

**Extremities I**  
**Study Questions #1**

1. If a knee injury presents as a “locked” knee, then the injury is most likely a
  - a. Ligament sprain
  - b. ACL tear
  - c. IT band friction syndrome
  - d. Meniscal tear

\*
2. An increased Q angle will exacerbate which of the following injuries?
  - a. Ligament sprain
  - b. ACL tear
  - c. IT band friction syndrome
  - d. Meniscal tear

\*
3. The screw home mechanism describes the external rotation of which of the bones that make up the knee?
  - a. femur
  - b. patella
  - c. tibia
  - d. fibula

\*
4. The functions of the meniscus include all of the following except
  - a. shock absorption
  - b. knee stabilization
  - c. pivot point of internal and external rotation
  - d. load bearing
  - e. ligament stability and strength

\*
5. The reason that pelvic adjustments are used to treat lateral tracking problems is
  - a. it strengthens the quads
  - b. closed kinetic chain
  - c. weakens the muscles at the knee
  - d. increased forces cause chondromalacia

\*
6. What are the components of the terrible triad of Donahue?
  - a. lateral meniscus, medial meniscus, patellar tendon
  - b. PCL, meniscus, lateral collateral ligament
  - c. ACL, lateral collateral ligament, PCL
  - d. ACL, medial collateral ligament, meniscus
  - e. none of the above
7. true or false the Q angle is increased by an increase in coxa vara, genu vara?
8. The female Q angle average is
  - a. 12-20
  - b. 12-15
  - c. 10-20
  - d. 15-20
  - e. 10-15
9. The screw home mechanism is comprised of the following
  - a. tibia, internal rotation, toe off
  - b. tibia, external rotation, toe off
  - c. fibula, patella, heel strike
  - d. tibia, fibula, heel strike
  - e. tibia, external rotation, heel strike

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10. Pes-anseris bursitis is commonly caused by an injury to
- quadriceps
  - Plantaris
  - Semitendinosus
  - Hamstrings
  - sciatic nerve
11. The terrible triad of Donohue is made up of all the following except:
- Anterior cruciate ligament
  - Posterior cruciate ligament
  - Medial collateral ligament
  - Meniscus
  - None of the above are incorrect
12. All the following are true of the Q angle except:
- Averages: females 15-20 degrees, males 10-15 degrees
  - Defined as the angle made by femur to the knee
  - Females are less prone to lateral tracking problems
  - Two of the above are correct
  - None of the above are incorrect
13. The knee is made up of four bones: Femur, patella, tibia, and fibula
- True
  - False
14. Excessive Q angle can be caused by all the following except:
- Coxa Vara/Genu Valgus combination
  - Genu Varus/Coxa Valga combination
  - Wider than normal pelvis
  - Flat foot (pronated foot)
  - All of the above are correct
15. The knee is not the largest joint in the body.
- True
  - False

Match the items with their appropriate descriptions. Choices may be used once, more than once or not at all.

- |   |  |                             |
|---|--|-----------------------------|
| H | 16. The first muscle to show dysfunction/trigger points at the knee because it's the only one on the medial side | A. Genu Varus               |
| M | 17. Knock knee   | B. Adductor tubercle        |
| I | 18. Anchored to the capsule predisposing greater tearing   | C. Micro trauma             |
| K | 19. Strongest ligament in the knee   | D. ACL                      |
| K | 20. "Dashboard" injury   | E. Genu recurvatum          |
| A | 21. Bowlegged  | F. Screw Home mechanism     |
| I | 22. Bears 80% of the weight of ground contact  | G. Apprehension sign        |
| C | 23. Repetitive, cumulative insults repeated 100s/1000s times   | H. Vastus medialis obliques |
| E | 24. Hyperextension of the knee   | I. Medial meniscus          |
| L | 25. One crushing blow/incident   | J. Pes Anseri               |
| G | 26. Ortho test for patellar dislocation  | K. PCL                      |
| F | 27. Function of external rotation of the tibia when the knee is brought into extension                           | L. Macro trauma             |
| D | 28. Commonly injured during deceleration and turning (knee)  | M. Genu Valgus              |

