • Factors that may contribute to sub-optimal spinal curvatures: ○ muscle imbalances ○ generic conditions ○ lifestyle factors ○ medical conditions ○ pregnancy.

2.6 Describe the functions of the skeleton.	Functions and examples: • Muscle attachments and levers – muscles attach to bones and pull on the bones to create movement. • Protection of internal organs, e.g. brain is protected by cranium, heart and lungs are protected by the rib cage. • Production of red and white blood cells in the bone marrow. • Skeletal framework provides body shape and a foundation structure. • Storage of calcium and other minerals.

2.7 Summarise the stages of bone development, growth, and repair.	• process of bone growth – ossification
	• stages of bone growth – from foetal, birth, through to adolescence and older age
	• remodelling process
	  ○ roles of osteoblasts and osteoclasts and osteocytes
	  ○ role of calcium, vitamin d and hormones
	• ageing /lifespan process – when bones stop growing in length, when bones lose calcium, osteopenia/osteoporosis
	• factors that affect growth:
	  ○ exercise – weight bearing
	  ○ age
	  ○ lifestyle factors – smoking, nutrition, alcohol etc
	  ○ sunlight
	  ○ hereditary factors.

2.8 Summarise the classification of joints.	Examples of different classifications and differences in function and movement potential: • fibrous – immoveable • cartilaginous – slightly moveable • synovial – freely moveable.
2.9 Outline the structure of freely movable joints: • types	• Structure of a synovial joint – joint capsule, synovial membrane, synovial fluid, ligaments, tendons, and cartilage (hyaline and fibrocartilage). • Types – hinge, saddle, gliding, pivot, condyloid, ball and socket.

• ligaments	• Structural differences of different types of joint and how this affects movement potential. • Function of ligaments: non-elastic, prevent/limit unwanted movement, joint stability. • Function of tendons. • Function of cartilage.

2.10 Describe the function of joints:
• joint actions at specific joints
• related planes of movement
• mobility
• stability.
	• The movement potential at different types of synovial joint (see types within 2.9.).
	• Joint actions available at specific joints:
	  ○ flexion and extension, e.g. knee
	  ○ adduction and abduction, e.g. hip
	  ○ rotation, e.g. between axis and atlas
	  ○ circumduction, e.g. shoulder
	  ○ horizontal flexion and horizontal extension, e.g. shoulder
	  ○ elevation and depression, e.g. shoulder girdle
	  ○ lateral flexion and lateral extension, e.g. spine
	  ○ pronation and supination, e.g. forearm – radioulnar joint
	  ○ plantar flexion and dorsi flexion, e.g. ankle
	  ○ protraction and retraction, e.g. shoulder girdle.
	• Movement planes in which different joint actions happen:
	  ○ frontal (coronal), sagittal and transverse planes.
	• Factors affecting joint mobility and stability:
	  ○ structure – see different types of joint
	  ○ location – e.g. hip and shoulder different functions
	  ○ flexibility of surrounding tissues (laxity of ligaments)
	  ○ injury (damage to articular surfaces).

3. Understand the classification, structure, and function of the muscular system	

3.1 Summarise the types and properties of muscle tissue.	Different types of tissue, properties, and examples:
	• skeletal – striated:
	  ○ voluntary - conscious control, controlled by somatic nervous system, found in consciously controlled skeletal muscles.
	• smooth:
	  ○ involuntary – unconscious control, controlled by autonomic nervous system, found in structures not under conscious control, e.g. blood vessels, digestive system.
	• cardiac – heart:
	  ○ involuntary – striated, unconscious control, initiated by the sinoatrial node (SA node).

3.2 Summarise the structure of skeletal muscles.	• structure:
	  ○ muscle comprises (or consists of, made up from) water (70%), protein (23%), minerals and substrates (7%):
	  - fascia
	  - connective tissue
	  - muscle fibres
	  - fasciculi
	  - epimysium
	  - endomysium
	  - perimysium
	  - myofibrils
	  - myofilaments
	  - sarcomeres
	  - actin and myosin
	  - mitochondria (cells) and their role.
	  ○ muscle attachments (and examples):
	  - aponeurosis
	  - direct to bone
	  - muscles cross joints, attach to bones via tendons.

3.3 Describe skeletal muscle fibre types and their characteristics.	• Different types of muscle fibres and characteristics:
	  ○ Slow twitch type I - slow oxidative
	  ○ Fast twitch type 2a (intermediate) – fast oxidative glycolytic
	  ○ Fast twitch type 2b – fast glycolytic.
	• Relationships with:
	  ○ energy systems – aerobic and anaerobic
	  ○ different types of training .
	• Factors that influence fibre type.
	  ○ genetics
	  ○ ageing
	  ○ types of exercise

3.4 Name and locate the major skeletal muscles:
• upper, lower, anterior, posterior
• global and local postural stabilisers.
	• location:
	  ○ local/global
	  ○ superficial /deep.
	• location of:
	  ○ rotator cuff:
	  - SITS (S: supraspinatus I: infraspinatus T: teres minor S: subscapularis)
	  ○ shoulder girdle:
	  - levator scapulae, pectoralis minor, serratus anterior, trapezius, rhomboids major/minor, teres major.
	  ○ arms and shoulders:
	  - biceps, triceps, deltoids.
	  ○ back:
	  - latissimus dorsi
	  - spinal extensors: erector spinae, iliocostalis, longissimus, spinalis, multifidus, quadratus lumborum.
	  ○ pelvic girdle and hip:
	  - flexors (iliopsoas): iliacus, psoas major
	  - extensors: gluteus maximus and hamstrings group

	- adductors: magnus, brevis, longus, pectineus, gracilis, sartorius - abductors: gluteus medius, gluteus minimus, piriformis, tensor fascia latae. ○ legs: - quadriceps: rectus femoris, vastus medialis, vastus intermedius, vastus lateralis - hamstrings: Biceps femoris, semimembranosus, semitendinosus - tibialis anterior, gastrocnemius, soleus. ○ abdominals: - internal and external obliques, transversus abdominus ○ respiratory muscles: - intercostals and diaphragm. ○ 'core' and pelvic floor muscles.
3.5 Outline the joint actions produced by major skeletal muscles: • upper, lower, anterior, posterior • global and local postural stabilisers.	Related function and joint action produced by concentric and eccentric contraction of specific muscles. (See 2.10 and 3.4
3.6 Describe the roles of skeletal muscles.	• Roles - agonists (prime movers), antagonists, synergists, fixators: ○ Examples in relation to exercises and movements. • Functions and properties of muscles: ○ Contract to create movement or assist in the stabilisation of joints. ○ Generate heat (shivering). ○ Keep the body upright by resisting the force of gravity: - posture. ○ Protect the skeletal system by preventing excessive or unwanted movement.

	○ Properties - contractility, extensibility, elasticity, and excitability.
3.7 Describe the process/principles of muscular contraction.	Interrelationship with nervous system: • All or none law • Sliding filament theory, the role of actin and myosin, the role of ATP • Stretch reflex and inverse stretch reflex • Size principle of motor unit recruitment • Other principles of muscle work ○ muscles only pull in direction of fibres ○ cross joints and create movement ○ work in pairs/groups. ○ muscle roles (see previous points).
3.8 Outline the types of muscular contraction.	• Types of contraction: ○ Concentric and eccentric (isotonic). ○ Isometric. ○ Isokinetic. ○ The effects of gravity on muscle work. • Advantages and disadvantages of isotonic/isometric movement in relation to everyday activity, activity for health and within an exercise and fitness session, to include: ○ Causes and effects of delayed onset muscle soreness (DOMS). ○ Valsalva effect; functionality and effects on blood pressure.
3.9 Outline the structure and function of the pelvic floor muscles.	• structure: ○ deep and superficial layers ○ fast and slow-twitch muscle fibres ○ muscle attachments • function: ○ stability for the pelvic girdle ○ support for organs and growing foetus during pregnancy ○ controlling continence

	○ lower part of inner cylinder – stability (along with diaphragm, abdominals, back muscles).

4. Understand the classification, structure, and function of the cardiovascular system	
4.1 Summarise the structures of the cardiovascular system.	• heart – myocardium (cardio): ○ two halves – right (deoxygenated blood) and left (oxygenated blood). ○ four chambers - right and left ventricles, right and left atria. ○ valves (prevent back flow) – bicuspid, tricuspid, aortic, pulmonary. • blood vessels (vascular): ○ arteries, arterioles, veins, venules, and capillaries in terms of: - thickness of vessel wall - internal diameter - blood pressure or pressure of blood - blood circulated: - oxygenated – all arteries – except pulmonary artery - deoxygenated – all veins – except pulmonary vein. - direction of blood flow: - veins – towards heart - arteries – away from heart. - function of non-return valves in veins.
4.2 Describe the function of the cardiovascular system.	• functions: ○ circulation of: - blood (deoxygenated/oxygenated) and nutrients, hormones, medications ○ structure of blood – water, plasma, red and white blood cells. • terminology – definitions of: ○ cardiac cycle

	○ stroke volume – amount of blood pumped in one beat ○ cardiac output – amount of blood pumped in one minute ○ heart rate – beats per minute, pulse monitoring points, e.g. radial artery ○ effects of exercise on the above.
4.3 Outline the flow of blood around the systemic and pulmonary systems	• Blood flow through the heart and around the body ○ Pulmonary circulation – flow around heart and lungs ○ Systemic circulation– flow around heart and body ○ Coronary circulation–flow through heart • from lungs to heart – pulmonary vein, left atrium, left ventricle (pulmonary) • from heart to body - aorta, arteries, arterioles, capillaries (systemic) ○ gaseous exchange at muscular levels (mitochondria) • from body to heart – venules, veins, superior/inferior vena cava, right atrium (systemic) • from heart to lungs - right ventricle, pulmonary artery (pulmonary) ○ gaseous exchange in lungs • Interrelationship with respiratory system and muscular system – gaseous exchange
4.4. Outline blood pressure: • classifications • systolic/ diastolic.	Definitions: • blood pressure as a measure of force in the artery walls. • the body's need for blood pressure. Systolic/diastolic • systolic blood pressure ○ the pressure in the arteries during ventricular contraction (contracting/pumping phase) • diastolic blood pressure ○ the pressure in the arteries during ventricular relaxation (resting/filling phase). Classifications:

	• Systolic and diastolic readings
	  ○ optimal, normal blood pressure classifications.
	  ○ hypotension, pre-hypertension and hypertension (different stages).
	• Current and up-to-date guidelines regarding blood pressure detailed from the following bodies:
	  ○ World Health Organization (WHO)
	  ○ National Institute for Health and Care Excellence (NICE)
	  ○ American College of Sports Medicine (ACSM)
	• Effects of exercise on blood pressure:
	  ○ linear increase
	  ○ issues when working with hypertensive clients
	  ○ medication effects
	  ○ when exercise is contraindicated

5. Understand the classification, structure, and function of the respiratory system	

5.1. Summarise the structure of the respiratory system.	• respiratory tract – upper and lower
	  ○ upper
	  - nose and mouth
	  - pharynx
	  - larynx
	• lower
	  ○ trachea
	  ○ lungs
	  - bronchi
	  - bronchioles
	  ▪ alveoli (capillaries) and location of gaseous exchange

5.2. Outline the function of the respiratory system.	• Function:
	  ○ intake of oxygen
	  ○ removal of carbon dioxide

	• Breathing (pulmonary ventilation: Inhalation/exhalation) - the process of physically moving air in and out of the lungs.
	• Respiration is the name given to the overall exchange of gases between the atmosphere and the blood and involves
	• External respiration – the exchange of gases between the lungs and the blood.
	• Internal respiration – the exchange of gases between the blood and the cells of the body.
	• The process of respiration:
	  ○ Take in air from the atmosphere – inhalation/inspiration
	  ○ Gaseous exchange alveoli
	  ○ Pass oxygen into the circulatory system
	  ○ Remove carbon dioxide from the circulatory system via exhalation
	• Composition of air during:
	  ○ inhalation
	  ○ exhalation
	• Average respiratory rate - 12–20 breaths per minute
	  ○ factors affecting respiratory rate and efficiency:
	  - exercise
	  - respiratory diseases - chronic obstructive pulmonary disease (COPD) Asthma, long covid, etc.

5.3. Outline the mechanism and control of breathing.	• Respiration is controlled by the respiratory centre located in the medulla oblongata of the brain.
	• Breathing is triggered by:
	  ○ stimulation of the stretch receptors in the intercostal muscles.
	  ○ rising carbon dioxide levels
	  ○ decreasing oxygen levels
	  ○ stimulation from phrenic nerves
	  ○ chemoreceptors
	  ○ decreased pH of the blood

	• The function and location of each muscle involved in inhalation and exhalation
	• Natural breathing
	  ○ intercostals (internal and external)
	  ○ diaphragm
	• Forced inspiration (inhalation)
	  ○ accessory muscles - scalenes, pectoralis minor, and sternocleidomastoid.
	• Forced expiration (exhalation)
	  ○ accessory muscles – abdominals – transversus
	• Differences/interrelationship:
	  ○ ventilation - getting air in and out.
	  ○ respiration - exchange of gases and transport of gases
	  - ventilation – air into lungs
	  - pulmonary diffusion – gaseous exchange in the lungs
	  - circulation of gases around the body
	  - tissue diffusion – use of oxygen for energy production and removal of co_2

5.4. Outline the process of gaseous exchange.	• Gaseous exchange of oxygen and carbon dioxide in the body
	• Between alveoli and capillaries
	  ○ oxygen (alveoli) moves from the lungs to the bloodstream (capillaries)
	  ○ carbon dioxide passes from the blood (capillaries) to the lungs (alveoli) to be exhaled.

6. Understand the classification, structure, and function of the nervous system	

6.1. Summarise the structure and divisions of the nervous system.	Main divisions
	• Central nervous system (CNS)
	  ○ the brain and spinal cord
	• Peripheral nervous system (PNS)
	  ○ motor and sensory nerves that branch out from the spinal cord

	• PNS is divided into:
	  ○ Somatic nervous system
	  ○ Autonomic nervous system (ANS)
	  ○ Two sub-divisions of autonomic nervous system (ANS)
	  - sympathetic (speeds up processes)
	  - parasympathetic (slows down processes)

6.2. Describe the functions of the nervous system.	• Communication and control system of body • Works collaboratively with the endocrine system • Three key roles: 1. Sensory – detects changes in the body's internal environment and gathers information about the external environment. Information is received from different stimuli. 2. Interpretation – analyses and interprets the changes sensed and selects the appropriate response. 3. Motor output – responds to the changes by signalling the required action, e.g. The secretion of hormones from the endocrine glands, or by initiating muscle contraction.

6.3. Outline the role of each subdivision of the peripheral nervous system:
• somatic
• autonomic
	• Somatic nervous system
	  ○ Motor and sensory nerves that connect the PNS to muscles and are involved in conscious activities (Voluntary muscle actions).
	• Autonomic nervous system
	  ○ Motor and sensory nerves that connect the PNS to smooth and cardiac muscle and are involved in involuntary actions such as digestion, control of blood pressure etc.
	  ○ Two divisions autonomic nervous system (ANS)
	  - sympathetic (fight or flight, war) – speed up
	  - parasympathetic (rest and digest, peace) – slow down
	• Afferent and efferent nerves
	  ○ Afferent nerves (sensory neurons) carry messages from the body receptors to the CNS. They are the first cells to receive incoming information.

	○ Efferent nerves (motor neurons) carry messages from the CNS to the muscles and glands. ○ Interneurons (relay neurons) enable communication between sensory or motor nerves and the CNS.
6.4. Outline the structure of nerves.	• Structure and function of: ○ axons ○ dendrites ○ cell body ○ nucleus ○ myelin sheath ○ schwann cells ○ nodes of Ranvier ○ synapses.
6.5. Outline the process of a nerve impulse	• Interrelationship with the muscular system: ○ Action potentials - how nerve impulses are conducted ○ Basic sliding filament theory ○ Role of actin and myosin in the formation of a cross-bridge during contraction ○ The role of ATP ○ The 'all or none' law, ○ Motor neuron impulses, motor unit recruitment
6.6. Outline the function of: • motor units • proprioceptors • muscle spindles • golgi tendon organs.	• A **motor unit** comprises one motor nerve and all the muscle fibres it causes to contract. The number of these muscle fibres can vary from 1 or 2 to 1000 • A **proprioceptor** is a sensory organ which receives stimuli from within the body, to give detailed and continuous information about the position of the limbs and other body parts • A **muscle spindle** is a proprioceptor located within the body of a skeletal muscle that primarily detect changes in the length of the muscle. ○ if stimulated sufficiently (too far or too fast), muscle spindle causes the muscle to contract to prevent damage (stretch/ myotatic reflex)

	• A **golgi tendon organ** is a proprioceptor located within a tendon that detects how much tension being transferred into the muscle
	  ○ If stimulated sufficiently (too much force), GTO's cause the muscle to relax to prevent damage ie autogenic inhibition
	• Interrelationship of proprioceptors with exercise:
	  ○ Stretching (lengthening)– PNF and developmental stretching (Muscle spindles cause reflexive contraction and GTOs cause reflexive relaxation)
	  ○ Muscle failure in resistance training – GTOs protect muscles by limiting the amount of tension in the tendon
	  ○ Muscle contraction – the more motor units which are activated, the greater the strength of contraction
	  ○ Alignment, posture – proprioceptors provide "spatial awareness" (proprioception) aiding in co-ordinated movements and unconscious control of muscles other than the prime mover (e.g. fixators and synergists)

7. Understand the classification, structure, and function of the endocrine system

7.1. Summarise the structure of the endocrine system:

- major glands
- hormones.

7.2 Describe the functions of the endocrine system:

- hormones
- major glands and the hormones they secrete.

Structure:

- Comprised of several glands that produce and secrete hormones:
  - hypothalamus (the 'master gland')
  - controls most of the other endocrine glands in the body
  - location of different glands (see table below)
  - function of other glands and hormones (see table).

