



THE COLLEGE
OF PEDORTHICS
OF CANADA

Study Guide Workbook 3

Pedorthic Treatment
Footwear



The College Of Pedorthics Of Canada

The College of Pedorthics of Canada is a national self-regulatory body whose primary purpose is to protect the Canadian public who receive foot-related services from Canadian Certified Pedorthists.

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We ensure that certified members are accountable to the highest standards of practice through our certification of members and facilities, the monitoring of continued competency and the enforcement of ethical conduct.

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When you complete this objective you will be able to appropriately select and suggest pedorthic footwear modifications to ensure a better shoe fit or treatment for your patient's foot condition or deformity.

LEARNING OBJECTIVES

1. Correlate a patient's lower limb/foot condition and foot shape to the type of footwear needed considering shape, fit and the construction of the footwear anatomy.
2. Apply the various steps and questions required to ask at each stage during a footwear fitting procedure to determine the best fit based on a patient's condition and special considerations.
3. Customize footwear fit to the patient's condition and/or deformity and the special considerations when

pedorthically customizing footwear.

4. Utilize specific questions, analyses, and problem-solving processes to determine the best shoes for an existing pair of foot orthoses to satisfy a patient's treatment plan.
5. Consider various footwear inventory options for a fully stocked practice, partially stocked practice, and no stock practice.
6. Define various ethical issues related to footwear and footwear customizations in a pedorthic practice.

RATIONALE

What is the purpose of this learning material?

This workbook will help learners to work through various concepts, theories and constructs that are fundamental to applying critical thinking and problem-solving skills to footwear fitting and footwear modifications. You can use this workbook as a basic structure to discuss with your mentor and ask questions when out in the workplace, apprenticeship or practicum. Work through the various exercises and case studies to help prepare you for the certification exam.

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When you complete this objective you will be able to confidently suggest proper footwear and footwear features that will complement an existing pair of foot orthotics.

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When you complete this objective you will be familiar with various footwear inventory considerations for a footwear practice.

OBJECTIVE SIX

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When you complete this objective you will be able to define various ethical considerations of pedorthic issues related to footwear and footwear customizations.

LEARNING OUTCOMES

When you complete this module you will be able to...

When you complete this module, you will be able to evaluate footwear features, choose appropriate shoe modifications for patients with various lower limb conditions and foot deformities, and use best practices for shoe fitting procedures. Footwear inventory management and ethics considerations will also be discussed.

INTRODUCTION

Footwear is the key component that separates pedorthists from other foot care providers. As certified pedorthists, our focus on patient goals revolves around the provision of treatments that include foot orthoses, footwear and footwear modifications.

With a proper in-depth assessment, possible treatment may include these items as well as other supportive devices. We are deemed experts in the field of fitting and modifying footwear so honing these skills is vital to a pedorthic practice.

As a Canadian Certified Pedorthist, you will be able to look at footwear through a different lens. You will be able to evaluate its materials and construction and offer advice to patients on footwear features specific to their biomechanical and medical conditions. Using the footwear anatomy chart in unit one, you should be able to guide your patients to proper footwear features that will provide a best fit for their specific needs.

In unit two of this workbook, you will also have access to a step-by-step chart to help guide your decision-making in a pedorthic footwear fitting exercise. Remaining true to these 12 steps during a pedorthic shoe fit should result in a 'best fit' for any feet.

However, if the 'best fit' shoes are still not completely acceptable, footwear modifications may be needed for better results. The chart provided in the third unit should offer guidance as you decide the most appropriate footwear modifications for any treatment plan.

When a patient or customer presents with an existing pair of foot orthoses and is seeking a complementary pair of shoes you will need to consider the patient treatment goals and how their shoes and orthoses will work together to achieve the desired result. Features of a shoe can complement the components of the orthoses or exaggerate them. Unit four will offer guidance in selecting the correct footwear for different orthoses.

Since shoes set us apart from other foot specialists, footwear knowledge and inventory is an important part of a pedorthic clinic. At any pedorthic clinic, decisions must be made regarding whether a full shoe inventory is maintained or only a partial footwear stock or none at all (with sample shoes only). Unit five outlines many factors that need to be explored when considering footwear inventory in a pedorthic business.

Finally, the Code of Ethics published by the College of Pedorthics of Canada offers clear insight into several common footwear related business topics. The last unit in this workbook will discuss two ethics topics relating to our professional presentation of footwear to the public.



OBJECTIVE ONE

Footwear Anatomy

When you complete this objective you will be able to...

When you complete this objective your knowledge of footwear anatomy, construction, and features will help you correlate a patient's foot or lower limb condition to footwear.

LEARNING MATERIAL

As a Canadian Certified Pedorthist, you must be able to look at footwear from a different perspective. You need to be able to evaluate its materials and construction, and with this knowledge be able to offer advice to a patient on footwear features specific to their biomechanical and medical condition. Open the diagram and chart below by double clicking on the icons. Take a look at each footwear anatomy feature. Compare this to several pairs of shoes of your own. Using the chart, understand the position and reason for each of these features. Go to the Glossary following the shoe diagram for clarity of anatomy terms. Also each feature is described in terms of the pedorthic pros and cons when choosing a shoe for a particular treatment plan. Print the diagram and chart as separate documents to aid in solving case studies in the upcoming practice exercises.



Footwear Anatomy Chart

FOOTWEAR ANATOMY	PEDORTHIC SIGNIFICANCE
Upper	<ul style="list-style-type: none"> - lasting shape - for proper fit to foot shape - material properties for unique forefoot abnormalities - stretchy and stretchable materials (rigid deformities such as hammer toes and bunions), breathable materials (hot, sweaty feet, bromhidrosis, hyperhidrosis), soft or more sturdy materials - depth - for better fit of rigid hammer toes, pes cavus or fleshy feet
Quarter	<ul style="list-style-type: none"> - heel counter - size and stiffness determines amount of heel control – can extend medially or laterally - height of quarter – re stability of ankle (boot style more supportive) - closed heel for maximum support, open heel (like a clog) for minimum support, or a strap for partial
Vamp	<ul style="list-style-type: none"> - material – stretchable (offload bony prominences but is generally less stable) - breathable (good for wicking) - seams - enhances durability but can cause friction - throat opening size and depth - determines ease of donning - width and shape - toe cap - protects and maintains shape
Sole	<ul style="list-style-type: none"> - width of sole determines stability - material durometer (cushioning, durability)
Midsole	<ul style="list-style-type: none"> - material choice (softer provides cushioning, firmer provides stability) - neutral, stability, motion control - heel differential - in relation to ankle equinus or metatarsalgia
Outsole	<ul style="list-style-type: none"> - thick, 'tready' vs thin, smooth rubber - can be non-existent
Topline	<ul style="list-style-type: none"> - cushioned - reduces irritating pressure - height (around the ankles) - lateral edge lower than medial edge
Achilles Notch	<ul style="list-style-type: none"> - reduces soft tissue stress at Achilles tendon
Heel Counter	<ul style="list-style-type: none"> - provides calcaneal support (reduce rearfoot overpronation and excessive supination) - can extend medially or laterally
Toe Cap	<ul style="list-style-type: none"> - helps hold the upper up and off the distal phalanges (synonym: toe box)
Throat Opening	<ul style="list-style-type: none"> - balmoral vs blucher opening - deep, distal opening allows for ease of donning
Adjustable Closure	<ul style="list-style-type: none"> - laces, velcro, elastic laces, toggles, etc
Tongue	<ul style="list-style-type: none"> - padded vs thin - bellowing vs flat
Inner Lining	<ul style="list-style-type: none"> - material choice re possible wicking properties - seams vs seamless - helps to lengthen shoe's life
Footbet	<ul style="list-style-type: none"> - cushioning, shock absorption - can aid in the fit of a shoe - molded to offer plantar support - breathable to offer wicking

CASE STUDIES

Complete the Case Studies on Footwear Anatomy

Utilizing the Footwear Anatomy Chart, answer the case studies below which will test your ability to match the fit, features and construction of a shoe to a patient's foot condition or deformity and lower limb biomechanics. You should be able to guide your patient to proper footwear features that will provide a best pedorthic fit, keeping in mind the footwear shape, features and construction.

When looking at each case study... consider the following guiding questions...

1. What is the patient's painful foot condition or biomechanical foot requirement?
2. What part of a shoe or boot will help with the patient's foot needs (ie do they need more support in a specific area? do they need pressure relief from a specific area? do they need immobilization of a specific joint or joint complex?)
3. Using the diagram provided above, what are the footwear features that will aid in this need?
4. Write out your answer for each case study below and compare to the suggested solutions at the back of the workbook.



Exercise 1.1

Case Study 1.1: Mrs. Smith

Mrs. Smith, an active 80-year-old, relays a history of bilateral painful medial bunions and hammer toes (2nd rigid with dorsal PIP corns). Her bunions extend more medial than the rest of the foot, causing a footwear width issue. Her 2nd hammer toe is rigid so cannot “flatten” even with an added metatarsal arch. She wears unsupportive shoes and complains that they aggravate her feet (rubs on both the bunions and corns) and so she wears soft slippers everywhere. She wears a size too big for her to accommodate her foot width and toe issues. She wants you to make a recommendation as to what type of shoes to buy. She is on a limited seniors pension and likes to walk her dog to stay active – what should you tell her?

When solving this and all the following case studies there are a few key questions to ask yourself. These are common questions to any footwear treatment plan:

- How can you help this patient as her pedorthist?
- How are you going to determine the shoe properties that this patient should consider when shoe shopping?

In this specific case study remember to consider the following:

- Footwear width and depth needs
- Appropriate footwear materials
- Donning and doffing

In a paragraph please write your suggestions on how you should best help Mrs. Smith. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Mrs. Smith’s concerns?

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Case Study 1.2: John

John is a 40-year-old hospital orderly who walks 10+ kilometers a day at his work on hard floors. He has complained of painful medial ankles with swelling which progressively gets worse as the day goes on. This swelling is irritated by his footwear. His family physician recently diagnosed him with posterior tibialis tendon dysfunction (PTTD) and overpronation. Post tibial tendon dysfunction generally presents initially as medial ankle swelling with tenderness and pain. His doctor referred him to your clinic for advice on proper footwear – what should you tell him? You realize durability, support, and comfort are important.

Remember to consider the following:

- job requirements re distance and surfaces he walks on
- Key issues - overpronation, posterior tibial tendon dysfunction
- Complicating fitting factors (ie pain, swelling)

In a paragraph please write your suggestion to how you should best help John. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy John's concern?



Case Study 1.3: Sally

Sally is a nursing student who complains of a painful right forefoot. She said this began after an injury in soccer years previously. You assess her and discover a symptomatic right hallux rigidus with an enlarged 1st MTP joint and dorsal exostosis. Her pain and swelling are concentrated around this joint after a full day of clinical. Her primary concern is her painful hallux rigidus, hallux dorsiflexion movements are painful. When faced with this type of pain, you must always think of a way to reduce stress (movement) to the 1st MTP joint. She is most concerned with her nursing footwear and unfortunately doesn't have much excess funds - what should you tell her?

Remember to consider the following:

- Vamp materials, shape, depth, and construction (consider shoe opening for donning)
- Footwear features for pain reduction of the hallux rigidus, especially biomechanical
- Work environment

In a paragraph please write your suggestion to how you should best help Sally. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Sally's concern?

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Case Study 1.4: Tamara

Tamara is a recently retired hairdresser who had always dressed up for work with heeled shoes. Over the last year however she has changed her dress attire to more casual wear (from heeled pumps with an open instep and no throat closure, to lace ups with reduced heel height). Over this time frame, she slowly realized her feet (especially at the back of the heels) have started swelling and are painful especially in the mornings or after sitting for any length of time. At the same time, she realized an aggravating cyst at her dorsal instep. She says she now has to keep her shoes laced loosely so the laces won't irritate the swelling. You suspect Achilles tendinopathy with midtarsal arthritis. She is frustrated with her painful feet, so her friend suggested she discuss her footwear situation with you. You realize that the key pedorthic issue underlying Tamara's pains is the change in heel height in her footwear. What should you tell her? What footwear features are important for Tamara?

Remember to consider the following:

- root causes of Tamara's injury
- what footwear features will accommodate her specific heel and dorsal pain? -

In a paragraph please write your suggestions of how you should best help Tamara. Be sure to refer to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Tamara's concern?

Case Study 1.5: Mr. McDonald

Mr. McDonald is an obese 70-year-old diabetic with heavy plantar calluses at his forefeet and heels. You realize he may also have some degree of neuropathy. He has suffered with years of lower back pain (LBP). He recently also has had a total hip replacement (THR). His son has brought him to you to purchase a new pair of footwear. You realize that with his obesity, LBP, and THR, he likely is unable to bend to don his footwear. His son's greatest concern is that his father can put these shoes on and off by himself as he currently has had difficulty - what should you tell them?

Remember to consider the following:

- Issues with donning and doffing
- Possible diabetic complications with footwear use

In a paragraph please write your suggestion to how you should best help Mr. McDonald. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Mr. McDonald's concern?

Case Study 1.6: Martha

Martha is a youthful 45-year-old. She has been a long-time sufferer of OA and RA with large plantar nodules at her MT heads. With long standing OA, joint breakdown at the PIP and DIP joints should be realized along with stiffness. With long standing RA, joint swelling and breakdown at the MTP joints should also be realized. These make a good shoe fit difficult. She has had multiple surgeries to try to help with severe bunions and hammertoes leaving her

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feet scarred with many fused MTP and IP joints. Despite these past surgeries, her forefeet are still swollen and painful. Martha is a prominent choir singer and therefore needs comfortable yet appropriate dress shoes. Discuss the appropriate features of shoes for Martha. Consider her entire lifestyle, making assumptions due to her severe OA and RA. She will likely require two different shoes – one for the choir, one for daily activities. Realize the possibility of hand mobility issues that can affect her ease of donning the shoes. What should you tell her?