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29. The knee is a hinge joint with all the following associated motions except:
- A. Flexion/Extension
  - B. Abduction/Adduction
  - C. Internal/External rotation
  - D. Compression/Distraction
  - E. Medial/Lateral translation
  - AB. Anterior/Posterior translation
  - \* AC. All of the above are associated motions of the knee
30. Meniscal function of the knee includes all of the following except:
- \* A. Pelvic stabilization
  - B. Shock absorption
  - C. Lubrication
  - D. Mobile buffering
  - E. Load bearing
31. A patient comes in to your office acute with a locked knee and tells you that they went swing dancing the evening before. You perform the appropriate ortho tests and see a +McMurray sign. You suspect the patient's issue may be:
- A. Ligament sprain or strain
  - B. Osgood Schlatter's disease
  - C. ACL injury
  - \* D. Lateral tracking problem
  - E. Meniscal tear/s
32. A 13-year-old male patient presents with pain at the tibial tubercle and has difficulty kneeling down or flexing the knee. You suspect the patient's issue may be:
- A. Chondromalacia patella
  - B. Pes-anteri bursitis
  - C. Osteoarthritis
  - \* D. Osgoode Schlatter's disease
  - E. Meniscal tear/s
33. For the patient in the question above, what treatment plan would you prescribe?
- \* A. Knee sleeve and strengthen quads after pain eases
  - B. Epsom salts, flexion program and chiropractic
  - C. Glucosamine sulfate, Vit C, bracing and trigger point
  - D. Limit weight bearing, glucosamine sulfate, and chiropractic
  - E. Strengthen quads (last 15 degrees of extension), pelvis adjustments increase proprioception.
34. Tracy is a 10<sup>th</sup> grade track star at the local high school and is a recent patient in your new practice. Her coach and father called you concerned about the pain Tracy is experiencing after practice and is now occurring while walking upstairs. What do you suspect is Tracy's issue and what is the appropriate treatment plan?
- \* A. Osgood Schlatter's disease – surgical referral
  - B. Ilio-tibial band friction syndrome – stretching of IT band
  - C. Ligament sprain/strain – glucosamine sulfate, Vit C, bracing & trigger point
  - D. ACL injury – epsom salts, flexion program and chiropractic
  - E. You would suspect/prescribe none of the above

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35. Jerry is a 45-year-old male whose wife, your patient, begged him to have a longstanding problem checked out. On exam, he presents with pain in the knee and told you that he had pain along the lateral side of his kneecap for a long time, which he learned to deal with and ignore. What do you suspect is Jerry's issue and what is the appropriate treatment plan?
- A. Osgood Schlatter's disease – surgical referral
  - \* B. Chondromalacia patella - Knee sleeve & strengthen quads after pain eases
  - C. Ligament sprain/strain – glucosamine sulfate, Vit C, bracing & trigger point
  - D. ACL injury – epsom salts, flexion program and chiropractic
  - E. You would suspect/prescribe none of the above
36. Mary is 36-year-old female patient who slipped and fell from the kitchen chair while reaching for an item on a high shelf. Knowing the history of the accident and getting a + varus sign during the exam, you suspect Mary's issue is:
- \* A. Pes-anseri bursitis
  - B. ACL injury
  - C. Meniscal tear/s
  - D. Ligament sprain/strain
  - E. You would suspect none of the above
37. An excessive Q-Angle measurement can be caused by all of the following except \_\_\_\_\_.
- A. Wider pelvis
  - B. Pronated foot
  - C. Genu Varus
  - D. Flat Foot

Match the pathonomic sign with the common knee injury:

- |                              |   |
|------------------------------|---|
| 38. Ligament sprain          | a. Knee locks                               |
| 39. Pes anseri bursitis      | b. Positive varus or valgus test            |
| 40. ACL injury               | c. Pain at tibial tuberosity                |
| 41. Osgood Shlater           | d. Pain along the lateral border of patella |
| 42. Lateral tracking problem | e. Morning stiffness                        |
| 43. Osteoarthritis           | f. general pain in the knee                 |
| 44. Meniscal tear            | g. Knee gives out                           |

