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# A Practical Guide to Implementing Peer Assessment in Athletic Training Education

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STUDENTS appear to learn at a deeper level when they teach their peers,<sup>1-2</sup> and they have a higher level of self-awareness of their own skill levels when they evaluate their peers.<sup>3</sup> Peer assessment has been suggested by athletic training educators as an effective tool for enhancing students' comprehension and performance of clinical psychomotor skills.<sup>2,4</sup>

Peer assessment is defined as students evaluating the products or outcomes of learning.<sup>1</sup> In athletic training, this type of formative assessment could be a critical link in the learning over time (LOT) process. The purpose of this report is to explore the manner in which peer

professional knowledge and skills are learned and evaluated.<sup>5</sup> The key term in the first part of this definition is "process." A process involves a series of actions that lead to an end result. LOT is further defined as including the following actions: formal instruction and evaluation, followed by a time of sufficient length to allow for practice and internalization, and subsequent reevaluation in a real or simulated patient setting.<sup>6</sup> Peer assessment can easily be implemented as a component of the LOT process between initial formal instruction and the formal evaluation of skill acquisition by an instructor. Peer assessment is not intended to replace an instructor's assessment but rather to provide formative feedback in a timely manner prior to the formal evaluation while providing time for student practice and internalization of information.<sup>4</sup>

## KEY POINTS

- ▶ Peer assessment can be used to help students to master clinical skills as part of the learning over time process.
- ▶ Peer assessment supplements, rather than replaces, instructor and ACL evaluation.
- ▶ Students benefit from giving and receiving formative peer feedback.

assessment can be implemented as a component of learning over time and to provide athletic training educators with practical approaches to planning and implementing peer assessment of psychomotor skills.

## Learning Over Time

The Glossary of Terms provided by the Commission on Accreditation of Athletic Training Education (CAATE) clearly defines learning over time (LOT) as "the process by which

## Structuring Peer Assessment

There are many factors to consider in structuring and implementing peer assessment in an athletic training education program (ATEP). Topping<sup>3</sup> offers a practical guide that identifies five major factors appropriate for consideration when planning peer assessment in an ATEP (Table 1). To aid in understanding, these factors will be discussed relative to their application in an entry-level Master's ATEP.

**TABLE 1. APPLICABLE VARIABLES FOR PLANNING PEER ASSESSMENT IN ATHLETIC TRAINING EDUCATION**

Variable
Objectives of peer assessment
Curriculum area
Selection and matching of participants
Contact requirements between participants
Training for participants

## Objectives

Peer assessment can be implemented to achieve a number of objectives, such as mutual cognitive, meta-cognitive, motivational, attitudinal, and/or social and behavioral gains in students on the giving and receiving end of the peer exchange.<sup>3</sup> Cognitive gains may include improved test scores for students being evaluated, while students performing the evaluation may achieve a deeper understanding of the skill as a result of the analysis required to determine whether or not it was performed correctly.<sup>7,8</sup> Students conducting the peer evaluation may achieve greater meta-cognition by gaining insight into how they process information. Peers being evaluated may become better able to regulate their own learning processes and to use this self awareness to enhance understanding in areas needing improvement.<sup>3</sup>

Another objective of peer assessment may be an increase in student motivation and ownership of the learning process.<sup>3</sup> For example, students may be more motivated to practice their skills if they know they will be held accountable by their peers to perform them correctly. Students conducting the evaluation may be internally motivated to stay current in their skills so that they can provide accurate feedback to their peers. An obvious benefit is that students will have to continuously review material, which may lead to better preparation for the Board of Certification exam.

Peer assessment may be implemented with the objective of changing students' attitudes toward the learning process. For example, peer assessment results in a more collaborative relationship between student peers,<sup>7</sup> which may lead to a greater sense of ownership of the program. In addition, students may gain a

more positive attitude toward themselves in terms of self-esteem and self-respect.<sup>3</sup>

Social and behavioral objectives might also be achieved through implementation of peer assessment. Students engaged in peer assessment often view their peers as colleagues, which could have transferable sociological benefits to development of collaborative relationships in clinical practice.<sup>4</sup> Peer assessment could also create cohesiveness between and within student cohorts.<sup>3</sup>

We implemented peer assessment in each laboratory course in our entry-level master's ATEP with several objectives in mind. First, peer assessment is congruent with the team-based philosophy of our program, which encourages shared responsibility in the learning process among students, clinical instructors, and faculty. Therefore, one objective was to create a collaborative learning environment among student peers in the laboratory setting, with the hope of transferring collaborative skills into the clinical setting. Our second objective was to provide a mechanism for students to receive specific formative feedback on their clinical skills prior to being formally evaluated for a grade. Our third objective was to facilitate "retention over time" in our second-year students in conjunction with learning over time. Retention over time relates to the student's ability to recall and critically analyze information from past semesters. Certainly, retention of information is critical to providing accurate feedback to student peers. Finally, we wanted to expose students to the process of evaluation in order to enhance their ability to give and receive constructive feedback, a skill that will be important in future employment. We have observed that our students perceive their peers as valuable sources of information and are very comfortable providing one another with feedback. Our students have also reported that they do not want to waste their peer's time by performing poorly during an assessment session, and therefore, they prepare more thoroughly. Our second-year students have also reported that working with a first-year student provides a good review of previously learned material.