Remember to consider the following:

- Forefoot deformities
- Martha's personal lifestyle activities
- Pain management

In a paragraph please write your suggestion regarding how you should best help Martha. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring podiatrist. Can you suggest a specific make and model of footwear that could satisfy Martha's concern?

Case Study 1.7: Jacob

Jacob is an engineering student who suffers from left lateral ankle swelling. He only recently has been diagnosed with Charcot Marie Tooth disease (CMT). With CMT, the peroneal nerve becomes compromised and therefore eventually the tibialis anterior muscle and peroneals weaken and become overpowered by the tibialis posterior muscles. This leads to a supinated gait with resultant inversion of the rearfoot and higher incidence of inversion ankle sprains. Jacob has stayed active with intramural sports, and wants to remain active as long as possible despite this condition. Although he had sprained

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his left ankle before, he says it's fine during these times as he wears an ankle brace for sports. However he mentions feeling more unstable with poor balance over time. He says his ankle hurts mostly at the end of a long day of schooling as he walks from class to class. His left shoe always seems to wear at the outside heel area. Jacob is only now learning more about his disease and wants to be realistic about his condition but also dearly wants to stay active. Jacob confesses to never really paying much for footwear but is ready to invest in a good pair for daily wear. What should you tell him?

Remember to consider the following:

- you may want to review CMT regarding progression and symptoms
- Footwear features to manage rearfoot supination and protect against inversion ankle sprains

In a paragraph please write your suggestion regarding how you should best help Jacob. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Jacob's concern?

ASK YOUR MENTOR

Make an appointment with your mentor and be clear that it will take no more than 15-20 minutes for this exercise.

- Ask your mentor to take a few minutes to look over your answers to the case studies.
- Ask their opinion about your answer and what they may change (if anything) and why?
- Ask if any patient profiles come to mind and if they can briefly describe the profile and the outcome.

OBJECTIVE TWO

Footwear Fitting & Special Considerations

When you complete this objective you will be able to...

Utilize the various steps and questions to ask at each stage of a pedorthic shoe fit. During the fitting you will be able to determine the best footwear fit based on a patient's condition and the special considerations that a pedorthist needs to incorporate in the fitting process.

LEARNING MATERIAL

Canadian Certified Pedorthists are deemed experts in footwear fitting. A standard footwear fitting procedure carried out by the pedorthist will ensure a 'best fit' and provide another piece of the patient's pedorthic treatment plan. In this objective you will learn to apply the integral steps to a proper pedorthic footwear fitting from the initial gait observation to measuring of the feet to deciding on the final footwear. As you follow these 12 steps, refer to the chart provided for a descriptor of each step followed by questions to ask as you complete each. Finally, a Special Considerations Checklist is provided for many of the unique foot and lower leg conditions that you will encounter in your pedorthic footwear fitting treatment plans.

Excercise 2

Click on the chart to the right to uncover a Fitting Procedure Chart to use in your pedorthic practice when fitting a customer with footwear. This chart outlines the 12 standard steps to a proper shoe fit in the first column. This is followed by descriptions of each step in the second column. Finally the last column offers questions to ask at each of the fitting procedure steps. Use these questions to help direct your choice of footwear for your patient. Follow the chart from left to right for each of the 12 standard fitting procedure steps to ask the questions needed in finding a shoe for your patient in their pedorthic treatment plan.

Fitting Procedure Chart

FITTING PROCEDURE	DESCRIPTION OF THE STEP	QUESTIONS TO ASK
1. Initial gait observation	Have patient walk with their current shoes on, roll up pant legs to mid calf	<ul style="list-style-type: none"> • Are shoes worn down irregularly? • Is gait symmetrical?
2. Brief shoe examine	Have patient sit and ask to remove shoes and socks; examine footwear	<ul style="list-style-type: none"> • Is outer heel tread worn evenly? • Are inner liners worn? • Does the footwear upper or sole show unusual wear?
3. Examine feet while seated	Check ankle and 1st MTP joint ROM Note general foot shape and profile while seated	<ul style="list-style-type: none"> • Is there adequate dorsiflexion ROM at the ankle and 1st MTP joints? • What profile height is the MLA? • Are there bunions or hammer toes? • Are there any other notable physical observations?
4. Medical concerns	Ask patient if he/she has any medical concerns? ie diabetes, arthritis, drop foot, edema	<ul style="list-style-type: none"> • Do you have diabetes? Neuropathy? Arthritis? Swelling? Ulcer or history of ulcer? Systemic disease or any other medical issues that would affect a good shoe fit?
5. Measure feet	Use Brannock device or Ritz stick to measure all 3 measurements of each foot. Measure first while seated and then when standing	<ul style="list-style-type: none"> • Do the feet change in size much between seated and standing measurements? • Are the heel-to-ball (HTB) and heel-to-toe (HTT) measurements equal? • Are the left and right foot measurements equal? What size shoe in width and length should you begin your fitting procedure with?
6. Examine feet while standing	Note general foot shape and profile while standing Note lower leg, ankle, foot alignment	<ul style="list-style-type: none"> • Do the feet look symmetrical? • Are the MLAs equal? • Are the ankles aligned with the lower legs or are they in valgus/ varus? • Do the toes fully touch the ground? Are they gripping? • Is the foot (esp the forefoot) splaying on WB?
7. Footwear selection	Discuss desired style and colour of footwear. Discuss any specific needs. Bring a few footwear in close sizes in a few styles that match the patient's requests.	<ul style="list-style-type: none"> • Is the patient looking for walking shoes, work footwear, dress shoes? • What styles do you have that can match the patient's request? • What is the best length and width to try first?
8. Try on footwear	Check inside of footwear for liner placement, removal of papers, irritating seams, etc. Have patient put on appropriate stockings, socks. Place shoes on the patient's feet using shoehorn for ease of donning.	<ul style="list-style-type: none"> • Do the inside of the shoes feel irritating? • Do the shoes don easily?

Exercise 2 Continued

Fitting Procedure Chart

FITTING PROCEDURE	DESCRIPTION OF THE STEP	QUESTIONS TO ASK
<p>9. Check footwear fit</p>	<p>Have patient stand. Check fit for overall length, ball length, width, top line, heel fit, depth. Check overall fit.</p>	<ul style="list-style-type: none"> • Is there a small fingernail width space from longest toe of longest foot to end of shoe? • Is the 1st MTP joint at the widest flex point of the shoe? • Is the width snug but not tight? • Is the heel snug with the topline hugging below the ankles? • Is the instep snug and supportive? • Do foot prominences clear all shoe seams? • Do the toes have space to spread inside? • Do you need to add any fillers or cushion to the shoes for a better fit?
<p>10. Have patient walk – final gait observation</p>	<p>Lace up/ close footwear. Have patient walk.</p>	<ul style="list-style-type: none"> • Does the closure (laces or Velcro) provide a good, snug fit through the midfoot? • Do the heels slip? • Is there obvious overpronation? • Does the vamp crease excessively? • Is the gait smooth and symmetrical?
<p>11. Try on another shoe</p>	<p>Repeat steps 8,9,10</p>	<ul style="list-style-type: none"> • How do the fits compare between different footwear? • What style suits the patient best? • What size is the best fit?
<p>12. Decide on footwear</p>	<p>Discuss footwear choices and sizes with patient. Discuss final colour and fit. Package chosen footwear for purchase or place special order.</p>	

Footwear Fitting: Special Considerations Checklist

Example 1 - Neuropathy:

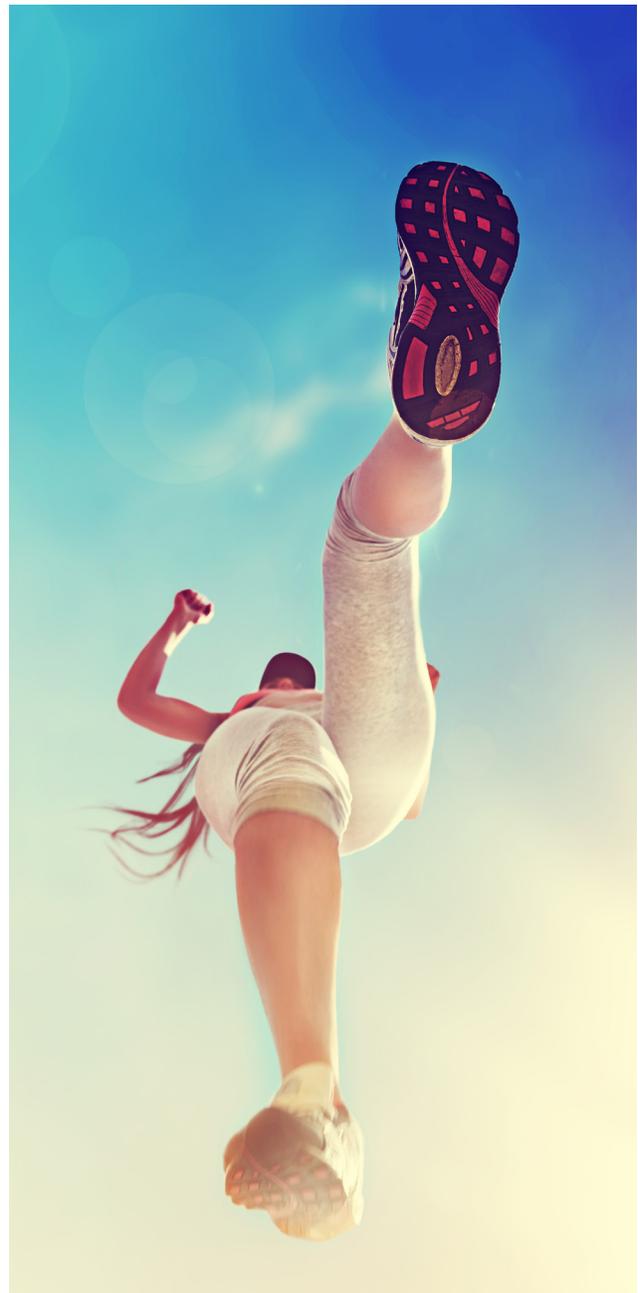
Neuropathy (from diabetes or other) - If a patient has neuropathy, pay close attention to their footwear fit as they often will want a more snug or small shoe fit (to feel the pressure of the shoe). You may want to remove the sock-liner and place the foot on top of it to check general size and shape against the actual foot. You cannot simply rely on the patient's comments. Be careful of tight seams or pressure sites as ulcers can occur. Be cognizant of proper toe depth as hammer toes are common.

Example 2 - Drop Foot:

Drop foot - If a patient has dropfoot, be careful not to fit their footwear too long as toe drag leads to falls. Also look for footwear with a toe spring and a smoother sole (to reduce chance of the shoe gripping the ground). Also, a light-weight shoe is important.

Now it's your turn. For the other diseases/conditions (A-I) below, suggest what the special considerations are for shoe fitting and note any specific appropriate footwear features that you should look for.

In 3 or 4 sentences, offer your answer to each of the conditions (A-I) listed below. Then compare these to the answers provided at the back of the workbook. Discuss with



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Special Considerations Checklist Continued

In summarizing the pedorthic footwear fitting experience, ask these guiding questions:

1. Are there any unique foot shapes or special clinical considerations that need to be considered before beginning the fitting procedure?
2. What is the shape or wear of the patient's current footwear? Are there any 'wear' signs to be cognizant of when selecting footwear for fitting?
3. Using the Brannock or other measuring tool, what are the heel-to-toe, heel-to-ball and width measurements? Do they change drastically from seated to standing? Is the left foot symmetrical to the right foot in sizing?
4. Of the several shoes chosen to fit, which is the best fit? Is it an acceptable fit that will function appropriately?

<p>A. Charcot Marie Tooth (CMT) - If a patient has CMT, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>	<p>F. Metatarsalgia - If a patient has metatarsalgia, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>
<p>B. Painful bunions or hammer toes - If a patient has painful bunions or hammer toes, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>	<p>G. Overpronate or underpronate - If a patient overpronates or underpronates, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>
<p>C. Tender feet (as with RA, OA, fibromyalgia) - If a patient has general over-all tender feet such as RA, OA or fibromyalgia, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>	<p>H. Painful haglund's deformity - If a patient has a painful haglund's deformity, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>
<p>D. Charcot rocker bottom - If a patient has a Charcot rocker bottom foot, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>	<p>I. Ankle edema - If a patient has ankle edema, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>
<p>E. Foot ulcer - If a patient has a foot ulcer, what special considerations should be noted during a shoe fitting? What specific footwear features should you look for?</p>	



FOOTWEAR FITTING PROCEDURES

Exercise 2

Using the Footwear Fitting chart, you should be able to guide your patient to a professional pedorthic 'best fit'. Utilizing the Footwear Fitting Chart, answer the case study questions below which will provide you with a chance to test your ability to match the footwear fitting procedure to a patient's foot condition (or deformity and lower limb biomechanics). Use the Chart as well as the Special Considerations section to complete each case study. Then compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist.

Case Study 2.1: Mary

Mary comes to your clinic hoping to purchase new work shoes. She works at Tim Hortons. She comments that she always ties her shoes very tight as she likes a snug fit. Mary then goes on to say that she feels her current shoes are a good fit although she does complain of general foot aches. When beginning your footwear fitting session, you briefly examine Mary's current shoes and notice excessive wear of the inner lining both at the very back of the heel counter and especially at the distal forefoot where the distal hallux

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and 2nd phalange rub. You even notice the toe cap wearing off the end of the shoe and the leather is worn excessively around this tip. Although Mary loves the current fit of her shoes, you assume the sizing to be wrong. What wear patterns of the inner lining and toe cap lead you to believe she needs a different size. Explain.