Match the end feel with its characteristic:

- |                          |                                |
|--------------------------|--------------------------------|
| 45. Bone to Bone         | a. Joint ligamentous laxity    |
| 46. Spasm                | b. Internal joint derangement  |
| 47. Capsular end feel    | c. Hypertonic muscles          |
| 48. Empty feel           | d. Arm Flexion                 |
| 49. Springy block        | e. Elbow extension             |
| 50. Tissue approximation | f. Shoulder extension rotation |

51. The least efficient, yet most common lever type in the body is?
- A. 1<sup>st</sup> class
  - B. 2<sup>nd</sup> class
  - C. 3<sup>rd</sup> class
52. Which one of the choices below is the correct order of prevalence of DJD in the body?.
- A. Finger DIP>Finger PIP>1<sup>st</sup> MP>1<sup>st</sup> MCP>LS Joint
  - B. Finger DIP>1<sup>st</sup> MTP>Knee>Finger PIP> LS Joint
  - C. Cervical spine>Finger DIP> 1<sup>st</sup> MTP> Knee
  - D. Cervical spine> 1<sup>st</sup> MTP> Finger DIP> Knee

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- D 53. The most common joint movement type is:  
A. Rotation  
B. Translation  
C. Linear  
D. Curvilinear
- C 54. A patient comes to you after slipping and falling straight down on his seat bottom. What is the predominate force on the spine?  
A. Shearing  
B. Lateral bending  
C. Compression  
D. Tension  
E. Torque
- B, 55. Mennel defines joint dysfunction as loss of (pick two):  
D A. Active range of motion  
B. Joint play  
C. Osteoarthritis  
D. End feel
- C 56. The tibia, fibula and talus comprise what joint?  
A. Hip  
B. Knee complex  
C. Ankle mortise  
D. Lateral MTP
- B 57. The joint above is a class of \_\_\_\_\_ level.  
A. I  
B. II  
C. III  
D. IV
- T 58. True or false- the characteristics of abnormal gait include all of the following: timid gait, extrapyramidal gait, limping, waddling, and apraxia.
- T 59. true or false- foot drop is characterized by a high stepping gait and is often the result of neuropathy?
60. The following are characteristics of normal gait except:  
a. brisk and purposeful initiation  
b. heels passing at a good distance from each other  
c. thighs not touching  
d. narrow based pathway  
e. arms swinging freely at the sides
61. In the foot flat position of gait we will typically see a \_\_\_\_\_ foot  
a. supinated  
b. flat  
c. pronated  
d. inverted  
e. everted
- F 62. true or false- the mid-stance phase of gait will typically show foot supination leading to pronation and then external rotation of the tibia?

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63. The bowstring effect refers to:
- robin hood and his bow and arrows
  - the transverse arch of the foot between the tarsal bones
  - the portion of heel strike where foot supination leads to plantar flexion
  - the Achilles tendon phenomenon during heel strike to mid stance
  - none of the above
64. Tarsal tunnel syndrome is caused when-
- the anterior tibial nerve is compressed by tibialis anterior
  - the posterior tibial nerve shortens and moves laterally
  - the anterior tibial nerve shortens and moves posteriorly
  - the posterior tibial nerve lengthens and is compressed
  - two of the above
- T 65. true or false- for relief of plantar fasciitis the talo-navicular-cuneus complex should be adjusted?
66. Pes planus refers to:
- the ligamentous deformation of the transverse arch of the foot
  - the capsular injury of the talo-navicular joint
  - the plastic deformation of the plantar calcaneal ligament
  - Achilles tendonitis from excess plantar flexion
  - All of the above
- F 67. true or false, in the closed kinetic chain pronation ultimately leads to a posterior superior ilium?
- F 68. true or false- the proprioceptive pathway from the foot is the quickest in the human body?
- F 69. true or false- the majority of all athletic injuries are due to ankle injury?
- F 70. true or false- pronation will most likely cause genu varus?
71. In many division I female basketball players the most common injury is
- posterior cruciate tear
  - medial meniscus tear
  - pes ansuri injury
  - anterior cruciate tear
  - none of the above they get injured less than the men do
- F 72. true or false-psa stands for posterior sacral anomaly?