Gland	Hormone (to include)	Action/role (to include)
Thyroid	Thyroxine	To regulate metabolism of all cells and tissues in the body.
Parathyroid	Parathyroid hormone (PTH)	To control calcium levels within the blood.
Pituitary	Human growth hormone (HGH)	To regulate body composition, body fluids, muscle, and bone growth.
Pineal	Melatonin	To help maintain normal sleep patterns.
Adrenal	Epinephrine (adrenaline) Norepinephrine (noradrenaline)	Initiates sympathetic responses to stress.
	Cortisol	Regulates conversion of fats, proteins, and carbohydrates to energy.
Pancreas	Insulin	Helps cells to take in glucose to be used for energy, i.e. lowers blood sugar levels.

		Glucagon	Signals cells to release glucose into the blood, i.e. raises blood sugar levels.
	Ovaries	Oestrogen	Female ‘characteristics’ Breast development
		Progesterone	Menstrual cycle/egg production Promote fat storage
	Testes	Testosterone	Male ‘characteristics’ include increased muscle, bone mass, and the growth of body hair.

8. Understand the structure and function of the digestive system	
8.1. Describe the function of the digestive system.	• Breakdown of food into nutrients such as carbohydrates, fats and proteins so they can then be absorbed into the bloodstream for energy, growth and repair.

8.2. Summarise the function of each of the main structures within the digestive system.	Alimentary canal / gastrointestinal (GI) tract:
	• Mouth (tongue, teeth, salivary glands):
	  ○ Mastication (mechanical breakdown of food, i.e. chewing).
	  ○ Moistening (softening of food with saliva).
	  ○ Emulsification (enzymes within saliva begin to breakdown food starches into sugar, i.e. complex carbohydrates into simple carbohydrates.
	• Pharynx (throat):
	  ○ Permits the passage of swallowed solids and liquids into the oesophagus, i.e. swallowing.
	• Oesophagus:
	  ○ Muscular tube that connects the pharynx (throat) to the stomach. It contracts with a peristaltic (wave like) action to move food toward the stomach.
	• Stomach:
	  ○ Acts as a food reservoir whilst it is being further broken down:
	  - mechanically by peristalsis
	  - chemically by enzymes such as pepsin, those produced by the pancreas (see below) and hydrochloric acid.
	• Pancreas:
	  ○ Secretes further enzymes to assist with the additional breakdown of food:
	  - Lipase to break down fat.
	  - Peptin to break down protein.
	  - Amylase to breakdown carbohydrates.
	• Liver:
	  ○ Produces and secretes bile which aids in the emulsification of fats.

	• Gallbladder and bile ducts:
	  ○ Stores bile.
	• Small intestine:
	  ○ Where the absorption of digested nutrients into the blood steam occurs:
	  - villi and microvilli – the inner surface folds and finger-like projections that provide a large surface area in the small intestine to allow for effective absorption.
	• Large intestine (colon):
	  ○ Absorbs water and uses fibre to solidify any unabsorbed products to enable peristalsis to expel the resultant stool(s) via the rectum.
	Refer also to timescales for digestive processes (see healthy eating and nutrition content in health and lifestyle awareness and management unit).

9. Understand the classification, structure, and function of the energy systems	

9.1. Describe the three energy systems:
• Outline the role of each macronutrient in energy production.
• Role of mitochondria.
	• Definitions of terms
	  ○ Aerobic – with oxygen
	  ○ Anaerobic – without oxygen
	• Three energy systems
	  ○ Creatine phosphate (CP) or phosphocreatine (PC)
	  ○ Anaerobic Glycolysis/Lactic acid
	  ○ Aerobic
	Role of each energy system
	• ATP-PC System or Alactic System
	  ○ ATP and creatine phosphate (CP) are present in very small amounts in the muscle cells.
	  ○ Can supply energy very quickly because oxygen is not needed for the process
	  ○ No lactic acid is produced in the process (Alactic)
	  ○ Activities:
	  - high intensity, very short duration, no harmful waste products.

9.2. Summarise the role of the energy systems in the resynthesis of adenosine triphosphate: • anaerobic alactic (ATP-CP) • anaerobic lactic (glycolytic) • aerobic.	

	• Anaerobic lactic (glycolytic) system:
	  ○ Uses carbohydrates (glucose) stored in the muscles as glycogen.
	  ○ Because no oxygen is required to re-synthesise ATP, energy is produced quickly, however lactic acid is produced as an end product.
	  ○ Activities:
	  - Moderate to high intensity, short duration, lactic acid waste product:
	• Aerobic system:
	  ○ Uses carbohydrates (glucose/glycogen) and fats to replenish ATP.
	  ○ Because oxygen is required for the process, energy production takes longer but can continue for a much longer duration.
	  ○ Because of the presence of oxygen, no lactic acid is produced.
	  ○ Activities:
	  - low to moderate intensity, long-term duration, CO_2, and water waste products.
	• Role of mitochondria:
	  ○ Cellular structure which turns the energy in food into fuel that the cell can use for energy (ATP).
	• Interrelationship between energy systems – work together, the predominant system depends on intensity and duration.
	• Interrelationship between energy systems and efficiency of cardiovascular, respiratory, and muscular systems.

10. Understand the interrelationship between the anatomical and physiological systems	
10.1. Explain the Interrelationship of the body system: • movement systems - musculoskeletal system.	All body systems work together: • If one system is malfunctioning due to disease, then all systems will be impacted to a greater or lesser extent. • Activity and exercise will affect all systems, in some way. • The body systems change through the lifespan. • Some examples of interrelationships:

• fuelling systems – circulatory, respiratory, energy • response systems – nervous, endocrine.	○ Respiratory system takes in oxygen that is circulated by the cardiovascular and circulatory systems. ○ Oxygen transported by the cardiovascular system is used by the muscles (and other body cells) to produce energy. ○ All body cells and systems require energy (ATP and energy systems) for daily living as well as movement. ○ Hormones and nutrients (endocrine and digestive systems) are circulated by the cardiovascular system. ○ The nervous system controls the movement of the body stimulating muscles (muscular system) to contract and pull on the bones (skeletal system). ○ The endocrine system and nervous system are the main communication and control systems of the body (chemical and electrical). ○ Endocrine glands release hormones which are circulated by the cardiovascular and circulatory systems. ○ The heart, a component of the circulatory system, responsible for pumping blood is also a muscle (cardiac) and is controlled by the nervous system.

11. Understand lifespan changes which affect the body system, health, and wellbeing	
11.1. Outline the effects of different lifespan changes to the body systems: • young people (13-18) • antenatal and postnatal period • older adults (50 plus)	All body systems change in response to the lifespan, particularly: • Young people in the 13–18 age range, including: ○ skeletal development (endomorphs, ectomorphs, mesomorphs) ○ growth and development of the spine ○ maturation of the skeletal system (13–18 years) ○ ossification (primary and secondary sites) ○ implications for the incomplete fusing of the epiphyseal plate ○ growth plate damage ○ fractures

	○ growth spurts ○ considerations for exercise – suitable exercise • Ante- and post-natal, to include: ○ skeletal system changes including potential postural changes ○ hormone changes – effect of relaxin and other hormones ○ changes affecting the balance ○ considerations for exercise including warning signs – suitable exercise pre-16 weeks and post-16 weeks together with considerations for post-natal • Older people (50 plus), to include: ○ ageing and the skeletal system ○ hormone changes ○ loss of bone mass ○ changes in osteoblast/osteoclast activity ○ implications of the reduction in bone mineral density and connective tissue ○ osteopenia/osteoporosis ○ osteoarthritis ○ hyaline cartilage wear and tear ○ increase risk of falls and fractures ○ joint degeneration ○ reduced range of motion ○ considerations for exercise – suitable exercise **NB: Additional qualifications are required to work with the groups in this section.**

Lifestyle management and health awareness (K/616/7949)

Unit aim

This unit develops the knowledge an exercise and fitness instructor needs to promote a healthy and active lifestyle. This includes the importance of healthy eating and offering behaviour change strategies to support clients to adopt behaviours that will help to prevent a range of health conditions.

Content

1. Understand how to promote a healthy lifestyle	

1.1 Define the components of health- and skill-related fitness	Health-related fitness
	• The components of total fitness:
	  ○ emotional
	  ○ social
	  ○ physical
	  ○ nutritional
	  ○ mental
	  ○ medical
	  ○ spiritual
	• The components of physical fitness
	  ○ cardiovascular endurance
	  ○ muscular strength
	  ○ muscular endurance
	  ○ flexibility
	  ○ body composition
	• the interrelationship between the components of total fitness and those of physical fitness
	Skill-related fitness
	• agility
	• speed
	• coordination
	• reaction time

	• balance • power

1.2 Describe the benefits of a healthy and active lifestyle	• Health behaviours which offer the greatest potential to improve health and reduce morbidity associated with chronic health conditions:
	  ○ smoking cessation
	  ○ reducing alcohol and drug misuse
	  ○ diet/healthy eating (with an emphasis on fruit and vegetable consumption)
	  ○ reducing inactivity
	  ○ managing stress
	  ○ improving the quality of sleep
	• Small changes to any of these health behaviours can lead to significant increases in life expectancy.

1.3 Describe the implications of obesity in the UK	• Current statistics regarding obesity including scale of the problem and forecasts for the future. • Obesity is defined as 'abnormal or excessive fat accumulation that may impair health'. 'obesogenic environments' are places, often urban, that encourage unhealthy eating and inactivity. Cars, tvs, computers, desk jobs, high-calorie foods and clever food marketing all contribute to inactivity and overeating and therefore obesity. Long working hours and desk-bound jobs limit opportunities for activity during the working day.

1.4 Describe how physical activity/ exercise can help prevent common health conditions	• understanding that inactivity has been cited as a contributory factor for many chronic health conditions. Being physically inactive and leading a sedentary lifestyle is reported to have an impact on health and wellbeing equivalent to that of smoking
	• physiological benefits of activity, to include:
	  ○ improving all body systems: muscular, skeletal, cardiovascular
	  ○ stronger heart muscle, improved circulation
	  ○ stronger bones and muscles
	  ○ strengthening the immune system
	  ○ assisting with the management of the above chronic diseases
	  ○ cutting risk of premature death and the development of the above diseases

	○ reduce risk of falls in older adults ○ improved functional capacity and the maintenance of independence (older people) ○ improved bone density ○ weight loss and weight management ○ psychological wellbeing ○ quality of life and general wellbeing
1.5 Identify ways in which an exercise and fitness instructor could communicate the benefits of a healthy lifestyle to clients	• Approaching clients with relevant healthy lifestyle information that would benefit them. • Know where to find reputable and evidenced-based health and wellbeing advice for communicating the benefits of a healthy lifestyle to clients. • Creating handouts and newsletters for clients and information boards in the gym based on research. • Leading information sessions or seminars for clients on the benefits of making lifestyle and behaviour changes. • Determining what information is relevant to the client, using details of client communications and collected information. • Providing credible information to the client that is relevant to them, their goals and aspirations. • Signposting clients to relevant products and services that may increase their capability or opportunity to make lifestyle and behaviour changes. • Explaining how to include everyday physical activities as part of a client's lifestyle to complement exercise sessions.
1.6 Identify when an exercise and fitness instructor should refer a client to another professional regarding their health and wellbeing	• Instructor limitations. • Seeking further information relating to client needs. • Obtaining medical clearance. • Alternative professional services that may be more appropriate or better support the client's needs.
1.7 Identify the relevant professionals an exercise and fitness instructor could refer a client to regarding their health and wellbeing	• Examples of professionals and services, such as: ○ alcohol and smoking cessation and support services ○ alternative therapy practitioners ○ chiropractor/osteopath/physiotherapist

	○ counselling services ○ dietitian ○ exercise referral instructors/schemes ○ self-help groups ○ specialist instructors (e.g. for low back pain, cardiac rehabilitation, falls prevention, mental health, obesity and diabetes) ○ sports massage therapist/sports therapists ○ other qualified instructors (e.g. t'ai chi, yoga, Pilates, water-based class, walking/running group, personal trainers)
1.8 Describe how technology can assist in a client's journey towards a healthy lifestyle	• wearable technology, pedometers, mobile phone applications.

2. Understand the importance of healthy eating	
2.1 Describe the national food model/guide	• the most current documentation on this subject. Please refer to the current national healthy eating guidelines from the government and Food Standards Agency
2.2 Describe key healthy eating advice that underpins a healthy diet	• current national healthy eating guidelines from national food guides • guidelines for a balanced diet including key nutrients and their sources • portion sizes • calorie consumption guidelines
2.3 Explain the importance of adequate hydration	• dietary sources of water • functions of water in the body, to include: ○ transport of nutrients ○ transit of waste ○ brain and body functioning ○ joint lubrication ○ body temperature regulation.
2.4 Explain professional role	• giving advice in relation to the national current healthy eating guidelines

boundaries in relation to offering nutritional advice	• giving nutritional advice to healthy individuals • giving advice about healthy eating habits, but not about nutrition, for ill health or the use of dietary supplements.
2.5 Describe the energy balance equation	• calories (energy) taken in versus calories burned as energy (out) • neutral energy balance – calories taken in are equal to the calories expended • positive energy balance – more calories are taken in than expended and therefore weight is gained • negative energy balance (energy deficit) – consuming fewer calories than the number of calories expended
2.6 Explain the health risks of poor nutrition	• obesity • diabetes • coronary heart disease • other lifestyle-related illness and disease • general effects on physiological and psychological functions • effects on mental health and wellbeing • effects on daily life such as low mood, lack of energy, effects on sleep • the risks of fad diets that restrict calories, rely on processed foods or lack essential nutrients • the risks of excess alcohol and caffeine.

3. Understand how to support clients to adhere to exercise/physical activity	
3.1 Identify typical barriers to exercise/physical activity	• understanding that a barrier is anything that could prevent a person from changing or maintaining their exercise behaviour • physical barriers (e.g. cost) • emotional barriers • motivational barriers (likes, dislikes) • time barriers • social barriers

3.2 Explain why it is important for a client to take personal responsibility for their own fitness and motivation	• achievement of goals • increasing activities of daily living (ADL) • maintenance of and adherence to the programme

3.3 Identify behaviour change approaches/strategies to encourage adherence to exercise/physical activity	• Theories that relate to clients' readiness to change and how these affect clients, such as:
	  ○ motivational interview techniques
	  ○ rewards
	  ○ SMART goal setting
	  ○ trans-theoretical model

3.4 Describe how to set short-, medium- and long-term SMART goals	• Initial goal setting. • Client needs and aims. • Disseminating a client's general needs and aims to write clear smart goals that would help a client achieve their needs and aims. • Breaking down long-term goals into short- and medium-term goals.
3.5 Identify how to review and revise short-, medium- and long-term SMART goals	• Appropriate evaluation procedures. • The importance of support and encouragement. • The importance of agreeing and setting regular review dates appropriate to the client goals and time taken to achieve those goals. • Recognising progress at regular intervals. • Identifying what information to check at each interval, including which tests or measurements to make to measure success.

Further Anatomy and Physiology for Performance Massage (L/650/1361)

Unit aim

To provide fitness professionals with the additional anatomy and physiology knowledge required for safe, predictable, and effective massage.

Content

1. Understand the structural organisation of the human body	
1.1 Outline the structural organisation of the human body	The human body has six levels of structural organisation. Beginning with the smallest: 1. Chemical level ○ Chemicals combine to form the various molecules of the human body e.g. water, carbohydrates, protein, DNA 2. Cellular level ○ The most basic structural and functional unit of life 3. Tissue level ○ 2 or more cells of similar function or origin which are grouped together 4. Organ level ○ 2 or more major tissue types which perform a specific function for the body 5. System level

2 or more organs working together, each with its own specific function, to accomplish a common purpose (e.g. cardiovascular system, digestive system)

Cellular structure	Function	
Nucleus	Control centre of the cell Contains most of the cell's genetic material	
Cell membrane	Separates the interior of all cells from the outside environment	
Nucleolus	To make ribosomes	
Ribosomes	Combine amino acids to build proteins	
Vacuoles	Storage	Food/nutrients required by a cell
		Cellular waste products
Centrosome	Regulates the cell cycle (division)	
Golgi apparatus	Modifies, sorts and packages proteins for secretion	
Mitochondria	Energy conversion/production of ATP	
Lysosomes	Digestion	Material taken up from outside the cell
		Obsolete components of the cell itself
Vesicles	Transportation of material into, out of or within the cell	
Cytoplasm	Fluid that fills a cell	
Endoplasmic reticulum	Provides a surface area for chemical reactions Permits transport of cellular materials	

- 6. Organismal level
    - All the organ systems function together to promote life

<table>
<tr><td>1.2 Describe the structure of the human cell</td><td>See AC 1.1</td></tr>
<tr><td>1.3 Describe the functions of the human cell</td><td>See AC 1.1</td></tr>
<tr><td>1.4 Describe the different types of human tissue</td><td>Tissue is composed of similarly specialised cells that perform a common function in the body
<table>
<tr><th>Tissue type</th><th>Structure</th><th>Function</th></tr>
<tr><td>Epithelial tissue</td><td>Closely packed cells arranged in 1 or more layers</td><td>Covers the body surface, lines most cavities and forms glands</td></tr>
<tr><td>Glandular tissue</td><td>Composed of epithelial cells</td><td>Secretes bodily products such as sebum, or hormones such as insulin</td></tr>
<tr><td>Membranes</td><td>Lines the interior of various bodily structures</td><td>Mucous membranes line the interior walls of tubes that open to the outside of the body

Serous membranes cover organs and line body cavities

Synovial membranes line freely movable joint cavities

Meninges cover the brain and spinal cord</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><td rowspan="2">Lymphoid tissue</td><td>Bone marrow</td><td>White blood cells</td><td>Lymphocytes</td><td rowspan="2">Functions as part of the immune system to help protect body from infection and foreign bodies</td></tr>
<tr><td>Thymus</td><td>Spleen</td><td>Lymph nodes</td></tr>
<tr><td rowspan="3">Connective tissue</td><td>Bones</td><td colspan="2" rowspan="3">Contains protein fibres
e.g. elastin, collagen, reticular</td><td rowspan="3">Binds structures together, provides support and protection, fills spaces and stores fat</td></tr>
<tr><td>Cartilage</td></tr>
<tr><td>Blood</td></tr>
<tr><td rowspan="3">Nervous tissue</td><td>Nerves</td><td colspan="2" rowspan="3">See LO 6</td><td rowspan="3">Initiates and/or conducts nerve impulses</td></tr>
<tr><td>Brain</td></tr>
<tr><td>Spinal cord</td></tr>
<tr><td rowspan="3">Muscle tissue</td><td>Cardiac</td><td colspan="2" rowspan="3">See LO 5</td><td rowspan="3">Provides movement</td></tr>
<tr><td>Smooth</td></tr>
<tr><td>Skeletal</td></tr>
</table>
</td></tr>
<tr><td>1.5 Explain the functions of the different types of human tissue</td><td>See AC1.4</td></tr>
</table>

2. Know the structure and functions of the skin	

2.1 Outline the structure of the skin	• Comprises two main parts, the dermis and epidermis
	  ○ Dermis:
	  – Much thicker than the epidermis
	  – Mainly formed of collagen fibres, connective tissue and elastin
	  – Contains various structures such as hair follicles, sweat and sebaceous glands, fat cells, nerves, blood and lymphatic vessels
	  ○ Epidermis:
	  – 5 layers (horny, clear, granular, prickle cell, basal)
	  – Makes up the outer layer of the skin that protects the dermis
	  – Contains no blood or lymphatic vessels
	  – Pierced by hairs (which allow sebum to reach the surface of the skin) and sweat ducts
	  – Production of skin cells begins in the deepest layers, pushing the cells up towards the surface; as the cells move away from the base layers they die and fill with the protein keratin, causing the cells to toughen as they reach the surface.

