Allied Health Professions' Office of Queensland

PODIATRY LEARNER GUIDE

Assist with podiatric assessment and exercise

April 2017

Queensland Government

Podiatry Learner Guide: Assist with podiatric assessment and exercise

Published by the State of Queensland (Queensland Health), April 2017

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An electronic version of this document is available at
https://www.health.qld.gov.au/ahwac/html/ahassist-modules/

Acknowledgement

The Allied Heath Professions' Office Queensland wishes to acknowledge and extend sincere appreciation to the following Queensland Health clinicians who have contributed to the development of these learning support materials:

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- Endorsement:
  - Queensland Health Statewide Podiatry Network Steering Committee

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INTRODUCTION

Welcome to Podiatry Learner Guide: Assist with podiatry assessment and exercise

Learner Guide Structure

This Learner Guide has been developed specifically for allied health assistants to provide the necessary knowledge and foster the skills required to assist a podiatrist in rehabilitation programs developed by Allied Health Professionals

This Learner Guide contains information and activities relating to key topics to enhance learning opportunities. The guide is broken up into three topic areas with sub-topics for each. These are as follows:

Organisation Practice:

- Roles and responsibilities
- Policy and procedures
- Organisational practice
- Policies and procedures relevant to conducting group sessions
- Legal and ethical requirements for allied health assistance work
- Record keeping practices including confidentially requirements

Podiatry Assessment and Exercise

- Diseases processes
- Anatomy, physiology and biomechanics
- Podiatry exercise and rehabilitation

Service Delivery

- Podiatry Interventions
- Client Care
- Monitoring Requirements

The Learner Guide has six sections:

1. Introduction
2. Learning Topics
3. Workplace Observation Checklist
4. References
5. Resources and Websites
6. Appendix

Each topic includes sub-topics which cover the essential knowledge from the unit of competency. You will be asked to complete the activities in each topic to support your learning. These activities address the essential skills from the unit of competency and will be part of your assessment.

Throughout the guide, you will be given the opportunity to work through a number of activities, which will reinforce your learning and help you improve your communication and organisation skills, manual handling skills and ability to apply therapeutic exercise practices. Take time to reflect during the module on how you may be able to apply your new knowledge and skills in your role as an allied health assistant.

Learning requirements

It is important that you have an allied health workplace supervisor who has agreed to support in your study. Regular clinical supervision during the course of your study should also assist you to stay "on track", provide opportunities for your supervisor to monitor your progress, provide encouragement, and to check that you understand the information in the learning materials. This will be particularly important if you are having any specific learning difficulties.

Activities and assessment tasks may require access to the internet. If you do not have internet access please talk with your supervisor about your options.

Self-Completion Checklist

The Self Completion Checklist outlines the underpinning knowledge and skills contained in each of the topics for the unit of competency you will be assessed against. You will be asked to review the list and place a tick in the box if you feel you have covered this information in each section and if you feel ready to undertake further assessment. If you have any questions about this checklist, ask your supervisor.

Recognition for Prior Learning

If you subsequently enrol in the Certificate IV in Allied Health Assistance you may be able to undertake recognition assessment for the study that you have done. To enable you to gain recognition for the learning you have undertaken in this Learner Guide, it will be necessary for you to complete the Assessment Guide associated with this unit of competency. The assessment activities in this Assessment Guide must be signed off by a **podiatrist.** Copies (Word version) of the Assessment Guide can be obtained by contacting the AHPOQ team via e-mail: AH_CETU@health.qld.gov.au

Please Note

Due to the varied environments in which allied health assistance is carried out, the terms 'patient' and 'client' are used interchangeably throughout this resource. Please use your organisation's preferred term when performing your duties.

Symbols

The following symbols are used throughout this Learner Guide.

Important Points – this will include information that is most relevant to you; statistics, specific information or examples applicable to the workplace.

Activities – these will require you to reflect on information and workplace requirements, talk with other learners, and participate in a role play or other simulated workplace task. You may use the space provided in the Learner Guide to write down a draft response. Record your final answer in the Assessment Guide.

Further Information – this will include information that may help you refer to other topics, complete activities, locate websites and resources or direct you to additional information located in the appendices.

Case Studies – these will include situations or problems for you to work through either on your own or as a group. They may be used as a framework for exploration of a particular topic.

Research – this refers to information that will assist you complete activities or assessment tasks, or additional research you may choose to undertake in your own time.

LEARNING OUTCOMES

1. Prepare for the delivery of Podiatry Exercise Programs or assessment procedures
2. Deliver a Podiatry exercise or rehabilitation program
3. Assist with Podiatry assessments
4. Clean and store equipment
5. Document client information
6. Comply with supervisory requirements

LEARNING TOPICS

The table below outlines the relationship between the topics presented in this Learner Guide and the Essential Knowledge required for completion of the unit of competency.

Topics	Essential Knowledge
1. Organisation Practices	• Roles, responsibilities and limitations of self and other allied health team members and nursing, medical and other personnel • Supervisory and reporting protocols • Relevant organisation policies and procedures • OHS policy and procedures • Safe and effective use of equipment used in podiatry exercise and rehabilitation programs • Safe and effective use of equipment and instrumentation used in podiatry assessment procedures • Infection control protocols • Privacy and confidentiality requirements • Record keeping requirements
2. Podiatry Assessment and Exercise	• Disease processes relevant to the client group/s • Structure and function of the skin and integuments • Basic anatomy and physiology of the foot • Basic biomechanics of the lower limb and gait cycle • Podiatry exercise and rehabilitation principles
3. Service Delivery	• Goals and limitations of podiatry intervention • Client care • Medical terminology

CONTENT

1. Organisational Practice

This topic covers information about:

- Roles and responsibilities
- Policy and procedures
- Organisational practice

Activities in this topic address the following essential skills:

- Work with OHS and infection control requirements
- Work safely with electronic equipment and instrumentation

1.1 Roles and Responsibilities

As an employee of Queensland Health, you are responsible for implementing the Queensland Public Service Code of Conduct in your workplace. The code is built around the ethics principles and their associated set of values prescribed in the Public Sector Ethics Act 1994.

The ethics principles are:

- Integrity and impartiality
- Promoting the public good
- Commitment to the system of government
- Accountability and transparency

Information about the Queensland Public Service Code of Conduct is available at:

https://www.qld.gov.au/gov/code-conduct-queensland-public-service

Your workplace will have a specific Role Description for your position as Allied Health Assistant (Podiatry). It is important that you always work within the role boundaries

outlined in this document. Performing in your delegated area of responsibility allows you to effectively and safely perform your role as a member of the health care team.

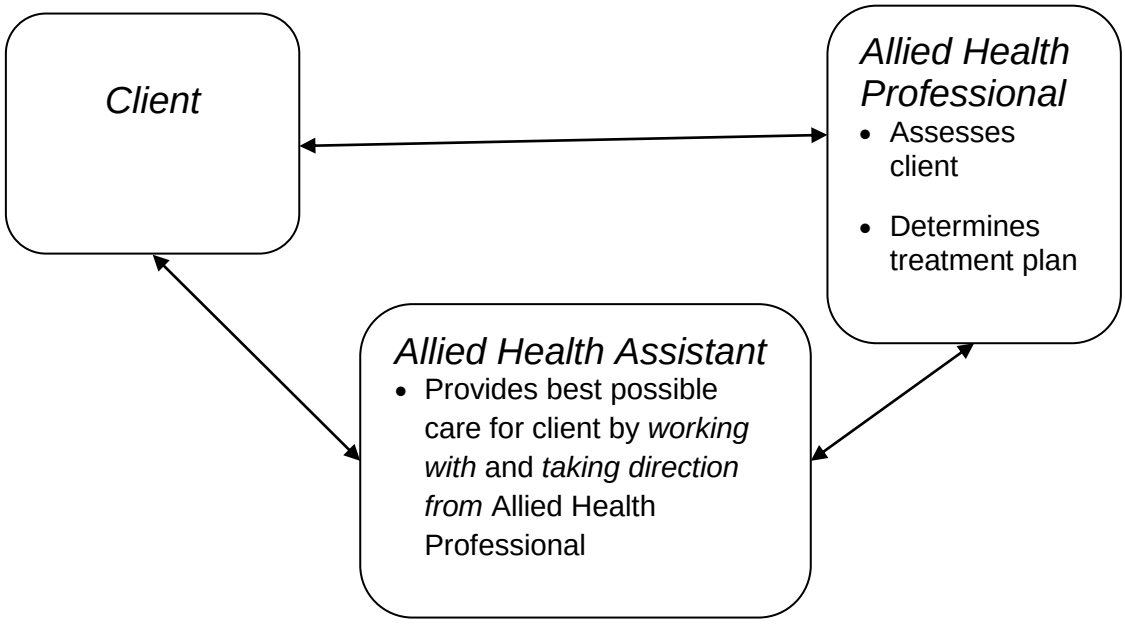


Figure 2 **Responsibility links between the Allied Health Professional and the Allied Health Assistant.**

Many areas of health care are legislated to ensure that only those people with appropriate skills and knowledge are permitted to perform certain clinical tasks.