Match the keystone with its corresponding arch

- |                               |                     |
|-------------------------------|---------------------|
| 73. medial longitudinal arch  | a. middle cuneiform |
| 74. lateral longitudinal arch | b. cuboid           |
| 75. transverse arch           | c. navicular        |
|                               | d. talus            |
|                               | e. head of talus    |
|                               | f. calcaneus        |
76. Which condition would an excessive Q angle predispose?
- Osgood-Schlatter's disease
  - Meniscal tears
  - Lateral tracking problems
  - There is not enough information to come to a conclusion

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- E 77. The Chief complaint should be:  
A. Written in the doctor's words in the patient's chart  
B. Written in the patient's words in the patient's chart  
C. Doesn't matter whose words as long as the information is noted in the patient's charts  
D. Should include information such as frequency and duration  
E. A & D are correct
- B 78. 40% of Americans are obese  
60%  
A. True  
B. False
- A 79. Micro traumas maybe directly related to obesity.  
A. True  
B. False
- D 80. A patient comes into your office for their regularly scheduled visit. You ask them what's new since you saw them last week and they explain they have started taking coumadin, a blood thinner. How would you proceed with this patient?  
Risk of stroke  
A. Adjust them as you have in the past  
B. Call the doctor who prescribed the blood thinner to find out about any contraindications  
C. Let the patient decide whether they feel up to being adjusted  
D. Decide not to adjust and proceed with light trigger point therapy  
E. None of the above
- D 81. Choose the correct pairing below of how the patient demonstrates the location of their pain and its possible source.  
A. Trace – nerve  
B. Circle – vague muscle pain  
C. Point – torn muscle  
D. All of the above are correct  
E. None of the above are correct
- B 82. Insidious onset refers to a known and established origin.  
A. True  
B. False
- C 83. A visual analog scale refers to  
A. The type of observation you make when the patient first walks into your office  
B. A standardized scale where the patient rates their pain based on pictures of people's facial expressions during various types of pain  
C. A scale based on 100mm line where the patient rates their pain on ranging from No Pain to Worst Pain by placing a hash mark on a point on the line. A linear measurement and analysis is then included in the patient's file.  
D. Based on a scale of 1 to 4, one the least amount of pain, 4 the worst pain imaginable
- A 84. The Owesstry scale uses  
A. Multiple questions where the sum of the questions indicates the severity of pain  
B. Based on a scale of 1 to 4, one the least amount of pain, 4 the worst pain imaginable  
C. A 100mm long line with possible pain ranging from No Pain to Worst Pain  
D. Allows the patient to come up with their own scale which makes it much more objective

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- D 85. Ballotment refers to
- A. A scale where the doctor leaves the room and the patient scribbles their pain rating on a piece of paper and hurriedly hands it to the CA like a secret ballot
  - B. A type of gait analysis
  - C. A type of postural analysis
  - D. A test for appendicitis
  - E. None of the above are correct
- B 86. Choose the correct pairing below of the percussion sound and its appropriate area:
- A. Dull – muscle
  - B. Resonance – healthy lungs
  - C. Tympanic – healthy lungs
  - D. Flat – liver

Match the nature of the pain to it's appropriate source:

- |                  |                                     |
|------------------|-------------------------------------|
| 87. Hot/cold     | a. Vasculature                      |
| 88. Burning      | b. Metabolic imbalance              |
| 89. Throbbing    | c. Chronic                          |
| 90. Constant     | d. High or low blood circulation    |
| 91. Stiffness    | e. Often related to physical injury |
| 92. Dull ache    | f. Sign of osteoarthritis           |
| 93. Intermittent | g. Musculoskeletal                  |
- A 94. Active range of motion (AROM) should always precede Passive range of motion (PROM).
- A. True
  - B. False
- C 95. A painful arc refers to
- A. Achy feet
  - B. Flat feet
  - C. Areas of impingement such as raising an arm from 45° to 90°
  - D. A myriad of symptoms which causes the patient pain
- B 96. Provocative testing procedures are ones which stress the bones, joints, ligaments, cartilage and tendons in a broad and vast area.
- A. True
  - B. False
- D 97. Fabare Patrick refers to
- A. A provocative orthopedic test
  - B. Flexion, abduction and external rotation
  - C. A patient leg position that resembles the number 4
  - D. All of the above
- D 98. Orthopedics tests include all the following except:
- A. Straight Leg Raise (SLR)
  - B. Fabare-Patrick
  - C. Differential tests
  - D. PROM
- A 99. The most useful orthopedic tests are Differential Tests because they allow the doctor to test more than one thing at a time.
- A. True
  - B. False