2.2 Outline the functions of the skin	• Protection from infection and injury • Regulation of temperature due to sweat gland activity and/or vasodilation of superficial vessels • Excretion of sweat, which is 99% water and 1% salts • Sensation by detecting temperature, pressure, touch and pain • Secretion of sebum to lubricate and protect the skin by making it acidic • Formation of chemicals, including vitamin D (for calcium utilisation) and melanin (to protect underlying structures from UV radiation ie, sun tan).

3. Understand the structure and functions of the lymphatic system	

3.1 Describe the structure of the lymphatic system	• Lymphatic vessels
	  ○ Thoracic duct
	  ○ Right lymphatic duct
	• Lymphatic capillaries
	• Lymph
	• Lymphocytes
	• Lymphatic nodes
	  ○ Occipital
	  ○ Popliteal
	  ○ Inguinal
	  ○ Axillary
	  ○ Cubital
	• Spleen

3.2 Describe the functions of the lymphatic system	• Remove excess tissue fluid (oedema) and return it to the bloodstream. • Filter fluids to help prevent infection of the blood and tissues. • Aid digestion via the absorption of lipids from the small intestine.
3.3 Explain the structure of a lymph node	• Bean or oval shaped • Divided into compartments • Have more vessels entering (afferent) than leaving (efferent) ○ Slows down flow to aid lymphocytes in removing pathogens (fighting infection).
3.4 Explain the functions of a lymph node	• To filter lymph • To produce and store lymphocytes

3.5 State the location of the major lymph nodes	• Occipital
	  ○ Nape (back of neck)
	• Popliteal
	  ○ Behind knee

	• Inguinal
	  ○ Groin
	• Axillary
	  ○ Armpit
	• Cubital
	  ○ Crook of elbow
	• Spleen (collection of lymph nodes ie, lymphatic organ)
	  ○ On the left side of the abdomen just inferior (below) to rib cage
	Note: Important to know since a ruptured spleen (through blunt force trauma) can prove fatal.

<table>
<tr><th colspan="2">4. Know the structure and functions of the urinary system</th></tr>
<tr><td>4.1 Outline the structure of the urinary system</td><td>
<table>
<tr><th>Structure (to include)</th><th>Function (to include)</th></tr>
<tr><td>Kidneys</td><td>Filter waste from the blood and produce urine</td></tr>
<tr><td>Ureter</td><td>Tubes through which urine leaves the kidneys and travels to the bladder</td></tr>
<tr><td>Bladder</td><td>Stores urine until it is excreted</td></tr>
<tr><td>Urethra</td><td>Carries urine from the bladder out of the body</td></tr>
</table>
</td></tr>
<tr><td>4.2 Outline the functions of the urinary system</td><td>See AC 4.1</td></tr>
</table>

5. Understand structure and functions of the musculoskeletal system	
5.1 Describe the origin and insertion of the major anterior skeletal muscles	• See Table B
5.2 Describe the origin and insertion of the major posterior skeletal muscles	• See Table B
5.3 State the actions of the major anterior skeletal muscles	• See Table B
5.4 State the actions of the major posterior skeletal muscles	• See Table B

Table B

Muscle	Location		Primary action/s
Erector spinae	Along the length of the vertebral column, ribs and pelvis	Vertebral column and ribs	Extension of spine
Quadratus lumborum	Iliac crest	12th rib and L1-L4	Lateral flexion of spine Bilaterally extends spine
Internal obliques	Iliac crest and lumbar fascia	8th, 9th, 10th ribs and linea alba	Rotation and lateral flexion of spine
External obliques	Lower 8 ribs	Iliac crest and linea alba	
Sternocleidomastoid	Sternum and medial clavicle	Mastoid process	Flexion, lateral flexion and rotation of neck
Scalenes	C1-C8	1st and 2nd ribs	
Transversus abdominis	Iliac crest, lower 6 ribs, lumbar fascia	Linea alba and pubis	Drawing abdomen inward
Rectus abdominis	Pubic symphysis, pubic crest	Xiphoid process and 5th, 6th, 7th ribs	Flexion of spine
Intercostals	Ribs	Ribs	Inhalation (external) Expiration (internal)
Gluteus maximus	Iliac crest, sacrum and coccyx	Upper posterior femur and ITB	Extension and lateral rotation of the hip
Gluteus medius	Lateral and posterior ilium	Posterior and lateral surface of upper femur	Abduction and medial rotation of hip

Muscle	Location		Primary action/s
Gluteus minimus	Lateral ilium	Anterior surface of upper femur	Abduction and medial rotation of hip
Piriformis	Anterior sacrum	Upper surface of upper femur	Abduction and lateral rotation of hip
Iliopsoas	Lumbar spine and pelvis	Lesser trochanter of femur	Flexion of hip and spine
Pectineus	Anterior pubis	Upper femur	Adduction and flexion of hip
Adductor brevis	Anterior pubis	Medial femur	Adduction of hip
Adductor longus			
Adductor magnus			
Gracilis	Ischiopubic ramus	Medial tibia	Adduction of hip and flexion of knee
Sartorius	Anterior superior iliac spine (ASIS)	Medial condyle of tibia	Flexion, abduction and lateral rotation of hip Flexion and medial rotation of knee
Tensor fascia latae	Anterior iliac crest	Lateral tibia via iliotibial band (ITB)	Flexion and abduction of hip Medial rotation as hip flexes
Rectus femoris	Anterior inferior iliac spine (AIIS)		Flexion of hip and extension of knee
Vastus lateralis	Lateral/upper femur	Tibial tuberosity via patella	Extension of knee
Vastus intermedius	Anterior femur		Extension of knee
Vastus medialis	Medial femur		Extension of knee (especially last 20 degrees of movement)

Muscle	Location		Primary action/s
Biceps femoris	Ischial tuberosity and posterior femur (2 origins)	Head of fibula and lateral condyle of tibia	Extension of hip and flexion of knee
Semimembranosus	Ischial tuberosity	Medial condyle of tibia	
Semitendinosus			
Popliteus	Lateral upper femur	Posterior upper tibia	Flexion and medial rotation of knee
Plantaris	Lateral upper femur	Calcaneus	Plantarflexion of ankle
Gastrocnemius	Posterior medial/Lateral upper femur	Calcaneus	Flexion of knee and plantarflexion of ankle
Soleus	Upper posterior tibia and fibula	Calcaneus	Plantarflexion of ankle
Tibialis anterior	Lateral tibia	Plantar surface of foot	Dorsiflexion and inversion of ankle
Tibialis posterior	Posterior surfaces of tibia and fibula	Plantar surface of foot	Plantarflexion and inversion of ankle
Peroneus longus	Upper lateral surface of fibula	Plantar surface of foot	Plantarflexion and eversion and of ankle
Peroneus brevis	Lower lateral surface of fibula	Plantar surface of foot	Plantarflexion and eversion and of ankle
Peroneus tertius	Lower anterior surface of fibula	Dorsal surface of foot	Dorsiflexion and eversion of ankle
Extensor digitorum longus	Lateral upper tibia and anterior fibula	Dorsal surface of 4 outer toes	Dorsiflexion and eversion of ankle Extension of 4 outer toes

Muscle	Location		Primary action/s
Extensor hallucis longus	Anterior surface of fibula	Dorsal surface of 1st (big) toe	Dorsiflexion and inversion of ankle Extension of 1st (big) toe
Flexor digitorum longus	Posterior surface of tibia	Plantar surface of 4 outer toes	Plantarflexion and inversion of ankle Flexion of 4 outer toes
Flexor hallucis longus	Lower fibula	Plantar surface of 1st (big) toe	Plantarflexion and inversion of ankle Flexion of 1st (big) toe
Trapezius	Base of cranium and cervical and thoracic vertebrae	Clavicle and scapula	Elevation, depression and retraction of shoulder girdle
Rhomboids (minor and major)	C7-T5	Medial border of scapula	Elevation and retraction of shoulder girdle
Levator scapulae	C1-C4	Superior angle of scapula	Elevation of shoulder girdle Lateral flexion of neck
Latissimus dorsi	T6–T12, L1–L5, Iliac crest and lower 3 ribs	Anterior surface of humerus	Extension, adduction and medial rotation of shoulder
Pectoralis major	Clavicle, sternum and 1st to 6th ribs	Anterior humerus	Adduction, horizontal Flexion and medial rotation of shoulder joint

Muscle	Location		Primary action/s
Pectoralis minor	3rd , 4th and 5th ribs	Coracoid process (anterior scapula)	Depression and protraction of shoulder girdle
Serratus anterior	Upper 8 or 9 ribs	Medial border of scapula	Protraction of shoulder girdle
Deltoid	Scapula and clavicle	Lateral humerus	Anterior head: • flexion, horizontal flexion and medial rotation of shoulder joint Lateral head: • abduction of shoulder joint • Posterior head: extension, horizontal • extension and lateral • rotation of shoulder joint
Supraspinatus	Superior surface of scapula	Superior humerus	Initiates abduction of shoulder joint
Infraspinatus	Posterior surface of scapula	Superior posterior humerus	Adduction and lateral rotation of shoulder joint
Teres minor	Lateral border of scapula	Superior posterior humerus	Adduction and lateral rotation of shoulder joint
Subscapularis	Anterior surface of scapula	Superior anterior humerus	Medial rotation of shoulder joint

Muscle	Location		Primary action/s
Teres major	Inferior angle of scapula	Superior anterior humerus	Extension, adduction and medial rotation of shoulder joint
Triceps brachii	Long head: • superior scapula Lateral head: • lateral posterior humerus Medial head: • posterior humerus	Superior ulna (olecranon)	Extension of shoulder joint and elbow
Biceps brachii	Long head: • superior scapula Short head: • anterior scapula	Radius	Flexion of shoulder joint and elbow Supination of forearm
Coracobrachialis	Superior scapula	Medial humerus	Flexion and adduction of humerus
Brachialis	Mid humerus	Superior ulna	Flexion of forearm
Brachioradialis	Distal humerus	Distal radius	Flexion and supination of forearm
Common wrist flexors	Medial humerus	Palm of hand	Flexion of wrist
Common wrist extensors	Lateral humerus	Back of hand (dorsum)	Extension of wrist

Massage Professional Practice (M/650/1362)

Unit aim

This unit covers the knowledge and understanding required of the professional and legal responsibilities when applying massage.

Content

1. Understand legislation required in massage	

1.1 Describe the legal obligations relating to massage, to include:	• Duty of care
	  ○ Requires “a person act toward others and the public with watchfulness, attention, caution and prudence that a reasonable person in the circumstances would. If a person's actions do not meet this standard of care, then the acts are considered negligent, and any damages resulting may be claimed in a lawsuit for negligence.”
	• General Data Protection Regulation (GDPR)
	  ○ Following correct data handling procedures
	  ○ Maintaining confidentiality
	  ○ Keeping and allowing access to accurate records
	• Health and Safety at Work Act
	  ○ Adhere to all HSE guidelines
	  ○ Maintaining a high standard of hygiene (for self and environment)
	  ○ Adhering to requirements of first aid
	• Equality Act 2010
	  ○ Legally protects people from discrimination in the workplace and in wider society

1.2 Explain the importance of having a chaperone present when working with children and vulnerable adults	• A chaperone can act as a safeguard for both parties (children/vulnerable adults and massage therapist) and is a witness to the conduct and the continuing consent of the procedure. ○ Provides protection to healthcare professionals against unfounded allegations of improper behaviour

	○ Helps ensure that the child/vulnerable adult fully understands and consents to examination and treatment – May act as a signatory for informed consent
1.3 Explain the importance of obtaining and working within boundaries of informed consent	• Regardless of the intentions of the massage therapist, to examine/treat someone without their express permission (informed consent) may be considered assault or an invasion of privacy.
1.4 Describe what information needs to be given to clients to obtain informed consent	For informed consent to be valid: • Consent should be given by someone with the mental ability to do so, and who has reached the age of majority (in the UK this is 18). • Sufficient information to enable the client to have clear appreciation and understanding of the facts, implications and future consequences of any proposed actions eg, ○ Examination ○ Treatment • Consent must be freely given.
1.5 Evaluate the consequences of noncompliance with legislation and professional standards	See ACs 1.1-1.4

2. Understand the scope of practice when providing massage

2.1 Describe cautions and contraindications to massage, to include:

Condition	Action	Possible consequences
Contagious skin conditions	(local) Avoid area	Exacerbate condition
Open wound	(local) Avoid area	Introduce infection
Injury in acute stage	(local) Avoid area	Promote blood flow to area, increasing size of resultant scar tissue
Any condition ending with 'itis' (e.g. lymphangitis)	(local/systemic) Avoid area/refer to GP	'itis' is indicative of an inflammatory condition, therefore massage is contraindicated
Varicose veins	(local) Avoid area	Damage, weaken vein walls/ valves
Colds/fever	(systemic) Avoid treatment	Any stimulation to lymphatic system will encourage the infection
Deep vein thrombosis (DVT)	(systemic) Refer to GP	Any massage may dislodge thrombosis (cause embolism)
Diabetes	(systemic) Refer to GP	Massage may be possible, but medical advice should be sought before treatment
Any condition of which the practitioner is unaware of how massage will affect it	Refer to GP	The massage practitioner has a duty of care to the client, therefore, if in doubt, they should refer

2.2 Distinguish the actions to take if presented with cautions or contraindications	• Local
	• Systemic
	See AC 2.1
	• Local cautions or contraindications
	  ○ Avoid area and adapt treatment
	• Systemic cautions or contraindications
	  ○ Avoid treatment and refer to medical practitioner for treatment authorisation

2.3 Describe referral procedures when working with other professionals	• Gain informed consent from the client (to review the information in the client record form and to liaise with the referring healthcare professional). • Exchange the client record form with the referring healthcare professional. • Review the assessment and treatment information with the client. • Update the assessment information and produce a treatment plan. • Establish a method for updating the referring healthcare professional of any progress. • Understand when to refer - contra-indications, treatment not working, outside scope of practice. • Identify healthcare professional to refer to, format referral letter.

2.4 Describe how to communicate with others in a professional manner, to include:	• Verbal and non-verbal communication methods, active listening, professional etiquette and administration efficiency
	• Client
	  ○ Valuing equality and diversity, including respect for:
	  – Gender
	  – Ethnicity
	  – Religion
	  – Physical and mental ability
	  – Sexual orientation and status
	  ○ Maintaining a professional appearance and manner at all times
	  ○ Ensuring confidentiality

	• Healthcare professional
	  ○ Professional
	  ○ Respectful of individual responsibilities
	  ○ Open to the opinions of others
	  ○ Receptive to suggestions, comments and constructive criticism
	  ○ Responding in a timely manner
	  ○ Keeping records which are
	  – Accurate
	  – Detailed
	  – Unambiguous
	  – Consistent with expected best practice

3. Understand the standards relevant to the massage profession	
3.1 Discuss key principles of professional standards as stipulated by massage membership organisations, to include:	• SMA Code of Ethics and Conduct • Institute of Sport and Remedial Massage • General Council for Massage Therapists (GCMT) • Complementary and Natural Healthcare Council (CNHC)
3.2 Evaluate the roles of professional organisations relating to massage, to include:	• Establishing and maintaining minimum standards for training. • Giving confidence to the general and sporting public, the medical profession and government agencies that members are suitably trained to provide a quality service. • Holding national registers. • Establishing and maintaining ethical, professional, and educational standards. • Supporting and promoting members and their profession. • Promoting and developing programmes of continuing professional development (CPD). • Keeping members informed of the legislative developments in complementary medicine, education and training. • Promoting and developing work opportunities with other sport and medical bodies. • Negotiating Professional Indemnity Insurance (rates and cover) for its members.

	• Obtaining discounts for other products and services for its members.

3.3 Explain the purpose of regulation, to include:	• To apply the principles of:
	  ○ Proportionality
	  ○ Accountability
	  ○ Consistency
	  ○ Transparency.
	• To achieve
	  ○ Protection of the public
	  ○ Establishment of minimum requirements
	  ○ Setting standards
	  ○ Professional development.