Further information and links:

Australian Health Practitioner Regulation Agency: http://www.ahpra.gov.au/en.aspx

Podiatry Board of Australia: http://www.podiatryboard.gov.au

Supervisory and Reporting Protocols

As an Allied Health Assistant, you will always work under the direction of the supervising Podiatrist.

Supervision, by nature, is flexible and may be conducted in a number of ways including face-to-face or through electronic communication media such as telephone, videoconference or email.

A person under supervision does not require direct and continuous personal interaction with their supervisor. The provision of supervision will be determined by a number of factors including:

- The supervisee's familiarity with the task being supervised
- The progression of the client and the necessity to alter the treatment plan
- The need to support the development of nonclinical aspects including time management and communication skills
- Geographical factors where the supervisor and supervisee may not both be in the same place at the same time
- Organisational requirements

Your Role in Supervision

Type of Supervision	Description
Direct	You are given a task to complete. Your supervisor observes as you complete the task.
Indirect	You are given a task to complete. Your supervisor interacts with you periodically to evaluate your success with completing the task.
Delegation	You are given a task to complete and you are responsible for completing it.

On any given day, your duties may comprise a combination of these methods. As your skill and experience level increases, you may perform a greater number of tasks requiring indirect supervision or delegation (Podiatry Board of Australia, 2010).

Case Study

Pam works as an Allied Health Assistant (Podiatry) in a multidisciplinary Diabetes team. On this particular day, Pam is assisting her supervising Podiatrist, Lorna, to provide treatment for a client. This client has been given calf stretching exercises to undertake at home in between visits to the clinic. Lorna asks Pam to review the client's stretching regime while Lorna completes her notes from the previous client (delegation). Once Pam has completed the review, Lorna demonstrates another stretch to the client and then asks Pam to go over this again with the client while she observes (direct supervision). Lorna then asks Pam to provide footwear advice to the client. Lorna checks in with Pam and the client towards the end of the footwear education session to ensure all important points have been covered (indirect supervision).

Activity 1: Supervisory and Reporting Protocols

1. Outline the supervision arrangements which exist for you in your current role and the manner in which this supervision is conducted on a day-to-day basis.

2. Give an example from your current role of scenarios where you have undergone direct supervision, indirect supervision and delegation.

Direct Supervision:

Activity continues on the next page.

Indirect Supervision:

Delegation:

1.2 Policies and Procedures

As a Foot Hygiene Worker, you will perform your duties according to a set of organisational policies and procedures. This set of documents must, by law, include policies on Occupational Health and Safety and Infection Control.

Occupational Health and Safety

- Ensures safety of all employees, clients and anyone else entering the workplace
- Involves risk management, an integral part of all Queensland Health activities
- As part of the management of risks, you must take reasonable action to ensure that:
  - Accidents are prevented
  - People are protected from being hurt
  - Hazards are removed or controlled
  - Health is looked after and encouraged

The Queensland Health Occupational Health and Workplace Safety website provides comprehensive information relevant to this topic at the following link:

http://qheps.health.qld.gov.au/safety/home.htm

Safe and Effective Use of Equipment and Instrumentation Used in Podiatry Assessment Procedures and Podiatry Rehabilitation Programs

In the role of Allied Health Assistant, you will be called upon to assist the Podiatrist in the clinical treatment role. It is important to be aware of the safe use of the equipment commonly used in this practice. Your workplace will have specific policies and procedures in place to ensure safety in the work environment and you should be aware of these and of the location in which they may be accessed.

A wide range of equipment and instrumentation may be used in Podiatry practice and this will vary from place to place. It is important that you discuss this topic with your supervisor and ensure that you are aware of the name, function and safety precautions involved in using the equipment and instrumentation in your workplace.

Some important points to be aware of:

- Personal Protective Equipment (PPE) – It is your responsibility to use the PPE provided for you by your work place in situations where you are directed to do so. In addition, enclosed footwear is essential when working in the Podiatric environment – this offers protection from a number of hazards including sharps injuries and cross-infection.
- Electrical equipment – All electrical equipment used within the clinical and facility setting must have a current electrical tag attached. This ensures that the device has been electrically tested for safety.

The Queensland Health Occupational Health and Workplace Safety website provides comprehensive information relevant to this topic at the following link:

http://qheps.health.qld.gov.au/safety/home.htm

Activity 2: Occupational Health and Safety

1. Visit the Queensland Health Occupational Health and Workplace Safety site at http://qheps.health.qld.gov.au/safety/home.htm and familiarise yourself with the content of the site. Investigate the OHS Policies for your workplace. Comment below on which specific policies may be relevant to your role, for example, No Lift Policy.

2. Familiarise yourself with the Podiatry assessment equipment and instrumentation which exists in your workplace. Make a list of this equipment and include the purpose and precautions for use of each.

Infection Control

Infection control involves maintaining a safe environment in the health care setting for staff, clients and visitors. Infection Control in Australia is expected to comply with the current endorsed version of the Australia/New Zealand standards as well as industry-specific guidelines.

These standards and guidelines may include:

- Australian Standards AS4815 and AS/NZS4187
- National Health and Medical Research Council Guidelines for Infection Control
- Industry codes of practice
- Local, state and federal government guidelines and standards
- Recommendations and operating manuals from manufacturers

Infection Control measures protect people in health care settings from contracting or passing on infection by:

- Removing or controlling sources and reservoirs of organisms
- Reducing the risk of transmission by promoting an environment where the risk of interaction between potentially infectious agents and susceptible people is minimised
- Maximising host defences

All staff should have a sound knowledge on the principles of infection control and be aware of their organisational infection control protocols.

Infection Control policies and procedures may relate to:

- Cleaning procedures and schedules
- Cleaning equipment
- Handling, storage and disposal of all types of waste
- Infection control risk management
- Infection control incident and hazard reporting

All staff employed in a health care service or facility are responsible for assisting in the control of infection by observing two levels of infection control practices – standard precautions and additional precautions.

Precaution	Explanation	Example
Standard	Basic work practices recommended for use with all clients to give the minimum level of protection for everyone (clients, staff and others)	Hand washing Immunisation of health care workers Routine environmental cleaning
Additional	Used in addition to standard practices with those clients who pose special infection risks	Infectious client is isolated, preventing transmission of the infectious agent to susceptible people in the health care setting Appropriate signage to alert staff and visitors that they are entering an isolation area and personal protective equipment, eg. Mask, is required

Activity 3: Infection Control

Identify the Infection Control Policies specific to your organisation and list them below.

List below two specific situations where Standard and, if necessary, Additional Precautions may be applied in your workplace.

1.3 Organisational Practice

Privacy and Confidentiality

Queensland Health has a longstanding commitment to ensuring the privacy and confidentiality of personal information collected. That commitment is supported by nine National Privacy Principles in the Information Privacy Act 2009 (Qld) (in relation to all personal information held) and strict confidentiality obligations found in Part 7 of the Health Services Act 1991 (Qld) (in relation to health information held). (Queensland Health, 2009)

Health workers are obligated not to disclose client information except when the information is required in the course of their professional duties. This information may include but is not limited to medical history, current treatment and prognosis.

