



Orthopaedic Division
CANADIAN PHYSIOTHERAPY ASSOCIATION

Division d'orthopédie
ASSOCIATION CANADIENNE DE PHYSIOTHÉRAPIE

Case History Exam Subjective Booklet

Questions to be completed following the **Subjective** Examination

Candidate Number: _____

Candidate Name: _____

Exam Date: _____

1. The table below describes different mechanisms that may be influencing the patient's pain. Based on the information provided in the subjective examination, list the evidence, if any, that would be most indicative of the three categories of influences on the patient's pain presentation. In formulating your answer, consider all 3 pain areas. (5 marks)

Nociceptive:

Mechanical - P1, 2, 3 are not constant; mechanical forces such as walking, running, sitting produce the pain and rest relieves it. Pain descriptors – P1 intermittent sharp pain, P2 intermittent tightness and discomfort. Pain location is localized – P1 middle 1/3 of the Achilles tendon

Inflammatory - minimal or none; P1 was helped by Celebrex but only temporarily and during the initial inflammatory stage; P1 has morning stiffness but it is very short-lived. NSAID helps am pain reduce from 6 to 4/10.

Peripheral Neuropathic

Location of the pains:

P2 – distribution of the pain is along the S1 dermatome so could be a nerve or nerve root

P2 - Aggravating factor related to posture such as sitting in a position of neural tension, but the descriptor of P2 does not suggest neuropathic (not burning etc)

P3 will spread into buttock so it could be a nerve or nerve root

P1 could be distal distribution of S1, tibial nerve, or sural
but there is no tingling or weakness reported

Central Mechanisms

There is very little support for central mechanisms

Permitted to say:

Chronicity of P1 (6 months), P2 for years and P3 for 10 years may cause central sensitization; stated he was anxious to return to Ultimate Frisbee; concerned re weight gain

2 (a). List 3 of the most likely structures at fault for each area of symptoms. (4.5 marks)

Note to candidates – one or more structures can be put in each box depending on the answer e.g. multiple muscles could be in one box if all relevant. Multiple acceptable answers are listed here.

P1	P2	P3
1. achilles tendon *must have this to pass	1. hamstring muscle piriformis	1. erector spinae muscles multifidus gluts deep hip rotators obturator internus
2. tibial nerve sural nerve S1 nerve root	2. sciatic nerve L5 or S1 nerve root Dural covering/sleeve	2. L4/5 or L5/S1 disc T12 – S1 Nerve roots
3. gastroc/soleus muscle retrocalcaneal bursa	3. L-spine structures L4 – S1 such as IV disc, facet joint capsule SIJ – capsule, ligaments	3. L4/5 or L5/S1 structures SIJ capsule, ligaments

2 (b). For P1, explain your rationale for each of the three structures you have chosen based on the subjective data that has been provided. (3 marks)

Structure	Rationale
Achilles tendon	Mechanism of injury (running in flat soled shoes); location of pain; occurs when running; walking quickly; walking uphill; worse post rest then eases; sharp; localized
Gastroc muscle	Trigger point 1 in the gastroc refers to the Achilles tendon; mechanism of injury, mechanical triggers as mentioned above
Tibial nerve	Location of pain; worse with uphill walking which requires combination of hip flexion + knee extension + ankle dorsiflexion

3. Circle the one category that best describes the overall irritability of this patient's condition. Justify your answer with 4 pieces of evidence from the subjective examination. (2.5 marks)

Mild

Moderate

Severe

There is no pain at rest. P2 and 3 are never greater than 4/10 and takes greater than 30 - 45 minutes to aggravate and are relieved quickly with rest or moving around. P1 can spike as high as 7/10 but quickly returns to 0-1/10 in 15 minutes; minimal interference with every day activities; P1 requires relatively high forces to produce more pain such as running or uphill walking. Does not interfere with his sleep.

What are the implications of this for the physical examination? (1.5 mark)

Should tolerate a full examination. Fairly aggressive tests may be used/needed to reproduce P1. Although 7/10 pain should be avoided, if provoked it will settle quickly

4. Are there any subjective examination findings that would indicate caution must be observed during the objective examination (yes or no); if yes, list no more than 2 and in either case justify your answer? (2 marks)

Answering “no findings indicate caution needed” is permitted but must explain i.e. no signs of sinister pathology etc or

1. Risk of Achilles rupture
2. Risk of irritating old disc or nerve problem that is currently at a tolerable level
3. Patient is anxious to return to his sport
4. He is a doctor and thinks he knows everything and hasn't been cleared by another more objective doctor for serious pathology

5. Write two subjective questions you would like to have added to this case to help rule in or out any possible psychosocial (yellow), occupational (blue/black) and/or prognostic (pink) flags. Provide your justification for why you are asking these questions. (2 marks)

What type of footwear do you wear at work? Justification: Is his regular footwear an aggravating factor causing prolonged healing time?