3.4 Explain the importance of continuing professional development, to include:	• Keeping up to date with developments in the areas covered in the qualification. • Following the latest research/opinions on applicable areas covered in the qualification. • Personal development. • Awareness of different or divergent views. • May be a professional association requirement. • Maintain professional development.

3.5 Describe the protocol to follow when presented with an emergency situation, to include:	• Own roles and responsibilities when working at:
	  ○ home
	  ○ organisation
	  ○ event
	  ○ outdoors.

3.6 Describe insurance requirements for massage practice	• Professional Liability/Professional Indemnity Insurance
	• Public liability, Employers liability, equipment and vehicle insurance
	• In the event of a client suing for compensation as a result of a treatment, this helps pay for:
	  ○ Legal defence
	  ○ Any damages awarded
	• CPD

4. Understand the principles of professional practice in massage	
4.1 Explain the importance of valuing equality and diversity when working with clients, to include:	• Establishing trust and confidence. • Adopting a non-judgemental approach which maintains respect and dignity. • Ensuring fair treatment through equal opportunities. • Meeting individual needs and requirements. • Providing a safe, supportive, and welcoming environment. • Removing barriers. • Legislation compliance.

4.2 Explain the importance of professionalism, to include:	• Helping to establish client/public
	  ○ Trust
	  ○ Confidence
	  ○ Credibility
	• To demonstrate
	  ○ Respect
	  ○ Care
	• Provide a high treatment standard.
	• Prevent cross – infection.
	• Ensure client retention and satisfaction.

4.3 Explain the personal and clinical standards expected	• Maintaining standards relevant to the massage profession see (AC 3.1)
	• Professionalism (see AC 4.2)
	• Appearance
	  ○ Clothing
	  ○ Body language
	• Hygiene
	  ○ Self
	  ○ Equipment
	  ○ Environment
	• Appropriate behaviour, conduct, integrity
	• Attitude
	  ○ Full attention given to client during treatment sessions

	• Good practice
	  ○ Awareness of limitations, of knowledge and skills, and acting appropriately
	  ○ Referral
	  ○ Record keeping
	• Reliability
	  ○ Time-keeping
	• Keeping up to date in knowledge and skills
	  ○ CPD
	• Treating others with respect (see AC 2.4)

4.4 Explain the importance of good communication skills	"Ineffective communication is the most frequently cited category of root causes of sentinel events. Effective communication, which is timely, accurate, complete, unambiguous, and understood by the recipient, reduces errors and results in improved patient safety." The Joint Commission (2007) *National Patient Safety Goals*.

4.5 Describe advantages/disadvantages of different means of communication, to include:	**Means of communication**	**Advantages**	**Disadvantages**
	Verbal (e.g. face-to-face, telephone)	• Messages are communicated immediately • SMT can also exercise their personal influence to their client • SMT can judge the reaction of their client • Any doubts or misunderstandings can be identified and resolved immediately	• Lack of evidence unless recorded • Requires direct contact with recipient. Although reasonable for client, third parties may have time constraints
	Non-verbal, written (e.g. letters, progress reports)	• No need for personal contact • Provides proof for future reference • Clear and self-explanatory	• Subject to delays in response • Confidentiality concerns since it is possible for written evidence to be read by anyone

5. Understand how to produce, maintain and store client records	

5.1 Explain the importance of accurate and confidential record keeping	• Adhere to legal requirements for data protection
	• Provide evidence of
	  ○ Judgment used to support professional actions
	  – Demonstrating Duty of Care
	  ○ Treatment/advice given to client
	  – Adherence to Scope of Practice
	  ○ Informed consent of client
	  ○ Progress of client
	  ○ Efficacy of treatment
	• Demonstrate professional competence
	  ○ Transference of information between involved parties

5.2 Explain what information should be recorded	• S.O.A.P records
	• Subjective information
	  ○ Verbal and written information relating to the client and their condition, prior to treatment eg,
	  ○ The client's personal/lifestyle details
	  ○ Any contraindications
	  ○ Relevant medical history questions
	  ○ The reason for the client's visit
	  ○ Appropriate questions regarding the possible causes for the client's current status
	  ○ Client's signature to confirm informed consent
	• Objective information
	  ○ Examination methods used to determine the client's condition prior to any treatment and their results eg,
	  ○ Observations
	  ○ Range of motion tests
	  ○ Palpation
	• Analysis (findings)
	• Action (treatment

	• Plan:
	  ○ effects
	  ○ outcome
	  ○ advice given.

5.3 Explain the principles to apply when recording treatments, to include:	• Accurate and unambiguous. • Completed in an indelible format with any alterations initialled. • Completed within 24 hours. • Storage duration requirements. • Use of permanent ink. • Practitioner signature on each page. • Electronic records, regular backup, password protection, firewall protections.

5.4 Explain the legal requirements for the storage and disposal of records	• See AC 5.3
	• General Data Protection Regulation requirements
	  ○ Security
	  ○ Accessibility
	  ○ Disposal

The principles of soft tissue dysfunction (A/650/6136)

Unit aim

This unit provides the knowledge and understanding required to differentiate between soft tissue injuries and soft tissue dysfunction, to help ensure that learners remain within their own scope of practice when working with clients.

Content

<table>
<tr><th colspan="4">1. Understand soft tissue dysfunction</th></tr>
<tr><td>1.1 Differentiate between soft tissue injury and dysfunction, to include:</td><td colspan="3">

Soft tissue injury - Damage to any biological tissue except bone
Definition of dysfunctional tissue:

Non-pathological, free from disease, non-injured, aches and pains, areas of scar tissue, tense areas, postural ischemia, free from inflammation
<table>
<tr><th></th><th>Soft tissue injury</th><th>Soft tissue dysfunction</th></tr>
<tr><td>When?</td><td>Onset of symptoms readily established</td><td>Exact onset of symptoms often vague and not readily established</td></tr>
<tr><td>How?</td><td>Mechanism of injury (MOA) normally identified as one or more of the following types of extrinsic trauma:
Human
Implemental
Vehicular
Environmental</td><td>Cause can be hard to determine. Normally established as being due to intrinsic factors such as:
Muscle imbalance(s)
Muscle weakness(s)
Muscle tightness(s)
Muscle(s) overuse/underuse
Compensatory movement patterns</td></tr>
<tr><td>Typical presentation</td><td>Often an acute pain</td><td>General aching/stiffness</td></tr>
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</td></tr>
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		(which commenced immediately after MOA) • Exact site easily identified (client points to area)	• Source tends to be more generalised and harder to identify (client rubs area)
1.2 Explain the types of soft tissue injuries	• Common overuse type injuries ○ Shin splints – Stress fracture – Compartment syndrome – Tenoperiostitis ○ Golfer's elbow (medial epicondylitis) ○ Tennis elbow (lateral epicondylitis) ○ Rotator cuff impingement ○ Plantar fasciitis ○ Carpal tunnel syndrome • Skin ○ Graze – Abrasion ○ Cut – Laceration ○ Burn – Heat – Cold • Muscle tissue ○ Strains (damage to muscle fibres) ○ DOMS (damage to myofibrils) • Connective tissue ○ Tendon – Strain (damage to tendon) – Tendinitis (inflammation of tendon – overuse/friction) – Tendinosis (degeneration of the tendon's collagen in response to chronic overuse) – Tendinopathy (general term that describes tendon disease or disorder)		

	○ Ligament sprain (damage to ligament) ○ Joint capsule sprain (damage to joint capsule) ○ Hyaline cartilage damage ○ Meniscal tear ○ Bursae – Bursitis (inflammation of a bursa – overuse/friction) – Haemabursa (damage to a bursa – impact trauma) • Nervous tissue ○ Neuropraxia – Bruising to a nerve e.g. hitting your 'funny bone' – Pressing/trapping a nerve (impingement) e.g. sciatica ○ Neurotemesis (severance of a nerve)
1.3 Describe common causes of soft tissue injury	• Extrinsic factors ○ See AC 1.1 – Impact – Trip – Fall – Inadequate/poorly fitting equipment
1.4 Differentiate between the severity of injuries	See AC 1.4 (re: overuse vs. injury) • Strains (grade 1, 2 and 3) ○ Grade 1 least severe, grade 3 total rupture – Inflammation (redness, swelling, diminished function, pain) – Note: associated pain levels are not a reliable indicator of severity • Sprains (grade 1, 2 and 3) ○ Grade 1 least severe, grade 3 total rupture – Inflammation (redness, swelling, diminished function, pain) – Note: associated pain levels are not a reliable indicator of severity
1.5 Describe common causes of soft tissue dysfunction	• Intrinsic factors ○ See AC 1.1 – posture

	– inactivity – old injury – body composition – lifestyle – work – stress.
1.6 Describe signs and symptoms of soft tissue dysfunction	See AC 1.1 and 1.3
2. Understand the process of repair of soft tissue	

2.1 Describe the process of soft tissue repair	• Acute phase
	  ○ Typically lasts for up to three days post-injury
	  ○ Signs and symptoms of inflammation are present
	  ○ Process (damage limitation)
	  – Vasoconstriction.
	  – Effects of histamine and thrombin.
	  – Sticky matrix formation.
	  – Phagocytosis.
	• Sub-acute (repair phase)
	  ○ Follows acute stage and typically lasts between three days and three weeks post-injury
	  ○ Swelling/pain may still be present; however redness and heat have diminished
	  ○ Process (repair)
	  – Formation of new blood and lymphatic vessels at the injury site.
	  – Re-establishment of the supply of oxygen and nutrients to the cells of the damaged tissues.
	  – Fibroblasts produce collagen.
	  – Granulation tissue formation.
	• Chronic stage (ongoing repair and remodelling phase)

	○ Follows sub-acute stage and typically lasts between three weeks and one to two years post-injury ○ Continued reduction of swelling and pain accompanied by a gradual return to function ○ Process (remodelling): – Granulation tissue matures into scar tissue. – Lymphocytes continue to act to reduce size of original haematoma.
2.2 Describe factors that may influence soft tissue repair	• Types of tissue ○ Avascular tissues (e.g. ligaments and tendons) take longer to repair than those with greater blood supply (e.g. muscles) • Severity of injury ○ Grade 3 injuries take longer to repair than grades 2 and 1 • Age ○ The repair process for older clients will generally take longer to complete than younger ones • Medication ○ Although anti-inflammatories may help relieve the symptoms, inflammation is vital for the repair of soft tissue. Therefore taking drugs such as non-steroidal anti-inflammatories (NSAIDs) may slow the repair process. • Nutrition ○ Adequate supply of nutritionally rich food containing protein is vital for the repair of soft tissue • Treatment (to assist repair) ○ Acute stage – Protect, Rest, Ice, Compress, Elevate (PRICE) ○ Sub-acute stage – Gradually introduce controlled localised movements ○ Chronic stage – Gradually introduce controlled functional movements

2.3 Explain the importance of the inflammatory process	• Inflammation is a protective tissue response to injury or destruction of tissues, which serves to destroy, dilute, or wall off both the injurious agent and the injured tissues. Disposal of dead or dying tissue and promotion of the repair and renewal of normal tissue. • See AC 2.2

Assessing clients and treatment planning (R/650/1363)

Unit aim

This unit provides the knowledge and understanding required to differentiate between soft tissue injuries and soft tissue dysfunction, to help ensure that learners remain within their own scope of practice when working with clients.

Content

1. Understand the effects of performance massage on the body systems	
1.1 Describe the physical effects of performance massage	• Mechanical pumping and squeezing action to assist in the flow of fluids (e.g. blood and lymph). • Longitudinal and transverse stretching of soft tissue aids in mobility. • Helps to influence the formation of collagen fibres. • Specific techniques assist in the removal/reduction of any soft tissue adhesions and aid in free movement.

1.2 Describe the physiological and neurological effects of performance massage	• Generally elicits a parasympathetic (relaxation) response:
	  ○ Vasodilation to both blood and lymphatic vessels
	  ○ Reduction in neural stimulation (contraction) of muscles
	  ○ Reduction in the production of sympathetic ('stress') hormones
	• However, varying the method of application can cause sympathetic response (i.e. the opposite to occur).

1.3 Describe the psychological effects of performance massage	• Sympathetic response:
	  ○ Increase mental alertness.
	  ○ Stimulate the client to help prepare them for activity.
	  ○ Increase adrenaline and endorphins in the body.
	• Parasympathetic response:
	  ○ Reduction in physical tension.
	  ○ Feeling of wellbeing and relaxation.
	  ○ Lowering of anxiety.

2. Understand the principles of performance massage treatments	
2.1 Describe the benefits of performance massage	• Increase the supply of nutrients to vascular tissues, enhancing their health and assisting healing and repair. • Aid in the removal of metabolic waste products from tissue, assisting in recovery from activity. • Help to reduce pain, by lessening tension in muscles, reducing pressure build-up due to congestion and removal of metabolic irritants. • Increase in range of movement, thereby reducing the risk of injury by aiding in the efficiency of movement.
2.2 Explain the contexts in which performance massage is used, to include: • Pre-event • Inter/intra-event • Post-event • Maintenance	• Pre-event o Prepare the athlete for high-intensity activity – A short, invigorating massage normally proves extremely effective in 'psyching' up the athlete, mentally preparing them for speed, strength and explosive power events. – Should excess nervousness or excitability be exhibited by the client, a more relaxing, 'de-stressing' massage treatment may be indicated. – A sympathetic response will help 'kick start' the metabolic functions of the body, increased oxygen uptake at the cellular level helping delay the onset of lactic acid accumulation. – Although not a replacement for a conventional 'warm up', massage is an extremely efficient method to prepare muscles for stretching. • Inter/intra-event o To minimise the likelihood of muscles tightening up during the short rest periods between multiple competitions/events held on the same day. – Similar format to that of pre-event massage. – Should focus on the main muscles stressed, together with any input from the athlete. • Post-event o Aid in recovery from intense activity – A relaxing massage will help the athlete 'unwind' from the mental demands of intense training and competition. – Many believe that long deep strokes (effleurage) in the direction of venous return, will aid in the removal of

	lactic acid and other metabolic wastes from muscles, thereby aiding recovery. • Maintenance ○ Primary focus is to correct any soft tissue dysfunction caused by high intensity training. – Requires a detailed examination prior to treatment to establish both athlete's symptoms and performance massage therapist's clinical findings. – Proposed massage strategy is then discussed and agreed. – Treatment is then carried out using massage methods appropriate to the presentation and needs of the client. – Following treatment its effectiveness is evaluated against the original treatment aims.

3. Understand how to establish treatment goals	
3.1 Explain what is meant by subjective assessment	• Verbal and written information relating to the client and their condition, prior to treatment.
3.2 Explain what is meant by objective assessment	Examination methods used to determine the client's condition prior to any treatment and their results.
3.3 State the reasons for conducting subjective and objective assessment prior to treatment	• Client's suitability for treatment. • To establish and help agree aims for treatment/action plan.

3.4 Describe methods of carrying out subjective assessments	• Consultation
	  ○ Face-to-face discussion
	  ○ Completion of client record card
	  ○ Referral to written information supplied by/with client.

3.5 Describe objective assessments methods	• Observations • Comfortable movement patterns • Range of movement • Palpation Recording findings

3.6 Describe how to establish treatment goals based upon subjective and objective assessments	• Client's expectations from subjective assessment. • Which treatment will best suit client from objective examination.
3.7 Explain why the client needs to agree to any proposed treatment	• Informed consent is a legal requirement.
3.8 Explain the importance of accurate client assessments and re-assessments	• Establish baselines against which to measure progress of client and efficacy of treatment.

4. Be able to conduct client assessments	
4.1 Ensure presence of an appropriate chaperone if necessary, documenting accordingly	• Can act as a safeguard for both parties (children/vulnerable adults and performance massage therapist) and is a witness to the conduct and the continuing consent of the procedure: ○ Provides protection to healthcare professionals against unfounded allegations of improper behaviour. ○ Helps ensure that the child/vulnerable adult fully understands and consents to examination and treatment. – May act as a signatory for informed consent.
4.2 Conduct subjective assessments of clients, to include:	• Review any previous treatment notes • Accurately completing a client record card for a client • Demonstrating effective communication skills, including: ○ Professional attitude and appearance. ○ Positive body language. ○ Rapport and understanding. ○ Clear explanations and avoidance of technical jargon. ○ Answering all client's questions fully and accurately. ○ Explanation of the assessment procedure. • Obtaining client's signature to confirm informed consent prior to examination.

	• Accurately record all findings.

4.3 Establish informed consent before carrying out physical assessments	• Informed
	  ○ Explanation of
	  – Purpose/requirement of physical assessments
	  – Procedure
	  – Reason/s for the possible removal of some clothing during examination
	• Consent
	  ○ Verbal agreement
	  ○ Obtained signature
	  ○ See also AC 4.1

4.4 Conduct objective assessments of clients	• Ensuring suitable client privacy using of towels, where appropriate.
	• Palpation of site/s being examined, noting
	  ○ skin feel
	  ○ muscle tightness/tension
	  ○ signs of client discomfort.
	• Observing the area to be treated, noting/acting upon:
	  ○ signs of swelling or inflammation
	  ○ scars
	  ○ skin condition.
	• Safely and effectively instructing the client to perform comfortable movement patterns of all joints relevant to treatment, noting:
	  ○ signs of muscle weakness
	  ○ compensatory movement patterns.
	• Observing the client's posture/gait, noting:
	  ○ muscle imbalance/atrophy
	  ○ compensatory movement patterns.

5. Be able to design performance massage treatment plans	
5.1 Summarise the information obtained from subjective and objective assessments	• Construct a treatment plan summarising information obtained, recording an appropriate action against each symptom/finding.

5.2 Present proposed massage strategies to clients	• Confirm treatments aims (from):
	  ○ Prepare for sports activity
	  ○ Assist in injury prevention
	  ○ Facilitate post-exercise recovery
	  ○ Enhance feeling of wellbeing
	• Discuss proposed actions
	• Area/s to be treated
	  ○ Techniques to be used
	  – Purpose
	  – Effects/possible side effects
	  ○ Proposed massage mediums
	  – Oils (type)
	  – Lotion
	  – Powder
	  – Gels
	  – Waxes.