Consent

Health care workers are legally required to obtain client consent prior to commencing contact. The exception to this is in the case of an emergency. Your supervising Allied Health Professional is responsible for obtaining initial client consent for treatments with which you will be assisting. In your regular contact with clients, you should routinely gain consent before assisting the client in any way.

Requirements for consent:

- Must be freely given
- Client must have legal capacity as determined by the individual's intellectual status and age – if less than 18 years of age, consent must be provided by a parent or legal guardian.
- Client is adequately informed of the nature of the procedure

Record Keeping

Any intervention, treatment, advice or occurrence of any kind (including indirect client contact) with or about a client must be documented within an acceptable time frame. Client record keeping must be performed in a manner consistent with your specific organisational policy and procedure. This will be in a format that is accepted and reproducible in the event of a medico-legal situation.

It is a legal requirement that all documentation is completed in black ink.

Activity 4: Privacy and Confidentiality

Obtain a copy of the consent form used by your work place. Discuss this form with your supervisor, in particular, the essential elements. Make a list of these elements below.

Key Points

Topic	Important Points	Completed
1.1 Roles and Responsibilities	Queensland Health Code of Conduct	
	Allied Health Assistant – Podiatry Role	
	Responsibility links with Allied Health Professional	
1.2 Policies and Procedures	Occupational Health and Safety	
	Infection Control	
	Organisation specific policies and procedures	
1.3 Organisational Practices	Privacy and Confidentiality	
	Consent	
	Record Keeping	
	Supervisory and Reporting Protocols	

My Points to Remember

2. Podiatry Assessment and Exercise

This topic covers information about:

- Diseases processes
- Anatomy, physiology and biomechanics
- Podiatry exercise and rehabilitation

Activities in this topic cover the following essential skills:

- Construct the environment for safe implementation of exercise and rehabilitation programs and assessment procedures
- Demonstrate safe and accurate use of podiatry assessment equipment and instrumentation
- Implement podiatric exercise and rehabilitation practices
- Undertake activity analysis – breaking activities down into component parts

2.1 Disease Processes

Disease Processes with Foot Pathologies Relevant to the Lower Limb

Certain systemic disorders or diseases may have a direct impact on the feet and lower limbs. As a result, clients with these disorders may be identified as ‘high risk’ from a Podiatric perspective.

As an Allied Health Assistant (Podiatry), it is important that you have some awareness and understanding of these conditions and the related precautions that may need to be taken when interacting with clients who may have these conditions.

- Vascular disorders – arterial, venous, other
- Neurological disorders
- Bone and Joint disorders
- Endocrine e.g. Diabetes mellitus

Vascular Disorders – Arterial

Condition	Characteristics	Typical Lower Limb Clinical Evidence
Occlusive Arterial Disease	Partial or complete blockage of one or more arteries May occur in coronary, femoral, popliteal or tibial arteries, resulting in ischaemia (inadequate blood supply to a local area) Blockage may be due to arteriosclerosis (hardening and thickening of the walls of the arteries) or atherosclerosis (progressive thickening and hardening of the walls of medium-sized and large arteries as a result of fat deposits on their inner lining) Early identification may be addressed by a vascular surgeon through bypass 'stenting' or 'ballooning' Prognosis may improve with improvements in diet and exercise	Ulceration and/or gangrene of the lower extremities may occur as a result of severe blockages
Raynauds Disease	Condition where blood vessels of fingers and toes become hypersensitive to temperature variations and emotional stimuli	Bluish coloured, painful, cold digits Slow healing rates
Cerebrovascular Accident (CVA, Stroke) (Note: see also Neurological Disorders)	Brain haemorrhage or aneurysm causing oxygen deficiency which damages brain tissue Results in deficiencies in bodily functions	Poor healing rates as vascular supply to affected side is impaired due to muscle weakness

Vascular Disorders – Venous

Condition	Characteristics	Typical Lower Limb Clinical Evidence
Varicose Veins	Reduced venous drainage occurs due to weakness in vein walls and vein valve incompetence	Prominent tortuous (twisted) veins Possible cyanosis or haemosiderosis (increased deposition of iron in tissues. Usually presents as brown discoloration of the skin of the anterior lower legs)
Deep Vein Thrombosis	Blockage in one (or more) of the deep veins of the body, commonly the iliac or femoral veins May be potentially life threatening – treated with bed rest and blood thinning medication	Symptoms include pain, swelling, redness and skin discoloration
Varicose Dermatitis	May occur in association with chronic varicose veins Itchy skin eruption	Brownish skin discoloration if long standing Often leads to varicose ulceration with poor healing

Other Vascular Disorders

Condition	Characteristics	Typical Lower Limb Clinical Evidence
Anaemia	Iron deficient condition which results in reduced oxygen carrying capacity of blood	Generalised weakness, poor health and poor healing rates
Heart Disease	Diseased/damaged heart results in weak pumping ability May be congenital (eg. heart valve defect) or acquired (eg. through infection such as myocarditis) May involve angina (chest pain)	Impaired healing times due to impaired lower limb circulation

(De Maria & POD in Health Training, 2010)

Activity 5: Foot Pathologies

Choose two separate disorders from the previous pages. Identify clients with whom you have contact who have been diagnosed with these disorders. Note down your observations of the feet and legs of these clients below. Do your observations match the typical lower limb clinical picture?

Neurological Disorders

Condition	Characteristics	Typical Lower Limb Clinical Evidence
Cerebrovascular Accident (CVA, Stroke)	Brain haemorrhage causing oxygen deficiency which damages brain tissue Nerve supply to affected side is impaired	Loss of movement on one side of the body Muscle weakness, impaired balance and reduced sensation Speech often affected
Multiple Sclerosis	Autoimmune disease – immune system attacks central nervous system Progressive condition of varying severity	Tremors, stiffness, muscle weakness and rigidity
Charcot-Marie-Tooth Disease	Hereditary disorder Chronic degeneration of peripheral nerve roots resulting in muscle weakness and atrophy	Acquired foot deformities, weakness, balance problems and peripheral neuropathy
Neuropathy	Broad term to describe loss of sensation, balance, muscle strength Multiple causes – Diabetes, alcoholism, substance abuse, spinal injury, CVA, Vitamin B deficiency in childhood, other conditions, eg. Paraplegia, Quadriplegia, Cerebral Palsy, Complex Regional Pain Syndrome Risk of lower limb injury is high due to reduced input from nerves	Foot pathology including ulceration as a result of lack of protective sensation Balance problems

Bone and Joint Disorders

Condition	Characteristics	Typical Lower Limb Clinical Evidence
Osteoarthritis	Also known as degenerative joint disease Inflammation, breakdown and eventual loss of cartilage in joints	Common in feet, especially with age and history of injury Joints become enlarged and motion is usually restricted
Rheumatoid Arthritis	Auto-immune disorder Immune system attacks the joints causing inflammation and pain	Many joints may be affected although commonly seen in the hands and feet Effects may also occur in the lungs, kidneys, eyes, skin and nervous system Reduced blood supply to feet and legs Peripheral neuropathy Ulceration especially in the feet
Seronegative Arthritis	Systemic arthritic conditions other than rheumatoid arthritis Psoriatic arthritis, ankylosing spondylitis, reactive arthritis	All conditions cause joint pain and inflammation
Gout	Accumulation of uric acid crystals in joints Results from disorder in metabolism Well managed by dietary changes and medication	Most commonly seen in 1st metatarsophalangeal joint of the foot Joint is intensely painful and inflamed
Osteoporosis	Decreased bone density resulting in structural weakness which makes bones prone to fracture	Prominent in females and the elderly