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- B 100. The Wexler scale is based on a 5-point scale.  
6 A. True  
B. False
- D 101. A Deep Tendon Reflex (DTR) of +4 indicates which of the following:  
A. No response  
B. Normal response  
C. Sluggish  
D. Clonus
- A 102. A positive Babinski sign indicates a pyramidal tract lesion.  
A. True  
B. False
- A 103. An example of a primitive reflex is Moro Startle.  
A. True  
B. False

Match the endfeels to their appropriate source:

- |                           |                               |
|---------------------------|-------------------------------|
| 104. Bone to Bone         | a. Internal joint derangement |
| 105. Empty                | b. Hypertonic muscle          |
| 106. Tissue approximation | c. Shoulder external rotation |
| 107. Spasm                | d. Joint ligamentous laxity   |
| 108. Capsular             | e. Elbow extension            |
| 109. Springy block        | f. Arm flexion                |
- T 110. T/F Q angle is an angle formed by the intersection of a line drawn through the tibial tubercle to the midline of the patella and from the ASIS of the ilia to the midline of the patella
- F 111. T/F the two largest levers of the body come together at the hip.
- F 112. T/F Men in NCAA are 8 times more likely to sustain ACL injuries than women
- T 113. T/F Vastus medialis strengthening leads to 90% success rate in treating patello-femoral problems
- F 114. T/F a normal reflex is graded as +1
- F 115. T/F The straight leg raise is used for testing quadriceps
- F 116. T/F On the Wexler scale a 4 is full ROM against gravity and resistance
- C 117. Normal Hip ROM for Flex is \_\_\_\_\_ and Ext is \_\_\_\_\_  
A. 45° and 45°  
B. 30° and 120°  
C. 120° and 30°  
D. 40° and 45°
- T 118. T/F joint play is the ability of a joint to separate or gap open
- F 119. T/F capsular laxity leads to joint dysfunction
- T 120. T/F The windlass effect is the result of shoe design
- F 121. T/F there are 5 arches in the foot
- F 122. T/F during normal walking we spend 40 percent of the time in stance phase.

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- F 123. T/F the normal range for the angle of inclination is 100° -125°
- F 124. T/F the iliofemoral (Y) ligament of the hip limits flexion
- T 125. T/F When the foot pronates the pelvis on the side of pronation drops and rotates backwards
- F 126. T/F Coxa vara the knees go away from the midline
- F 127. T/F Stress of standing on hip is 2/3 of body weight

Use this section for matching questions:

- E 128. empty feel
- A 129. bone to bone
- B 130. spasm
- C 131. tissue approximation
- F 132. springy block
- D 133. capsular end feel
- I 134. excessive sitting causes.....
- K 135. female triad causes.....
- J 136. inflamed trochanteric fossa causes...
- G 137. mechanical compression of lateral femoral cutaneous nerve causes...
- L 138. aging, diet, drugs, exercise causes...
- H 139. trauma causes...
- A 140. Primary dermatomes are peripheral nerve distribution patterns in the body.
  - A. True
  - B. False
- D 141. Choose the correct pairing below.
  - A. Stereognosis – ability to distinguish between two points
  - B. Graphesthesia – ability to identify an object by touch
  - C. Greatest Two point discrimination – back/upper arms/thigh
  - D. Greatest Two point discrimination – tongue/finger tips
- A 142. Smoking one pack of cigarettes a day produces the equivalent stress on the heart as being 80 pounds overweight.
  - A. True
  - B. False
- B 143. Medical diagnosis is said to be accurate 75% of the time.  
65%
  - A. True
  - B. False
- B 144. Coxa valga refers to knock-kneed where the femur approximates the midline.
  - A. True
  - B. False
- B 145. Coxa vara refers to bowlegged where the femur moves away from the midline.
  - A. True
  - B. False
- A 146. Genu varus refers to bowlegged where the distal bones of the leg approximate the midline.
- A 147. Genu Valga refers to knock-kneed where the distal leg bones move away from the midline.