5.3 Agree treatment goals with client and **obtain informed consent** for proposed treatment	• Modify strategy if required. • Obtain client's signature to agree to proposed treatment.

Application of performance massage (Y/650/1365)

Unit aim

To provide the knowledge, understanding and skills required to prepare for and apply performance massage in a safe and effective manner.

Content

1. Understand the fundamentals of performance massage treatments				
1.1 Describe a range of performance massage techniques, to include: • Name • Purpose • Methods • Application • Effects • Safety considerations.	**Name**	**Purpose**	**Methods**	**Effects**

	Effleurage	• Introduce the performance massage therapist's touch to the client • Relax the client • Apply the massage medium (e.g. oil) • Encourage blood and lymphatic circulation • Warm up the soft tissues • Monitor the tissues as part of palpation • Link other performance massage techniques • Provide a rest between specific, deep-tissue techniques • Conclude the treatment	• Longitudinal/ transverse • Superficial/deep	• Increase circulation at the level of application • Improve skin condition • Increase relaxation of soft tissues • General relaxation of soft tissues
	Petrissage	• Mobilise muscles or groups of muscles	• Wringing • Rolling	• Increase muscle and fascial mobility

		• Reduce intramuscular congestion • Reduce tension in muscle fascia • Assist in free movement of muscles or muscle groups	• Kneading • 'Picking up'	• Increase circulation • Reduce fibrous adhesions in muscle fibres and fascia • Improve skin condition, especially elasticity
	Compressions	• Often used as a warm-up for deeper, more specific massage work.	• Rhythmic pressure applied to muscles	• Deep hyperaemia (Increased blood flow) resulting in a "softening" effect of tissues
	Vibrations /shaking	• To stimulate client • Relax muscles		• Increase circulation • Decrease muscular tension • Physical/mental "preparation" for activity (pre-event)
	Tapotement	• To stimulate the client (sympathetic response) • To help tone muscles that have atrophied due to disuse/poor neural recruitment	• Hacking • Cupping • Beating • Pounding	• Mental stimulation • Increased muscle tone

	Passive stretching	• Therapist taking affected joint though an extended range of motion; however:
		• Before undertaking any passive stretching, the therapist must ensure that:
		  ○ On presentation, the client has no pain or inflammation
		  ○ The area to be stretched is has been warmed
		  ○ There are indications for undertaking passive stretching
		  ○ The client:
		  – undertakes active stretching prior to passive stretching
		  – has a pain free movement pattern
		  – has no radicular, or radiating pain or paraesthesia
		  – has no co-existing pathology
		  – has no contraindications.

Application considerations (including safety)

Method of application	Considerations
Hand positions	• Reinforced digits • Fingers aligned to direction of force • Avoid excessive use of fingers
Effective contact	• Maintain contact throughout treatment • Begin superficial progress to as deep as required • Rhythmical application of techniques • Use pressure that is sufficient to reach target structures while ensuring minimal client discomfort • Effleurage: pressure applied in direction of venous return reduced on return strokes
Appropriate direction	• Longitudinal effleurage strokes applied towards the major lymph nodes/direction of venous return • Shorter strokes applied in whichever direction is deemed to have the greatest effect • Work away from bony structure to avoid pinching/discomfort
Regions treated	• Work on proximal areas before distal • Avoid working directly on bony structures or endangerment sites

1.2 Explain how performance massage can complement other therapies and treatments	• Reducing physical, physiological, and psychological tension prior to manipulative therapies
	  ○ Chiropractic
	  ○ Osteotherapy
	  ○ Physiotherapy
	• Aiding
	  ○ Cognitive therapies by promoting a feeling of well-being
	  ○ Palliative care
	  – Relaxing the whole body
	  – Promoting restful sleep
	  – Reducing mental stress

1.3 Explain the importance of positioning and posture for the:
• Massage therapist
• Client
• Use of props
	Massage therapist
	• Stance (lunge)
	  ○ Wide base of support
	  ○ Weight on back foot/staying behind the stroke
	  ○ Spine aligned with back leg
	  ○ Effective use of weight transfer
	• Stance (squat)
	  ○ Unsuitable for effective application of pressure
	  ○ Neutral spine
	• Hand positions (see AC 1.1)
	Client
	• Should be positioned for
	  ○ Comfort
	  ○ Ease of access to treatment sites
	  ○ Non-invasive of contact of tissues
	• Different positions
	  ○ Prone
	  ○ Supine
	  ○ Side lying
	• Use of props

<table>
<tr>
<td>1.4 Describe the signs and symptoms of contra-actions</td>
<td>
<table>
<tr><th>Signs and symptoms</th><th>Response</th></tr>
<tr><td>Redness/itching, indicative of an allergic reaction to chosen medium</td><td>Remove medium using cologne or similar alcohol-based cleanser

Cease treatment/use alternative medium (according to client's choice)</td></tr>
<tr><td>Heightened emotional state, exaggerated parasympathetic responses</td><td>Maintain a professional approach and assure client that reactions are not unusual (and are 'involuntary')</td></tr>
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<tr>
<td>1.5 State the therapist's response to contra-actions</td>
<td>

See AC 1.4

</td>
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<tr>
<td>1.6 Describe effects and benefits of commonly used mediums in performance massage</td>
<td>

Oils

Oils provide a smooth, friction-free medium that allows large areas to be massaged easily

– Natural vegetable- and plant-based oils
– Nut or seed oils
– Essential oils (if qualified)

Natural oils nourish the skin

– Take care to avoid allergies
Creams and lotions

Thicker than oil, with less gliding ability
Easier to use than oils when manipulating tissues since it allows effective 'purchase' whilst minimising the risk of pinching
Less greasy than many oils which reduces the likelihood of stains to clothing and towels

Powder

Although powder reduces friction, it is not as efficient as cream, lotion or oil. Useful when the client does not want any oil or cream on their body of if they have excessive body hair.

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	• Massage waxes
	  ○ Combination of bee's wax, blended with oils (such as sweet almond or grapeseed)which helps provide a firmer grip when required
	• Massage gels
	  ○ Provide an oil-like glide without the greasiness often associated with oils. They are also more readily absorbed than other massage mediums

1.7 Explain the advantages and disadvantages of commonly used mediums in performance massage	• See AC 1.6

2. Understand how to prepare for performance massage	

2.1 Describe the requirements of suitable environment in which to conduct performance massage, to include the following settings:
• in a clinic
• outside
	• in a clinic:
	  ○ room should be warm, quiet, private and well ventilated
	  ○ area must be kept clean and tidy
	  ○ hand-washing facilities must be available
	  ○ a supply of clean, laundered towels, linen and paper couch roll must be available
	  ○ a bin for disposal of waste must be available.
	• outside:
	  ○ no obvious hazards, such as doorways, stairs, large volumes of human traffic
	  ○ avoid working underneath trees
	  ○ seek shelter from elements and consider use of a canopy
	  ○ ensure the ground is level and stable
	  ○ although a bare couch is easier to keep clean, the sun may make it very hot if left exposed for long periods
	  ○ towels should be used prudently by encouraging clients to only remove minimal clothing to maintain warmth/privacy and massage should be done through clothing whenever possible

	○ keep hands clean by using alcohol wipes ○ if massaging in a confined area for short periods, take regular breaks.
2.2 Identify the considerations when selecting a surface upon which to apply massage. • Couch • Chair/bench • Ground	• couch ○ robust ○ secure and stable ○ adjustable height ○ weight ○ consider advantages/disadvantages of inclined back/face hole ○ consider merits/limitations of different materials (wood, aluminium, carbon fibre, etc) ○ number of legs (more legs = harder to level and more to adjust) ○ price • chair/bench ○ robust ○ secure and stable ○ fully adjustable ○ weight ○ bench only suitable for legs • ground ○ location (see AC 2.1) ○ use of mat ○ only really suitable for legs
2.3 Describe the purpose of couch roll, towels, pillows and bolsters	• couch roll ○ protects towels from contamination ○ protects clothing from medium • towels ○ provide warmth ○ ensure modesty/privacy ○ used as props

	• pillows/bolsters/props
	  ○ provide comfort
	  ○ prevent hyperextension of joints
	  ○ assist in the relaxation of muscles

2.4 Explain how to maintain personal hygiene & infection control during the treatment process	• removing of watches and jewellery • avoiding wearing vests or any tops without sleeves • tying hair back • wearing suitable footwear • adherence to Government guidelines

3. Be able to perform performance massage treatments	

3.1 Prepare treatment area, equipment and self for performance massage	• Risk assessment to ensure site is suitable for proposed treatment
	  ○ Indoor
	  – Clinic
	  – Changing room
	  – Other
	  ○ Outdoor
	• Appropriate standards of dress, personal hygiene and appearance
	• Equipment, materials and environment are clean and hygienic
	• Couch/massage surface is suitable for both therapist and client e.g. couch height
	• Materials are adequate for the planned massage
	  ○ Couch cover
	  ○ Couch roll
	  ○ Towels
	  ○ Medium
	  ○ Cleansing lotion

3.2 Prepare clients for performance massage	Only the body area to be treated is exposed
3.3 Position clients for comfort, dignity and maximal effectiveness	• See AC 1.3
3.4 Perform massage methods that meet the presentation and needs of the client	• Client is suitably positioned throughout the massage • The application and duration of massage techniques are suitable to the client, their condition and the aims of the treatment • Any contra-actions are acted upon accordingly
3.5 Recognise verbal and non-verbal feedback and adapt the treatment plan accordingly	• Verbal feedback to be encouraged during treatment, closed and open questions • Non-verbal feedback in relation to body language, adverse reactions, practitioner observations
3.6 Adapt own posture and position	• Lunge stance

throughout to ensure safe and effective application of techniques	○ wide base of support ○ weight on back foot/staying behind the stroke ○ spine aligned with back leg ○ effective use of weight transfer • squat stance ○ neutral spine • different treatment positions ○ prone ○ supine ○ side lying
3.7 Perform all techniques in an effective manner	• different hand positions ○ re-enforced digits ○ fingers aligned to direction of force ○ avoid excessive use of fingers • maintain contact throughout treatment ○ monitoring tissue response and responding accordingly • superficial to deep • appropriate speed/ pressure/depth • different directions ○ effleurage in direction of venous return ○ working away from bony structures to avoid pinching • rhythmical and linking techniques • variety
3.8 Maintain interaction with clients throughout the massage	• seeking continuous feedback • maintaining informed consent • ensuring minimal discomfort • building trust and rapport
3.9 Remove massage medium when necessary	• hygiene • safety • sports requirements

3.10 Apply and maintain professional standards throughout treatments	• appearance and manner • client care and communication • health, safety, and hygiene • confidentiality and boundaries
3.11 Restore working environment to safe and hygienic condition	• return equipment and furniture to place of storage • cleaning and sterilising • disposal of waste products • prepare room as appropriate • turn off electrical equipment

Providing post-treatment care advice (T/650/1364)

Unit aim

To provide the fitness professional with sufficient knowledge, understanding and skills to ensure that they can safely advise suitable post-treatment care for their client.

Content

1. Understand how to evaluate performance massage treatments	

1.1 Compare methods used to evaluate the effectiveness of treatments	• Methods used and advantages and disadvantages of each
	  ○ Subjective methods
	  ○ Objective methods

1.2 Explain how the client can play an active role in ensuring the effectiveness of their treatment	• Adhering to any advice given (see AC 5.4)
1.3 Explain the importance of self-reflection	

2. Understand how the lifestyle of the client can affect the effectiveness of treatment	
2.1 Explain why it is important to consider individual lifestyle factors prior to giving any aftercare advice	• identifying positive and negative lifestyle factors • accounting for stresses/demands placed on client's body (i.e. activities of daily living – ADL)
2.2 Describe positive lifestyle factors	Things which will have a positive impact on the client's recovery. e.g. • access to additional resources (e.g. gym member) • high level of commitment (e.g. their own reasons for rapid recovery) • access to coaching/expert advice • flexible working hours

2.3 Describe negative lifestyle factors	Things which will have a negative influence on the client's recovery. e.g. • unable to rest the injured limb(s) due to work • child-care demands • high volume of seated activities (e.g. desk worker) • necessity of climbing stairs

3. Understand the importance of healthy eating	

3.1 Explain the dietary role of key macro nutrients	• Carbohydrates
	  ○ energy
	  ○ digestion (fibre)
	  ○ nervous system function (brain).
	• Fats
	  ○ energy
	  ○ insulation
	  ○ protection of vital organs
	  ○ fat-soluble vitamins
	  ○ essential fatty acids
	  ○ cell membranes and nerve structures.
	• Protein
	  ○ cell growth and repair, including muscles
	  ○ energy.

3.2 Explain the dietary role of key micronutrients	• Vitamins
	  ○ Organic (can be broken down by heat, air or acid)
	• Minerals
	  ○ Non-organic (maintain their chemical structure)
	• Essential for normal growth, function and health
	  ○ Functions include:
	  – Help the body to release the energy from food.
	  – Regulate cell function.
	  – Serve as building blocks for cells and organs.
	  – Help maintain healthy teeth and bones.
	  – Aid in muscle function.

	– Help with vision. – Oxygen transport in red blood cells. – Regulate and maintain water balance.

3.3 Identify common dietary sources for key macro and micro nutrients	• Grains
	  ○ bread, pasta, potatoes, cereal, and rice
	  ○ provide carbohydrates for energy and fibre.
	• Fruit and vegetables
	  ○ provide fibre, vitamins, and minerals.
	• Dairy
	  ○ milk, cheese, and yoghurt
	  ○ source of calcium for strong teeth and bones.
	• Meat and protein
	  ○ fish, nuts, dry beans, and eggs
	  ○ provide protein, iron, and zinc.
	• Saturated fats/trans fats and sweets
	  ○ cakes, biscuits, pastries
	  ○ provide little nutrition.

3.4 Explain the importance of adequate hydration	• Functions of water include:
	  ○ Regulation of body temperature
	  ○ Maintaining blood plasma volume
	  ○ Removal of waste products
	  ○ Moistening of body tissues/lubricant
	– eyes
	– mouth
	– nose.

3.5 Explain current healthy eating guidelines	• Base meals on starchy foods • Eat plenty of fruit and vegetables • Aim to eat at least two portions of fish a week • Reduce saturated fat and sugar intake • Get active and be a healthy weight • Eat less salt • Avoid getting thirsty • Always eat breakfast

	Ref: NHS choices: “Eight tips for healthy eating”
3.6 Explain the importance of healthy eating in relation to growth, repair and injury	• Significance of maintaining an adequate supply of nutritionally balanced food when less active due to injury ○ Avoid excessively decreasing calorific intake (due to concern of weight gain)
3.7 Explain professional boundaries when offering healthy eating advice	Level of information is in line with current government/NHS Healthy Eating Guidelines

4. Understand the principles of post-treatment advice	
4.1 Summarise the aims of post-treatment advice	• Give information/advice (see AC 4.3) • To inform clients on how they can play a more active role in optimising their health.
4.2 State when to refer clients to other professionals	• Development of unexpected symptoms • When treatment is not working • Outside the limit of professional knowledge and scope.

4.3 Describe the types of advice/information which may be provided	• Appropriate to client and their own scope of practice:
	  ○ rest
	  ○ hydration
	  ○ nutrition (see LO3)
	  ○ stretching
	• On the effects of massage and appropriate times to repeat its application, including:
	  ○ erythema
	  ○ dehydration
	  ○ tiredness
	  ○ bruising

4.4 Explain the importance of ensuring that any advice given is recorded	• Legal requirement • Method of monitoring progress.

5. Be able to evaluate performance massage treatments	
5.1 Carry out post-massage assessments of clients	• Reassessment of subjective information obtained prior to treatment (see AC5.2) • Reassessment of objective measurements obtained prior to treatment (see AC 5.3)
5.2 Obtain feedback from clients	• Verbal • Written
5.3 Evaluate treatment and identify areas and opportunities for improvement	• Achievement of aims and objectives • Subjective & objective assessment • Techniques used • Methods and adaptations used
5.4 Present aftercare advice to clients, providing opportunities for questions	Provide advice to meet client's individual needs: • Rest • Hydration • Awareness of adverse reactions • Erythema • Nutritional advice (within scope of practice) • Stretches • Referral to healthcare practitioner
5.5 Report progress to the relevant healthcare professional if required	Informed consent, date protection and legal requirements
5.6 Record massage sessions as legally required	(See ACs 5.2 & 5.4)

Qualification content: YMCA Level 4 Certificate in Sports Massage Therapy (Soft Tissue Dysfunction) (610/0736/5)

Anatomy and aetiology of soft tissue dysfunction (D/650/1401)

Unit aim

To provide the necessary level of understanding of the anatomy and causes of soft tissue dysfunction to enable the provision of safe, predictable, and effective treatments.