Endocrine Disorders

Condition	Characteristics	Complications
Diabetes Mellitus	Group of diseases characterised by high blood glucose levels (BGLs) Inadequate ability to produce and/or use insulin in the metabolism of glucose Classified as type 1 (absence of insulin production by the pancreas) or type 2 (insulin resistance) Common characteristics: fluctuating BGLs (hyper/hypoglycaemia), excessive thirst/urination, sugar cravings, sudden changes in weight (at diagnosis), nausea (in some cases) BGLs may be controlled by modified diet, exercise, oral medication or injectable insulin If BGLs are not maintained at the regulated level (4-8mmol/l; HbA1c less than 7%), complications may result. With good control of BGLs and diligent attention to foot care, lower limb and foot complications may be minimised	Eyes Damage to retinas and cataract development may result in impaired vision Impaired vision reduces ability to detect injury to feet as well as perform foot care including safe toe nail cutting Blood Vessels Poorly controlled BGLs may accelerate hardening of artery walls resulting in a reduction in circulation to the lower limbs Reduced circulation results in reduced healing times and hence increased risk of infection Reduced circulation also affects skin and tissue health making resilience to pressure and friction poor Nervous System Poorly controlled BGLs may cause nerve damage resulting in loss of sensation or neuropathy especially in the feet Kidneys Often results in kidney failure (especially in Type 1 population) which requires dialysis +/- renal transplantation

(De Maria & POD in Health Training 2010:21-25; Edmonds & Wall 2006: 244, 246)

Activity 6: Foot pathologies relevant to the lower limb

1. Research the term HbA1c. Explain this test and its purpose including the acceptable range for test results.

2. Choose two separate disorders from the previous pages. Identify clients with whom you have contact who have been diagnosed with these disorders. Note down your observations of the feet and legs of these clients below. Do your observations match the typical lower limb clinical picture?

Activity continues on the next page.

2.2 Anatomy, Physiology and Biomechanics

The Skin

The skin, the body's largest organ, is a membrane which encloses the body.

Anatomy

The skin is composed of two layers, the epidermis and the dermis. These layers are joined by the dermo-epidermal junction.

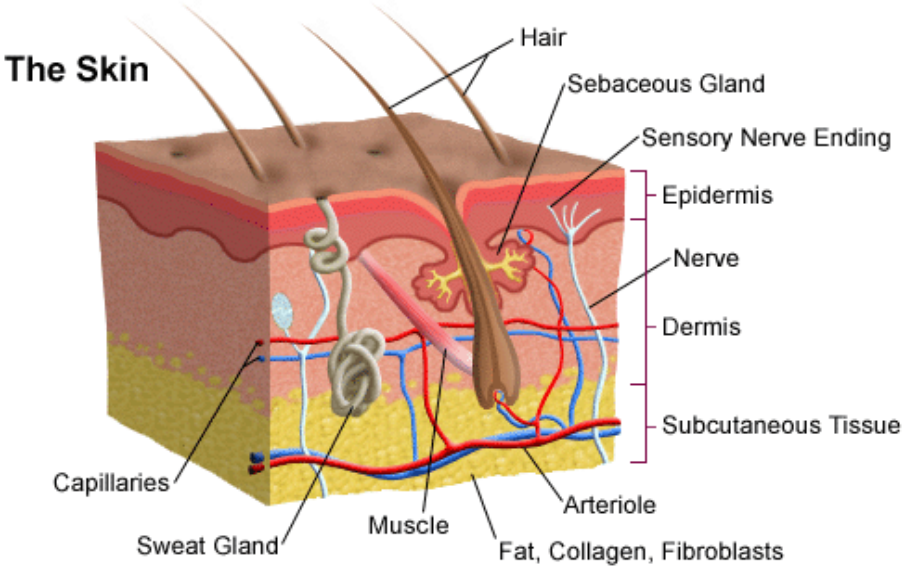


Figure 3 Anatomy of the skin (Stanford Medicine, 2010)

Epidermis

- generally 0.06-0.15mm thick
- 'top' coat of the skin
- forms the 'intact' barrier between the body and its environment
- contains five layers of cells including keratinocytes (protein cells) and melanocytes (provide UV light protection)

Dermis

- usually approximately 2-4mm thick
- makes up the bulk of the skin
- Most of the appendages occur in this layer:
  - Arteries
  - Veins

- Capillaries and Lymph vessels
- Nerves
- Hair Follicles
- Sweat glands
- Sebaceous glands

Function

- Prevent dehydration
- Protect against outside agents, for example, bacteria
- Regulate body temperature
- Produce Vitamin D
- Protect against damage from UV radiation
- Process and send information via nerves

Activity 7: Age related changes to skin

Compare the skin characteristics on the lower legs of three people, one from each of the age brackets listed below. Comment on your observations considering factors such as texture (thick/thin), dryness, presence of hair, presence of lesions (sores).

0-12 years:

30-45 years:

Activity continues on the next page.

70-85 years:

Make some notes below to discuss with you supervisor about possible aged-related changes to skin based on your observations.

The Foot

Anatomy

Each foot has:

- 26 bones
- 38 joints
- 28 muscles
- Blood Vessels
- Nerves
- 150,000 skin cells
- 50,000 Sweat glands

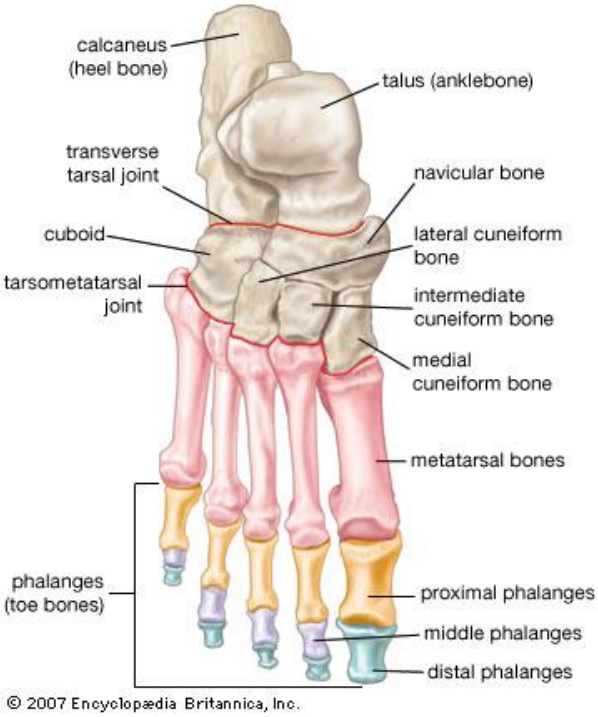


Figure 4 Bones of the Foot (Encyclopaedia Brittanica, 2010)

