LAB EXERCISE 7.1

PULMONARY AUSCULTATION

Learning Outcomes:
After completing this lab activity, students should be able to:
1. locate the “listening zones” for performing pulmonary auscultation on the anterior and posterior thorax.
2. correctly perform pulmonary auscultation following the listening zone pattern for the anterior and posterior thorax.

Competencies:
This lab exercise addresses the following knowledge and skills from the Athletic Training Education Competencies, 5th ed.¹:

Clinical Examination and Diagnosis: #20g, 21j

Equipment needed:
- Stethoscope
- Female students will need to wear a tank top or sports bra.

Introduction:
When listening to breath sounds, it is important to note the sound’s pitch and intensity, as well as the duration or length of the inspiratory and expiratory phases of breathing. There are three main types of normal breath sounds: vesicular, bronchial, and bronchovesicular (Figures 7-8a and 7-8b).

Characteristics and Location of Normal Breath Sounds

Vesicular —
- “swooshing” sound
- low pitch
- soft intensity
- longer inspiratory phase

Bronchial —
- hollow, similar to wind blowing through metallic pipe
- high pitch
- loud intensity
- longer expiratory phase

Bronchovesicular —
- medium pitch
- moderate intensity
- equal inspiratory and expiratory phases

Abnormal Findings
- normal sounds heard outside of their normal location
- adventitious (extra) sounds (Table 7-1)
  - crackles
  - rhonchi
  - stridor


Part I: Skill Acquisition – Pulmonary Auscultation

Procedures:

Pulmonary auscultation is performed similarly to cardiac auscultation; however, the “listening zones” differ in their number and location (see Figures 7-7a and 7-7b below). Patients should be instructed to breath with their mouth open. The diaphragm of the stethoscope should be placed directly on the skin rather than over clothing.

Lab Instructions:

1. Working with your lab partner, identify the locations of the three different types of breath sounds (Figure 7-8a and 7-8b). Auscultate over these areas, listening to several breath cycles at each site. Note the difference between the vesicular, bronchial and bronchovesicular sounds, listening closely to pitch, intensity and the duration of inspiratory and expiratory phases of breathing.

2. Working with your lab partner, identify the 14 listening zones located on the posterior chest (Figure 7-7a). Auscultate over each listening zone, listening to several breath cycles at each site. You should alternate between contralaterally matched sites (i.e., compare 1 to 2, then 3 to 4, and so on). If you have difficulty hearing the lung sounds, you can try an alternate patient position that maximizes the thorax exposure. Instruct your lab partner to cross their arms across the chest and put their chin to their chest.

3. Working with your lab partner, identify the 12 listening zones located on the anterior chest (Figure 7-7b). Again, auscultate each listening zone, listening to several breath cycles at each site.

4. Perform pulmonary auscultation on four additional individuals. In each case, your subject should confirm your location of anterior and posterior auscultation sites.

5. If a teaching stethoscope is available, have each subject listen to and confirm the lung sounds at each zone. Record your completion of these auscultations on the form provided.
LAB EXERCISE 7.1

PULMONARY AUSCULTATION

Student_________________________________________  Date_______________

Part I: Skill Acquisition

<table>
<thead>
<tr>
<th>Subject</th>
<th>Follows Correct Pattern (alternating contralateral matched sites)</th>
<th>Subject’s Initials</th>
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<tbody>
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<td>1. _________________________</td>
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Part II: Application

1. What signs and/or symptoms would warrant an evaluation of breath sounds?

2. What injuries or illnesses are associated with the signs and symptoms that you have identified in #1 above?

3. What auscultation findings would suggest/confirm the injuries and illnesses that you identified in #2 above.