Content

1. Understand the anatomy and physiology of the major joints of the body	

1.1 Locate bony structures associated with the major joints of the body:	• spine/head:
	  ○ joint line:
	  – sacroiliac joint.
	  ○ vertebrae:
	  – transverse processes
	  – spinous process of C7, T3, T7, L4.
	  ○ sacrum
	  ○ occipital process
	  ○ mastoid process.
	• shoulder:
	  ○ joint line
	  – glenohumeral
	  – acromioclavicular
	  – sternoclavicular
	  ○ landmarks:
	  – acromion process
	  – coracoid process
	  – greater tubercle
	  – lateral/medial border of scapula
	  – inferior/superior angle of scapula
	  – spine of scapula.
	• hip:
	  ○ landmarks:
	  – Iliac crest

	– anterior superior iliac spine (ASIS) – anterior inferior iliac spine (AIIS) – posterior superior iliac spine (PSIS) – ischial tuberosity – pubic tubercles – greater trochanter. • knee: o joint line: – tibial plateau. o landmarks: – superior pole of patella – inferior pole of patella – lateral and medial femoral condyle – tibial tuberosity – lateral and medial femoral epicondyle – head of fibula. • ankle and foot: o joint line: – talocrural. o landmarks: – medial/lateral malleolus – peroneal tubercle – navicular tuberosity – talar dome – calcaneus – base of 5th metatarsal. • elbow: o joint line: – radio-ulnar – humeral-ulnar. o bony landmarks: – lateral and medial epicondyle – head of radius – olecranon process. • wrist/hand:

	○ joint line ○ bony landmarks: – radial and ulnar styloid processes – scaphoid – pisiform.
1.2 Explain the functions of bony structures associated with the major joints:	The function of each structure detailed in AC 1.1 including: • specific soft tissue attachment sites • Q angle (hip) • screw home mechanism (knee).
1.3 Indicate the location of key soft tissue structures associated with soft tissue dysfunction:	Note: General knowledge only- means only general location is required. • spine: ○ intervertebral discs – annulus fibrosus – nucleus pulposus. ○ ligaments (general knowledge only): – interspinous – supraspinous – anterior longitudinal – posterior longitudinal – ligamentum flavum – ligamentum nuchae – suboccipital – sacrospinous – sacrotuberous – iliolumbar. ○ nerves (general knowledge only): – sciatic – sacral/lumbar plexus. • shoulder: ○ glenoid labrum

	○ ligaments (general knowledge only): – acromioclavicular – coracoclavicular – coracoacromial – sternoclavicular. ○ bursae: – subdeltoid – subacromial. ○ nerves (general knowledge only): – brachial plexus. • hip: ○ acetabular labrum ○ ligaments (general knowledge only): – iliofemoral – ligamentum teres – pubofemoral – ischiofemoral. ○ bursae: – deep trochanteric – superficial trochanteric – iliopectineal. • knee: ○ medial/lateral meniscus ○ ligaments: – medial/lateral collateral – anterior/posterior cruciate. ○ bursae: – suprapatellar – prepatellar – infrapatellar – popliteal – pes anserinus (SGT). • ankle and foot: ○ plantar fascia ○ retinaculum

	○ ligaments: – talofibular – calcaneofibular – deltoid. ○ bursae: – retrocalcaneal – achilles. • elbow: ○ ligaments: – annular – ulna/radial collateral. ○ bursae: – olecranon.
1.4 Describe the function of key soft tissue structures associated with soft tissue dysfunction:	The function of each structure detailed in AC 1.3. Note: General knowledge only means only general function is required.
1.5 Explain how the ageing process affects the musculoskeletal system:	• Decrease in bone density: ○ osteopenia ○ osteoporosis. • Articular cartilage becomes thinner: ○ osteoarthritis. • Connective tissue within ligaments and tendons becomes more rigid: ○ decreased ROM. • Decrease in number and size of muscle fibres: ○ decrease in strength.

2. Understand the musculoskeletal system's interaction with the nervous system	
2.1 Define the following: • a dermatome • a myotome.	• A dermatome is an area of skin supplied by a single spinal nerve. • A myotome is a group of muscles innervated by a single spinal nerve.
2.2 Identify the distribution pattern of dermatomes and myotomes:	• dermatomes: ○ dermatome map ○ pinprick test ○ light touch test ○ C2 Posterior head ○ C3, C4, C5, C6, C7, C8, T1 Neck, arms & hands ○ T2 - L1 Trunk ○ L2, L3, L4, L5, S1, S2 Legs & feet ○ S3-S5 Perineum. • myotomes: ○ isometric resisted muscle testing for: – C1, C2, C3, C4, C5, C6, C7, C8, T1 – T2-T12 generally not tested – L2, L3, L4, L5, L5-S1, S1, S2, L5/S1, L4/L5/S2/S3. ○ myotome dance.
2.3 Describe the relationship of dermatomes and myotomes to various pathologies:	• A dermatome is tested for sensation changes at a particular disc level such as: tingling, numbness, diminished or absent sensation. • Results may indicate if specific spinal nerves are lesioned, diseased or injured, intervertebral disc herniation. • A myotome is tested for muscle strength at a particular spinal level. • Results may indicate: ○ if specific spinal nerves are lesioned, diseased or injured ○ intervertebral disc herniation.

3. Understand how biomechanical dysfunction / faulty movement patterns can result in injury	
3.1 Describe the characteristics of common postural types.	See AC 3.3.
3.2 Explain the effects of postural deviations:	• compensatory somatic patterns • physiological effects • psychological effects • effects on performance (negative/positive) • increased susceptibility to injury • pathophysiology of common injuries/soft tissue dysfunction • common signs, symptoms for different musculoskeletal/soft tissue dysfunction.

3.3 Describe common injuries/soft tissue dysfunction, including:
• pathology
• signs and symptoms
• causative factors
• clinical assessment findings.
	• spine:
	  ○ sciatica (lumbar disc herniation or piriformis syndrome)
	  ○ whiplash
	  ○ thoracic outlet syndrome
	  ○ cervicalgia and lumbago
	  ○ upper/lower cross syndrome
	  ○ facet joint syndrome
	  ○ scoliosis
	  ○ flat back
	  ○ dowager's hump
	  ○ sports specific postures.
	• hip:
	  ○ muscle weakness, e.g. gluteus medius
	  ○ muscle tightness (hip flexors)
	  ○ leg length (true and apparent)
	  ○ general groin pain
	  ○ sprains and strains of associated soft tissues structures
	  ○ sacroiliac joint dysfunction
	  ○ piriformis syndrome (see also spine)

	○ snapping hip ○ hernia ○ bursitis ○ myositis ossificans. • shoulder: ○ general shoulder pain ○ sprains and strains of associated soft tissue structures ○ impingement syndrome (rotator cuff dysfunction) ○ scapula stability/glenohumeral rhythm ○ adhesive capsulitis ○ bursitis. • knee: ○ sprains and strains of associated soft tissue structures ○ iliotibial band syndrome ○ maltracking patella ○ chondromalacia patella ○ painful patella syndrome ○ bursitis ○ Osgood–Schlatter disease ○ meniscal damage ○ patellar tendonitis ○ synovial effusion ○ hemarthrosis. • ankle and foot: ○ sprains and strains of associated soft tissues structures ○ tendonitis ○ compartment syndrome ○ medial tibial stress syndrome ○ stress fractures ○ plantar fasciitis. • elbow, wrist, and hand: ○ lateral/medial epicondylitis

	○ compartment syndrome ○ repetitive strain injury (RSI) ○ carpal tunnel syndrome.

4. Understand presenting conditions of neurological origin which may require referral to another health care professional	
4.1 Describe the pathways of peripheral nerves:	Peripheral nervous pathways are made up of neurons, nerve cell bodies (and their axons and dendrites) and synapses (the points at which one neuron communicates with the next.) Two main types; spinal nerves and cranial nerves. Functionally, the PNS can be divided into the autonomic and somatic nervous systems. Both of which can be further subdivided. The autonomic into sympathetic and parasympathetic arms and somatic into sensory and motor divisions. I.e.: • cervical plexus • brachial plexus • sacral plexus • lumbar plexus.
4.2 Describe common causes of neurological damage:	• hereditary • acquired: ○ exposure to toxins, injury, infections, metabolic or inflammatory disorders). • injury from accident: ○ fall or sports injury (compress/crush (neurapraxia) or injury/severance (neurotmesis). • nerve lesions • inflammation • neuromas • chemotherapy • radiation therapy • medical conditions: ○ diabetes, Guillan-Barre syndrome, carpal tunnel syndrome, coeliac disease, kidney disease, spondylosis, cancer, herpes zoster (shingles),

	Lyme disease, Parkinson's disease, multiple sclerosis, cerebral palsy). • autoimmune diseases: ○ systemic lupus, rheumatoid arthritis, Sjogren's syndrome, HIV.
4.3 Describe common peripheral neuropathy patterns:	• lumbar radiculopathy (sciatica) • cervical radiculopathy • piriformis syndrome • intervertebral disc prolapse • femoral neuropathy • diabetic neuropathy • carpel tunnel syndrome • Morton's neuroma • ulnar nerve palsy • radial nerve palsy • cervical spondylosis • axillary nerve palsy • brachial neuritis • spinal cord injuries • perineal numbness • tarsal tunnel syndrome.
4.4 Describe the pathophysiology of common neurological injury/soft tissue dysfunction:	See AC 4.3.
4.5 Describe neural presentations that warrant neurological testing	• headache • problems with balance and/or coordination • numbness/pins and needles in the arms and/or legs • blurred vision • changes in hearing and/or ability to smell • changes in behaviour • slurred speech • confusion or other changes in mental ability • muscle weakness/flaccidity • seizures / tremors

	• fatigue • fever • positive straight leg raise • gait disturbance.
4.6 Explain the importance of referral for neurological testing:	• To ensure practitioner works within their scope of practice. • To eliminate or confirm and receive urgent treatment for neurological disease or injury. • Reduce risk of long-term complications. • Ability to promptly identify red flags indicating the need for emergency referral.

5. Understand the uses and side effects of major classes of drugs which may have on a client's condition	
5.1 List the uses of major classes of medications associated with musculoskeletal pathology:	See Table C.
5.2 Recognise the side effects of drugs which can give musculoskeletal symptoms:	See Table C.

Table C

Medication group	Uses	Common side-effects
Anti-inflammatory (analgesics) non-steroidal anti-inflammatory drugs (NSAIDs): • ibuprofen • naproxen • diclofenic • high dose aspirin.	Relieve pain, reduce inflammation. Used to relieve symptoms of sprains and strains, headaches, arthritis and other causes of long-term pain Also to bring down high temperature, for colds and flu, painful periods.	Frequently reported gastrointestinal symptoms: • indigestion • nausea • stomach ulcers • headaches • drowsiness • dizziness • diarrhoea.

Opioids (analgesics):
• weak opioids:
  ○ codeine
  ○ dihydrocodeine.
• strong opioids:
  ○ tramadol
  ○ morphine
  ○ oxycodone
  ○ fentanyl
  ○ hydrocodone.
	Can help manage some types of pain but not all as it helps changes the way the brain perceives it.	Short term use:
		• dizziness, nausea, sickness, sleepiness and confusion.
		Use over longer periods:
		• constipation
		• itching
		• weight gain
		• low libido
		• difficulty breathing at night
		• hyperalgesia
		• depression
		Can be addictive, withdrawal symptoms can occur.

Medication group	Uses	Common side-effects
Tricyclic antidepressants (TCA's) e.g. amitriptyline.	There is evidence to suggest that they're effective in treating long-term nerve pain: • neuropathic pain (chronic nerve pain) • complex regional pain syndrome • peripheral neuropathy • multiple sclerosis • trapped nerve, i.e. sciatica.	• dry mouth • slight blurring of vision • constipation • problems passing urine • drowsiness • dizziness • weight gain • excessive sweating (night) • arrhythmia.
Antidepressants, e.g. selective serotonin re-uptake inhibitors (SSRI's), serotonin-noradrenalin re-uptake inhibitors (SNRI's).	Can be used for: • moderate to severe depression • anxiety disorders • obsessive compulsive disorder • panic disorder, phobias, social anxiety • bulimia • post-traumatic stress disorder (PTSD) • chronic non-neuropathic pain - fibromyalgia, chronic back or neck pain.	• feeling agitated, shaky, or anxious • nausea and sickness • indigestion and stomach aches • diarrhoea or constipation • loss of appetite • dizziness • insomnia • headaches • loss of libido.
Anti-epileptic medication, i.e. sodium valproate,	Can be used for:	• drowsiness • swollen gums

Medication group	Uses	Common side-effects
carbamazepine, lamotrigine, levetiracetam, topiramate, pregabalin, gabapentin, carbamazepine, oxcarbazepine.	• epilepsy • neuropathic pain, eg. . postherpetic neuralgia, diabetic polyneuropathy • fibromyalgia • restless leg syndrome.	• lack of energy • agitation • headaches • tremor • hair loss or unwanted growth • rashes, • mood changes • swollen arms and legs • dry mouth • memory problems.
Sedatives – benzodiazepines e.g. diazepam, lorazepam, alprazolam.	Can be used for: • anxiety • panic disorders • sleep disorders.	• drowsiness • dizziness • blurred vision • confusions • co-ordination problems • tremors • slowed breathing rate • slower reaction times • anaesthesia • impaired cognition • slurred speech.
Statins e.g. atorvastatin, fluvastatin, lovastatin.	Can be used for high cholesterol.	• Minor side effects, such as diarrhoea, a headache, nausea.
Anti-hypertensives, e.g. ACE inhibitors, angiotensin-2 receptor blockers, calcium channel blockers, beta blockers.	Can be used for hypertension (high blood pressure).	• Headaches, dizziness, cold or flu like symptoms, tiredness, swollen ankles, cold hands and feet.
Diuretics (water pills), e.g. indapamide, bendroflumethiazide.	Can be used for fluid retention.	• Diuretics (water pills), i.e. indapamide, bendroflumethiazide.

Medication group	Uses	Common side-effects
Anticoagulants, e.g. rivaroxaban, dabigatran, apixaban, edoxaban.	Can be used for blood clot prevention.	• May bleed too easily. Symptoms could include severe bruising, prolonged nose bleeds, bleeding gums, blood in urine/faeces, vomiting/coughing up blood, heavy periods in women.
Bronchodilators, i.e. nete-2 agonists (salbutamol), anticholinergics (ipratropium), theophylline.	Can be used for treating long-term lung conditions such as asthma and chronic obstructive pulmonary disease (COPD).	• Trembling hands, headaches, dry mouth palpitations, muscle cramps, cough, nausea, diarrhoea.

6. Understand the causes of soft tissue damage/dysfunction	
6.1 Compare the difference between intrinsic and extrinsic injuries:	• Intrinsic injuries are caused by forces/influences within the body, e.g., weak muscles, short muscles or excessive compensation. • Extrinsic injuries are caused through forces/influences outside of the body, e.g. human, implemental, vehicular, environmental.
6.2 Describe the classification of injuries: • primary injuries • secondary injuries • non-consequential injuries.	• Primary injuries: the injury that occurs due to the original insult/trauma. • Secondary injuries: sequel to a primary injury, usually caused by compensatory posture or movements. • Non-consequential injuries: injuries caused due a genetic predisposition, e.g. body type, hyper mobile joints, 'bowlegs'/'knock knees' (genu varum/valgum), flat feet/high arch (pes planus/pes cavus), bunion (hallux valgus), second toe longer than big toe (Morton's toe).
6.3 Explain factors which may predispose clients to injury and dysfunction:	• intrinsic injuries: o caused by forces/influences within the body: – weak muscles – short muscles – excessive compensation. • extrinsic injuries: o caused by forces/influences outside of the body: – human – implemental – vehicular – environmental. • classification of injuries: o primary injuries: – the injury that occurs due to the original insult/trauma. o secondary injuries: sequel to a primary injury: – usually caused by compensatory posture or movements. o non-consequential injuries: injuries caused due to a genetic predisposition: – body type

	– hypermobile joints. – bowlegs/knock knees (genu varum/valgum) – flat feet (pes plantus).

7. Understand how to identify different types of soft tissue damage	
7.1 Describe the different types of damage which occurs to the skin:	• graze • cut • laceration.
7.2 Compare the types of damage which may occur to muscle tissue:	• strains (grade 1, 2 and 3) • muscle dysfunction • DOMS • cramp.
7.3 Compare the types of damage which may occur to connective tissue:	• tendon (strain, tendinitis, tendinosis, tenosynovitis) • ligament sprain (grade 1, 2 and 3) • joint capsule sprain • hyaline cartilage damage • meniscal tear • bursae (bursitis, haemorrhagic bursitis).
7.4 Compare the types of damage which may occur to nervous tissue:	• neuropraxia • neurotmesis.

7.5 Compare the types of swelling which can occur at joints	• haemarthrosis:
	  ○ joint that is swollen with blood
	  ○ symptomatic of an injury to intracapsular structures
	  ○ occurring after impact or another extrinsic factor
	  ○ occurring very quickly
	  ○ red and warm to the touch
	  ○ requiring immediate referral
	• synovial effusion:
	  ○ the joint swells due to excess synovial fluid production
	  ○ symptomatic of overuse trauma
	  ○ happening with no obvious cause

	○ occurring gradually ○ neither red nor warm ○ may be treated by the identification and removal of causative factors • oedema ○ accumulation of excess tissue fluid (eg: swollen ankles)
7.6 Consider the possible causes of reduced range of movement at joints	• mechanical block caused by a loose body • tight muscles • pain

8. Understand the treatment of oedema relating to injury	
8.1 Describe pathologies of the lymphatic system:	• Oedema or swelling due to an accumulation of fluid could be due to: ○ Lack of movement. Lymph is pumped around the body primarily due to the “squeezing action of skeletal muscles (esp. gastrocnemius). Lack of contraction therefore decreases flow leading to swelling. ○ Blockage (obstruction) may result from scar tissue that develops when the lymph vessels or nodes are damaged by injury (as injury also leads to lack of movement then this compounds the problem). ○ Infection: Infection may cause swollen lymph nodes because the lymph nodes are inflamed. Sometimes the lymph nodes themselves may become infected (lymphadenitis) by organisms that spread through the lymphatic system from the original site of infection. ○ Cancer: White blood cell cancers such as lymphoma can develop in lymph nodes, and tumours in other organs may travel (metastasize) to lymph nodes near a tumour. Cancers in lymph nodes can interfere with the flow of lymphatic fluid through the node. • Lymphedema is a chronic pooling of lymph fluid in the tissue, usually starts in the feet or lower leg: • Lymphadenitis is an infection of the lymph nodes usually caused by virus, bacteria or fungi.