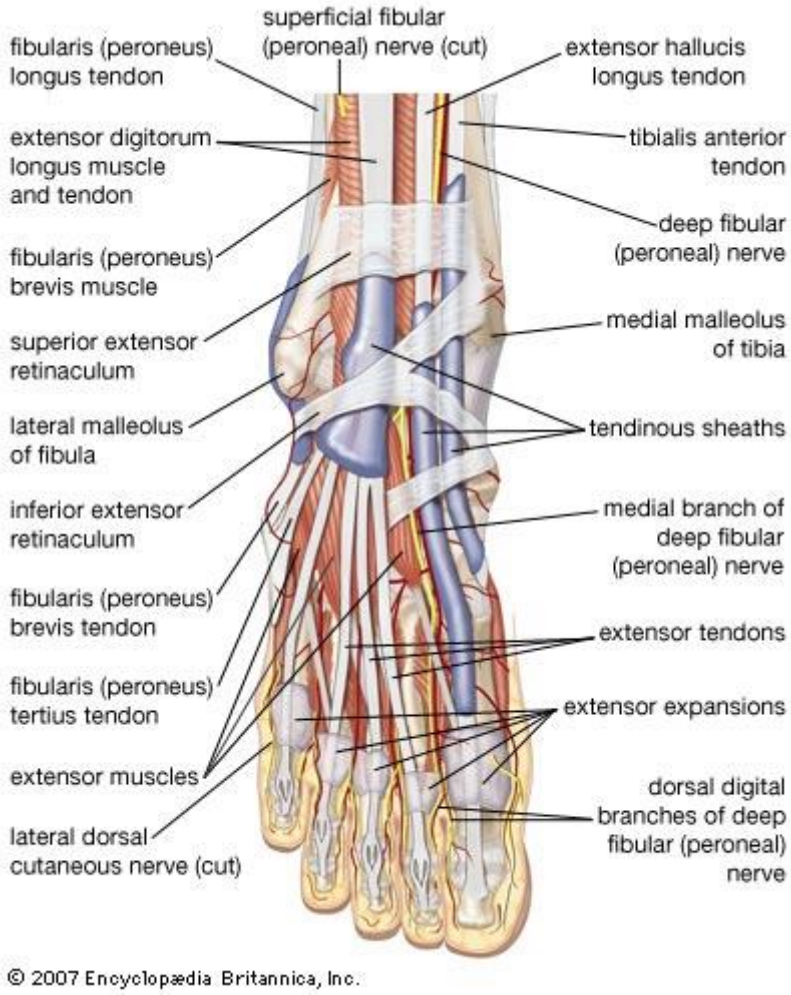


Figure 5 **Muscles of the Foot (Encyclopaedia Brittanica, 2010)**

It is important to note that there are also many soft tissue structures on the bottom of the feet. As you work through this unit, ensure that you thoroughly discuss foot anatomy with your supervisor.

Physiology

Vascular

The body requires adequate blood flow to all areas to maintain good health and function. Oxygenated blood, which has passed through the lungs, leaves the heart through the aorta (the body's largest artery) and is then pumped throughout the body, returning to the heart via the vena cava (the body's largest vein).

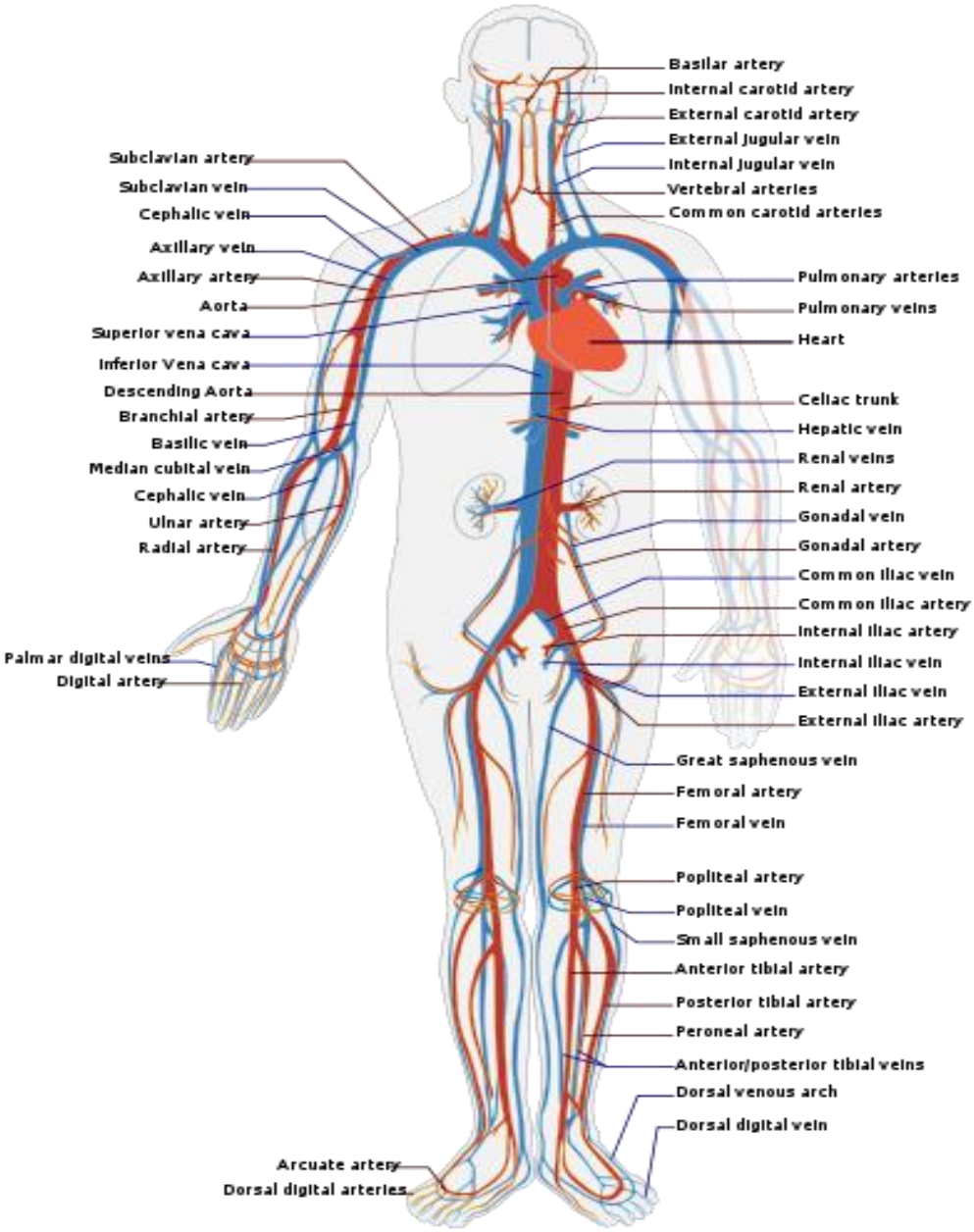


Figure 6 Human body vascular supply (Wikimedia, 2010)

The feet are supplied with blood by two main arteries:

- Dorsalis pedis (top of the foot; shown below in red)
- Posterior tibial (bottom of the foot; shown below in orange)

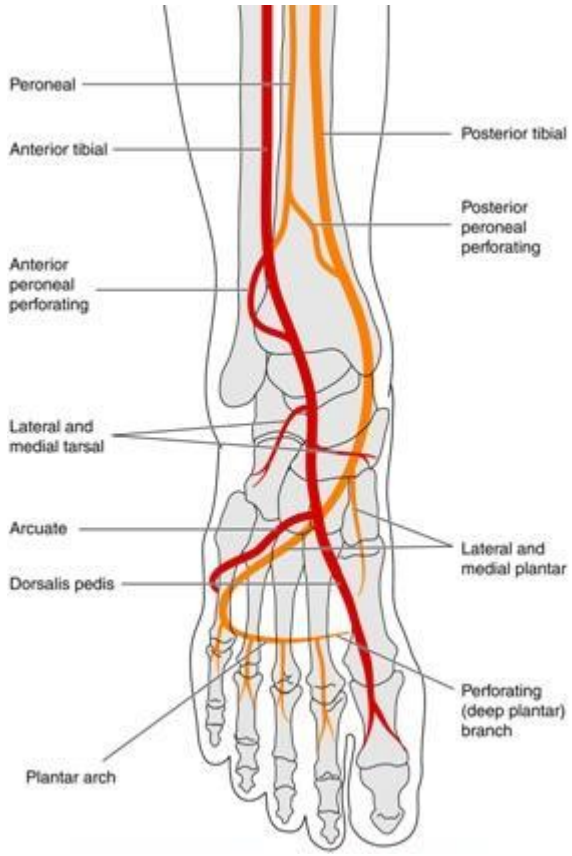


Figure 7 Blood Supply of the Foot (joint-pain-expert.net, 2010)

Neurological

The body's nervous system can be divided into the Central Nervous System (CNS) and the Peripheral Nervous System (PNS). The CNS contains all structures lying within the central axis of the body – the brain and spinal cord. The PNS comprises the nerves that are located outside the brain and spinal cord.