Consider the following :

- Mary likes her shoes snug and tied tightly
- Consider the specific areas of inner shoe lining wear
- Remember the movement of feet within the footwear during gait

In a paragraph please write your suggestion to how you should best help Mary in her shoe fitting session. Be sure to refer to the Fitting Procedure Chart found above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Mary's concern?

Case Study 2.2: Gordon

While in a shoe fitting appointment with Gordon he continues to ask for narrower pairs of shoes. He tells you he has idiopathic neuropathy in his feet and hands. He has had to retire because his labour job was too demanding on his arms and legs. He then says that he feels unsteady unless his footwear is very snug. Discuss the underlying reason for this request. Should you honour Gordon's request and fit him with a very snug shoe or should you fit him with different size footwear. Explain your answer and the reasoning behind it.

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Remember to consider the following:

- What is the reason for Gordon's instability in gait?
- What will be your justification for his shoe width choices?

In a paragraph please write your suggestion regarding how you should best help Jacob. Be sure to refer back to the Footwear Anatomy Chart above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Jacob's concern?

Case Study 2.3: Sarah

Sarah is a college student who walks to school. At age 21, she already presents with severe bunions and HAV. Sarah's feet measure heel-to-ball size 9 and heel-to-toe 7.5. Both feet measure the same. What would be a reasonable length for an initial shoe for fittings? Why? Now if you fit Sarah strictly based on the heel-to-toe measurement, what long-term foot complications could arise for her? Why?

In a paragraph please write your suggestion to how you should best help Sarah in her shoe fitting session. Be sure to refer back to the Fitting Procedure Chart found above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Sarah's concern?

CASE STUDIES

Case Study 2.4: Patti

Your friend Patti has come to you to find a comfortable pair of shoes. Nothing feels 'right' as her left shoe always feels tight. In measuring Patti's feet you note both feet measure size 9.5 medium width while seated. When she stands, you note the left foot is size 10 wide width and the right foot is 10.5 medium width. Explain the probable reasoning for the changes in foot measurement from seated to standing. Also suggest some reasons for the difference in foot sizes while standing but not while seated. What shoe size should you start with in fitting?

Remember to consider the following:

- Any possible changes to the medial longitudinal arches
- Any possible changes to the metatarsal transverse arches

In a paragraph please write your suggestion to how you should best help Patti in her shoe fitting session. Be sure to refer back to the Fitting Procedure Chart found above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Patti's concern?

ASK YOUR MENTOR

Make an appointment with your mentor and be clear that it will take no more than 15-20 minutes for this exercise.

- Ask your mentor to take a few minutes to look over your answers to the case studies.
- Ask their opinion about your answer and what they may change (if anything) and why?
- Ask if he/she can offer more insight into a difficult shoe fit experience.

CASE STUDIES

Case Study 2.5: Bob

Bob has made an appointment with you because he is falling more frequently and feels his footwear is at the root of this problem. He is looking for comfortable footwear that will help with his balance. Bob is a retiree who has had several TIA's (transient ischemic attacks) with a resultant mild dropfoot on the left. In the mornings he feels confident in his walk but later in the day, as he tires, he starts to drag his foot and catches the toe on carpets and uneven ground. His left foot also is starting to show hammer toes and clawing which is shortening the foot slightly. Bob was a carpenter and has always worn steel toed boots. He continues to wear his older boots now into his retirement. Bob knows he needs to find better footwear and replace his old workboots. Can you make some recommendations regarding an appropriate pair of footwear for Bob. Comment on the footwear in terms of anatomy, sizing, and style. Note any remarkable features specific to Bob and his feet.

Remember to consider the following:

- Be sure to consider any remarkable features specific to Bob and his feet.
- What are the important footwear matters that Bob needs to be aware of? Comment on the footwear in terms of anatomy, sizing, and style.

In a paragraph please write your suggestion to how you should best help Bob in his shoe fitting session. Be sure to refer back to the Fitting Procedure Chart found above. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Bob's concern?

OBJECTIVE THREE

Footwear Modifications & Special Considerations

When you complete this objective you will be able to...

Appropriately select and suggest pedorthic footwear modifications to ensure a better shoe fit or treatment for your patient's foot condition or deformity.

LEARNING MATERIAL

The goal of a professional shoe fit is a 'best fit' for the patient. A pair of shoes is technically symmetrical while feet usually aren't. Also as we age, our feet will show "wear and tear" so that they may show more difference between sitting and standing than previously. So after the best pair of shoes has been chosen based on appropriate footwear features, construction and fit, pedorthic footwear customizing may still be needed. Adding a tongue pad or simple forefoot filler may make the smaller foot fit comfortably in a pair of shoes that are sized for the larger foot. A small, site-specific shoe stretch could take away all rubbing on a hammer toe. So even after a professional pedorthic shoe fit, you can often still improve on fit and comfort with footwear modifications. Some are simple and quick and can be done while the customer waits. Other shoe modifications are more technical and in-depth so would require that you keep the shoes for a few days. In this chapter, you will learn about many of these modifications. You will be asked to follow an analytical checklist to provide suggestions on shoe modifications that could help make a 'best fit' pair of shoes pedorthically sound and uniquely individual.

Excercise 3

Footwear Modifications Checklist

You will find three charts on the next page which list eighteen different footwear fitting concerns (6 concerns for each chart). Your job is to choose the correct possible footwear modification solutions for each concern. The correct options are listed after each set of 6 concerns. Simply choose the correct solutions for each concern. You will know how many solutions are needed to complete the chart by the number of bullet marks in the chart. Use each solution once and they should all be used when the chart is completed.



Correctly fill in the second column in the chart below (Footwear modification solutions) with the points noted below. You should use each point once and all points should be used when you've completed this portion of the chart.

1 Chart #1 Footwear Modifications

FOOTWEAR CONCERN	POSSIBLE MODIFICATION
1. One foot is smaller	- shoe of smaller foot - shoe of larger foot
2. Foot rubbing on a seam	
3. Bunion, bunionette or hammer toe irritation on vamp	
4. Plantar forefoot pain (metatarsalgia)	
5. Heel slippage	
6. Pressure on dorsum of instep	

- Re-lace (skip lacing)
- External MT bar
- Balloon patch for more severe case
- Heel grip
- Add forefoot filler, tongue pad, heel pad, lock lacing
- Forefoot padding internally
- Stretch shoe at seam site (spot stretch)
- Re-lace (lock-lacing)
- Open seams to reduce pressure
- Split sole for added specific bunion, bunionette width
- Metatarsal pad/arch
- Horseshoe pad off-loading
- Tongue pad
- Interior padding
- Internal indenting into sole or footbed to offload at specific pain site (usually a dropped metatarsal head)
- Tongue pad
- Grind down liner to lower heel
- Heat and re-shape heel counter
- SACH for aëfoot
- Stretch shoe overall and/or spot stretch
- 'Donut' off-loading with felt, plastazote
- Forefoot shoe stretch
- Pad seam inside shoe with foam or felt
- Forefoot filler
- Change lacing to avoid pressure

Similar to the exercise previously, correctly fill in the second column in the chart above (Footwear modification solutions) with the points noted below. You should use each point once and all points should be used when you've completed this portion of the chart.

2 Chart #2
Footwear Modifications

CONDITION	POSSIBLE MODIFICATION
7. Overpronation	
2. Oversupination	
3. Charcot arthropathy	
4. Symptomatic hallux limitus (HL), hallux rigidus (HR)	
5. Leg length difference (LLD)	
6. Fused ankle	

- Medial wedge (interior or on outsole)
- Rockered rearfoot
- Split size shoes (2 size shoes possibly to accommodate larger, deformed foot)
- Change lacing to avoid pressure at 1st MTP joint
- Lateral wedge (interior or on outsole)
- Strengthen medial heel counter (renoflex)
- SACH heel
- MLA (scaphoid pad, arch cookie)
- Lateral flare
- Open seams on dorsum to off-load pressure at thickened 1st MTP joint
- Split sole to widen at deformity
- Add half of true measurement to shoe of shorter leg
 - internal if less than 1/2"
 - internal if temporarily needed
 - external if 1/2" or more
 - external if full sole required
- Strengthen lateral heel counter (renoflex)
- Stretch upper over dorsal exostosis
- Medial buttress
- Rockered forefoot
- Cut down heel or midsole of shoe of longer leg
- Indent into footbed and midsole to off-load at plantar deformity
- Lateral buttress
- Lock lacing to hold heel in shoe
- Medial flare
- Rigid rocker carbon fibre plate (interior or add to midsole)



3

**Chart #3
Footwear Modifications**

FOOTWEAR CONCERN	POSSIBLE MODIFICATION
13. Rigid ankle equinus	
14. Distal phalange corn (toe tip)	
15. Plantar heel pain	
16. Haglund's deformity - symptomatic	
17. Toe drag re: drop foot	
18. Edematous ankle, ankle rub on topline	

- Remove part of the heel counter at enlarged bony site
- Add internal heel lifts
- SACH heel
- Sulcus bar, sulcus ridge, toe crest
- Cut down the top edge to reduce pressure at the ankles
- Indent at corn site into footbed
- Pad inside heel counter
- Toe sliders
- Spot stretch at painful site (you may need to heat the heel counter first)
- Bilateral heel lifts (internal or exterior)
- Horseshoe deflection at corn site
- Cushioned heel lifts (interior or exterior)
- Cushion top edge
- Round the toe tip outsole and midsole
- Open topline and remove padding
- Indent into footbed or midsole and cushion
- Strong MTA if toes are flexible
- Open the back of the heel counter with a "V" opening and Velcro closure
- Horseshoe pad to offload interiorly
- Add heel cupping to footbed

Once you've completed the charts compare it to the answers provided at the back of the workbook. Discuss with your pedorthic supervisor.

CASE STUDIES

Footwear Modifications Case Studies

Use the checklist above to decide what footwear modifications should be suggested for each of these patients in their treatment plan.

Exercise 3

Case Study 3.1: Mrs. Brown

Mrs. Brown came to your clinic referred by her doctor. She has been experiencing forefoot pains. You examine her feet and discover very different feet from right to left. The left foot appears 'normal' in shape and causes no pain. Her right foot however is deformed showing a severe medial bunion (red and swollen) with HAV. The right foot also shows the second toe sitting on top of the hallux as a crossover. This has lead to a dorsal PIP corn and heavy callusing at the plantar 2nd MT head and distal plantar toe tip. What modifications to her shoes could you suggest? Obviously you will need to modify the forefoot of her right foot. Decide if only one shoe needs to be adjusted, or whether modifying both is more reasonable.

In a paragraph please write your suggestions on how you should best help Mrs. Brown in modifying her footwear. Look at the chart in Exercise 3 and decide which items of the checklist relate to this question. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Mrs. Brown's concerns and provide a good base for possible shoe modification?

CASE STUDIES

Case Study 3.2: Mr. White

Mr. White has diabetic neuropathy. He reported recently having his left foot swollen and feeling hot. The diagnosis was a Charcot arthropathy. Only recently has he noticed the 'rocker bottom' shape of his affected foot and widening of his midfoot. What footwear modifications can you offer for his New Balance walking shoes to provide a better and safer shoe fit? List these appropriate modifications and support your choices. Decide if only one shoe needs to be adjusted, or whether modifying both is more reasonable.

In a paragraph please write your suggestion to how you should best help Mr. White in modifying his footwear. Look at the chart in Exercise 3 and decide which numbers of the checklist relate to this question. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Mr. White's concerns and provide a good base for possible shoe modification?

Case Study 3.3: Kathy

Kathy, a nurse, has played soccer for years and is now suffering from symptomatic hallux rigidus of the right foot. The accompanying enlarged 1st MTP joint always seems to rub on the upper and cause further pain. She has tried loosening her laces to no avail. What footwear modifications could you recommend for Kathy? Be sure to consider both her nursing footwear and soccer cleats. Decide if only one shoe (right or left) needs to be adjusted, or whether modifying both is more reasonable.

In a paragraph please write your suggestion to how you should best help Kathy in modifying her footwear. Look at the chart in Exercise 3 and decide which numbers of the checklist relate to this question. Will you suggest the same or different modifications to her nursing shoes and soccer cleats? Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Kathy's concern and provide a good base for possible shoe modification?

CASE STUDIES



ASK YOUR MENTOR

Make an appointment with your mentor and be clear that it will take no more than 15-20 minutes for this exercise.

- Ask your mentor to take a few minutes to look over your answers to the case studies
- Ask their opinion about your answer and what they may change (if anything) and why?
- Ask if your mentor can offer more insight into a difficult shoe fit and what specific footwear modifications he or she may have done

Case Study 3.4: John

John has recently had a left THR after years of suffering from Legg-Perthes disease. Unfortunately this surgery has left his left leg shorter by 3.8 cm. Also he now presents with a mild foot drop of the left. John is a shop teacher at the local high school so requires wearing work boots as well as casual dress shoes. Identify appropriate footwear modifications. Be specific with your suggestions. Decide if only one shoe needs to be adjusted, or whether modifying both is more reasonable.

Remember to consider:

What are appropriate modifications to his shoes to help with his LLD and foot drop?

Is there any difference with his safety boots vs his casual shoes when deciding on shoe mods?

In a paragraph please write your suggestion to how you should best help John in modifying his footwear. Look at the chart in Exercise 3 and decide which numbers of the checklist relate to this question. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy John's concerns and provide a good base for possible shoe modifications?

