PRACTICAL EXAM EVALUATION GRID

**Study title:** Usefulness of a Musculoskeletal Ultrasound Course in an Orthopedic Surgery Residency Training program

**Participant code:** ____________

**Evaluation date:** DD / MM / 20 _ _

**Study visit:**
- [ ] Pre-course
- [ ] Post-course
- [ ] 6 months
- [ ] 12 months

**Correction key:**
- Ask the resident to perform a shoulder examination as taught in the course, including setting up the ultrasound, examining the biceps tendon, supra-spinatus, infra-spinatus, subscapularis, sub-acromial bursae, and acromio-clavicular joint
- Give “Complete” mark (2 points) when the step is completed perfectly, including all the movements described in the question stem, identifying the appropriate structure, without redirection from the examiner
- Give “Partial” mark (1 point) when the step is partially completed, or completed with redirection from the examiner. The appropriate structure must be identified
- Give “Inadequate” mark (0 point) if the step is not completed, or the wrong structure is identified.
- The order of the steps has no importance in the marking

<table>
<thead>
<tr>
<th>Tasks</th>
<th>C</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>1 Setting up the ultrasound machine</td>
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<tr>
<td>1.1 Positioning:</td>
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<tr>
<td>- Ensures patient’s comfort, patient seated at appropriate height</td>
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<td>- Ultrasound screen at adequate distance and in direct line of sight of the resident, without awkward rotation of the head</td>
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<td>- Resident can stand in front of the patient or behind, as per personal preference.</td>
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<td>1.2 Selecting appropriate probe:</td>
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<tr>
<td>- High frequency linear array probe</td>
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<tr>
<td>1.3 Adjusting depth:</td>
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<td></td>
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<tr>
<td>- Depending on patient’s build</td>
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<td>- Should allow to see the full thickness of the tendons and part of underlying bone</td>
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<tr>
<td>1.4 Adjusting gain:</td>
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<tr>
<td>- Depending on patient’s build and echogenicity.</td>
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<td>- Should be adequate to differentiate all the structures</td>
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<td>- No inadequate noise to normally hypoechoic areas</td>
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</table>
## 2.1 Long head of biceps tendon
- Patient’s hand resting on thigh, palm up, and elbow flexed 90°
- Short-axis from insertion to myotendinous junction
- Long-axis
- Tests for biceps tendon subluxation (external rotation)

## 2.2 Subscapularis tendon:
- Patient externally rotates the arm with elbow flexed 90°
- Short-axis from insertion to myotendinous junction
- Long-axis

## 2.3 Supraspinatus tendon:
- Patient puts the back of their hand to their back pocket
- Short-axis from insertion to myotendinous junction, must see anterior border
- Long-axis

## 2.4 Subacromial bursae
- Same position
- Identifies the bursae: presence of fluid? thickened walls?

## 2.5 Infraspinatus tendon
- Arm across the body, examined from behind the shoulder
- Short-axis from insertion to myotendinous junction
- Long-axis

## 2.6 Gleno-humeral joint
- Arm in neutral position (hand on thigh), examined from behind
- Identifies the GH joint and presence/absence of fluid

## 2.7 Acromio-clavicular joint
- Same position
- Identifies AC joint in coronal plane

## 2.8 Subacromial impingement
- Same position, then followed by dynamic abduction of the shoulder
- Moves the transducer to the lateral edge of the acromion
- Identifies presence/absence of impingement

<table>
<thead>
<tr>
<th>Sub-total (number of marks from each columns)</th>
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<tbody>
<tr>
<td>Multiplier</td>
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<tr>
<td>Total for each column</td>
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</table>

**Final score** (max 24 points)

**Percent score** (score/24 X 100)

Evaluator signature: ____________________________

DD / MM / 20 _ _

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