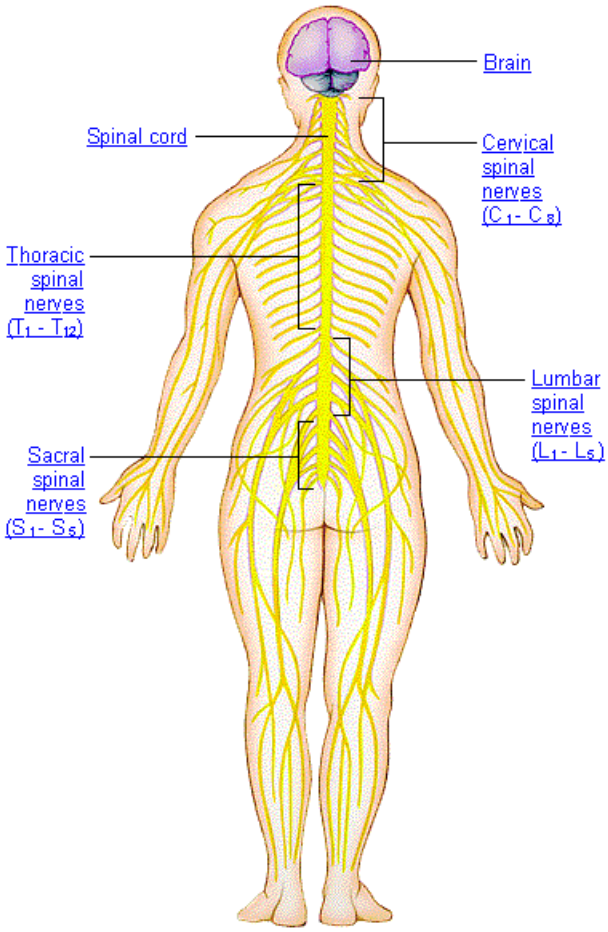


Figure 8 Human body neurological supply (Improve-Education.org, 2010)

Peripheral nerve function provides information to the brain about the external environment. Afferent nerves carry nerve impulses from receptors or sense organs towards the CNS and provide information about changes in touch, pressure, temperature, pain and bodily position (also known as proprioception). Efferent nerves carry nerve impulses away from the CNS to effectors such as muscles or sweat glands. (McLeod-Roberts: 107, 1995)

As an Allied Health Assistant, it is not necessary for you to memorise the names of all the bones, muscles and blood vessels listed above. Your supervising Podiatrist will let you know which medical terminology you need to know to perform your role.

Activity 8: Relevant medical terminology

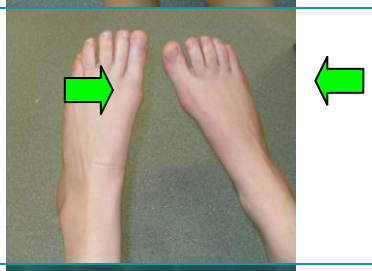
Instructions

Discuss this topic with your Podiatry supervisor. Make a list below of the particular terminology which your supervisor recommends you be aware of. Add a brief meaning next to each word.

Basic Biomechanics of the Lower Limb and the Gait Cycle (pages 52 and 53 of full guide)

In the lower limb, biomechanics is a term used to describe movement in the leg and foot. It takes into account the anatomy of the leg and foot, and how that interacts with the muscles, tendons, ligaments and other tissues in the area, to allow the body to move.

There are various terms that refer to movement of the joints and limbs, which you may encounter in your workplace:

Term	Explanation	Appearance
Plantarflexion	Toes or foot moving in a downward motion away from the body	
Dorsiflexion	Toes or foot moving in an upward motion towards the body	
Abduction	Movement of the limb/foot away from the midline of the body, for example, moving your toes apart is abducting your toes	
Adduction	Movement of the limb/foot towards the midline of the body, for example, putting your toes together is adducting your toes	
Inversion	A lengthways twist of the foot with the big toe coming up first.	

Term	Explanation	Appearance
Eversion	A lengthways twist of the foot that has the big toe moving down first.	
Pronation	The inward rolling motion of the foot with flattening of the arch. Allows the foot to adapt to uneven terrain and to absorb the impact of the foot striking the ground.	
Supination	The rolling out motion of the foot.	

(Watkins 2006: 425, 441)

Gait is a word used to describe a walking or running motion. The biomechanics of gait looks at how the body parts work in relation to each other, to allow the person to move.

The gait cycle describes what happens to the foot and ankle from the point of contact of one foot with the ground, to the point at which the same foot contacts the ground again.

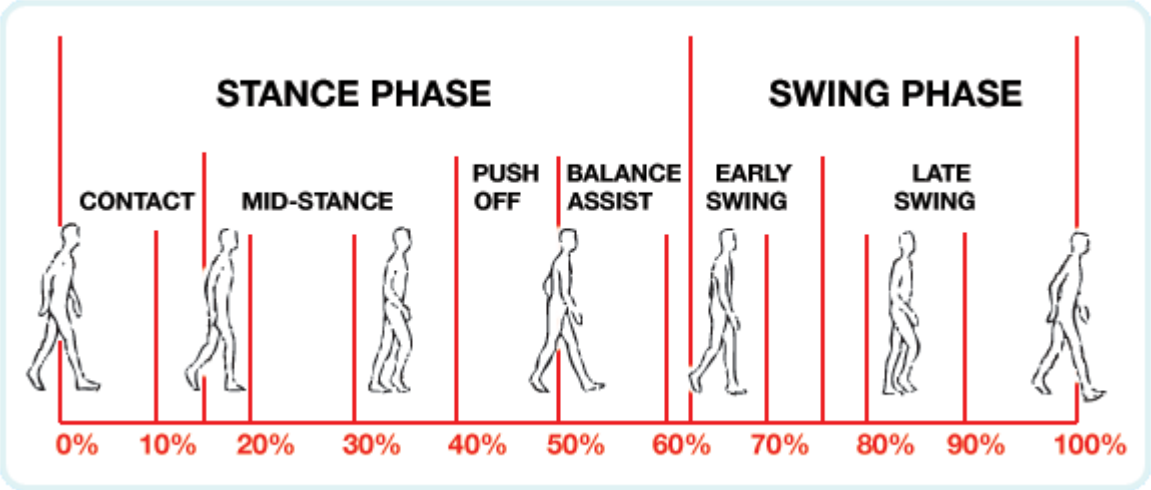


Figure 9

Clinical Gait Analysis: Biomechanics and Eitiology of Common Walking Disorders, Rose, 2016.

The gait cycle is divided into the swing phase and the stance phase:

- Swing phase – The phase of the gait cycle when the foot is in the air
- Stance phase – The foot is in contact with the ground. The stance phase of the gait cycle is then divided into three parts.

Elements of Stance Phase	
1. Heel Strike	When the heel initially touches the ground
2. Midstance	Entire foot is in contact with the ground, and the whole body weight is through and over the foot.
3. Heel Lift	When the heel lifts off the ground

(Watkins 2006: 433)

Changes in a normal gait cycle can lead to pain and mobility problems. They can also lead to abnormal pressure and stresses in the lower limb and foot.

Gait, throughout a lifetime, changes with age. The following changes occur commonly as you age:

1. Increase time in Stance Phase and lessen time in Swing Phase (ie. Take longer to take each step)
2. Decrease Step Length
3. Decrease walking speed
4. Adopt a wider Base of Support (Judge et al 1996: 659)

Gait can also be affected by systemic conditions. Some examples of conditions that can cause changes in the gait cycle are:

System Affected	Types of conditions that may cause changes in gait
Neurological	Multiple Sclerosis, Charcot-Marie-Tooth Disease, Neuropathy
Musculoskeletal	Osteoarthritis, Rheumatoid arthritis, Gout
Vascular	Occlusive Arterial Disease, Cerebrovascular accident, Deep Vein Thrombosis
Endocrine	Diabetes Mellitus

Activity 9: Gait Cycle

Compare the gait of a person in their 20s with a person in their 80s. Look at differences in:

- Length of steps
- Speed of gait
- Stability of gait
- Base of support
- Effect of disease, for example, osteoarthritis

Make some notes about your observations below.

2.3 Podiatry Exercise and Rehabilitation Principles

As an Allied Health Assistant, you will need to be aware of the various treatment modalities which may be prescribed by a Podiatrist and the principles behind these modalities.