Case Study 3.5: Thelma

Thelma is a 65-year old retired retail salesperson and has felt that her balance has been getting worse, especially over the last several years since her retirement. She used to enjoy walking her dog in the park but has reduced her outdoor walks due to this uneasy feeling while walking. She isn't ready to use a walker or cane as she says 'she is too young'. When assessing her feet you immediately notice that her medial longitudinal arches have fallen and her rearfoot (and knees) are in valgus. She is finding that her feet are sore and achy, especially at the navicular and 1st cuneiform bones. Her ankles are also notably swollen along the posterior tibialis tendon tract. What footwear modifications could benefit her?

In a paragraph please write your suggestion to how you should best help Thelma in modifying her footwear pedorthically to make her shoes more comfortable? Look at the chart in Exercise 3 and decide which numbers of the checklist relate to this question. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Thelma's concern? Can you suggest a specific make and model of footwear that could satisfy Kathy's concern and provide a good base for possible shoe modification?

OBJECTIVE FOUR

Footwear-Orthotic Interactions

When you complete this objective you will be able to...

Confidently suggest proper footwear and footwear features that will complement an existing pair of foot orthotics to help your patient with their pedorthic issues.

LEARNING MATERIAL

When a customer comes to your clinic with a pair of orthotics and simply requests a new pair of shoes, you will need to decide what footwear will complement and not hinder their foot or lower leg condition. Custom foot orthotics are fabricated for specific biomechanical or medical conditions, and specific footwear features should augment the customer's current orthotics and final treatment plan. When deciding what footwear will be appropriate, you should ask yourself some guiding questions:

- a) What type of orthotic does the patient already have – corrective, accommodative, combination, full length, partial length, deep heel cup?
- b) What specific design features and materials are used for the orthotics?
- c) What is the patient's condition?
- d) What factors, unique to the patient or situation add extenuating circumstances or complicate the footwear requirements?
- e) FINALLY... what footwear or footwear features will assist the orthotics in the specific patient treatment plan discussed?

For instance, an elderly frail patient comes to your clinic with inflammatory RA, a painful bunion and hammer toes. She shows you her accommodative orthotics which helps to cushion her feet and offload the plantar nodules. What shoes or shoe features would you suggest to fit her current accommodative orthotics?

The following would be a suggestion for your decision based on the guiding questions noted above ...

- a) type of orthotic - accommodative
- b) specific design features and materials - metatarsal arches, trilam or other low durometer foams
- c) patient condition - inflammatory RA, bunions, hammer toes
- d) unique factors of patient or situation - elderly, frail
- e) footwear or footwear features - neutral midsoles, wide extra-depth forefeet, soft stretchable uppers, lacing considerations (hand dexterity and hip ROM)



Exercise 4.1

Footwear and footwear features that complement an existing orthotic

Following is a chart that guides you from the orthotic and patient condition to suggesting appropriate (complementing) footwear and footwear features.

- Column A notes the type of orthotic (either corrective, accommodative, or combination) that your patient already owns. Orthotic types are then listed in column A.
- Column B notes possible design features and materials of these orthotics.
- Column C notes some of the possible foot and lower limb conditions that your patient could have and why they are wearing foot orthotics.
- Column D notes possible unique factors of your patient who is wearing the foot orthotics (age, activity level, etc).
- And finally Column E suggests the footwear and features that would be appropriate to match with the orthotics of your patient.
- By following the chart from left to right, the appropriate footwear features will be evident.

A WHAT IS THE ORTHOTIC TYPE? POSSIBLE ANSWERS ARE BELOW.	B WHAT ARE THE SPECIFIC DESIGN FEATURES OR MATERIALS FOR THIS ORTHOTIC?	C WHAT IS THE PATIENT CONDITION THAT REQUIRES THESE ORTHOSES?	D WHAT ARE THE UNIQUE FACTORS THAT EXIST? THAT IS, WHAT IS THE UNUSUAL PATIENT WEIGHT, AGE, ACTIVITY LEVEL, OTHER?	E WHAT ARE THE DETAILS OF THE FOOTWEAR FEATURES RECOMMENDED FOR THIS TREATMENT PLAN?
Corrective	UCBL	PTTD, severe pes planus	Heavy, obese	Motion control – wide base, extra strong heel control, medial support – above the ankle footwear (hikers, boots)
	UCBL	hypermobility	Child, teenager	Athletic shoes, boots
	Common, RCH	Overpronation with accommodating soft tissue pains (plantar fasciitis, shin splints, PPFs, etc) Metatarsalgia, bunions		Neutral, cushioned, wide based soles, midsoles, heel differential
	Dress (RCH, carbon) ½ length	Metatarsalgia, plantar fasciitis, overpronation		High heels (increased heel differential)
Accommodative	-Trilam, duolam, pcell, other lower density foams	- Systemic OA, RA, fibromyalgia, lupus, psoriatic arthritis, inflammatory conditions - Athlete with good biomechanical alignment		Soft, neutral, cushioned, extra depth
	-		Obese or overpronated	Wide based neutral or mild stability
		Athlete with overpronation	Average to overweight	Control shoe (stability, motion control depending on weight of patient, degree of pronation)
	Eva, cork,		Obese or overpronated	Wide based neutral or mild stability
		Raynaud’s or similar (cold affects)		Thicker cushioned midsoles, wide forefeet, leather upper, no steel toe or shank



A WHAT IS THE ORTHOTIC TYPE? POSSIBLE ANSWERS ARE BELOW.	B WHAT ARE THE SPECIFIC DESIGN FEATURES OR MATERIALS FOR THIS ORTHOTIC?	C WHAT IS THE PATIENT CONDITION THAT REQUIRES THESE ORTHOSES?	D WHAT ARE THE UNIQUE FACTORS THAT EXIST? THAT IS, WHAT IS THE UNUSUAL PATIENT WEIGHT, AGE, ACTIVITY LEVEL, OTHER?	E WHAT ARE THE DETAILS OF THE FOOTWEAR FEATURES RECOMMENDED FOR THIS TREATMENT PLAN?
		Diabetic, neuropathic, with current ulcers		Leather or other stretchable uppers, wide base, square toed, adjustable uppers (Velcro, laces)
Combination		Metatarsalgia - HR, symptomatic HL, Morton's neuroma, sesamoiditis, plantar plate tear, dropped / bruised metatarsal heads, webspace bursitis		Rigid rockered footwear, wide forefeet
		Plantar fasciitis	Neutral alignment, tight posterior leg muscles	Cushioned, neutral footwear with wedged heels (heel differential approx 1/2")
		Hammer toes, dorsal corns, toe tip corns, ulcers, callouses		Extra deep
		Achilles tendinopathy, LLD, ankle equinus – rigid or soft tissue)		Boot style to allow internal lifts, footwear with wedged heels (heel differential)

CASE STUDIES

Footwear-Orthotic Interface Case Studies

You will have many customers and patients who present with custom made orthotics and 'simply' want to be fitted with footwear. Don't take this task lightly as it is important to match an orthotic and a patient's condition with specific footwear features. Your job is to find the footwear that works effectively with your patient's current orthotics and lifestyle.

Following are case studies to test your ability to suggest appropriate footwear to patients with pre-existing orthotics.

Exercise 4

Case Study 4.1: Mary

Mary, a 15-year-old high school student, is seen at your clinic for a pedorthic assessment of orthoses and footwear. She suffers daily from foot and leg pains. She also reports that she often rolls over on her ankles and her knee caps sublux. Recently she was diagnosed with Ehlers-Danlos syndrome. Mary is thin and of average weight. After a full assessment, you suggest corrective custom foot orthoses made of 4mm RCH plastic with UCBL cupping. Next you agree that she needs better footwear to accommodate these new appliances. What footwear features would you suggest? Finally, suggest a specific pair of shoes that would work for Mary.

In a paragraph please write your suggestion to how you should best help Mary in finding appropriate footwear to accommodate her foot orthoses. Follow the flow chart in Exercise 4 and decide which footwear features will work. Be sure to consider the orthotic materials noted. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Mary's concern?

Case Study 4.2: Mr. Haney

Mr. Haney is a 60-year-old farmer who has tried many different orthoses for his fallen arches. He says they have all been too hard and has therefore not worn them much. He continues to say that he is most concerned with his Raynaud's issue as he now suffers from bilateral distal hallux ulcers. He is looking for work footwear and general daily walking shoes. Mr. Haney is proud to announce his 30 lb weight loss to a comfortable 180 lbs (a good weight says his GP). You decide on full length orthoses made of cork to act as an insulator for better heat retention. Next you agree that he needs footwear to accommodate these new appliances. What footwear features would you suggest? Finally, suggest a specific pair of footwear for both Mr. Haney's work and daily living environments.

In a paragraph please write your suggestion to how you should best help Mr. Haney in finding appropriate footwear to accommodate his foot orthoses. Follow the flow chart in Exercise 4 and decide which footwear features will work. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring podiatrist. Can you suggest specific makes and models of footwear that could satisfy Mr. Haney's concerns (both for work and daily living)? your mentoring podiatrist. Can you suggest a specific make and model of footwear that could satisfy Mr. White's concerns and provide a good base for possible shoe modification?

Case Study 4.3: George

George was referred to your clinic with an Rx for orthopaedic footwear. The diagnosis is plantar fasciitis. George is a computer technician whose job is generally sedentary. He is obese and had recently begun walking every morning at the urging of his GP to lose weight. You note that his ROM is extremely tight and suggest specific stretching exercises. George has never spent much money on footwear but realizes the importance now of a strong supportive pair of shoes. Luckily George works for a company that has a good health care plan which covers both orthoses and orthopaedic footwear.

CASE STUDIES

He has worn custom foot orthoses for several years with general good comfort. His current pair, which he only recently purchased, is a combination pair made of durable 5mm RCH with heel posting and a Spenco cushioned top cover. You discuss his heel pain and suggest footwear to accommodate these orthoses. What footwear features would you suggest that will best suit George's foot orthoses and lifestyle needs? Finally, suggest a specific pair of footwear for both George's work and walking routine.

In a paragraph please write your suggestion to how you should best help George in finding appropriate footwear to accommodate his foot orthoses. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring podiatrist. Can you suggest specific makes and models of footwear that could satisfy George's concerns (for both work and walking)?

Case Study 4.4: Susan

Susan is a busy daycare worker. She needs to be able to take her footwear on and off quickly as she takes her 'kids' outdoors throughout the day for long walks. She is generally alone with all 5 children. Susan has always worn foot orthoses as she's had bunion pain and HAV since her teenage years. She has been told that she also has fallen arches. You assess her as an overpronator. The orthoses she wears are always the half length rigid type with heel and forefoot posting along with MT arches. Susan is happy with her orthoses but needs advice on better footwear to be worn with these corrective appliances. Offer her some footwear features that she should be aware of while shoe shopping.

Things to consider:

What appropriate footwear features will best suit Susan's foot issues (bunions, HAV, overpronation), current orthoses (half length rigid, MTA), and lifestyle (slip-on footwear needed)?

In a paragraph please write your suggestion on how you should best help Susan in finding appropriate footwear features to accommodate her foot orthoses. Follow the flow chart in Exercise 4 and decide which features will work. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Susan's concern?

Case Study 4.5: Henry

Henry is a custodian at the local elementary school. He is near retirement but wants to work another year to fulfill his full pension requirements. Henry is coming to you with an Rx from his rheumatologist for custom foot orthoses and orthopaedic footwear for the treatment of RA with plantar nodules. After a lengthy assessment, you decide that Henry can benefit from accommodative foot orthoses made of trilam. You plan to include full MT arches and indenting at the painful forefoot nodules. Now you discuss some footwear features that will match well with Henry's RA and new foot orthoses. What specific shoes would you feel are best suited for him?

Things to consider:

What are the main orthotic requirements and considerations?

Consider his work (hard floors) and leisure environments.

In a paragraph please write your suggestion to how you should best help Henry in finding appropriate footwear to accommodate his new foot orthoses. Follow the flow chart in Exercise 4 and decide which footwear features will work. Once you come up with a completed answer, compare your answer to the answer key in the back of the workbook and discuss any case study questions and answers with your mentoring pedorthist. Can you suggest a specific make and model of footwear that could satisfy Henry's concern?

ASK YOUR MENTOR

Make an appointment with your mentor and be clear that it will take no more than 15-20 minutes for this exercise.

- Ask your mentor to take a few minutes to look over your answers to the case studies.
- Ask their opinion about your answer and what they may change (if anything) and why?
- Ask your mentor to offer more insight into a difficult shoe fit with existing foot orthoses that he or she may have done.

OBJECTIVE FIVE

Footwear Inventory Considerations

When you complete this objective you will be...

Familiar with various footwear inventory considerations for a fully stocked footwear practice, partially stocked footwear practice, and a no stock practice, to help in your decision making processes as a practicing pedorthist.

LEARNING MATERIAL

Footwear plays an integral part of a pedorthic clinic. Offering sound advice on footwear features or footwear sizing is paramount to a successful pedorthic treatment plan. With this in mind, having footwear on hand is important so you can show specific features of a shoe (as discussed in previous units) and proper sizing and shaping. So footwear inventory must be considered.

A pedorthic clinic can offer one of three options for footwear inventory:

- i) fully stocked footwear inventory,
- ii) partially stocked footwear inventory, or
- iii) no footwear (samples only).

All three options noted above can work in a pedorthic setting. However, depending on the option chosen, a different approach to the pedorthic treatment plan may be required. Each situation has its own pros and cons and therefore a clinic should carefully consider its footwear situation. When you find yourself in an existing pedorthic clinic, your approach to a complete patient treatment plan will be dependent on the footwear stocked by the clinic.

