Musculoskeletal Injury Evaluation Standards for Different Disciplines

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Abstract

Evaluation of musculoskeletal injuries requires special knowledge and skills that are shared by different health professions, but the process used to establish a diagnosis is not necessarily the same. Medicine has employed the objective structured clinical exams (OSCE) to assess clinical competence. The performances of two Canadian athletic therapists were assessed by two different methods for assessment of clinical competence in the evaluation of knee injuries. On the basis of existing standards, both of the athletic therapists would have passed the examination using the Standardized Orthopedic Assessment Tool currently used to assess the clinical competence of athletic therapy students, but both would have failed using the Academy of Sport and Exercise Medicine OSCE for sport medicine physicians. The failure could be because the performances of only two subjects were assessed, but it could also be because different constructs are represented by the two methods. If we truly want to provide patient-centered care, it should be important to have similar standards, regardless of the clinician’s professional discipline.
interpretation of diagnostic imaging results, etc.) with a standardized patient. An OSCE station may be either a discrete task associated with management of a specified MSK diagnosis or a combination of tasks that are performed to diagnose and manage an injury for a specified body part (i.e., separate stations for knee, shoulder, etc.). A standardized patient (SP) is a person who is instructed to respond like a patient who has all the signs and symptoms that would be associated with a specific diagnosis. The SP typically rates the examinee’s performance on an objective checklist, but an expert rater may also evaluate the examinee simultaneously.

An OSCE standardizes the manner in which examinees are evaluated to ensure that they demonstrate a predetermined standard for competent performance. Medicine, physiotherapy,3 athletic training and therapy,4-6 chiropractic,7 and pharmacy8 professional organizations have established such standards to ensure patient safety and high quality of care. OSCEs have been employed in medical schools as summative examinations, and they are used in certification and licensure examinations.9,10

The Canadian Academy of Sport and Exercise Medicine (CASEM) has established a protocol to evaluate MSK competency of physicians who seek a sports medicine credential (i.e., diploma) from the organization through administration of an OSCE.11 Some Canadian athletic therapy students are evaluated for MSK competence with the Standardized Orthopedic Assessment Tool (SOAT) developed by Lafave et al.,4,5 which was based on evaluation protocols established by Cyriax12 and Magee.13 Although both the CASEM-OSCE and SOAT have been developed to ensure validity and reliability, the professional role that each was designed to assess differs (i.e., sport medicine physician versus athletic therapist). The purpose of this pilot research was to compare the performances of two certified Canadian athletic therapists on the CASEM-OSCE and SOAT methods for assessment of MSK injury evaluation procedures.

### Procedures and Findings

- The performances of two Canadian certified athletic therapists with more than five years of professional experience were evaluated by two expert raters.
- The expert raters were a CASEM diploma-certified sports medicine physician and a certified athletic therapist (Canada).
- The CASEM-OSCE and the SOAT were used to evaluate the clinical competence of the two certified athletic therapists in the evaluation of knee injuries.
- The two scenarios used to assess clinical competence were (a) patellar tendon rupture and (b) patellar dislocation.
- A standardized patient (SP) was trained to respond in the manner of a patient who had sustained the specified injury.
- The two certified athletic therapists were given 15 minutes to evaluate the first acute knee injury and 15 minutes to evaluate the second acute knee injury at a different station.
- Each of the two expert raters graded the performances of the two certified athletic therapists for one of the two scenarios using both evaluation tools.
- A comparative statistical analysis could not be performed because only two subjects were assessed in this pilot study. Table 1 presents mean values for the CASEM-OSCE and SOAT, which were derived from ratings of performance on tasks corresponding to subscales identified in Table 2.

### Table 1. Evaluation Results

<table>
<thead>
<tr>
<th>Examinee</th>
<th>Station 1, Rater 1 (% score)</th>
<th>Station 2, Rater 1 (% score)</th>
<th>Station 1, Rater 2 (% score)</th>
<th>Station 2, Rater 2 (% score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinee 1</td>
<td>CASEM OSCE</td>
<td>35.92 49.67</td>
<td>57.67 57.71</td>
<td></td>
</tr>
<tr>
<td>Examinee 2</td>
<td>SOAT</td>
<td>68.67 68.53</td>
<td>93.58 86.56</td>
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</tr>
</tbody>
</table>

![Table 1. Evaluation Results](image-url)
Discussion

The purpose of this pilot study was to contrast two established procedures for assessment of clinical knowledge and skills relating to MSK injury evaluation. No definitive conclusions can be drawn from the limited scope of this pilot work, but the findings have relevance to planning for a larger-scale study. The two certified athletic therapists generally scored lower on the CASEM-OSCE than the SOAT. Despite the fact that both examinees diagnosed the acute knee injuries correctly, both of them had very low CASEM-OSCE scores. In contrast, the SOAT scores for both examinees exceeded the level chosen to define clinical competence (i.e., greater than 50%). Because the CASEM-OSCE and SOAT subscales assign points for differing components of the MSK injury evaluation process (Table 2), the resulting scores can be viewed as representing different constructs. Both examinees identifying the correct diagnosis, but having differing scores for the two assessment methods indicates that points are allocated in a manner that prioritizes different components of the process. We contend that MSK injury evaluation and management standards should be consistent among healthcare professions to promote patient-centered care.

Future Research

Any method used to assess clinical competence should be shown to produce valid and reliable results. Content validation has traditionally relied upon the opinions of experts within a professional discipline who understand the context in which related tasks are performed and who are considered qualified to judge the importance and/or difficulty of the items that are included in a performance-based examination. Our future research will be focused on development of an OSCE that will be valid for multidisciplinary assessment of clinical competence for management of MSK conditions.

Note

A detailed Methods file for this study can be found in Extras on the IJATT website (ATT-journal.com).

Table 2. SOAT and CASEM OSCE Subscales

<table>
<thead>
<tr>
<th>SOAT Subscales</th>
<th>CASEM OSCE Subscales</th>
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</thead>
<tbody>
<tr>
<td>1 History</td>
<td>History</td>
</tr>
<tr>
<td>2 Observation</td>
<td>Physical exam</td>
</tr>
<tr>
<td>3 Scanning exam</td>
<td>Investigations (x-rays, MRI, etc.)</td>
</tr>
<tr>
<td>4 Clearing joints above and below</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>5 Active range of motion</td>
<td>Management</td>
</tr>
<tr>
<td>6 Passive range of motion</td>
<td>Technique</td>
</tr>
<tr>
<td>7 Isometric resisted testing</td>
<td>Attitude</td>
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<tr>
<td>8 Special testing</td>
<td></td>
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<tr>
<td>9 Palpation</td>
<td></td>
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<tr>
<td>10 Conclusion</td>
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References


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**Nick Mohtadi** is a clinical professor in the faculty of medicine, a practicing orthopedic surgeon with Alberta Health Services, and active researcher at the University of Calgary Sport Medicine Centre. He is the founder of the Calgary – Acute Knee Injury Clinic.

**Denise Chan** currently works in the University of Calgary Sport Medicine Centre as a research associate. She designed and implemented the Non-Physician Expert curriculum/training program.

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