There are five main treatment modalities:

- Padding/offloading
- Strapping
- Stretching
- Insoles and orthotics
- Footwear

Padding/Offloading

Padding in various forms is often used to change or offload pressure from an area. Changing or offloading pressure from an area may assist the healing process. When any pad is being constructed, the footwear in which it will be worn should be considered. Any padding will take up space in the shoe therefore leaving less space for the foot.

Forms of padding/offloading (Briggate Medical Company 2011)

Type	Features	Example
Semi-compressed felt	Made from wool felt Can be made detachable or physically adhered to the skin Podiatrist prescribes length of time the pad remains in place depending on the condition being treated Comes in a range of thicknesses from 2mm to 10mm	 

Type	Features	Example
Molefoam	Closed cell latex foam bonded to brushed fibre surface Can be made detachable or physically adhered to the skin Podiatrist prescribes length of time the pad remains in place depending on the condition being treated Comes in 5mm and 7mm thicknesses	 
Tubefoam	Polyurethane foam tubing with cotton lining May be cut to length and used to relieve friction or pressure on an area This foam is washable but will eventually stretch out of shape and need replacing. Comes in a range of sizes	 
Fleecyweb / Moleskin	Cotton padding with a raised fleecy surface Used to protect sites from friction	

Type	Features	Example
		
Silicone Mould Eg Otoform K, Bland Rose	Silicone based material that may be used to manufacture a variety of pressure relieving devices Devices are moulded to the desired shape after mixing the white silicon paste with the red catalyst. The end product is modifiable with scissors if required.	 

Strapping

Podiatrists may use strapping to change the pressures and forces that go through joints and surrounding muscles. This is often a short term intervention targeted at reducing pain by providing support.

The client's skin integrity must be considered when applying tape to skin for any length of time. If the client has fragile skin, it is important to consider applying a protective layer prior to adhering the tape. It is also important to check with the client regarding any allergies to adhesives as this will influence your selection of taping materials. Your supervisor will be able to advise you on the types of tape used in your practice.

Strapping is usually left in place for no longer than five days although this will vary with different conditions. If the client is able to keep the strapping dry, the integrity of the material is retained for longer.

Figure 10 Inverted J strapping technique

Stretching

Stretching is an important part of any treatment program. By improving soft tissue flexibility, stretching changes the function of certain anatomical structures during gait.

Podiatrists will commonly give clients stretching regimes for calf, hamstring and quadriceps muscles although there are many other muscle groups which may also require stretching. Your supervisor will be able to advise you on the stretching regimes that they most commonly prescribe.

Stretches are commonly held for between 5 and 30 seconds and repeated a certain number of times on both left and right sides according to the regime prescribed by the Podiatrist.

Insoles and orthoses

Two main types of insoles or orthoses that are often prescribed by Podiatrists and which can be accommodative and/or functional are:

- Prefabricated (off-the-shelf)
- Custom made

Prefabricated orthoses

These devices are made to a predetermined shape and are able to be modified or heat-moulded using a heat gun. Addition of various extra materials either under the heel or under/on the forefoot of the device is also possible. The Podiatrist will determine the final configuration of the orthoses on a case-by-case basis.

Figure 11 Prefabricated orthosesm (Briggate Medical Company 2011)

Custom-made orthoses

Custom-made orthotic devices are made from casts or scans of the client's feet. The devices may be fabricated from a number of different materials including polypropylene. They may also be covered with a range of different materials depending on the aim of the treatment. Your supervisor will advise you on the types of devices and materials used in your practice.

Figure 12 Custom made orthoses (Queensland Orthotic Laboratory 2011)

Both forms of orthotic device need to be fitted to the client's feet and to their footwear. As orthoses usually alter the structural positioning of the feet, a period of 'wearing in' is required to allow adjustment of soft tissue lengths to accommodate this change.

The 'wearing in' period involves wearing the orthoses for a certain length of time each day, gradually increasing wear until the devices can be worn all day. When wearing the orthoses, care should be taken to check for any areas of friction so that these may be addressed by the Podiatrist. Once the 'wearing in' period is complete, it is generally expected that clients will use their orthoses and appropriate footwear for up to 80% of their weight bearing day.

Footwear

Footwear selection is a major component relating to treatment success from a Podiatry perspective. There are many factors which must be considered when advising clients about footwear.

A Podiatrist will often list the components they would like present in footwear when prescribing for a client. Price of the footwear is not as important as the features of the shoe.

Features of a Good Shoe

Feature	Explanation
Upper material	Natural Fibre materials like leather are better than a synthetic material like vinyl. Some styles of shoe are now being made with stretchy mesh panels to accommodate different shapes in feet.
Location of seams on the upper	An area with a seam through it doesn't stretch like an area without. It is important to be aware of the location of seams especially in the toe box of the shoe in relation to the foot and its bony prominences.
Length of the shoe	There should be adequate space between the longest toe and the end of the shoe
Toe box	The toe box should be wide enough and deep enough for all of the toes to be positioned comfortably. A square toe box puts less pressure on the toes than a round toe box.
Sole	A cushioned midsole is advisable along with an outsole which has good grip (although not so much that it causes a fall due to tripping).
Heel Counter	The part of the shoe that encompasses the heel is called the heel counter. It should be stiff and not able to be fully bent in.
Shank	A shoe should only flex where the foot bends, at the ball of the foot. The shank is the material within the sole of the shoe which ensures that this happens.
Fastener	For a shoe to fit correctly it must have a form of fastener – either laces, Velcro straps or straps with buckles.

Figure 13 Appropriate footwear styles (Propet Australia 2011)

Some tips on shoe fitting are available from the following brochure:

https://www.health.qld.gov.au/stayonyourfeet/documents/33381_f.pdf

Activity 10: Padding and offloading

1. Discuss padding and offloading with your supervisor, in particular the range of materials available and the names of each of the padding configurations. Make a list below of the configurations of padding that you may be involved in making. Next to each name, draw a small diagram of the padding shape.

2. With your supervisor's assistance, make samples of each of the padding types/shapes in Question 1.

Key Points

Topic	Important Points	Completed
2.1 Disease Processes	Vascular disorders	
	Neurological disorders	
	Bone and joint disorders	
2.2 Anatomy, Physiology and Biomechanics	Anatomy and function of the skin	
	Anatomy and physiology of the foot	
	Biomechanics of the lower limb	
2.3 Podiatry Exercise and Rehabilitation	Podiatry exercise and rehabilitation principles	

My Points to Remember

3. Service Delivery

This topic covers information about:

- Podiatry Interventions
- Client Care
- Monitoring Requirements

Activities in this topic cover the following essential skills:

- Identify situations and conditions requiring referral to a Podiatrist
- Use effective observation skills
- Communicate effectively with clients
- Work effectively with non-compliant clients
- Apply time management, personal organisation skills and establish priorities
- Undertake activity analysis — breaking activities down into component parts

3.1 Podiatry Interventions – Goals and Limitations

Certain bodily disorders or diseases may have a direct impact on the feet and lower limbs. As a result, clients with these disorders may be identified as ‘high risk’ from a Podiatric perspective. Foot Hygiene Workers and Allied Health Assistants are not expected to perform foot skin and nail care on these clients, although low risk interaction, such as fabrication of padding, may occur from time to time in the course of assisting the treating Podiatrist.

It is important, however, that you have some awareness and understanding of these conditions and the related precautions that may need to be taken when interacting with clients who may have these conditions. This will enable you to identify previously low-risk clients whose medical status has changed between visits.

There is no expectation that you would need to diagnose certain conditions, rather that you are aware of them and can act on your observations should this be necessary. Should you identify a change in a client’s situation, it is imperative that you record your concerns in the client’s chart as well as reporting them to the Podiatrist or other health care professional involved in the client’s care. Prompt and effective action is imperative to prevent possible further or irreversible deterioration in a client’s condition.