- a. elbow extension
- b. hypertonic muscle
- c. arm flexion
- d. shoulder external rotation
- e. joint ligamentous laxity
- f. internal joint derangement
- g. Meralgia paresthetica
- h. dislocation
- i. Piriformis syndrome
- j. Snapping hip syndrome
- k. Acetabulum protrusio
- l. Osteoporosis

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- D 148. All of the following are true facts regarding the hip except:
- A. Use of a cane reduces stress on the hip up to 40%
  - B. Stress of standing in the hip is 1/3 of body weight
  - C. Running produces a stress of 4 to 7 times body weight
  - D. The hip is more prone to soft tissue damage compared to the shoulder
  - E. Disorders of the hip are more age-related than any other joint

- B 149. All the following are true regarding the functional anatomy of the hip except:
- A. Acetabulum is the fusion of three bones
  - B. The head of the femur is a sphere
  - C. Hyaline cartilage and fat surround the acetabulum
  - D. The labrum is the fibrocartilagenous rim of the acetabulum that provides protection.

Match the Wexler scale rating to its appropriate description:

- |  |      |
|--|------|
| 150. Full ROM against gravity and resistance       | a. 3 |
| 151. Full ROM against gravity with some resistance | b. 5 |
| 152. Full ROM against gravity                      | c. 1 |
| 153. Full ROM with gravity eliminated              | d. 0 |
| 154. Evidence of slight contractility              | e. 4 |
| 155. No evidence of contractility                  | f. 2 |

- B 156. The female triad refers to the loss of visible and internal fat, suspension of menses, and the increased risk of early DJD. This is typically occurs in middle-aged adult females.
- A. True
  - B. False

- B 157. Tension trabeculae run inferior to superior, from the femoral head to the trochanteric line.
- A. True
  - B. False

- A 158. Compression trabeculae run inferior to superior, from the lesser trochanteric area to the femoral head.

- A 159. Salter Harris Fractures refer to epiphyseal plate fractures
- A. True
  - B. False

- D 160. All the following lead to re-absorption of tension trabeculae except:
- A. Use of corticosteroids like prednisone
  - B. The aging process
  - C. Demineralization of bone
  - D. There are no exceptions, all of the above are true

- B 161. Which of the following are the correct ranges of motion of the hip:
- A. Flexion 120° - Internal rotation 40°, Extension 60°
  - B. Abduction 45° - Extension 30° - External rotation 45°
  - C. Flexion 30° - Extension 120° - External rotation 90°
  - D. Adduction 30° - Abduction - 30° - External rotation 5°
  - E. All of the above are incorrect

- B 162. The normal angle of inclination of the hip is
- A. 60° - 150°
  - B. 90° - 125°
  - C. 90° - 150°
  - D. 60° - 125°
  - E. None of the above are correct

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- A 163. All the following are true of coxa vara except:  
↓  
A. Increased leg length  
B. Increased shear force at the femoral head  
C. Increased risk for a Salter Harris fracture  
D.  $<125^\circ$  is coxa vara  
E. All of the above are true
- A 164. All the following are true of coxa valga except:  
A.  $<125^\circ$  is coxa valga  
B.  $>125^\circ$  is coxa valga  
C. Axial loading on femoral head (DJD)  
D. Foot pronation  
E. Decreased abduction force of muscles
- A 165. Normal angulation of the Femoral head is 12-25°  
A. True  
B. False

Match the muscle to its action. Choose all that apply:

- B 166. Iliopsoas  
B 167. Rectus femoris  
BD 168. Tensor fascia lata  
B 169. Pectineus  
BC 170. Gracilis  
D 171. Piriformis  
BD 172. Gluteus medius  
E  
C 173. Obturator externus  
AC 174. Biceps femoris – long head  
AC 175. Semimembranosus
- B 176. Open/loose pack position of the hip is 30° extension, 30° abduction and 5° of external rotation  
Flex  
Not  
Ext  
A. True  
B. False
- A 177. All of the moves we learned in lab we in the Open/loose pack position except for anterior shear of the hip.  
A. True  
B. False
- B 178. Which ligament below is referred to as the “Y” ligament:  
A. Ischiofemoral ligament  
B. Iliofemoral ligament  
C. Ligamentum teres  
D. Transverse ligament
- C 179. All the following is true regarding anteversion except:  
valg  
s  
A.  $>25^\circ$   
B. See toe-in  
C. Varus at the knee  
D. Foot pronation

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- D 180. All the following are true regarding retroversion except:  
A.  $<12^\circ$   
B. See toe-out  
C. Foot supination  
D. Valgus at the knee
- A 181. Mennel felt that extension was the 1<sup>st</sup> and most common motion lost at the hip and leads to flexion contracture or vice versa.  
A. True  
B. False
- A 182. Iliofemoral ligament is the strongest ligament in the body and it's main function is to limit extension found anterior and superior.  
A. True  
B. False
- A 183. Excessive sitting can cause a shortened Iliopsoas, which tends to pitch people forward and they lose extension at the hip.  
A. True  
B. False
- C 184. Which of the following best describes the strongest movements of the hip:  
A. Flexion, internal rotation and adduction  
B. Extension, internal rotation and adduction  
C. Extension, external rotation and adduction  
D. Flexion, external rotation and adduction
- C 185. Dr. Ebbets had a problem with which bursa while working seated in a betting booth at the racetrack in Saratoga, NY.  
A. Iliopectineal  
B. Trochanteric  
C. Ischiogluteal  
D. Suprapatella bursa  
E. Dr. Ebbets never told us this story

Match the specific hip condition to its cause, pain, or treatment below. Choose all that apply:

- |   |   |
|---|---|
| F 186. DJD                                  | a. Sciatic type pain on palpation                           |
| I 187. Meralgia parathetica (pendulous gut) | b. $>$ Than $15^\circ$ can lead to lateral tracking at knee |
| H 188. Dislocation                          | c. Pain at the greater trochanter w/mov't                   |
| B 189. Quadriceps angle                     | d. Female triad, metabolic                                  |
| A 190. Piriformis syndrome                  | e. Death of a portion of the bone                           |
| C 191. Snapping hip syndrome                | f. Micro trauma, overuse, metabolic                         |
| D 192. Acetabulum protrusio                 | g. Pencil thin cortices                                     |
| E 193. Avascular necrosis of the femur      | h. Leg planted  |
| G 194. Osteoporosis                         | i. Pelvic adjustment, lose weight                           |

**Extremities I  
Study Questions #1**

- A 195. Sciatic pain should increase with internal rotation and decrease with external rotation.  
A. True  
B. False
- D 196. All the following are true statements regarding biomechanics except:  
A. Application of given laws to structures  
B. Bones form levers; joint form hinges; muscles and ligaments react to gravity/external forces  
C. Concept evolved out of Industrial revolution, mechanistic view of the world, "(wo)man as machine."  
D. All of the statements above are true
- A 197. In humans, there is the potential for 6 planes of motion: 3 rotation and 3 translation.  
A. True  
B. False
- A 198. Kinematics refers to the study of the visual appearance of motion, whereas Kinetics refers to the study of motion.  
A. True  
B. False
- E 199. Muscle power is determined by all the following except:  
A. Fiber type (fast twitch, slow twitch)  
B. Cross sectional area  
C. Length/tension ratio  
D. Degree of fatigue  
E. A person's workout schedule
- B 200. Elastic energy enhances force production by 50%.  
A. True  
B. False
- 20%  
A 201. A 1<sup>st</sup> class lever is the most efficient whereas a 3<sup>rd</sup> class lever is the least.  
A. True  
B. False
- A 202. Isometric contractions have been criticized as hazardous to one's long-term health because of an inherent lack of cardiovascular development.  
A. True  
B. False
- C 203. Choose the incorrect statement below:  
A. Dynamic Stabilization allows for fluid and balanced movements such as in gait  
B. Joint Play is the ability of a joint to separate or gap open  
C. End feel is the small elastic "springiness" at the end of active ROM  
D. Accessory motion includes both joint play and end feel  
E. Total joint movement equals the voluntary ROM plus or minus end feel/joint play
- PRO  
M  
B 204. Choose the incorrect statement below:  
A. Joint play/end feel cannot be produced or isolated by the action of voluntary movement.  
B. One can produce long axis distraction by will.  
C. Loss of joint play/end feel produces pain whenever that specific direction of joint play/end feel is tested.  
D. Only an examiner can demonstrate the presence or absence of joint play or end feel.  
E. Joint play/end feel can only be restored by a dynamic thrust given in the correct direction.