Chart: Clinical Footwear Pros and Cons

Below you will find a chart that shows the pros and cons of each of the three footwear inventory options noted above. There are four columns. The first describes each pro or con of footwear inventory. The 2nd (fully stocked), 3rd (partially stocked), and 4th (no stock) columns then relate the noted pro/con to each inventory option. When deciding which inventory model to follow, you must carefully assess your patient demographics, geographical location, personal preferences and customer needs. If you carefully assess each factor, you should be comfortable with your decision on which footwear inventory option is best suited for your pedorthic clinic.

PROS (P) AND CONS (C)	FULLY STOCKED FOOTWEAR INVENTORY	PARTIALLY STOCKED FOOTWEAR INVENTORY	NO STOCK FOOTWEAR INVENTORY (SAMPLES ONLY)
Pro: Immediate footwear sale = increase in gross sales	Yes – with a variety of footwear on hand, gross clinical sales should increase	Maybe – with limited footwear available, footwear sales are possible	No – with no footwear to sell, patients may be dissatisfied with the need to go elsewhere for good footwear
Pro: Confidence of ‘best fit’	Yes – with an array of different footwear models and sizes, patients can be confident of a good fit	No – with only a limited amount of footwear, patient and pedorthist cannot be confident that footwear fit is ‘a best fit’	No – no footwear available on-site; therefore pedorthist must trust outside shoe fitters to offer a good choice of footwear and good fit
Pro: ‘Full pedorthic patient experience’	Yes – footwear available on-site	No - reduced treatment with partial footwear choices, sizes only	No – footwear not available
Pro: Footwear education	Yes – using footwear samples or stock footwear	Yes – using footwear samples or stock footwear	Yes – footwear samples only
Con: Cost to inventory footwear (cost of shoes, personnel needed as shoe fitters, space to house)	High cost for multiple full runs; employment of shoe fitters; larger space to house footwear	Moderate cost for reduced numbers of footwear costs; possibly no need to employ shoe fitter; less space to inventory smaller footwear runs	No cost re no shoes
Con: Shipping charges	Moderate (can order in volume numbers to reduce costs per pair)	High (single pair or special orders mean high shipping costs per pair)	Not applicable
Con: Time consuming - warehouse and inventory maintenance (pre-season orders, sales for stock turn-overs)	Yes – time consuming and likely requires additional personnel for large footwear runs	Moderate time demand for lesser amounts of footwear – often pre-season orders do not apply	Not applicable

PROS (P) AND CONS (C)	FULLY STOCKED FOOTWEAR INVENTORY	PARTIALLY STOCKED FOOTWEAR INVENTORY	NO STOCK FOOTWEAR INVENTORY (SAMPLES ONLY)
Neither Pro nor Con: Shoe prices	Lower individual shoe prices due to volume orders and multiple pair shipping charges	High individual shoe prices – no breaks on single orders	Not applicable
Pro: Customer satisfaction with footwear choices	High – with probable repeat business due to 'best fit' probability	Moderate to Poor - may not have footwear choices to compare – and likely will not refer outside the clinic	Moderate – if relationship with local shoe retailers is good, and can refer to them with confidence
Pro: Treatment may simply be footwear change or sizing change (good marketing to GP's, patient appreciation)	Able to fill Rx with in stock footwear	Possibly able to fill Rx dependant on minimal in stock footwear	No can't fill Rx as no footwear in stock
Pro: Spin-off retail business	Good – can sell other footwear and footwear paraphernalia – also if sent for footwear, may also then require orthoses or bracing	Moderate – with some footwear in stock, may consider offering footwear paraphernalia	Poor – will not be sent for footwear to clinic and spin off business unlikely
Pro: Specialty footwear – off-loaders	Yes – can inventory	Yes – can inventory	Yes - can inventory
Neither Pro nor Con: Build alliance with other footwear retailers in area	No – not needed – other footwear retailers deemed competition	Maybe but unlikely	Yes – required to build this relationship for an adequate pedorthic treatment plan for patients
Neither Pro nor Con: Focus is only on orthotics	No footwear required	No footwear required	Best scenario to have no footwear



CLINICAL FOOTWEAR PROS AND CONS

Exercise 5

Using the Chart of Clinical Footwear Pros and Cons, decide which option is best suited for each situation listed below. Be sure to consider all options. Write out your own “pros and cons” list. Write a reasonable answer to this inventory question being sure to refer to the chart. When you are finished, check the answers at the end of this booklet.

CASE STUDIES

Case Study 5.1: Clinical Footwear Pros & Cons

You have just graduated and passed your certification exams and are now a Canadian Certified Pedorthist. You decide to open a clinic in your small hometown. You realize that you have a large student debt and are strapped for money but still want to proceed with this business endeavour. What is your best option regarding footwear inventory?

Consideration: In the “real world”, your money situation is paramount. Begin your business career with a manageable debt.

CASE STUDIES

Case Study 5.2

You are a 'seasoned' pedorthist with 10 strong years in the business. You have decided that it is time to start your own pedorthic clinic. You have discovered that the blue-collar workers have to travel out of town to purchase work boots and shoes and unfortunately the fitting process they have been receiving is poor. Several workers have already come to you with foot pains (hammertoes, bunions) due to poor boot fittings. They don't have confidence in their fittings. These same pedorthic patients are generally not limited by cost as they have great insurance plans and high paying jobs. You decide to focus your pedorthic practice on these demographics. What is your best option regarding footwear inventory?

Consideration: You have had time to understand and appreciate the importance of footwear in your practice. And especially the importance of a good boot fit.

Case Study 5.3

You decide to move to your hometown in northern Ontario. Local businesses are growing as the local mining industry expands and brings workers and their families to this region. There are very few health services available, including a lack of any foot care or even quality shoe stores. You realize the great need for both. You are definitely going to open a pedorthic clinic to offer foot and lower limb biomechanical help. You are happy that the pedorthic space you found

CASE STUDIES

is connected to the only local medical clinic but it is also unfortunately not very large. You realize this may only be a 'stepping stone' to your end business and so you decide to sign a 3-year lease only with the intention of moving to a larger unit in a few years. Now it is time to decide on footwear inventory for this new pedorthic clinic. What is your best option regarding footwear inventory?

Consideration: Realizing the health care and shoe store situation, consider all options.

Case Study 5.4

You have been practicing as a Canadian Certified Pedorthist for 4 years and have recently decided that it is time to 'branch out'. You decide to start your own business as a pedorthist working out of several doctor's clinics. You have already lined up 3 potential offices in neighbouring towns. You realize that travelling will limit options related to footwear and yet you believe that a good pedorthic experience is important. Your main issue regarding footwear inventory is van space as you will need to travel with all materials, equipment, and footwear. You decide to involve local businesses. What is your best option regarding footwear inventory?

Consideration: Manageable space appears to be the stumbling block when considering footwear inventory.

CASE STUDIES

Case Study 5.5

You are the pedorthic manager in a busy multi-disciplinary athletic clinic. High level athletes are treated for all types of lower limb and foot issues through pedorthics, physiotherapy, athletic and massage therapy. At a clinic managers meeting, it was suggested that you investigate carrying footwear inventory so that the athletes actually might wear proper footwear and proper sizes. The clinic runs with all decision-making regarding money spending by unanimous votes. You are asked to report back with options for footwear at the next monthly meeting. Formulate this report, choosing one of the footwear options noted in the chart. Make a strong case for your decision on which footwear inventory option you deem most appropriate for this busy clinic. What is your best option regarding footwear inventory?



ASK YOUR MENTOR

Make an appointment with your mentor and be clear that it will take no more than 15-20 minutes for this exercise.

- Ask your mentor about their ideas on EBP and what kinds of evidence they use to guide their practice. Discuss with you their anecdotal successes or shortcomings when treating the pathology you have chosen for exercise 1.1.
- Use the anecdote learned from your mentor to guide your research. Identify gaps, new information, alternative treatments or confirm the anecdote with empirical evidence.

OBJECTIVE SIX

Ethical Considerations

When you complete this objective you will be able to...

Define various ethical considerations of pedorthic issues related to footwear and footwear customizations.

LEARNING MATERIAL

The Mission Statement of the College of Pedorthics of Canada (CPC) is as follows:

“The College of Pedorthics of Canada is a national self regulatory body whose primary purpose is to protect the Canadian public who receive foot-related services from Certified Pedorthists.

We ensure that certified members are accountable to the highest standard of practice through our certification of members and facilities, the monitoring of continued competency and the enforcement of ethical conduct.”

www.cpedcs.ca

The College of Pedorthics of Canada is the governing body for all Canadian Certified Pedorthists. As noted in their mission statement above, they represent the public (our patients, medical referrers, insurance companies and third party payees). As Canadian Certified Pedorthists, the Pedorthic Association of Canada (PAC) is our ‘protector’, but then so is the CPC for the public who we serve.

As Canadian Certified Pedorthists, professional conduct is paramount. Unfortunately, a few codes are broken regularly. We will discuss two particular infractions involving footwear that are regularly violated. The first involves advertising for free footwear, or footwear at a ridiculously low price. This advertising entices a customer or patient to buy shoes based on dollar value and not need. This is truly unprofessional. The second scenario revolves around transparency and involves using wording to mislead the payee on an invoice in hopes of insurance coverage where there wouldn’t otherwise be. In particular, the term ‘custom made footwear’ is often covered by health insurance plans. Custom made shoes are made from a cast and raw materials.

However off-the-shelf footwear is sometimes written as 'custom' or 'custom fitted' in hopes of fraudulently misleading the payee. Below are the sections of the code of ethics for:

1. Advertising
2. Invoicing/ Billing Practices

which relate to each of these scenarios. There are questions that follow the case studies that apply to the highlighted sections below so pay careful attention to the two highlighted sections when answering these questions.

Advertising

Advertising refers to any promotional material or activity in any medium including websites. Advertising of retail operations, sales, promotions or other marketing campaigns should be separated from advertising for professional services.

1. Professional Service advertising should:

- a. Be confined to the presentation of information reasonably needed by clients or colleagues in making informed decisions about the availability and appropriateness of the pedorthists services.
- b. Make certain that any announcement or advertisement directed towards clients or colleagues is demonstrably true in all respects.
- c. Not stimulate a demand for unnecessary health care services; certified pedorthic professionals must not advertise in a way that promotes the excessive or unnecessary use of pedorthic services.
- d. Avoid bringing the profession into disrepute.
- e. Not make comparisons with another certified pedorthic professionals or other foot care professional to suggest superiority.
- f. Refrain from making fraudulent or misleading statements concerning his or her, or the professions skills, knowledge or capabilities.
- g. Not provide any guarantee of the success of the service provided.
- h. Not advertise coupons, discounts, pricing or free assessments for products or for professional services and/or custom made and/or modified devices. This shall include, but not be limited to advertising which expressly or implicitly states that the purchase of multiple products or services shall include one such product or service free of charge or at a discounted rate or otherwise represent a discount based on having purchased multiple products or services.



2. Certified pedorthic professionals' advertisements will be comprehensible, professionally appropriate and compliant with the standards of practice of the profession.

3. Certified pedorthic professionals will also take reasonable steps to ensure that advertisements placed by others (e.g. employers, facility operators etc.) about their services meet these standards.

4. Professional service advertising must not contain any information that could be interpreted as a testimonial through any member-controlled medium, such as advertisements in clinics, posted to clinic or personal websites or social media applications or in other types of print or digital media utilized by a member. A testimonial is the provision by a certified pedorthic professional of a subjective statement from a patient or other individual expressing an opinion about the nature or quality of the certified pedorthic professional's services or the pedorthic profession generally. In contrast, a truthful and independently verifiable statement that refers to the benefits of pedorthics generally without referring to a specific certified pedorthic professional or clinic and that contains information regarding the pedorthic profession that comes from a source with sufficient expertise* to make the statement will not be considered a testimonial.

**Examples of sources with sufficient expertise include, but are not limited to, a physician or allied health care professional that has the training required to comment on the benefits of pedorthic treatment and an academic research paper that reports the outcomes of a study assessing the benefits of pedorthic treatment.*

Invoice/Billing Practices

1. Certified pedorthic professionals must advise the patient in advance as to the provision of services and/or any relevant billings, specifically:

- a) The total cost of the service.
- b) That a service may be uninsured.
- c) The specific terms and conditions relevant to payment.
- d) Any penalties for non-attendance or non-payment.
- e) If payment will be required in advance of a requested service.
- f) If invoices/receipts provided by someone other than the certified pedorthic professional, the invoices/receipts should be reviewed regularly to ensure appropriate invoicing/billing.

1. It is unethical for the member to conceal or to confuse the ultimate cost of the service that he/she undertakes to furnish. Charges must be based strictly upon the product and/or services provided. The invoice must not misrepresent the products or services provided. All records (invoices, receipts, statements, etc) must contain accurate information with respect to names, dates, products and service supplied.

2. The amount which a patient is invoiced for non-insured products must not be based on whether the patient purchases insured products.



Exercise 6

ETHICS CASE STUDIES

Unfortunately, there can be circumstances within a pedorthic clinic where ethics are questioned. A pedorthist must always present him or herself with an air of professionalism. Suggesting products or services for a client must only be based on the client's medical needs and therefore enticing a patient to purchase a product or service by giving away something free or at a ridiculously low price (incentivizing) is deemed unethical.

Ethics Case Study Scenario 1

Unfortunately, there can be circumstances within a podiatric clinic where ethics are questioned. A podiatrist must always present him or herself with an air of professionalism. Suggesting products or services for a client must only be based on the client's medical needs and therefore enticing a patient to purchase a product or service by giving away something free or at a ridiculously low price (incentivizing) is deemed unethical.