(DeMaria & Pod In Training 2009:62)

3.2 Client Care

Effective communication with clients is the cornerstone of successful treatment outcomes. Bates (1995, in Burrow 2006:2) suggests that this communication may take numerous forms:

- Facilitation – actions, postures or words which communicate your interest in the client
- Reflection – a word or phrase that the client used is repeated back to them
- Clarification – requesting that the client gives more meaning to what they said
- Empathy – recognise the feelings of the client through your words or actions
- Interpretation/Paraphrasing – put into your own words what you have deduced or interpreted from what the client has said. This ensures no misunderstanding.

Successful communication with clients goes hand in hand with effective observation skills. Your observations will assist you to build a broader picture based on the information the client has verbally given you. Whilst you will be looking for relevant signs and symptoms, it is also important to pay close attention to body language as well as other factors such as the client's state of mind, appearance and general awareness.

Throughout your time as an Allied Health Assistant, you will occasionally encounter a client who chooses not to engage with the treatment plan offered to them. In these situations, the following points may be useful:

- Ensure you provide education to the client that is relevant to them personally, for example, if they don't enjoy reading, avoid giving written information to them
- Try wherever possible to see the situation through the eyes of the client. This may give you some perspective regarding their choices
- Explain the need for the client to engage in their own health care
- Document all occurrences regarding the client in the client's health chart

In order to perform your role to the best of your ability, it is important that you are able to manage time well, are personally organised and are able to establish priorities. Be aware of the need to adhere to the time constraints of appointment lengths, ensuring that you effectively cover all required aspects of the client's care in an efficient and organised manner.

3.3 Monitoring Requirements

Case Records

- Set out, in accessible form, the progress of the management of the case
- Should be completed immediately after treatment has been completed
- Detail all that has occurred in each treatment
- Format should be adequate for full reporting
- If well maintained, provide value in the context of allegations of malpractice
- Should be stored in a safe and secure place

(O'Donnell et al 2006: 452)

Documentation Points to remember:

If handwritten, must be in black ink and legible

- Should include date and time
- Should be brief yet factual including all aspects of the treatment episode
- Should indicate that consent was obtained from the participant (or their legal guardian if less than 18 years of age or has intellectual impairment)
- Correct mistakes by putting one line through the error and adding your initials next to it. Avoid trying to remove the mistake completely.
- Abbreviations should only be used if they are part of an accepted and published norm
- A document, Guidelines for allied health assistants documenting in health records has been developed by Queensland Health. This may be viewed at the following link: https://www.health.qld.gov.au/ahwac/docs/aha/ahadocguide.pdf

(Queensland Health, 2016)

Activity 11: Documentation

Review the Guidelines for allied health assistants documenting in health records at the following link: https://www.health.qld.gov.au/ahwac/docs/aha/ahadocguide.pdf

Use the following example scenarios to show your documentation for the client health record.

Scenario 1

You are an Allied Health Assistant (Podiatry) in a High Risk Foot Clinic. Whilst assisting a client to remove their shoes and socks, you notice an area of redness on the ball of the left foot. You report this to the supervising Podiatrist. The Podiatrist checks the area and discusses possible causes with you and the client. Following this discussion, it is identified that the most likely cause is pressure from footwear. The Podiatrists advises regarding appropriate deflective padding to be adhered in the shoe and requests you to fabricate the pad and adhere it in the footwear.

Scenario 2

You are a Foot Hygiene Worker in an Aged Care Facility. You are asked to assess the footwear of a new resident, Mr Smith who walks with a wheelie walker. You assess the footwear and notice a number of deficiencies in features. You are particularly concerned about the tripping hazard that the current footwear represents. You report this to your supervisor.

Key Points

Topic	Important Points	Completed
3.1 Podiatry Intervention – Goals and Limitations	Identify situations and conditions requiring referral to podiatrist	
3.2 Client Care	Communicate effectively with clients	
	Use effective observation skills	
	Work effectively with non-compliant clients	
	Apply time management, personal organisation skills and establish priorities	
3.3 Monitoring Requirements	Case Records	

My Points to Remember

SELF-COMPLETION CHECKLIST

Congratulations you have completed the topics for Podiatry Learner Guide: Assist with podiatry assessment and exercise.

Please review the following list of knowledge and skills for the unit of competency you have just completed. Indicate by ticking the box if you believe that you have covered this information and that you are ready to undertake assessment.

Assist with podiatry assessment and exercise

Essential Knowledge	Covered in topic
Structure and function of the skin and integuments	☐ Yes
Basic biomechanics of the lower limb and gait cycle	☐ Yes
Basic anatomy and physiology of the foot	☐ Yes
Podiatry exercise and rehabilitation principles	☐ Yes
Safe and effective use of equipment used in Podiatry exercise and rehabilitation programs	☐ Yes
Safe and effective use of equipment and instrumentation used in Podiatry assessment procedures	☐ Yes
Relevant organisation policies and procedures	☐ Yes
Disease processes relevant to the client group/s	☐ Yes
Client Care Plans, goals and limitations of podiatry intervention	☐ Yes
Medical terminology	☐ Yes
Roles, responsibilities and limitations of self and other allied health team members and nursing, medical and other personnel	☐ Yes
OHS policy and procedures	☐ Yes
Privacy and confidentiality requirements	☐ Yes
Infection control protocols	☐ Yes

Essential Knowledge	Covered in topic
Supervisory and reporting protocols	☐ Yes
Record keeping requirements	☐ Yes

WORKPLACE OBSERVATION CHECKLIST

Assessor to date and sign (draft only, please record in the Assessment Guide).

Essential Skills and Knowledge The learner demonstrates the following skills and knowledge	1st observation date & initial	2nd observation date & initial	Comments	*FER
Implement Podiatric exercise and rehabilitation practices				
Undertake activity analysis – breaking activities down into component parts				
Construct the environment for safe implementation of exercise and rehabilitation programs and assessment procedures				
Demonstrate observation and recording skills				
Work with OHS and infection control requirements and protocols				
Work safely with electronic equipment and instrumentation				
Demonstrate safe and accurate use of Podiatry assessment equipment and instrumentation				
Work under direct and indirect supervision				
Communicate effectively with supervisor, co-workers, and clients for therapeutic, assessment and monitoring support				
Work effectively with non-				

compliant clients				
Demonstrate time management, personal organisation skills and establishing priorities				
Maintain accurate records				
Comply with supervisory and reporting protocols				
Comply with privacy and confidentiality requirements				
Understand the roles, responsibilities and limitations of self and other allied health team members and nursing, medical and other personnel				
Use medical terminology				
Understand client care plans, goals and limitation of Podiatry intervention				
Apply understanding of disease processes relevant to the client group				
Work within relevant organisation policies and procedures				
Demonstrate safe and effective use of equipment and instrumentation used in Podiatry assessment procedures				
Demonstrate safe and effective use of equipment used in Podiatry exercise and rehabilitation programs				
Apply Podiatry and rehabilitation principles				

Apply understanding of the structure and function of the skin and integuments				
Apply understanding of biomechanics of the lower limb and gait cycle				
Apply understanding of anatomy and physiology of the foot				

*FER – Further Evidence Required

GLOSSARY

Word	Definition
Aneurysm	Localised dilation of the wall of a blood vessel; usually caused by atherosclerosis and hypertension; common in the lower limbs especially the popliteal arteries of the older population
Arteriosclerosis	Narrowing of arterial diameter due to thickening of arterial wall coupled with loss of elasticity
Atherosclerisis	Accumulation of fats on internal arterial wall
Atrophy	A wasting or reduction in size or physiologic activity of a part of the body due to disease or other influences
Congenital	Present at birth
Cyanosis	Bluish discoloration of the skin and mucous-membranes caused by an excess of deoxygenated blood
Endocrine	A system of glands which secrete particular hormones into the bloodstream to regulate bodily functions
Haemosiderosis	Increased deposition of iron in tissues. Usually presents as brown discoloration of the skin of the anterior lower legs.
Ischaemia	A decreased supply of oxygenated blood to a body organ or part, often marked by pain and organ dysfunction.

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