Match the arches of the foot with their appropriate descriptions:

- |   |                               |
|---|-------------------------------|
| D 205. Calcaneus, talus, navicular and 1 <sup>st</sup> & 2 <sup>nd</sup> cuneiforms | a. Transverse tarsal arch     |
| A 206. 2 <sup>nd</sup> Cuneiform is the keystone                                    | b. Lateral longitudinal arch  |
| D 207. "Flat foot" arch   | c. Metatarsal transverse arch |
| B 208. Cuboid is the keystone   | d. Medial longitudinal arch   |
| C 209. Questionable existence   |                               |
| B 210. Cuboid is the cornerstone  |                               |
| D 211. Head of the talus is the keystone  |                               |

**Extremities I  
Study Questions #1**

- A 212. Foot Levelers have this in their orthotics
- A 213. Static x-rays and lab tests can't detect joint dysfunction.  
A. True  
B. False
- B 214. A joint that is unable to freely move has no effect on the muscles that would normally cause that joint to move.  
A. True  
B. False
- A 215. Impaired muscle function start a "negative cascade" that perpetuates and can cause joint dysfunction.  
A. True  
B. False
- A 216. A weak Trendelenburg sign indicates a weakness in the Gluteus Maximus.  
A. True  
B. False
- A 217. If pain is elicited during performance of joint play or end feel that movement is impaired.  
A. True  
B. False
- D 218. The transverse stability of the hip is secured by the simultaneous contraction of hip:  
A. Adductors and flexors  
B. Extensors and abductors  
C. Flexors and extensors  
D. Abductors and adductors
- B 219. Adductor dominance leads to medial tilt.  
Lat  
A. True  
B. False
- C 220. What is the effect of adductor dominance on the hip, knee and foot respectively?  
A. Coxa Valga – genu varus – supination of the foot  
B. Coxa Valga – genu valga – pronation of the foot  
C. Coxa Vara – genu valga – pronation of the foot  
D. Coxa vara – genu vara – supination of the foot
- A 221. There are 26 bones in the foot.  
A. True  
B. False
- A 222. Choose the incorrect statement below:  
A. 30% of foot injuries are ankle sprains  
B. Foot as Mobile Adaptor occurs in pronated phase, midstance, acts as shock absorber and involves eccentric contractions.  
C. Foot as a Rigid Lever occurs in the supinated phase, heel strike and toe off.  
D. The windlass Effect occurs during heel strike and toe off and involves the raising of the medial longitudinal arch.

Match the structures to the correct events described in the Closed Kinetic Chain of the Lower Extremity (assume right side)

- |                             |                            |
|-----------------------------|----------------------------|
| E 223. Pelvis               | a. Rotate to the right     |
| AC 224. Lumbar vertebra     | b. Nutates                 |
| D                           |                            |
| B 225. Right side of sacrum | c. Reactive scoliosis      |
| F 226. Tibia                | d. Jam                     |
| EF 227. Femur               | e. Drops down and rotates  |
| GH 228. Foot                | f. Internal rotation       |
| E 229. Ilium                | g. Pronates                |
|                             | h. Head of the Talus drops |