SAMPLE QUESTION ANSWERS LUMBAR SPINE

1. b. HVLA to the SI Joints

ADDITIONAL EXPLANATION

b. Correct. This patient meets 4 of 5 predictors for success with SIJ HVLA (Flynn 2002) and demonstrates the mean demographics of the patients in Childs, AIM, 2004

2. a. Extension exercises

a. Correct. The patient demonstrates 2 of 3 factors favoring an Extension Oriented Treatment Approach (Browder 2007) and demonstrates the mean demographic data from the same study.

3. c. Mechanical lumbar traction & Extension exercises

ADDITIONAL EXPLANATION

c. Correct. This patient meets the factors favoring mechanical traction and EOTA (Fritz 2007) and demonstrates the mean demographic data from this study.

4. c. Advise against surgery, citing a 75% failure rate

ADDITIONAL EXPLANATION

c. Correct. The success rate for spinal fusions for HNP is 25% (75% failure rate) according to Weinstein 2006.

5. b. Traction QIW x 12 minutes at 40-60% of their body weight

6. b. Body weight supported on a treadmill

ADDITIONAL EXPLANATION

b. Correct. According to Whitman 2006 a Body Weight Supported walking program in conjunction with manual therapy and exercise is the best treatment for spinal stenosis.

7. b. Depression based on (Wand, 2004)

8. a. Do not perform another HVLA that session

ADDITIONAL EXPLANATION

a. Correct. According to Flynn (APMR 2003, JMMT 2006) the cavitation is not important when performing HVLA techniques. Flynn's original paper describing the clinical prediction rule stated that if the treating therapist did not obtain a cavitation that they would re-try on the same side and failing to obtain a cavitation, would make up to two additional attempts on the contralateral side. However, the papers cited above were published after that study.

9. A. Low Back Pain without involvement of the SIJ

ADDITIONAL EXPLANATION

A. Correct. According to Laslett (JMMT 2008), the prevalence of the Gillet, Standing Forward Flexion and Seated Forward Flexion tests in the asymptomatic population is 16%, 13% and 8% respectively. Furthermore, Flynn (Spine 2004) demonstrated poor reliability of the seated forward flexion test (0.25), standing forward flexion test (-0.08), long-sitting test (0.21) and only fair/good reliability of the Gillet (0.59).
B. Incorrect. None of these tests assessed neural dynamics
C. Incorrect. While the patient meets the test item cluster described by Cibulka (JOSPT 1999), the study had 3 major flaws that weakened its validity; poor reference standard, no blinding, limited face validity (Laslett 2008).
D. Incorrect. None of these tests are provocative.

10. D. Correct

11. C. Single Photon Emission Cat Scan

ADDITIONAL EXPLANATION

A. Incorrect. Bone scans are highly sensitive but will not demonstrate an acute injury
B. Incorrect.
C. Correct. SPECT is both highly sensitive and specific (Tallarico 2008)

D. Incorrect

12. A. Positive distraction, thigh thrust, Gaenslans; Negative compression, sacral thrust, FABER, resisted hip abduction

ADDITIONAL EXPLANATION

A. Correct. The patient has 3 of 5 tests consistent with the clinical prediction rule described by Laslett (2008). In the absence of centralization phenomena with McKenzie's repeated motion testing the pre-test probability of SIJ pain is 32%. 3 of 5 positive tests increases this to a post-test probability of 77% (+LR 7). The tests are *distraction, thigh thrust, Gaenslans, compression, and sacral thrust*.
B. Incorrect. The patient has <3 of the clinical predictors positive (0) with a posttest probability of 5% (-LR 0.10).
C. Incorrect. The patient has <3 of the clinical predictors positive (2) with a posttest probability of 5% (-LR 0.10).
D. Incorrect. The patient has <3 of the clinical predictors positive (1) with a posttest probability of 5% (-LR 0.10).

13. D. Oblique

ADDITIONAL EXPLANATION

A. Incorrect
B. Incorrect. Good for assessing stability (Tallarico 2008)
C. Incorrect
D. Correct. (Tallarico 2008)

14. D. Vascular Claudication

ADDITIONAL EXPLANATION

D. Correct. Patient's pain is unilateral and occurs after a predictable amount of exercise and continues to worsen until it makes continued exercise impossible then relieved by rest – all hallmarks of peripheral artery disease and vascular (intermittent) claudication. His PMH of high cholesterol and erectile dysfunction are common coexisting symptom of PAD.

15. B. 1.00 – 1.10

ADDITIONAL EXPLANATION

B. Correct. The ankle brachial index is very specific for diagnosing patients with PAD. Scores of 1-1.1 are considered normal.

16. A. Manipulation and exercise

ADDITIONAL EXPLANATION

A. This patient meets 4 of 5 predictors for the CPR for HVLA for LBP (Flynn & Childs): no symptoms distal to the knee, FABQ(w)<19, +lumbar spring test, hip IR>35. This also demonstrates the difficulty in choosing between the manipulation and stabilization CPRs as demonstrated by Henry's 2012 inter-rater reliability study. The patient meets Hicks' criteria for patients with a "poor chance of success" with stabilization and does not meet Laslett's CPR for SIJ pain. She has LELT and PLET tests positive, but while they have good reliability, they are not part of Hicks' CPR for stabilization. Also recall that Hick's CPR was not validated.

17. C. Lumbar multifidus

ADDITIONAL EXPLANATION

C. Based on Koppenhaver (JOSPT, 2011), the lumbar multifidus demonstrated increased thickness one week after HVLA (patients meeting at least 4 of 5 criteria on CPR). The subjects of that study also demonstrated an average of 25% improvement in their ODI scores (42% to 32%) after one week.

18. C. Lower quarter nerve mobilization procedures

ADDITIONAL EXPLANATION

C. Grade of “C” – weak evidence supporting. Items A & B have a grade of “A” and item D has a grade of “B”

19. D. The neuroscience that explains pain perception

D. This is correct. Items B & C are not advocated. Item A should be reversed, we want to encourage early resumption of these activities even when still experiencing pain

20. C. Gluteus Minimus