1. Of the advertising noted below, mark "Ethical" or "Unethical" beside each with a brief explanation why:
2. One free pair of footwear with the purchase of a pair of custom foot orthoses. Choose from an array of catalogues. Don't miss out. We can find your best style.
3. Orthopaedic footwear can enhance your treatment plan. Be assessed for a 'best fit' with your orthotics.
4. With each pair of custom foot orthotics get one pair of shoes for \$10. Let us fill your entire footcare needs.
5. Orthotics and Footwear are "a match made in heaven". Let us help you find your divine fit! Get 50% off a pair of footwear with the purchase of a pair of custom foot orthoses. Leave our clinic "walking on a cloud".
6. Orthopaedic footwear for sale. Don't settle for just any shoes. Come and get assessed for your great fit.
7. All footwear included in the price when you order your custom foot orthotics. Use your benefits to their maximum. Don't lose out.
8. Custom orthotics and orthopaedic footwear for sale. Book your appointment now.

Ethics Case Study Scenario 2

To be professional is to remain transparent. Invoicing at a podiatric clinic involves describing the products and services provided to the patient. Detailed invoicing ensures a professional closure to the treatment plan and offers the patient the best chance at health care remuneration or at end of year tax benefits. Using proper terminology and wording on these invoices is necessary for a professional finish. Unfortunately, some clinicians use confusing terminology on invoices in order to try to help the patient get a product or service covered. Insurance companies may cover custom made footwear but not off-the-shelf shoes. Using terms like 'custom fitted' or 'custom modified' to describe an orthopaedic shoe that is priced at \$1500- \$2500, suggesting that it is custom made, is considered fraudulent. You must always be clear and unambiguous when producing an invoice for services and products rendered.

1. Custom fitted footwear for proper sizing for custom foot orthotics – Drew Lotus size 9 WW - \$175.00
2. Custom made orthotics and footwear - \$2500
3. Custom fitted footwear with extra-depth to allow proper housing of full length foot orthoses and treating metatarsalgia - \$550.00
4. Orthopaedic footwear – New Balance 928 - \$160.00
5. Modified orthopaedic footwear with 1" external lift for LLD \$340 – Brooks Beast size 10.5 2E \$220 – Footwear modification of 1" lift to left shoe \$120
6. Custom made orthopaedic footwear with split sizing to properly fit 2 different sizes of feet and laces converted to Velcro for ease of donning - \$2000.00
7. Off-the-shelf therapeutic footwear (Finn Comfort Gomera size 38) to fit custom orthotics - \$260.00

ANSWER KEY

Exercise 1.1 Footwear Anatomy - Answers

Case Study 1.1 — Footwear Anatomy - Mrs. Smith

What we know about Mrs. Smith:

- She has painful medial bunions and hammer toes with dorsal corns
- the second hammer toe is rigid

So, when considering shoes for her, immediately you should consider a shoe with a wide and extra-depth forefoot to help reduce rubbing and pressure. Other considerations for a comfortable shoe might include a vamp that is soft, made of stretch material, and even has minimal seams (so the material can stretch at the pressure spots). Of course it is also important that Mrs. Smith be able to put the shoes on without rubbing on her corns. So having a shoe with a wide and deep throat opening should be considered. Also to ensure she does not rub inside the shoe when she walks, she will need to sit securely at the heel and midfoot (obviously leaving the forefoot more loose to avoid rubbing). To accomplish this security, the shoes should have laces or Velcro. You may even consider shoes with a soft footbed and soft midsoles as she likely has metatarsal heads issues with minimal plantar fatty pads (a usual consideration when bunions and hammertoes are present). You may even consider a mild forefoot rocker as a shoe feature to help off load her forefoot. If you do, be sure her balance is good when walking.

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

Case Study 1.2 – Footwear Anatomy - John

What we know about John :

- he has painful medial ankles with swelling – diagnosed as overpronation and PTTD
- he walks great distances for his work on hard floors

So when considering shoes for him, you should immediately consider his overpronation and accompanying PTTD which requires medial heel and midfoot support. Strong heel counters with a firm shoe quarter is desirable. An extended medial heel counter would even be better. However, with the medial ankle swelling and pain, don't forget to find a shoe with a cushioned topline to reduce pressures at the posterior tendon area. To further help with his overpronation, laces are recommended as they provide further support through the medial arch area (quarter and vamp). This upper should be made of durable material such as leather or similar with a greater number of seams for lasting strength. Also, with the great amount of walking that John does, laces provide the most durable and lasting closure strength. A wider midsole (esp at the midfoot and heel areas) is recommended again for medial arch support. A midsole with some cushioning properties but still strong medial support will help (such as a stability or motion control shoe). A durable outsole will help with wear. Finally a cushioned footbed would offer greater general comfort on the hard floors.

ANSWER KEY

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

Case Study 1.3 – Footwear Anatomy - Sally

What we know about Sally:

- she has a painful right hallux rigidus
- she is a student nurse on clinical placement

So when considering shoes for her, you should immediately consider her enlarged rigid 1st MTP joint. The key shoe features should revolve around the forefoot. A shoe to help Sally will need a wide deep throat opening with no pressure seams from the tongue attachment or laces directly at her dorsal bunion. The vamp could be of stretchable material (especially at this joint) as well as be extra depth. A key feature of the midsole should be a rigid forefoot rocker. This will reduce any chance of dorsiflexion movement at the 1st MTP joint and greatly reduce internal joint stress. This rigid rocker would also encourage a smoother more effective biomechanical gait, allowing the entire right foot and leg to move more symmetrical to the left side. A cushioned footbed would offer general foot comfort.

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

Case Study 1.4 – Footwear Anatomy - Tamara

What we know about Tamara is:

- she has painful heels (Achilles tendinopathy)
- she has an aggravating cyst on her dorsal instep
- she is recently retired and has changed her footwear style

So when considering shoes for her, you should initially consider footwear with wedged heel heights. The amount of heel differential is dependent on comfort and past footwear history but a 1" to 2" heel differential would not be unreasonable. After explaining this feature as a most important one, then focus on the 2 specific pain sites. For an Achilles pain with swelling, a cushioned topline on a closed heel with an Achilles notch is essential. However, an open heel with no heel counter in the quarter (or backless shoe) would offer even more pressure relief. In a controlled environment like her home, this heel-less shoe or slipper would be reasonable. As for the dorsal instep swelling and irritation, any outdoor lace up shoe will need a thickly padded tongue with the lacing changed to avoid the cyst locations on her instep. Alternatively, the appropriate shoe could be lace-less (Mary Jane style) with only a Velcro strap at the upper proximal end avoiding pressure on the cyst.

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

ANSWER KEY

1.5 Answers - Footwear Anatomy

Case Study 1.5 – Footwear Anatomy – Mr. McDonald

What we know about Mr. McDonald is:

- he is elderly and has diabetes (with probable neuropathy)
- he has heavy plantar callouses
- he has difficulty putting on shoes himself (likely because of his obesity, LBP, and THR)

So when considering shoes for Mr. McDonald, you should always consider his diabetic state and plantar callouses. Also his obesity is suggestive of thick, swollen, wide feet as well. You will likely therefore need wide, extra depth vamps without seams. A moldable upper material such as leather should be considered both for its stretch features but also for its wicking properties. Ideally some form of closure in the throat will allow for probable swelling issues. Wide thick midsoles will be needed to support his weight and thick feet. A thick cushioned footbed will help reduce pressure sores at the plantar callous sites. Now you need to consider the issue of self-donning. Many suggestive features can help including Velcro strap closures, elastic lacing or even a backless shoe (although this is not the ideal choice as it means less stability and more need to toe grip). Possibly a back strap would suffice. If you decide Mr. McDonald can don a shoe with a full quarter, be sure it has a cushioned topline to reduce any chance of skin irritation. Finally, suggest a long-handled shoe horn to help to don his shoes.

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

Case Study 1.6 Footwear Anatomy - Martha

What we know about Martha is she:

- has long standing OA and RA with plantar nodules
- has had multiple forefoot surgeries
- sings in a choir and needs dress footwear

So when considering shoes for Martha, you should always consider her arthritic status and plantar nodules. A thick cushioned footbed is paramount with a very deep (extra depth) vamp. Stretchable upper material is important with minimal seams for reduced irritation to her toes and bunions. A deep opening throat with adjustable closure is important for better stability and balance. Velcro straps are likely the best bet. Otherwise elastic laces or lock lacing may work despite her poor hand mobility. A closed quarter with heel counters will help maintain stability and balance.

ANSWER KEY

Be sure the topline is cushioned. A closed back is best for walking. If an open back is chosen for her choir attire, be sure there is a back strap so toe gripping is minimal. Footwear with a wide, cushioned midsole will help with shock absorption and general comfort. It is also very important that the heel differential be small or zero. Any heel rise will move her weight forward onto her forefeet so the low heels will encourage more weight to the midfoot and heels and off the plantar nodules.

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

Case Study 1.7 – Footwear Anatomy - Jacob

What we know about Jacob is he:

- has CMT and has a left painful lateral ankle
- is a student who walks a lot around campus
- would like to remain active playing intramural sports

So when considering shoes for Jacob, the most important footwear features will help to stabilize his ankles. This should include wide midsoles for a greater base of support; strong heel counters (preferably extended laterally) to reduce inversion sprains; boot style upper to stabilize the ankle; laces or Velcro to ensure a snug, tight fit for stability; lighter weight overall as reduction of the nerve conduction will lead to lower leg weakness. Note that often the hands are equally affected and so Velcro straps would eventually be preferred but currently Jacob is only in the early detection stage and hasn't reported hand issues. Lock laces may be a good interim closure. As the CMT foot also often forms a higher arch, the footwear should have a deep opening throatline to give room for this cavus-like instep.

Always remember your patient's foot issue or condition when considering shoe features. But don't forget to treat them as a whole so also remember their personal and life situation.

ANSWER KEY

Exercise 2 Answers - Footwear Fitting Special Considerations Checklist

- A. Does the patient have CMT? If yes, a wide soled, light-weight shoe is important with a strong heel counter, particularly the lateral counter. A reasonable heel differential is important because of probable ankle equinus.
- B. Does the patient have painful bunions or hammer toes? If yes, look for a shoe with a forefoot with seamless vamps and wide, deep fit. Stretchable materials for the vamp, especially at the bunion area, are often a great comfort. An adjustable closure (laces or Velcro) and deep tongue openings are helpful.
- C. Are the feet generally tender (as with RA, OA, fibromyalgia)? If yes, look for footwear with minimal seams, stretchable uppers, pillowtop edges, adjustable closures, cushioned inner footbeds and midsoles. Wider widths are often more comfortable and stable.
- D. Does the patient have a Charcot rocker bottom foot? If yes, look for extra deep footwear to house deep, offloading orthoses. Also ensure adequate width and cushioned thick midsoles. Often these shoes will need pedorthic modifications so footwear with materials that easy to glue to is important.
- E. Does the patient have a foot ulcer? If yes, likely they also have some degree of neuropathy. Look for a shoe without seams or pressure areas at the ulcer site. Ensure adequate width of the midsole to maintain full foot contact at any plantar ulcer. If it is a forefoot ulcer, look for rockered forefoot shoes (as long as the patient has good balance). Adjustable closure is paramount for ease of donning, ensuring a snug fit, and to be able to adjust the closure if swelling is present.
- F. Does the patient have metatarsalgia? If yes, look for a forefoot rockered shoe. Ensure appropriate depth and width at the forefoot. Look for footwear with extreme cushioned footbeds and midsoles. Adjustable closures help to keep the foot snug to stop movement inside the shoe. Also, a closed heel or heel strap is important to stop toe gripping in gait.
- G. Does the foot overpronate or underpronate? If yes, look for shoes with strong heel counters. Look for stability or motion control shoes if patient overpronates. Look for wide, soft midsoles, especially laterally, if the patient underpronates (supinates). A full wedged shoe (like athletic shoes) or those with a shank will help for stability.
- H. Does the patient suffer from a painful Haglund's deformity? If yes, look for shoes without a heel (clog style). If a closed heel is required, look for pillowtop top edges or an Achilles notch. Ensure footwear is long enough because short, tight shoes cause greater posterior heel irritation.
- I. Does the patient have ankle edema? If yes, look for footwear without heel closures (clogs). If a closed heel is required, look for those with pillow tops and shallow inner heel depth. Look for footwear with adjustable posterior Velcro closure.

Exercise 2 Answers - Footwear Fitting

Case Study 2.1 – Footwear Fitting - Mary

Mary is a restaurant worker who is on her feet all the time at work. Her current shoes are worn at both ends— posterior (the inner heel lining) and anterior (the distal toe lining). This suggests the shoes are too short as she's rubbing the liner down at both ends (heel and distal toes). Even the worn distal toe cap leather wear is a sign of excessive pressure and therefore stretch at this area. You explain that the foot slides forward inside the shoe in gait (with every step) and so the lining is worn from undue wear. You measure her feet using the Brannock and likely find she needs a shoe $\frac{1}{2}$ to 1 full size longer.

Case Study 2.2 – Footwear Fitting - Gordon

Gordon is neuropathic and therefore has poor feeling in his feet. He wants narrower shoes because then he can feel the pressure of the shoe against his foot and therefore feel more secure. However, his lack of feeling could likely result in a shoe fit too tight and that causes pressure issues. You therefore carefully measure his weight-bearing feet on the Brannock and fit him with a gently snug shoe with little seams and soft linings so chances for a pressure sore is reduced. The distal toes should never rub against the inner shoe lining.

