

# Will I Ever Be Able to Run Again, Doc?: Problem Handouts



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# Will I Ever Be Able to Run Again, Doc?

## Part 1

Bob is a 53-year-old college professor. He is a regular runner, averaging between 25-35 miles per week. During the academic year he runs with one or two fellow professors during the noon hour. In the summer he prefers to run at sunup when it is cooler. His interest in running began over 20 years ago as a way to increase his cardiovascular health and to help minimize weight gains associated with increasing age.

It is Saturday, and Bob has met up with his regular weekend running bunch at the McDonald's restaurant that is located near the center-point of a local bike path that provides the option for a paved running route with varying scenery, and distances of up to 20 or more miles. After the route, distance and pace are discussed several runners break off into varying packs and start out at a leisurely pace just as the sun is coming up. After working to get warmed up for approximately a mile, the pace quickens and the runners settle into a variety of separate conversations.

By approximately mile 10 Bob is comfortable with his pace, and the conversation has settled onto the topic of the day-politics. In mid-stride Bob experiences a sudden and severe shooting pain in his back, and he immediately falls to the ground, causing several in the running pack to trip and fall as well. As the running group comes to a halt, Bob is the only runner unable to regain his feet. After a few minutes, the back pain has subsided somewhat, but Bob notices that he has a significant weakness affecting his lower extremities, and a general "weird" feeling to his entire body. One of the running group heads to a nearby house and calls an ambulance.

At the emergency room, the attending physician obtains the following information from Bob:

### ***Patient History:***

- The patient is a 53-year-old male weighing 165 pounds.
- The patient experienced polio during the epidemic of the 50's and has had a "weak back" ever since, regularly experiencing lower back pain.
- The patient has been under the care of a neurologist for 20+ years for "MS-like symptoms" that come and go, but no definitive diagnosis has ever been obtained.
- Other than OTC painkillers for back pain, the patient is not taking medication of any type, and has an unremarkable medical history.

### ***Physical Examination:***

- Resting heart rate is 50, with blood pressure 117/62
- Temperature is normal
- Preliminary neurological examination demonstrates the following:
  - Flaccid muscle tone and areflexia demonstrated in both lower appendages.
  - Absent Babinski reflexes
  - Mental Status: normal. Orientation to person, place, and time normal, speech not rushed or slurred.



The attending physician ordered the following lab tests:

- Routine CBC and electrolytes
- Because Bob had not eaten prior to his run, fasting serum glucose and lipid panels were ordered
- Serologic test for syphilis
- Spinal MRI

The attending neurologist was paged for a consult.

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## Part 2

The attending neurologist arrived and did a complete patient history, confirming all information previously obtained by the attending ER physician. During the neurological examination Bob asked if the testing could be temporarily halted, as he felt the urge to urinate and asked to be taken to the bathroom. He was given a urinal to utilize, but found that he was unable to voluntarily start the urinary stream.

The results of the neurological examination were as follows:

- Decreased bilateral tone in the upper extremities
- 2/5 triceps strength
- 0/5 grip and finger extensors bilaterally
- Absent triceps reflexes
- Loss of pinprick and temperature sensation anteriorly and posteriorly, starting at the level of the axillae
- Preservation of vibratory and proprioceptive senses
- Development of a loss of rectal tone (as demonstrated by fecal incontinence during the neurological examination) within two to four hours after initial onset of symptoms
- Inability to voluntarily start urinary stream, resulting in urinary catheterization to allow voiding of the bladder

***Utilizing sound neuroanatomical logic, consider the following questions:***

1. Localize the spinal level for the neurological lesion. Defend your answer.
2. Provide a solid, logical explanation for the onset of the neurological lesion. What is the definitive fact in the patient's history that points to this explanation, rather than other possible confounding diagnoses?
3. Provide a detailed explanation for the vascular supply for the part of the nervous system involved in your diagnosis? Yes or No: Does the cardiovascular system come into play in your diagnosis? Defend your answer.
4. Can the physician definitively answer the patient's question that is posed in the title to this problem?

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## Team and Self Assessment Form

Your name: \_\_\_\_\_

Please use the rating scale below to describe how you and your team members performed on each of the tasks listed associated with your PBL group's activities. The purpose of the grading is not to divide groups but to reward those making above average effort and to encourage those not giving their fair share to the group overall effort.

5 if Always    4 if Very Often    3 if Sometimes    2 if Rarely    1 if Never

PBL Group Number: \_\_\_\_\_

Please fill in PBL Group Members' *Last* Names (including your own)

Names                    \_\_\_\_\_

Completed assigned tasks \_\_\_\_\_

Contributed valuable  
information to the group \_\_\_\_\_

Attended group meetings \_\_\_\_\_

Was honest in reporting  
progress about his/her  
assigned tasks                    \_\_\_\_\_

Participated in writing  
final report                    \_\_\_\_\_



Now, ***please circle*** the rating below that you feel you would best describe your group's overall performance:

Very good

Good

Barely Acceptable

Poor

Very Poor



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## PBL Self Evaluation Form

This evaluation form will not be utilized in assigning any grades. However, it is beneficial to reflect on any progress that you might have made in various areas as a result of participating in a PBL course. Therefore, please evaluate yourself utilizing the following scale.

Scale:

5 = Strongly agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly disagree

Your name: \_\_\_\_\_

As a result of my participation in PBL in Human Anatomy I feel that I have improved in the areas of:

1. Effective group participation \_\_\_\_\_

2. Effective group communication \_\_\_\_\_

3. Evaluation of myself (self evaluation) \_\_\_\_\_

4. Evaluation of others (peer evaluation) \_\_\_\_\_

5. Acquiring information to solve complex problems \_\_\_\_\_

6. Evaluation of the quality of information needed  
to solve complex problems \_\_\_\_\_

7. Working effectively with others \_\_\_\_\_



8. Higher-order, critical thinking skills \_\_\_\_\_

Overall improvement rating of yourself: \_\_\_\_\_

5 = excellent; 4 = good; 3 = average; 2 = needs work; 1 = poor

