



PROGRAM : BACCALAUREUS TECHNOLOGIAE
PODIATRY

SUBJECT : **PODIATRIC ORTHOTICS THEORY**

CODE : **PKSD 211**

DATE : SUPPLIMENTARY 2016 EXAMINATION

DURATION : 180 MINUTES

WEIGHT : 50:50

TOTAL MARKS : 160

EXAMINER : MS M. MOOTHEE

MODERATOR : MR S. NTULI

NUMBER OF PAGES : 7

INSTRUCTIONS

- ANSWER ALL QUESTIONS
- MARKS WILL BE ALLOCATED FOR A CLEAR AND LOGICAL EXPOSITION OF THE ANSWER
- PLEASE HAND IN ALL QUESTION AND ANSWER PAPERS TO THE INVIGILATOR

QUESTION 1:

Answer the following multiple chose questions by choosing the correct answer:

1. A subtalar joint neutral position in which the calcaneal bisection is *everted* relative to the longitudinal bisection of the distal one-third of the leg defines:
 - a) Rearfoot varus
 - b) Rearfoot valgus
 - c) Subtalar varus
 - d) Subtalar valgus
 - e) Tibial varum (2)

2. When the subtalar joint is in its neutral position and the calcaneus is inverted relative to the ground, this is called :
 - a) Rearfoot varus
 - b) Rearfoot valgus
 - c) Subtalar varus
 - d) Subtalar valgus
 - e) Tibial varum (2)

3. An accommodative othoses may be manufactured by using which material :
 - a) High density ethylene vinyl acetate
 - b) Medium density ethylene vinyl acetate
 - c) Polypropylene (2)

4. *Density* of a material describes the :
 - a) Thickness
 - b) Colour
 - c) Hardness (2)

5. Durometer measures _____ of the orthotic material?
a) Flexibility
b) Hardness
c) Quality (2)
6. The function of an accommodative orthoses is to provide:
a) Foot flexibility
b) Foot cushioning
c) Foot functionability (2)
7. Which of the following patient factors does **NOT** influence your orthoses prescription:
a) Age
b) Weight
c) Activity
d) Height
e) Occupation (2)
8. Supination involves the following foot motions:
a) Abduction, inversion and plantarflexion
b) Adduction, eversion and dorsiflexion
c) Adduction, inversion and plantarflexion (2)
9. Pronation involves the following foot motions:
a) Abduction, inversion and plantarflexion
b) Adduction, eversion and dorsiflexion
c) Abduction, eversion and dorsiflexion (2)

10. Which of the following is **NOT** part the “Eight criteria of normalcy” by the Root et.al Theory:

- a) Bisector of the distal third of the lower limb is vertical,
 - b) The subtalar axis is in neutral position: neither in pronation, nor in supination,
 - c) Bisector of the posterior surface of calcaneus is vertical,
 - d) Metatarsal joint is in maximum pronation,
 - e) The metatarsophalangeal joint line is parallel to the bisector of the posterior calcaneus,
 - f) The foot is rotated outward with an average angle of 7–10 degrees,
 - g) No abnormal rotational or torsional influences in the lower limb,
 - h) Ankle joint allows a dorsiflexion movement of minimum 10 degrees.
- (4)

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QUESTION 2:

2.1. State whether the following statements are TRUE or FALSE:

2.1.1. The use of Personal protective equipment (PPE) in the orthotic lab is mandatory.

(2)

2.1.2. In a patient with ideally normal values (i.e. no tibial varum and no subtalar varus or valgus), the neutral calcaneal stance position should be the same as the resting calcaneal stance position.

(2)

2.1.3. Polypropylene can be used to manufacture the shells of functional foot orthoses.

(2)

2.1.4. A diagnostic observation of rearfoot varus is an inverted neutral calcaneal stance position.

(2)

2.1.5. A negative cast of a foot is a hollow mould taken by placing wet plaster of paris bandage over the surface of the skin of the foot.

(2)

2.1.6 Over the counter orthoses are custom made orthoses (2)

2.1.7. One of many critics towards the Root theory is the validity of the method for determining the neutral position. (2)

2.1.8. Range of motion examination, muscle strength and gait analysis form part of Non- weight bearing biomechanical examination. (2)

2.1.9. RCSP is the angulation of the bisection of the calcaneus observed in relation to the ground while the foot is held in subtalar joint neutral position. (2)

2.1.10. A disadvantage of non-weight bearing neutral impression casting is that it is time consuming and messy. (2)

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QUESTION 3:

3.1. How would you explain the following:

3.1.1. Occupational Health and Safety in the Laboratory (1x3=3)

3.1.2. Silicone orthoses (1x3=3)

3.1.3. Computer generated orthoses (1x3=3)

3.1.4. Prefabricated orthoses (1x3=3)

3.1.5. Orthoses? (1x3=3)

(15)

3.2. list one type of device (orthotic/insole-including its components) which would be suitable for the following conditions. Support your answers:

3.2.1 Rheumatoid foot (1x3=3)

3.2.2. Morton's neuroma (1x3=3)

3.2.3. Plantar fasciitis (1x3=3)

3.2.4. Rearfoot valgus with forefoot varus deformity (1x4=4)

3.2.5 Diabetic foot (1x3=3)

3.2.6. Achillies tendonitis (1x3=3)

3.2.7. Hallux limitus (1x3=3)

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QUESTION 4:

A 66-year-old women presents with a tender bunion. Examination reveals a large bursal swelling and some hammering of the lesser digits. She states that the bunion has been progressively getting larger over a few years and is on medication for rheumatoid arthritis. You notice subtalar joint over pronation during gait. You decide to introduce orthoses as a long term treatment plan for this patient.

4.1. Describe the factors that would influence your clinical decision?

(2x5=10)

4.2. Identify and describe the six steps involved in taking a neutral impression cast?

(2x6=12)

4.3. What type of orthoses would manufacture for this patient? Support your answer

(2x2=4)

4.4. Mention the type of material you have chosen for your orthotic and motivate your answer?

(2x2=4)

During footwear history and assessment, you discover that your patient is often wearing “unsuitable” shoes.

4.5. Discuss with this patient the characteristics of an ideal shoe.

(1x10=10)

4.6. Describe the characteristics of an unsuitable if you wanted to prescribe/manufacture an orthotic for this patient?

(4)

4.7. Footwear modifications can form part of your management for patients presenting with foot problems. Explain the aim(s) of the following modifications:

4.7.1. Rocker sole (4)

4.7.2. Balloon patching (3)

4.7.3. Buttressed heel (3)

4.7.4. Reverse Thomas heel (3)

4.7.5. S Heel (3)

(16)

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QUESTION 5:

A 76-year-old male has presented with a request for new shoes. He stated that his legs are uneven due the fixed ankle equinus affecting his right foot he had acquired after a severe car accident years ago.

5.1. Describe what your orthotic management options would be for this patient? (include possible orthoses, shoe modifications and other forms of shoe options) provide a motivation for each. (3x2=6)

5.2. List what your possible aims would be when clinically deciding to introduce orthotic therapy in your management of this patient? (7x1=7)

5.3. Mention four critics towards the Root theory? (2x4=8)

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GRAND TOTAL: 160 MARKS