Case Study 2.3 – Footwear Fitting - Sarah

Sarah has severe bunions and HAV. Her Brannock measurements are HTB size 9 and HTT size 7.5. The reason for this discrepancy is the HAV. The great toe stretches the most distal of all the phalange and it is in valgus, thereby measuring shorter (or less distal) than if it was lying straight ahead. So the HTT is measured shorter than if the foot was not deformed. The 1st MTP joints lie in the correct position of size 9 and would then fit properly in the widest part of a size 9 ladies shoe. Therefore, you would begin Sarah's shoe fitting with a size 9 shoe. However, if you chose to fit Sarah with an improper size shoe based on her HTT (size 7.5), then the 1st MTP joint would fit forward of the widest part of the upper... in a less wide area. This would add greater pressures on the bunions. Also, the natural support of the shoe arch would not fit correctly for Sarah in a size 7.5 shoe. Finally Sarah's feet would try to bend at a different position than where the natural forefoot bend would be. This would cause extra stress on the forefoot joints and possibly aggravate the metatarsal arches.

Case Study 2.4 – Footwear Fitting – Patti

Patti has feet sized 9.5 medium width while seated. The left and right are equal in size while seated. However when Patti stands up, both feet spread in length (medial longitudinal arch drops and spreads) as her ... left foot stretches half size more in length to size 10... right foot stretches full size more in length to size 10.5. Also the left foot stretched in width from medium to wide (metatarsal transverse arch drop and spread). So ultimately the left foot stretched a bit in length and width while the right foot only stretched more in length. So now the decision for a shoe size is dependent on the standing foot measurements. You cannot go shorter than the longest foot (size 10.5) and the width would be correct at medium for the larger lengthened right foot. The slightly shorter foot is also wider so the extra length of 10.5 might offer the additional room to don the wider foot. Therefore I would start the footwear fitting session with a shoe sized 10.5 medium.

ANSWER KEY

Case Study 2.5 – Footwear Fitting – Bob

Bob has a mild left dropfoot which caused imbalance when he tires. He drags his foot and catches his shoe. He is starting to show hammer toes. His current footwear is steel toed workboots. So initially you should recognize that the steel toed work boots are too heavy for the left dropfoot. He needs a light weight pair of shoes with a toe spring to help him avoid tripping. His shoes should have an adjustable closure to keep it on tight. They should be a good size, certainly not too long as it will be a tripping hazard then. Also, these shoes will need to have forefoot depth to accommodate Bob’s hammer toes. So I would suggest a new balance 928 for Bob as it has forefoot spring, lighter weight, extradePTH, lacing, cushioned midsoles. Also Dunham 8000 may suffice.

Exercise 3 – Footwear Modifications – Answers

FOOTWEAR CONCERN	POSSIBLE MODIFICATION
1. One foot is smaller	<ul style="list-style-type: none"> - Shoe of smaller foot – add forefoot filler, tongue pad, heel pad, lock lacing - Shoe of larger foot – forefoot shoe stretch
2. Foot rubbing on a seam	<ul style="list-style-type: none"> - Stretch shoe at seam site (spot stretch) - Pad seam inside shoe with foam or felt
3. Bunion, bunionette or hammer toe irritation on vamp	<ul style="list-style-type: none"> - Stretch shoe overall and/or spot stretch - Change lacing to avoid pressure - Open seams to reduce pressure - Interior padding - Balloon patch for more severe case - Split sole for added specific bunion, bunionette width
4. Plantar forefoot pain (metatarsalgia)	<ul style="list-style-type: none"> - Metatarsal pad/arch - Forefoot padding internally - Internal indenting into sole or footbed to offload at specific pain site (usually a dropped metatarsal head) - SACH forefoot - Horseshoe pad off-loading - External MT bar

ANSWER KEY

CONDITION	POSSIBLE MODIFICATION	FOOTWEAR CONCERN	POSSIBLE MODIFICATION
5. Heel slippage	<ul style="list-style-type: none"> - Re-lace (lock-lacing) - Heel grip - Tongue pad - Forefoot filler - Heat and re-shape heel counter - Grind down liner to lower heel 	12. Fused ankle	<ul style="list-style-type: none"> - SACH heel - Rockered rearfoot - Rockered forefoot - Lock lacing to hold heel in shoe
		13. Rigid ankle equinus	<ul style="list-style-type: none"> - Bilateral heel lifts (internal or exterior)
6. Pressure on dorsum of instep	<ul style="list-style-type: none"> - Re-lace (skip lacing) - Tongue pad - 'Donut' off-loading with felt, plastazote 	14. Distal phalange corn (toe tip)	<ul style="list-style-type: none"> - Indent at corn site into footbed - Horseshoe deflection at corn site - Sulcus bar, sulcus ridge, toe crest - Strong MTA if toes are flexible
7. Overpronation	<ul style="list-style-type: none"> - MLA (scaphoid pad, arch cookie) - Medial buttress - Medial wedge (interior or on outsole) - Medial flare - Strengthen medial heel counter (renoflex) 	15. Plantar heel pain	<ul style="list-style-type: none"> - Cushioned heel lifts (interior or exterior) - SACH heel - Indent into footbed or midsole and cushion - Add heel cupping to footbed
8. Oversupination	<ul style="list-style-type: none"> - Lateral buttress - Lateral wedge (interior or on outsole) - Lateral flare - Strengthen lateral heel counter (renoflex) 	16. Haglund's deformity - symptomatic	<ul style="list-style-type: none"> - Pad inside heel counter - Remove part of the heel counter at enlarged bony site - Spot stretch at painful site (you may need to heat the heel counter first) - Horseshoe pad to offload interiorly - Open topline and remove padding
9. Charcot arthropathy	<ul style="list-style-type: none"> - Split sole to widen at deformity - Indent into footbed and midsole to off-load at plantar deformity - Split size shoes (2 size shoes possibly to accommodate larger, deformed foot) 	17. Toe drag re: drop foot	<ul style="list-style-type: none"> - Toe sliders - Round the toe tip outsole and midsole
10. Symptomatic hallux limitus (HL), hallux rigidus (HR)	<ul style="list-style-type: none"> - Change lacing to avoid pressure at 1st MTP joint - Stretch upper over dorsal exostosis - Open seams on dorsum to off-load pressure at thickened 1st MTP joint - Rigid rocker carbon fibre plate (interior or add to midsole) 	18. Edematous ankle, ankle rub on topline	<ul style="list-style-type: none"> - Cut down the top edge to reduce pressure at the ankles - Add internal heel lifts - Cushion top edge - Open the back of the heel counter with a "V" opening and Velcro closure
11. Leg length difference (LLD)	<ul style="list-style-type: none"> - Add half of true measurement to shoe of shorter leg <ul style="list-style-type: none"> - internal if less than ½" - internal if temporarily needed - external if ½" or more - external if full sole required - Cut down heel or midsole of shoe of longer leg 		

ANSWER KEY

Case Study 3.1: Footwear Modifications – Mrs. Brown

When deciding on appropriate modifications for Mrs. Brown's footwear, you need to understand her foot concerns. Only her right foot is painful from footwear pressures from deforming alignments of her toes. Her severe bunion would likely create a wide forefoot that will cause pressures at the 1st MTP joint. Also her 2nd toe has crossed over the hallux and has both dorsal (PIP) and plantar (MT head, toe tip) pressure sores. In the checklist provided, this question relates to numbers 1, 3 and 4. Use this as your guide. You should immediately think of extra width and extra depth for this foot. This should be a first thought. If you fit the shoe wider and deeper for this foot, likely then you would need to add forefoot fillers and tongue pads to the left shoe to help this 'smaller' foot fit well. You could also add heel pads and use the lock lacing technique to help hold the smaller left foot in the shoe. Now to return to the right deformed foot, options to help with a pain free shoe fit would include stretching the shoe overall as well as spot stretching at the bunion site and 2nd PIP pressure. If seams cross at either of these pressure sites, you could open them for a grater stretch. If either pressure is extreme, always consider balloon patches, especially if the patient has commented on her lifelong battle with these foot pains (usually an older, arthritic patient). If none of these options will provide enough pressure relief, you could suggest splitting the sole at the bunion site or forefoot in general to offer a wider width to the midsole. Again, you would need to do shoe upper stretching prior to this modification. Finally you could possibly thin any removable footbed to offer more depth. Be cautious with this modification as you would also be reducing the cushioning at the forefoot. Adding a metatarsal arch may also help to off-load the 2nd Mthead callous and adding a sulcus crest could help offload the distal toe tip callous (as well as indenting specific to these plantar pressures).

Case Study 3.2: Footwear Modifications – Mr. White

When deciding on appropriate modifications for Mr. White's footwear, you need to understand his foot concerns. He is a diabetic with a left neuropathic Charcot foot. This foot is deformed and will require some adjustments to prevent skin breakdown. With the 'rocker bottom', there is excessive pressure in an unusual area under the midfoot as well as being much wider. In the checklist provided, this question relates to numbers 1 and 9. Use this as your guide. Likely the right shoe will be loose and could require a tongue pad or forefoot filler. The left foot will need to be assessed for possibly a split sole through the midfoot. Also you may decide to indent into the midsole and footbed at the area of the 'rocker bottom'. Adding to the offloading, you could add internal heel raises.

Case Study 3.3: Footwear Modifications – Kathy

When deciding on appropriate modifications for Kathy's footwear, you need to understand her foot concerns. She walks a lot as a nurse and presents with symptomatic hallux rigidus. She has an enlarged 1st MTPJ on the dorsal aspect which aches at heel lift in gait as the joint attempts to extend. Also the pressure of the shoe on the arthritic joint causes pressure pain. In the checklist provided, this question relates to numbers 2 and 10. Use this as your guide. You could suggest a rigid carbon plate inside the shoe under the footbed to restrict forefoot extension, thereby reducing stress to the injured joint. Also you could stretch the shoe at the dorsal bunion and even open the seams at this site to reduce pressure aches.

ANSWER KEY

Case Study 3.4: Footwear Modifications – John

When deciding on appropriate modifications for John's footwear, you need to understand his foot concerns. He has a substantial LLD and mild footdrop on the left. He also requires to wear two types of footwear which both will need to be adjusted. In the checklist provided, this question relates to numbers 11 and 17. Use this as your guide. As John's LLD is 1.5", you should think of adding half of this difference (3/4") to the left workboot and shoe. With a boot, much of this lift can be 'hidden' inside as the upper extends so far above the ankle. The heel to ball internal lift could be as much as 1/2". Then the remaining 1/4" could be added to the external sole. However, if John feels he will be too high with this internal heel lift, you could add only 1/4" inside the upper and add the additional 1/2" to the external midsole.

Case Study 3.5: Footwear Modifications - Thelma

When deciding on appropriate modifications for Thelma's footwear, you need to understand her foot concerns. She is now retired and likes to walk her dog. However she has fallen medial longitudinal arches, causing both an unsteady gait as well as painful arches. In the checklist provided, this question relates to number 7. Use this as your guide. Thelma could likely benefit from some form of internal support to her medial longitudinal arches. If this is not enough support for comfort, you could offer medial buttresses, medial wedges (internal or external), medial flare or even strengthening the heel counter internally using renoflex.

Exercise 4 – Footwear-Orthotic Interface - Answers

Case Study 4.1: Footwear – Orthotic Interface – Mary

Mary has a laxity condition. She has UCBL corrective orthoses and she is a teenager. When you follow the chart in Unit 4, you find that Mary could use footwear to house her orthoses that is an athletic shoe or perhaps boots. The athletic shoes can offer wide based shoes that are generally acceptable for her age group. Boots, on the other hand, would offer greater ankle support for her extremely flexible feet and legs.

Case Study 4.2: Footwear – Orthotic Interface – Mr. Haney

You deduce that Mr. Haney would best benefit from an accommodative pair of orthoses made of cork. He is of average weight but has very sensitive skin with distal hallux breakdown. When following the chart in exercise 4 you end with footwear features that include thicker cushioned midsoles, wide forefeet, leather uppers and no steel toe or shank. Certainly you would want removable footbeds to allow the depth for the custom orthoses. Appropriate footwear would include possibly the New Balance 928 footwear (for its wide widths, extra depth, and leather uppers). Mr. Haney could perhaps use these for his walking footwear. The ankle hikers from New Balance or Dunham may also be reasonable for work footwear on his farm.

ANSWER KEY

Case Study 4.3: Footwear – Orthotic Interface – George

George is obese. He currently has a pair of combination orthoses made of rigid 5mm RCH. He wants to walk to lose weight but is generally sedentary at work. He has been diagnosed with plantar fasciitis and presents with tight calf muscles. When you use the chart I section 4, you follow along to footwear features of “cushioned, neutral footwear with wedged heels (heel differential approx. ½”). There are many footwear choices that would be suitable for George. Perhaps the New Balance 928 would be a good walking shoe (and even a casual work shoe). The Brooks Dyad may also be a good walking shoe or the New Balance 840. The Dunham 8000 or the Keen Presidio (or Targhee) could work as well.

Case Study 4.4: Footwear – Orthotic Interface - Susan

Susan is a busy woman with bunions and HAV. She is an overpronator with half length rigid orthoses.

In following the chart in exercise 4 you would find the following footwear features:

- neutral, cushioned wide based soles, midsoles, heel differential.

This suggests a pair of shoes with a supportive wide cushioned base to house the orthoses. Susan doesn't need shoes with a removable footbed as she only has the ½ length orthoses. Finally as she needs to be able to take her shoes off and on a lot, but still requires a durable closure to prevent forefoot strain in gait, Velcro closure may be a reasonable option or lock lacing (speed lacing).