	• Lymphangitis describes the inflammation of the lymph vessels. • Lymphadenopathy is the enlargement of the lymph nodes caused by swelling due to lymph node blockage. • Lymphocytosis describes the high lymphocyte count caused by an infection, blood cancer, lymphoma or autoimmune disorders, accompanied by chronic swelling.
8.2 Explain when the use of massage techniques to encourage lymphatic drainage are indicated and contra-indicated:	• If swelling is due to lack of movement, then massage can help mimic the action of a muscular pump. • If swelling is (or suspected to be) due to any other reason, then the massage is contraindicated (referral).
8.3 Describe client positioning which optimises lymphatic drainage during treatment:	• The affected limb is raised above the nearest lymph nodes to which you are working.

8.4 Describe the protocol for application of massage techniques to optimise lymphatic drainage	• Application of massage technique:
	  ○ Usually performed with the patient in the lying position.
	  ○ Starts and ends with deep diaphragmatic breathing.
	  ○ The unaffected lymph nodes and region of the body are treated first.
	  ○ Moves proximal to distal to drain the affected areas.
	  ○ Slow and rhythmical movements.
	  ○ Uses gentle pressure.
	• Do not massage swollen or infected areas.
	• Do not massage areas of the body that have undergone treatment for cancer.
	• Drink extra fluids, ideally 2 to 4 glasses of water, after each massage.

Clinical assessment methods and strategic planning (F/650/1402)

Unit aim

To provide the sports massage practitioner with the knowledge, understanding, and skills that are required to obtain the information needed to devise a plan of action for achieving both short and long-term treatment goals. Providing an understanding of the anatomy and causes of soft tissue dysfunction which is necessary for the provision of safe, predictable, and effective treatments.

Content

1. Understand how subjective assessment information influences the selection of objective tests	

1.1 Explain how subjective information may influence treatment planning:	Verbal/written method of identifying:
	• client expectations / reason for visit:
	  ○ realistic
	  ○ within scope of practice.
	• possible cause(s):
	  ○ primary
	  ○ secondary
	• contraindications
	• client's:
	  ○ lifestyle and activity levels
	  ○ abilities
	  ○ functional requirements
	  ○ client commitment level
	  ○ availability of resources.
	• helps determine which objective tests may be relevant and appropriate.

1.2 Identify reasons for treatment deferral and referral:	Using information from the consultation: • stage of injury • scope of practice.

2. Understand the principles and practice of objective assessment techniques	
2.1 Explain the methods and purpose for a range of objective assessment techniques: • asymmetry • palpation • range of movement (active, passive, resisted) • postural analysis • functional tests • special tests.	Clinical examination methods used to determine measurable treatment goals and evaluate any progress made toward reaching them: • Asymmetry/postural analysis Observation of the balance from left to right and posterior to anterior allows the sports massage practitioner to observe: ○ client movement when: – walking – sitting down – standing up – disrobing. ○ client posture when sitting and standing ○ the visual presentation of the musculoskeletal system ○ the visual presentation of the skin. • Palpation Examining the soft tissues and joints through touch allows the sports massage practitioner to identify: ○ the anatomical sites involved ○ soft tissue condition: – pain – areas of tension – adhesions – trigger points. • Range of motion (active, passive, resisted) Used to identify restriction of function, pain or weakness (note: spine must only be assessed actively): ○ Active movements: – Conducted before passive as it puts the client in control as they are able to cease a movement if they experience too much discomfort – Allows the sports massage practitioner to observe the natural movement being performed and any compensations made and any guarding of movement due to expectation of pain. ○ Passive movements:

	Allows the sports massage practitioner to: – establish the 'quality' of movement ('point of bind', 'end feel' etc.) – isolate non-contractile structures o Resisted movements (only conducted after active and passive movements): Allows the sports massage practitioner to identify: – weakness in muscles or muscle group(s) through either a range of movement (oxford scale 0-5) or manual isometric (Cyriax). – poor recruitment ability (especially any imbalances) – pain responses. • Functional tests Simple or complex movements that mimic the client's daily tasks or exercises allow the sports massage practitioner to identify how a condition is affecting the client's daily life (activities of daily living [ADLs]): o sit to stand o walking o squat o lunge. • Special tests Additional orthopaedic/physiotherapy tests which can be used to identify: o musculoskeletal length o injury or imbalance o possible fractures For example: • ankle: o passive inversion/eversion o Thompson test o bump test and Ottawa fracture rules. • knee: o sweep (effusion) o patellar maltracking o varus/valgus stress test

	○ anterior draw ○ posterior sag ○ Apley's compression and distraction ○ McMurray's ○ Thessaly test ○ bump test and Ottawa fracture rules. • hip: ○ Trendelenburg ○ Thomas / Kendall test ○ modified Ober's test ○ leg length (true/apparent) ○ piriformis length test ○ SIJ (sacroiliac joint) distraction ("gapping" test). • shoulder: ○ arm drop test ○ painful arc test ○ empty/full can test ○ Apley's scratch test ○ speed's test ○ active impingement test (Neer's test) ○ impingement relief test ○ Gerber's lift off sign ○ Hawkins-Kennedy test. • elbow: ○ Mill's test ○ Cozen's sign ○ passive test (medial epicondylitis). • wrist and hand: ○ scaphoid fracture (anatomical snuff box tenderness; scaphoid tubercle tenderness; axial loading of the thumb) ○ carpal tunnel syndrome (carpal compression test; Tinel's test; wrist-ratio index) ○ scapholunate instability (scaphoid shift test) ○ De Quervain's syndrome (Finkelstein test).

	• spine:
	  ○ straight leg raise
	  ○ slump test
	  ○ SIJ (sacroiliac joint) distraction (“gapping” test).

2.2 Explain the different types of joint-end feel:	• Bone to bone (bony) end feel Occurs when one would not expect to find a bone to bone end feel, hard, unyielding end feel. Restriction occurs before the normal end of range movement caused by osteophytes, degenerative joint disease, mal-union of joint following a fracture etc. • Muscle spasm end feel Sudden and hard dramatic arrest of movement accompanied by pain which is invoked by the movement. Springy, rebound end feel. Reflexive (protective) muscle guarding designed to prevent further injury. • Empty end feel No physical restriction to the movement but with considerable pain. There may be full range of motion but with pain. Examples include acute bursitis, and joint inflammation. • Springy block end feel (internal derangement) Springy or rebound sensation in a non-capsular pattern. Usually occurs before the end of the normal ROM. For example, loose cartilage, meniscal tissue within joints, e.g. torn meniscus won’t be able to extend knee fully. • Leathery end feel (capsular stretch end feel) Similar to tissue stretch but occurs when the ROM is reduced. Hard Capsular – thick quality and the limitation comes on abruptly. Soft Capsular- more often seen with acute conditions, stiffness occurs early in the range, increasing until the end of the range is reached. • Boggy or soft end feel Occurs if you have a joint effusion or oedema, mushy with soft quality to it. This may indicate acute inflammation, e.g. acute moderate to severe sprain, or ligamentous injury.
2.3 Explain how to establish and interpret findings for each objective assessment technique:	• see AC 4.1. • asymmetry ○ consider use of video/photo • palpation - establish a method of determining pain level prior to treatment • range of motion:

	○ consider use of: – video/photo – goniometers – sit and reach board. ○ record point of pain/discomfort/restriction ○ follow strength measurement protocols if used (oxford, cyriax). • functional tests - establish baseline against any progress could be measured • straight leg raise and/or slump 'safety checks': ○ refer if the tests are positive.

3. Be able to conduct subjective and objective assessment	
3.1 Carry out subjective assessments of clients:	• Consultation to determine the client's expectations regarding treatment and if such treatment is appropriate. • Use active listening and open-ended questioning to: ○ Develop rapport. ○ Establish nature and cause of the problem, i.e. Severity, Irritability and Nature (SIN factors): – symptoms – functional restrictions – type of pain they have (in their own words) – onset – location – actions that alleviate or aggravate (movements, activities) – other/self-treatment. • Use findings and information obtained to determine suitability and appropriateness of objective testing methods. • Obtain consent for objective assessments.
3.2 Carry out objective assessments of clients	Using techniques from AC 2.1 to • Evaluate the following: ○ Primary condition by focusing on specific anatomical structures reported by the client

	Including stage of condition (ie acute, sub-acute, chronic) ○ Secondary condition/s by assessing the body as a whole rather than its component parts • Identify: ○ Symptoms related to other structures which could be contributing to condition ○ Dysfunction (eg, muscular or postural imbalance, movement restrictions) which could contribute (predispose) to the condition (or others) in the future • Establish baselines prior to treatments against which any progress can be measured
3.3 Use the results from information obtained during subjective and objective assessments and applying clinical reasoning to devise a strategic treatment plan	• Summarising findings ○ Client's reported symptoms (subjective) ○ Clinical findings during examination (objective) – Asymmetry – Palpation – Range of movement (active, passive, resisted) – Postural analysis – Functional tests • Devise strategic treatment plan ○ Symptoms and actions – By sports massage practitioner (clinic) – By client (at home)
3.4 Record client information in accordance with professional practice requirements	• Completion of client record card (SOAP) ○ Subjective ○ Objective ○ Assessment ○ Plan ○ Record of any treatment administered, results obtained, and advice given
3.5 Store client's information as legally required	

4. Be able to devise and agree a sport massage treatment plan	
4.1 Describe the influences and effects of client information has on treatment planning:	• previous treatments • yellow flags • scope of practice • client expectations • short/long term goals.
4.2 Present proposed treatment interventions and rationale to clients:	• completion of symptom/action table.
4.3 Modify proposed treatment interventions as required:	
4.4 Obtain client's consent for proposed treatment interventions:	• informed consent to proposed treatment.
4.5 Store client's information as legally required.	

The use of non-electrical therapeutic modalities in the treatment of soft tissue dysfunction (H/650/1403)

Unit aim

To provide the sports massage practitioner with the knowledge, understanding, and skills that are required to obtain the information needed to devise a plan of action for achieving both short and long-term treatment goals. Providing an understanding of the anatomy and causes of soft tissue dysfunction which is necessary for the provision of safe, predictable, and effective treatments.

Content

1. Understand the principles of soft tissue techniques used in sports massage	
1.1 Describe a range of soft tissue techniques: • soft tissue release • myofascial technique • corrective frictions (transverse) • trigger points • muscle energy techniques • positional release.	**Soft tissue mobilisation techniques** Techniques used in sports massage which are primarily used to help increase ROM, by attempting to remove the soft tissue physical restrictions to movement, i.e. Increasing mobility. Techniques such as: – soft tissue to soft tissue – soft tissue to bone. • Soft tissue release A combination “of manipulation and movement” (Sanderson, 2002) or “of stretching and deep friction” (Ward, 2004). ○ Application 1. Method and effects of soft tissue release (STR) should be explained clearly whilst emphasising the importance of their involvement and feedback. – STR may be uncomfortable and leave soreness for 24–48 hours after treatment. 2. Tissues should be prepared, and the client relaxed: – effleurage and petrissage – may be applied through clothing *3.* Muscle is relaxed and held in a shortened position by moving the associated joint.

4. Deep focused pressure is then applied directly into the adhered fibres to fix them in position.
5. The muscle is then stretched away from this fixed point by either:

– the therapist moving the joint (passive STR)

– the client moving the joint (active STR).

6. Depending on client/affected tissue response, process may be repeated for approximately 2 minutes.
7. Once the technique is completed, the area should be decongested with basic massage techniques.

- Myofascial technique

Following injury, fascia tissue and muscles may shorten and begin to restrict joint movement and blood flow. The techniques used in myofascial release break down fascial adhesions and relax muscle tension helping to regain range of movement around a joint.

- Application (from Myofascial Release by Ruth Duncan)

1. Always perform MFR skin on skin without any oil, wax or lotion.
2. Set an intention to make a therapeutic connection with, or to ground, yourself and your client.
3. Place your hands gently on the client's body, leaning into the depth barrier of tissue resistance or tractions to meet the tissue barrier of resistance, and wait for a sensation of yielding whilst dialoguing as appropriate with the client.
4. Never force the tissue or slip or glide your hands over the skin at any time.
5. Gently take up the slack as the tissue releases to the next barrier of tissue resistance.
6. Wait at the barrier for further yielding and softening before taking up the slack to the next barrier.
7. Apply second- and third-dimensional pressure to the tissue (a different plane of movement or direction to the one in place), which is technique dependent, whilst maintaining the first-dimensional pressure. Wait at the tissue barrier or end-feel of all the dimensions for a release and softening to happen in any one direction.

8. Dialogue with the client during the technique looking for feedback or any responses to and effects of the technique.
9. Take up the slack at the point at which every barrier of tissue resistance releases and softens, then follow to the next barrier.
10. Wait to feel a release of tissue and restrictions three-dimensionally and facilitate that release by taking up the slack of tissue as it releases.
11. Disengage slowly from the tissue after approximately 5 minutes or more, depending on the client.
12. Dialogue further with the client for feedback or any other responses to and effects of the technique, which can indicate subsequent areas for treatment.
13. Look over the client's body for red flare of the skin (erythema), which occurs with tissue change. This can also indicate subsequent areas of treatment.

- Corrective frictions (transverse)

Concentrated movements which exert controlled pressure on a small area of surface tissues, whilst moving underlying structures.

- Application

1. Method and effects of frictions should be explained clearly whilst emphasising the importance of their involvement and feedback:

– Frictions may be uncomfortable and leave soreness for 24–48 hours after treatment.

2. Tissues should be prepared, and the client relaxed:

– effleurage and petrissage

– may be applied through clothing.

3. If target area is muscular, then tissues should be placed in a relaxed position. If the area is a ligament, then a taut position (slight stretch) should be adopted.
4. Sufficient pressure should then be applied to achieve the depth required to manipulate the target tissues using:

– effective use of body weight and optimal biomechanics

– pad of a finger or thumb (digits must be supported to prevent hyperextension).

5. Working from the ‘edge’ of the target area and using small movements to create friction between the

tissues, the aim should be to gradually approach the focal point.

- With muscles and tendons, the frictions can be applied in any direction.
- For ligaments, the frictions should be applied transversely.

6. During treatment the sports massage practitioner should constantly monitor the client's reactions and be prepared to stop should the client wish.
7. Frictions should be ceased and the area re-palpated regularly (approximately every 10–20 seconds) to:

- monitor the effects of the treatment
- ensure client discomfort is managed
- help relax the client.

8. During these breaks in friction treatment, effleurage should be applied towards the nearest proximal lymph node to assist the lymphatic system to process any mobilised waste products.

Soft tissue neuromuscular techniques

Techniques used in sports massage which are primarily used to help increase ROM, by attempting to remove neuromuscular restrictions to movement, i.e. increase flexibility such as:

- Trigger points
- Hyperactive proprioceptor:
  - muscle spindles
  - golgi tendon organs.
- Trigger points

"Hyperirritable spot within a taut band of soft tissue which has a local and predictable referred pain pattern. Often results in reduced range of movement and weakness."

The use of directly applied digital pressure (acupressure) to temporarily starve these areas of oxygen often results in reduction in spasm (also known as ischaemic pressure or myotherapy).

- Safety considerations

As with all a neuromuscular technique, any improvements are due to the initiation of a parasympathetic relaxation response, i.e. avoid fight or flight. Therefore it is vital that any discomfort experienced by the client during this technique is well within their pain threshold.

Prior to such treatment, it is also vital that the sports massage practitioner is confident that any such identified hyperirritable spot is a trigger point.

- 10 second press test

Apply progressive downward pressure onto the area of discomfort until the client reports the pain has reached 7 out of 10. Maintain this for approximately 10–20 seconds.

If:

- Pain increases trigger point release should not be attempted.
- Pain remains constant: since this type of symptom is more indicative of scar tissue/adhesions/congestion, soft tissue mobilisation techniques (see AC 1) may be more suitable.
- Pain decreases: this is a key symptom of a trigger point and so it can be considered safe and appropriate for the sports massage practitioner to continue in the following manner.
  - Application

1. Method and effects of trigger pointing techniques should be explained clearly whilst emphasising the importance of their involvement and feedback:
   - Trigger pointing may be uncomfortable and leave bruising for 24–48 hours after treatment.
2. Tissues should be prepared and the client relaxed:
   - effleurage and petrissage
   - may be applied through clothing.
3. Once a taut band of tissue has been located and the 10 second press test (previously described) confirms the presence of a trigger point, using fully supported digits, apply progressive, direct pressure until the client reports the pain has reached 7 out of 10.
4. Maintain this pressure, unaltered, for approximately 20 seconds, during which time the client should report that pain has reduced (if it increases, cease this form of treatment immediately – see safety considerations).
5. Gradually increase pressure to raise the pain level back to 7 and then retain this for a further 20 seconds.
6. This can be repeated for up to a minute and a half or until the pain of 7 can no longer be attained.
7. Please note that timings given are approximations and that different clients/trigger points may well respond differently.
8. Should a treatment prove to be successful, along with a reduction in reported pain levels, the localised

	spasm surrounding the trigger point will be felt (often by both client and practitioner) to “release”. Further effects of a successful treatment include: – improved local circulation – general and location relaxation / Improved ROM – increased flexibility of tissues – improved ROM Important note: The following techniques use inhibition of muscle activity to achieve their goals, so they may predispose an athlete to injury if conducted prior to an athletic event. Carter, A., Kinzey, S., Chitwood, L., & Cole, J. (2000). *Proprioceptive neuromuscular facilitation decreases muscle activity during the stretch reflex in selected posterior thigh muscles*. Journal of Sports Rehabilitation, 9(4), pp. 269-278. • Muscle energy techniques (MET) Utilise the properties of neuromuscular proprioceptors to achieve the desired effects and so may be considered a subdivision of the more generally used term PNF (proprioceptive neuromuscular facilitation). Used to lengthen (rather than stretch) muscles and reduce muscle spasm by altering the neurological influence of proprioceptors, e.g. muscle spindle and golgi tendon organs on muscle resting length and tone. ○ Benefits of longer muscles include: – increase potential ROM and strength (aka “the string on a bow and arrow”) ○ Application (post-isometric relaxation [PIR} In the short period following contraction, golgi tendon organ activation results in direct inhibition of agonist muscles. Therefore, when using this form of MET, it is the target muscle which is contracted. 1. Method and effects of MET (PIR) should be explained clearly whilst emphasising the importance of their involvement and feedback. And that he removal of restrictive clothing may be necessary. 2. The client should be placed in a comfortable and manageable position, to allow the sports massage practitioner unrestricted access to the joint involved.