Do you work in a hospital where you need to run to emergencies or a clinic where you sit more? Justification: To get an idea of what forces are acting throughout a regular workday?

What do you think is happening with your Achilles condition? Justification: determines his understanding of the condition

What are you hoping to achieve with physiotherapy? Justification: patient expectations and how that affects his prognosis

How are you coping without your socializing with your Ultimate Frisbee friends?

6. After reading the subjective data, list the 2 (most likely) clinical hypotheses and provide 3 subjective findings to support each hypothesis. (5 marks)

1. He strained his left Achilles tendon (P1) when sprinting in flat soled shoes which caused the Achilles tendon to lengthen more than usual. His pain occurs when walking uphill which requires increased dorsiflexion. The mechanism of injury and location of

his pain suggest he has Achilles tendinopathy. He also has a chronic hamstring strain and scar tissue (P2). The location of the pain, pain with running, and the history of previous strains support this theory. P3 is an old posterolateral disc herniation in the lower lumbar spine. Flexion mechanism of injury, initially pain with coughing; currently pain with sitting that refers to the buttock.

2. P3 is an unstable joint in the lower lumbar spine with discomfort from the increased muscle tone in the erector spinae muscles trying to provide stability. This is supported by the location of the pain. P3 is reduced by activity and made worse with prolonged positions. P2 is increased protective hamstring tone which commonly occurs with lumbar spine instabilities. The location of the pain and the good response to stretching that has to be done frequently suggests increased tone. This instability and increased hamstring tone can cause a trigger point in the gastroc muscle. The referral pattern for this trigger point is the location of P1. Trigger points cause the muscle to be tight and irritated by uphill walking when more dorsiflexion is needed. Trigger points would also be painful with brisk walking or running.

Other suggestions:

Lumbar spine or SIJ hypo mobility with referral to posterior thigh, tightening posterior chain putting the Achilles at risk for strain and more difficult to resolve

Facilitated segment, increased tone, trigger points

Abnormal mechanosensitivity of the neural tissues

Lumbar radiculopathy

7. Based on the subjective examination you have developed two clinical hypotheses. In planning your physical examination, provide only the most relevant (at least 6 and no more than 8) tests that you would use to support or negate your hypotheses. Include your rationale for choosing each test and the expected findings. (9 marks)

In this case/example: Hypothesis 1 – Achilles tendinopathy

Hypothesis 2 – lower lumbar spine instability

Test	Rationale for choosing the test	Expected findings for both hypotheses
<i>neurodynamic testing e.g. slump, straight leg raise with tibial and sural nerve biases</i>	<i>adverse neurodynamics could produce increased muscular protective tone in hamstrings and or gastrocs</i>	<i>Positive if lumbar dysfunction</i> <i>Negative if Achilles tendinopathy</i>
<i>muscle length testing for hamstrings and gastroc/soleus</i>	<i>decreased length may be a contributing factor to Achilles tendinopathy and/or hamstring discomfort</i>	<i>positive for gastroc if Achilles tendinopathy or trigger point but endfeels will be different (trigger point more tone)</i> <i>Positive for hamstrings if chronic strain with scar tissue or increased tone due to lumbar instability but endfeels will be different (lumbar instability more tone)</i>
<i>stability testing lumbar spine</i>	<i>hypothesis 2 is suspected lumbar instability</i>	<i>positive if lumbar instability</i>

<i>resisted muscle testing of hamstrings and gastroc/soleus</i>	<i>weakness may be a factor in chronic muscle strains and tendinopathy</i>	<i>positive for gastroc/soleus with eccentric load if tendinopathy, negative if trigger point.</i> <i>Positive for hamstrings if chronic strain, negative if increased tone due to lumbar instability</i>
<i>palpation of muscle tone of lumbar paraspinals, hamstrings and gastrocs</i>	<i>instabilities frequently demonstrate increased tone in the global stabilizers; trigger points are palpable</i>	<i>positive for increased tone in iliocostalis and longissimus and hamstrings if lumbar instability. Negative if old disc injury. Positive for scar tissue in hamstring if chronic strain. Negative for gastroc if Achilles tendinopathy, positive for trigger point in gastroc if trigger point</i>
<i>functional testing – running or brisk uphill walking</i>	<i>to see the positions of the joints and lengths of the muscles during the pain provocative activities; abnormal mechanics could lead to lumbar instability, hamstring and/or gastroc overuse</i>	<i>positive for hinging if lumbar instability, negative if old disc injury. Positive for pain reproduction if chronic hamstring strain or Achilles tendinopathy</i>