Case Study 4.5: Footwear – Orthotic Interface – Henry

Henry is on his feet a lot on hard floors as a custodian. He has RA with plantar nodules. You assess his orthotic requirements to be for accommodative trilam. When looking in the chart in exercise 4, you realize Henry would benefit with soft, neutral, cushioned, extra depth footwear. Cushion and extra depth are the main features. Also of course finding a properly lasted (shaped) pair of shoes is paramount to reduce stress to the phalange especially. Also because of his RA nodules which likely raise him up into the toe box, seamless or soft uppers are important for him. Square toed shoes with minimal forefoot seams and extra depth include New Balance 928 or 840, Drew, Dr Comfort

ANSWER KEY

Exercise 5 – Footwear Inventory Answers

Case Study 5.1 – Clinical Footwear Pros and Cons

You are newly certified and are opening a pedorthic clinic. Money is tight. And your knowledge of footwear (in the pedorthic sense) is still at an entry level. Beginning a new business will take time, especially with marketing, etc and so the time needed to organize a proper inventory may not be prudent. You should consider beginning your new business with NO STOCK initially. Take time to make in-roads with local shoe stores. Offer your knowledge on basic biomechanics and in return learn about their footwear that may be appropriate for your impending patients. Source out appropriate shoe companies (like New Balance, Drew, etc) and ask for samples for education both to the patients and so they can shop for them at local shoe stores. Also, as your business grows and you are able to carry inventory, you will have history with these companies.

Case Study 5.2 – Clinical Footwear Pros and Cons

You are a seasoned pedorthist. You know footwear. Your patients are wealthy with insurance plans. You should decide to carry a FULLY STOCKED FOOTWEAR INVENTORY of work footwear to satisfy these patients. Also you should consider carrying a few runs of casual walking shoes and maybe even athletic shoes. Your demographics will be looking for a confident footwear fitting session. They are tired of a poor fit. You can offer the ‘full pedorthic experience’ and sell them footwear immediately. This should lead to customer satisfaction.

Case Study 5.3 – Clinical Footwear Pros and Cons

You find a clinic space connected to a medical clinic. That suggests referrals and a lot of foot traffic. There are limited shoe stores in the area. Although the clinic space is not very large, you plan to move to a larger unit in 3 yrs. As your intention is to carry footwear to service the workers in the area, you should bring in a limited assortment of orthopaedic footwear. This will help patients with shoes and who can't find anything appropriate otherwise. In three years, you will move to a larger clinic space with the intention of carrying a full retail shoe store then.

Case Study 5.4 – Clinical Footwear Pros and Cons

You will be travelling between medical clinics to offer your pedorthic services. Although you believe footwear is important, you don't have space to carry the shoes to make this work. Your best choice to offer true pedorthic help is to carry no footwear but to make good connections and alliances with local footwear retail stores. Be sure to carry a few shoe samples for patient footwear education.

ANSWER KEY

Case Study 5.5 – Clinical Footwear Pros and Cons

As the pedorthist in a busy multi-disciplinary athletic clinic, you are asked to report back to the managers concerning footwear. You realize that there is funding for footwear if it is deemed appropriate. Quickly you decide that several full runs of athletic footwear could be beneficial to the clinic. You make a strong case for this option of full inventory. Included you mention the confidence of a proper shoe fit for the athlete and therefore better results in treatment and therefore much better customer satisfaction. You note the possibility of another source of immediate revenue (the sale of footwear). You note that because the clinic size is large and employs numerous staff, the extra warehousing and inventory maintenance is not a major issue. You even suggest carrying some off-loader footwear for post surgical help with footwear needs. Finally you note that the addition of a few footwear runs means that the treatment of patients may simply be a better choice of footwear or sizing. But really, you are very pleased hopefully to be able to offer the 'full pedorthic treatment'.

Exercise 6 – Ethics – Answers

Case Studies 6.1 – Ethics

Answers to the Case Studies 1 are as follows:

1. Unethical – this advertising is unethical as it is offering something for free as an enticement to purchase a pair of custom foot orthoses
2. Ethical – this advertising is ethical as is if simply stating that you can benefit from footwear and suggests you be assessed – there is nothing free offered
3. Unethical – this advertising is unethical as it is offering a large 'break in cost' for a pair of shoes when you buy a pair of orthoses – so possibly someone may purchase foot orthoses covered by insurance simply to get a \$10 pair of shoes
4. Unethical – this advertising is unethical as it is offering something (footwear) at a greatly reduced price simply for purchasing custom foot orthoses – this is an enticement to purchase orthoses
5. Ethical – this advertising is ethical as it simply states footwear is available for purchase (are available for sale)
6. Unethical – this advertising is unethical as it offers a free pair of footwear as an enticement to purchase a pair of custom foot orthoses
7. Ethical – this advertisement is ethical as it simply states orthotics and footwear are available to purchase (are available for sale)

Case Studies 6.2 – Ethics

Answers to the Case Studies 2 are as follows:

1. Unethical – this invoicing is unethical as the word 'custom' is used to suggest a "from scratch" fit for footwear even though the footwear is OTS

ANSWER KEY

2. Unethical – this invoicing is unethical as the word ‘custom’ is used to suggest a “from scratch” pair of shoes even though the cost is an OTS footwear cost
3. Unethical – this invoicing is unethical as the term ‘custom fitted’ is used to suggest a “from scratch” fit even though the footwear appears to be OTS with a removable liner
4. Ethical – this invoicing is simply describing a pair of OTS footwear
5. Ethical – this invoicing is ethical as it correctly describes OTS footwear with a properly described orthopaedic footwear modification
6. Unethical – as the invoice notes ‘custom made’ and yet the description with it suggests OTS footwear which are two different sizes (split sizes) with orthopaedic modifications (Velcro from laces)
7. Ethical – this invoice describes an OTS pair of shoes

Module Self-Test Questions

Directions:

- Answer the following questions.
- Compare your answers to the enclosed answer key.
- If you disagree with any of the answers, review learning activities and/or check with your instructor.
- If no problems arise, continue on to the next objective or next examination.

Question 1

You have decided that the best pedorthic treatment for your patient is a change of footwear. She has thick, swollen ankles and mentions that her ankles are always sore from shoe pressure along the ankles. What footwear anatomy features will you describe to her for help with her ankle issues?

- A. toe cap
- B. velcro closure
- C. cushioned topline
- D. rugged grip outsole

Question 2

Melanie is a teacher who enjoys walking her dog daily to relieve grade seven classroom stress. She has come to you for footwear advice. Her main foot pains involve her forefeet and have been diagnosed as hallux rigidus. You immediately discuss the most important footwear feature for this painful condition. What is it?

ANSWER KEY

Question 3

A patient requires new footwear. You measure their foot size using the Brannock while seated and then standing. The measurements are as follows:

- right foot – seated – heel to toe – size 9
- heel to ball – size 9
- standing – heel to toe – size 10
- heel to ball – size 10
- left foot – seated – heel to toe – size 8.5
- heel to ball – size 8.5
- standing – heel to toe – size 9
- heel to ball – size 9

With all these measurements, what shoe length will you begin your footwear fitting with?

- A. size 8.5
- B. size 9
- C. size 9.5
- D. size 10

Question 4

Your patient is a diabetic with neuropathy. Her daughter is worried that she is wearing incorrect footwear sizing which is not allowing her rigid 2nd hammer toe PIP dorsal ulcer to heal. The daughter realizes her mother's shoes seem to be too tight. You help try on footwear. What should you advise they be cautious of?

- A. medial extended heel counter
- B. rearfoot rockers
- C. lock lacing
- D. forefoot seams

Question 5

Your neighbour's mother has had a stroke and a resultant mild drop foot. She catches her toe often and worries about falling. You suggest one particular shoe modification. What is it?

- A. medial buttress
- B. toe slider
- C. metatarsal arch
- D. SACH

ANSWER KEY

Question 6

A patient presents with overpronation and painful posterior tibialis tendon dysfunction. You offer several footwear options to help reduce soft tissue strain. Which of the following will you NOT recommend?

- A. scaphoid pad
- B. medial buttress
- C. tongue pad
- D. strengthen medial heel counter

Question 7

Your patient has just been fitted with a pair of custom foot orthoses for metatarsalgia. She has been diagnosed with right foot Morton's neuroma. Now you are helping her find the appropriate footwear to house these orthoses. What details of the footwear features should you be looking for?

- A. boot style to allow internal lifts, footwear with wedged heels
- B. motion control – wide base, extra strong heel counter, medial support
- C. rigid rockered footwear, wide forefeet
- D. leather or other stretchable uppers, wide base, square toed, adjustable upper

Question 8

Your next patient is a weekend warrior who comes with accommodative orthoses for overpronation. You need to help find him appropriate footwear to house his new orthoses. What details of the footwear features should you be looking for?

- A. motion control – wide base, extra strong heel counter, medial support
- B. rigid rockered footwear, wide forefeet
- C. boot style to allow internal lifts, footwear with wedged heels
- D. leather or other stretchable uppers, wide base, square toed, adjustable upper

Question 9

You have decided to carry a fully stocked footwear inventory in your pedorthic clinic. What benefit will this provide?

- A. Minimal time needed for inventory maintenance
- B. Customer satisfaction when fitting footwear for a full pedorthic patient experience
- C. Ability to build alliances with other footwear retailers
- D. Minimal shipping charges

ANSWER KEY

Question 10

As a pedorthist in a multidisciplinary clinic, you have minimal space and therefore cannot inventory footwear. What will be important for you to work on to ensure proper footwear fittings for your patients?

- A. Customer vehicle availability to get to footwear stores
- B. Bus routes
- C. Footwear company sales
- D. Building alliances with local footwear retailers

Question 11

In order to boost clinic sales over the slower winter months, you decide to give away some of your footwear that hasn't been selling well. You advertise this giveaway in the local newspaper stating "Get a choice of one free pair of footwear with every purchase of custom foot orthoses – only in January and February. Don't miss out!". Is this advertising ethical as you did state an end date for this giveaway?

- A. Ethical
- B. Unethical

Question 12

You have just finished fitting your patient with custom foot orthoses and extra-depth orthopaedic footwear. Because of two different size feet, you had fit her with a split size pair of Drew shoes. Your invoice has been produced detailing your work. It reads as follows:

1 pair custom foot orthotics \$550
 1 pair custom fitted orthopaedic footwear – split sizing
 - Drew Lotus size L – 9B, R – 10D \$330
 Total \$880

Is this invoice ethical?

- A. Ethical
- B. Unethical

ANSWER KEY

Module Self-Test Questions

1. C
2. A
3. D
4. D
5. B
6. C
7. C
8. A
9. B
10. D
11. A
12. B

TERMINOLOGY

Glossary of Terms / Key Concepts

Achilles notch	a u-shaped cut out at the rear of the topline to offer pressure relief to the Achilles tendon
Balloon patch	a patch of material (often leather) 'tented' or 'ballooned' over a cut hole in an upper of a shoe to offload pressure on a rigid hammer toe or bunion
Brannock device	a foot measuring device to measure the overall foot length, foot width and heel-to-ball length
Buttress	a permanent external footwear modification usually made of EVA to stabilize the shoe by bolstering up the upper, midsole and outsole for added support
Counter	a stiff piece of material placed at the heel of a shoe between the lining and quarter; used to retain the shape of the heel of the shoe and help maintain the heel upright
Flare	an external footwear modification usually made of EVA to widen the base of support for added stability – added to the midsole and outsole only
Footbed	sock liner
Heel differential	the heel-toe drop or the difference between the height of the heel seat and the level of the forefoot inside the shoe
Horse shoe padding	shoe modification used inside the upper to off-load a bony prominence or painful area
HTB	heel-to-ball – the distance from the proximal outer heel of the foot to the 1st MTP joint – used to size feet for footwear fitting Insole – the interior bottom of a shoe, which sits directly beneath the foot under the footbed
HTT	heel-to-toe – the distance from the proximal outer heel of the foot to the most distal toe end – used to size feet for footwear fitting
LLD	leg length discrepancy – a difference in the leg lengths of a patient – will often require a permanent shoe modification to either increase the foot height of the shorter leg with the shoe (adding a shoe lift) or reducing the shoe height of the longer leg

Midsole	the middle layer of a sole, between the outsole and the upper; this is deemed the most important part of a shoe for stability and cushioning
MLA	medial longitudinal arch
MTA	metatarsal transverse arch
Outsole	the most plantar part of a shoe sole; it comes in direct contact with the ground and generally requires durability
Quarter	the part of a shoe upper that covers the sides and back of the foot; it attaches behind the vamp
Rigid rocker sole	a shoe feature or footwear modification which creates a strong forward roll of the shoe used to reduce pressure at the metatarsal heads during heel lift and toe off during gait
Ritz stick	wooden device to measure the foot length and width
SACH	solid ankle cushioned heel – a shoe modification in which the rigid proximal heel area of the midsole and outsole is replaced with cushioned material to offer a soft heel strike
Shank	steel or stiffener material that supports the sole especially between the heel and forefoot; it sits between the insole and outsole
Split sole	a permanent shoe modification to increase the width of a shoe usually to accommodate a foot deformity or brace – the sole is cut and an eva wedge is inserted to widen the sole at this area – a final outsole is added to seal this modification
Spot stretch	using a ball and ring shoe stretcher or a ‘button’ with a wooden shoe stretch, a small area or stretching is available to offload a bony or painful prominence
Sulcus	pad under the sulcus of the toes, also called a toe crest
Topline	the most dorsal (or superior) part of the shoe at which the foot enters; it generally sounds the ankle
Upper	the part of the shoe that is above the sole; it covers the toes, instep, sides and heel of the foot; it can consist of various parts including the vamp, quarter, tongue, collar, lining
Vamp	the front part of a shoe upper that covers the instep and toes; it attaches in front of the quarter
Wedge	a footwear modification either internally or externally (onto the midsole or outsole) to post either to evert or invert the foot

Study Guide

Workbook 3

Pedorthic Treatment
Footwear