3. The sports massage practitioner then slowly moves the joint (passively) in such a manner that it begins to lengthen the target muscle, e.g. for quadriceps the knee would be flexed.
4. The aim of the sports massage practitioner is to move the joint until the muscle reaches its “point of bind”.

This is achieved via a combination of:

- Palpation of the target muscle for first signs of tissue resistance.
- Visual clues, e.g. when the point of resistance is met in the adductors, the contralateral anterior superior iliac spine will move (or ‘hitch’).

Note: This point is well short of a ‘stretch’ so it is extremely unlikely that the client can assist in establishing this.

5. Once the point has been located, the sports massage practitioner stabilises the limb in this position whilst directing the client to gently, slowly and progressively perform a contraction of the target muscle, i.e. attempt to return it to its start position.
6. Since the client should never be using any more than 50–60% of their strength, the sports massage practitioner should easily be able to resist this, thereby achieving an isometric contraction in the target muscle.
7. This isometric effort should be applied for approximately 10 seconds, after which time the client is instructed in take a deep breath in, then out and then relax. The sports massage practitioner then takes this relaxed muscle to a new point of resistance.
8. The process is repeated until no further gains in length (not stretch) can be made. This final position should then be held for up to 30 seconds

Note: Due to the elastic properties of muscle fibres, physically stretching a muscle is often a futile and potentially hazardous exercise, since stretching any elastic structure will only result in short-term changes and the additional tension it causes may well result in future intrinsic injuries.

- Application (Reciprocal inhibition [RI])

Contraction of a muscle causes direct inhibition of its antagonistic counterpart. Consequently, when using this form of MET it is the target muscle that is the opposite one to which is being contracted.

Therefore the method for RI is identical to that of PIR, other than at the ‘point of bind’, the client is instructed to

	contract the opposite muscle to the one being treated (again, whilst the sports massage practitioner resists this movement). ○ Proprioceptive neuromuscular facilitation (PNF) This is a term given to global umbrella of techniques which were first developed by Margaret Knott PT, and Herman Kabat MD in the 1940s to treat neurological dysfunctions. True PNF requires specific patterns of movements, in spiral or diagonal motions, targeted towards normal coordinated human movements. It is therefore more the role of a physio practitioner and beyond the scope of practice of a sports massage practitioner. ○ However, some simplified concepts have been adapted for use by the sports massage practitioner, such as: – muscle energy techniques (see earlier section): ▪ originated primarily from the osteopathic profession. – contract-relax-antagonist-contract (CRAC): ▪ a derivative of MET whereby PIR is immediately followed by RI. • Positional release therapy (strain/counter strain) • Uses a position of comfort of the body (point of ease) to help resolve tension in muscles/fascia. *"Essentially, PRT is the opposite of stretching. For example, if a patient has a tight, tender area on the calf, the clinician would traditionally dorsiflex the foot to stretch the calf to reduce the tightness and pain. Unfortunately, this might lead to muscle guarding and increased pain. Using the same example, a clinician who employs PRT would place the tender point in the position of greatest comfort (plantar flexion), shortening the muscle or tissue in order to relax them. A gentle and passive technique, PRT has been advocated for the treatment of acute, subacute, and chronic somatic dysfunction in people of all ages"* (Speicher and Draper, 2006)
1.2 Critically evaluate a range of soft tissue techniques: • soft tissue release	Compare the use and purpose of each technique whilst considering indications/contra-indications and contra-actions: • advantages/disadvantages • strengths and weaknesses

• myofascial technique • corrective frictions (transverse) • trigger points • muscle energy • positional release.	• positive and negative attributes • precautions in application.

2. Understand the use of non-electrical therapeutic modalities to support soft tissue repair	
2.1 Describe the aims of treatment during the acute phase of an injury:	The inflammatory response is the beginning of the healing process, and the aim of treatment is not to stop it completely, but to minimise some of the more harmful effects: • minimise the risk of further injury • minimise swelling • minimise the risk of further bleeding • minimise the risk of secondary cell death • minimise pain.
2.2 Compare different non-electrical therapeutic modality options which could be used to support the acute stage of injury: • purpose • effects (positive and negative).	• P.E.A.C.E and L.O.V.E ○ **P**rotect, unload or restrict movement for 1 - 3 days: – reduces bleeding – prevents distension of injured fibres – reduces risk of aggravating injury – minimises rest, as prolonged rest compromises tissue strength and quality – let pain guide the removal of protection and gradual reloading. ○ **E**levate the injured limb higher than the heart: – promotes interstitial fluid flow out of the injured tissues. ○ **A**void anti-inflammatory modalities which may negatively affect long-term tissue healing: – Optimal soft tissue regeneration is supported by the various phases of the inflammatory process. – Making use of medications to inhibit the inflammatory process could impair the healing process. – Avoid ice unless for pain relief, as it may potentially disrupt inflammation and delay healing. ○ **C** = Compress – Oedema and tissue haemorrhage may be limited by external mechanical compression such as taping or bandages, but it should still allow full range of movement at the joint. ○ E = Educate the client on the benefits of an active approach to recovery instead of a passive approach.

- L.O.V.E

  After the first days have passed, soft tissues need L.O.V.E.

  - **L**oad:

  – Patients with musculoskeletal disorders benefit from an active approach with movement and exercises.

  – Normal activities should continue as soon as symptoms allow for it.

  – Early mechanical stress is indicated.

  – Optimal loading without increasing pain.

  – Promotes repair and remodelling.

  – Builds tissue tolerance and capacity of tendons, muscles and ligaments.

  - **O**ptimism:

  Pessimistic patient expectations influence outcomes and prognosis of an injury

  – Stay realistic, but encourage optimism to improve the chances of an optimal recovery

  - **V**ascularisation:

  Pain free cardiovascular activity is a motivation booster, and it increases blood flow to injured structures:

  – Improvement in function.

  – Improvement in work status.

  – Reduces the need for pain medication.

  - **E**xercise:

  – Restores mobility.

  – Restores strength.

  – Restores proprioception, early after an injury.

  – Avoid pain to promote optimal repair in the subacute phase.

  – Use pain as a guide to progress exercises gradually to increased levels of difficulty.

- P.R.I.C.E

  - **P**rotection:

  – see above.

  - **R**est:

  – Assists the initial repair process by removing further stresses from the affected tissues.

	However, gradual/optimal loading (see POLICE. below) can help prevent muscle stiffness and assist in collagen reorganisation and minimise loss of strength: ○ **I**ce (cryotherapy): – constricts blood and lymphatic vessels (vasoconstriction) minimise swelling – decreases metabolic activity – reduces pain (pain-gate theory). However, suppressing the normal immune response (inflammation) may delay the onset of the next phase of the healing process ○ **C**ompression: – see earlier. ○ **E**levation – see earlier. • POLICE ○ **P**rotection: – see earlier. ○ **O**ptimal Loading, or 'progressive mechanical loading: – The gradual loading of tissues to stimulate their ability to tolerate load and to align tissue make up. ○ **I**ce (cryotherapy): – see PRICE – pain relief can assist with optimal loading. ○ **C**ompression: – see above. ○ **E**levation: – see above.
2.3 Describe treatment protocols to be used with clients during the acute phase of an injury:	• P.E.A.C.E and LO.V.E: ○ see AC 2.2. • P.R.I.C.E: ○ see AC 2.2 ○ LO3 (Cryotherapy). • POLICE: ○ see AC2.2

	○ optimal loading (short duration with a progressive approach to increasing load): – gently moving the injured limb – using massage – use of strapping for support.
2.4 Describe the aims of treatment during the sub- acute phase of an injury:	• Encourage blood flow in the affected area to promote nutrient supply. • Promote lymph drainage to reduce oedema. • Develop mobility to: ○ remove of extraneous 'sticky adhesions' ○ optimise scar tissue formation/ facilitate collagen alignment ○ help reduce swelling (oedema) • Progressively increase loading as the tissue repairs and becomes stronger. • Begin to restore neurological function and proprioception.
2.5 Compare different non-electrical therapeutic modality options which support the sub-acute stage of injury: • purpose • effects.	• mobility exercises: ○ passive, active assisted, active. – general massage: effleurage and petrissage (including lymphatic drainage) – frictions – trigger points – heat – ice (pain relief only) – gentle stretches – progressive loading – muscle energy techniques – proprioceptive training.
2.6 Describe the aims of treatments to support soft tissue repair during the chronic stage of injury:	• To restore functional capability of ligaments, tendons, muscles and other tissues. • To facilitate collagen maturation. • To reduce adhesions. • To develop/regain flexibility and mobility. • To regain strength.

	• To regain proprioceptive abilities to assist in return to full function. • To facilitate sport specific function.

2.7 Compare different non-electrical therapeutic modality options which support the chronic stage of injury:
• purpose
• effects.
	As scar tissue contracts and strengthens at the injured site, progressive movement and exercise is essential to provide stress to tissue and enable functional healing.
	Graded and gradual post care exercise specific to damaged structures:
	• massage:
	  ○ soft tissue release
	  ○ trigger points
	  ○ connective tissues massage
	  ○ frictions.
	• flexibility exercises
	• static stretching:
	  ○ active
	  ○ passive
	  ○ dynamic – active ballistic
	• progressive strength building exercises
	  ○ isometric,
	  ○ concentric,
	  ○ eccentric
	• progressive proprioceptive exercises
	  ○ PNF, MET
	• functional sport specific rehabilitation
	  ○ functional
	  ○ individual
	  ○ sport specific.
	• heat.

3. Understand the use of cryotherapy during soft tissue repair	

3.1 Explain the physiological and neurological effects of cryotherapy during soft tissue repair:	• acute:
	  ○ vasoconstriction
	  ○ pain relief
	  ○ slowing metabolism
	• sub-acute:
	  ○ pain relief
	  ○ vasoconstriction following removal of adhesions
	• chronic:
	  ○ pain relief.

3.2 Describe methods of applying cryotherapy during soft tissue repair:	• suitability for area treated
	• modalities:
	  ○ crushed ice, frozen peas (or similar)
	  ○ ice packs
	  ○ ice gel
	  ○ ice baths/cryocuff
	  ○ ice spray.
	• timing:
	  ○ 10–20 minutes dependent upon vascularity of tissues/amount of damage.
	• safety considerations:
	  ○ A barrier (damp cloth or sleeve) must be used to prevent burning the skin.
	  ○ Place the ice on the limb, not limb on the ice.
	  ○ Regularly monitor the body part for excessive circulation loss by pinching the tissues distal to the area treated.
	  ○ Appropriate duration of treatments that match the size/vascularity of the area being treated.

3.3 Identify contraindications to cryotherapy:	• elderly (thin skin, poor circulation) • cardiac problems (poor circulation) • circulatory problems • severe diabetes (poor circulation) • radiotherapy/chemotherapy (damaged skin)

	• Raynaud's disease (poor distal circulation).
3.4 Describe adverse reactions to cryotherapy:	• ice burn • loss of sensation • tingling • frost bite • cold urticaria.
3.5 Explain actions to take in the event of an adverse reaction:	• stop application • gently rewarm the area • refer for medical help if necessary.

4. Understand the use of heat treatments during soft tissue repair	
4.1 Explain the physiological and neurological effects of using heat during soft tissue repair:	• Encourage vasodilatation and stimulate circulation, thereby increasing supply of oxygenated blood to and removal of waste products from the area. • Give local/general relaxation (parasympathetic response). • Give pain relief (pain-gate theory). • Serve as a passive warm up.

4.2 Describe methods of applying heat during the soft tissue repair process:	• suitability for area treated
	• modalities:
	  ○ heat pack
	  ○ hot/warm bath
	  ○ shower
	  ○ avoid using heat creams.
	• timing/temperature:
	  ○ 40-45°C for about 5-10 minutes.
	• safety factors, to include:
	  ○ take care to avoid burns through overuse or when abnormal skin conditions are present.
	  ○ blood pressure will decrease as a result of the application of heat, so warn the client that they may experience dizziness.

4.3 Identify contraindications to heat treatments:	• acute stage of injury (inflammation) • damaged skin • reduced skin sensation • dysfunctional circulatory system • deep vein thrombosis (DVT).
4.4 Describe adverse reactions to heat treatments	See Safety considerations (AC 4.2).
4.5 Explain actions to take in the event of an adverse reaction	See Safety considerations (AC 4.2).

5. Be able to apply soft tissue techniques in sports massage treatments	
5.1 Prepare clients for soft tissue techniques.	
5.2 Position clients for comfort, dignity and maximal effectiveness.	
5.3 Demonstrate a range of soft tissue techniques.	
5.4 Apply all techniques in an effective manner.	
5.5 Monitor tissue response throughout treatments.	
5.6 Gain feedback from clients throughout treatments.	
5.7 Adapt soft tissue techniques to meet the needs of clients.	
5.8 Adapt own posture and position throughout application to ensure safe and effective application.	
5.9 Restore working environment to safe and hygienic condition.	

Providing post treatment care (J/650/1404)

Unit aim

This unit covers sufficient knowledge, understanding and instruction to ensure that the sports massage practitioner is able to advise and demonstrate suitable post-treatment care for their client.

Content

1. Understand the principles of post-treatment care	
1.1 Summarise the aims of post-treatment care:	• Assist in the return of the client to full function as soon as possible. • Minimise the likelihood of specific re-injury. • Reduce the risk of compensatory movement patterns developing. • Educate the client as to how they can play an active role in their own recovery.

1.2 Describe post-treatment care appropriate to each stage of injury:	• Acute stage:
	  ○ PRICE (protect, rest, ice, compress, elevate)
	  ○ POLICE. **(**protect, optimal loading, ice, compress, elevate).
	• Sub-acute stage:
	  ○ Begin incorporating mobility as soon as possible (using gentle stretches).
	  ○ Isometric exercises (optimal loading).
	• Chronic stage:
	  ○ Progressively develop components of fitness back to pre-injury levels.

1.3 Identify when to refer clients to other professionals:	• absence of any measurable improvements • condition gets worse • development of unexpected symptoms.

2. Understand the methods used in post-treatment care	
2.1 Explain the types of support a sports massage practitioner can give	• Advise and educate client on all issues within own scope of practice. • Give structure and direction for client so that they are able to safely play an active role in their own recovery (including treatment plan and exercise programming). • Demonstrate correct exercise techniques and coaching (if qualified). • Monitor progress and adapt programme, as necessary. • Give motivation and encouragement. • Possibly give access to a referral network, e.g. coaches, physiotherapist, etc.
2.2 Describe the skills required to work as part of a multidisciplinary team:	The information required when communicating with other health care professionals.

2.3 Describe a range of methods used in post-treatment care:	• General:
	  ○ Progressive loading.
	  ○ Exercise prescription to aid in correcting dysfunction due to an injury.
	  ○ Advice on prevention of reoccurrence.
	• Early sub-acute stage:
	  ○ Cryotherapy to assist with pain relief and to minimise any bleeding.
	• Late sub-acute onwards:
	  ○ Heat therapy to assist with pain relief during the programme and to encourage blood flow.

2.4 Describe how an individual's psychological response to injury may influence the post-treatment care given:	• denial – continuing with the causative activity • anger – frustration at the pain and restrictions to lifestyle • powerlessness – feeling the futility of the situation • depression – pessimism about the current and future situation • acceptance – engaging with the sports massage practitioner and the recovery plan • commitment – applying all elements of post-treatment care advice.

2.5 Describe how the client may take an active role during post-treatment care:	• Adhering to recommended programme and following any advice given by sports massage practitioner. • Maximising any identified positive lifestyle factors and minimising any identified negative lifestyle factors.
2.6 Describe how equipment may be used to provide support during post-treatment care:	• Hot/cold packs for pain relief and regulating blood flow. • Towel for mobility of the ankle, isometric exercise, passive stretching. • Balls for mobility of ankle. • Tins/bottles of water for strength. • Broom handle for assisted mobility of shoulder. • Exercise bands for stability and strength. • Wobble boards/cushions for proprioception and balance.

3. Understand the principles of any lifestyle advice given to support post-treatment care	
3.1 Explain how advice given should take into account individual lifestyle factors:	• Identifying positive and negative lifestyle factors. • Accounting for stresses/demands placed on client's body, i.e. activities of daily living (ADL).
3.2 Explain the importance of identifying positive lifestyle factors:	• These will have a positive impact on the client's recovery.
3.3 Explain the importance of identifying negative lifestyle factors:	• These will have a negative influence on the client's recovery.
3.4 Explain the importance of ensuring that any advice given is recorded:	• Providing written evidence of duty of care. • Future reference and evaluating effectiveness of methods for subsequent treatments.

4. Understand how to evaluate the effectiveness of a treatment plan	

4.1 Explain how to evaluate the effectiveness of a treatment plan:	• Comparing initial symptoms list with results following treatment of:
	  ○ subjective (questions)
	  ○ objective (measurements taken).

4.2 Identify methods used to evaluate the effectiveness of a treatment plan:	See AC 4.1.

5. Be able to provide safe and effective post treatment advice	
5.1 Carry out post treatment assessment of client.	
5.2 Obtain feedback from client.	
5.3 Evaluate the effectiveness of treatment:	• self-reflection • consider further research • evidence based practise • clinical reasoning and problem-solving skills.
5.4 Present aftercare advice to client offering the opportunity for questions:	• general • specific to any injury • postural correction • preventative care • pre-existing diseases or conditions • evaluate the effectiveness of aftercare treatment in follow up treatments
5.5 Give explanations and demonstrations of any exercise advice given.	
5.6 Adapt exercises with suitable progressions and regressions as required.	
5.7 Record results of treatment and any post care advice given.	

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