## Curriculum Area

Peer assessment may not be appropriate for all domains of an athletic training curriculum. Careful consideration of domains or courses that are most conducive to implementation of peer assessment. For example, students may be more confident in providing

peer assessment on orthopedic special tests (e.g., Hawkins-Kennedy Impingement test) than general medical diagnostic skills (e.g., heart and lung auscultations). Depending on the type of course, peer assessment can also be implemented in different formats. For example, peer assessment of isolated psychomotor skills in a laboratory course (e.g., manual muscle test of the semimembranosus) may involve a step-by-step analysis of the skill that includes patient positioning, hand placement, and direction of force application. On the other hand, assessment of peer contribution to a group project (e.g., designing an athletic training facility) may be more global in nature and focused on leadership qualities rather than psychomotor skills.

We have implemented peer assessment in all of our laboratory courses. Students utilize either a step-by-step evaluation form (Figure 1) or holistic form (Figure 2) to determine the accuracy of psychomotor skill performance in each laboratory class.

Special Tests	PEER	
	YES	NO
Patient supine or seated	YES	NO
Examiner stabilizes leg above the ankle joint	YES	NO
Examiner places other hand on medial/dorsal side of foot	YES	NO
Examiner instructs patient to actively dorsiflex and invert foot	YES	NO
Examiner holds resistance for five seconds	YES	NO
Performs bilaterally	YES	NO

**Figure 1** Step-by-step peer assessment for manual muscle test of the tibialis anterior.

Special Tests	PEER	
	YES	NO
Anterior drawer	YES	NO
Talar tilt (inversion)	YES	NO
Talar tilt (eversion)	YES	NO
Kleiger's test (Lateral Rotation Test)	YES	NO
Sendesmotoc Separation Test	YES	NO
Performs or states all test bilaterally	YES	NO

**Figure 2** Holistic peer assessment for ligamentous special tests of the ankle

## Selection and Matching of Participants

There are several issues to consider when determining the manner in which students are selected and matched for peer assessment activities. A determination should be made concerning whether peer assessment will be a requirement for all students, or only for a subset of students who require remediation on the basis of past skill performance. Consideration should also be given to whether peer assessment will occur within and/or between student cohorts (e.g., juniors assessing juniors versus seniors assessing juniors).

The matching of student peers requires careful planning. The cognitive and clinical abilities of each peer conducting the evaluation must be considered.<sup>3</sup> Requiring a student who clearly has difficulty performing a particular skill to evaluate his or her peers would obviously raise concern about the accuracy of the assessment. Topping<sup>3</sup> contends that when a student is allowed to self-select his or her assessment partner, some students may be excessively selected, while others may never be asked to engage in assessment. Purposeful matching may facilitate positive social outcomes by encouraging students to interact with a variety of peers and thus develop relationships within their cohort.<sup>3</sup>

Accessibility to peers is a consideration for athletic training education programs. For example, if all upper-level athletic training students are assigned to off-campus clinical rotations, expecting them to have frequent contact with lower-level peers who are assigned to on-campus rotations may be unrealistic. Matching upper-level and lower-level students for peer assessment in the clinical setting during "down time" may be appropriate.<sup>4</sup> Another consideration in matching peers is the possibility that time constraints may present a difficulty if non-residential students are paired with residential students.

We implemented peer assessment using self-selection between and within student cohorts. Our systematic evaluation of the program has demonstrated that our students are accurate between and within cohorts in assessment of peer performance of psychomotor lab skills. We have observed that first-year students often seek peer assessment from within their own cohort, because second-year students are typically assigned to off-campus rotations during at least one semester.

## Contact

The amount of contact time required between students is an important factor to consider when designing a peer assessment plan. If students are required to complete assessments outside regularly scheduled class time, arrangements must be made to provide access to equipment required for performing specific clinical skills. For example, if students are expected to evaluate one another on the ability to apply therapeutic ultrasound, appropriately supervised access to the necessary equipment must be provided.

The frequency of peer assessment is another factor to consider when designing a program. Our systematic evaluation of the reliability of peer assessment indicated that students are more reliable when they evaluate their peers' performance of a skill on more than one occasion.

We devised a plan that requires students to complete peer assessments outside regularly scheduled laboratory class time. All students have access to the Athletic Training Education Laboratory for practice and assessment of skills; however, safety considerations dictate that students must complete peer assessments of the application of therapeutic modalities with appropriate supervision.

## Training

Training students in techniques for providing feedback is essential to the effectiveness of a peer assessment program. Students should be provided with clear criteria to judge whether or not their peers are accurately performing a particular psychomotor skill. Topping<sup>3</sup> recommends that students have access to an "expert" resource, such as a textbook with step-by-step pictures or a video file of the instructor correctly performing the skill. This may be particularly important when implementing peer assessment in a within-cohort structure, which involves learning of new skills in the same sequence by members of the cohort.

Topping<sup>3</sup> recommends training students to use a sequential approach for provision of feedback that is based on an error correction framework. Non-verbal feedback is provided when an error occurs, such as adjusting the peer's hand placement, which is followed by the peer evaluator demonstrating or modeling the correct response, and subsequently prompting the student to imitate the correct response. As a final step, the peer evaluator confirms that the student can perform

the skill without assistance, followed by a reevaluation to ensure retention of the correction.<sup>3</sup>

We use an "expert" resource to provide students with the "correct" way to perform each skill. Students are provided with laboratory skills sheets that reference required textbooks that illustrate proper techniques. We have observed that more extensive training in providing peer feedback may be necessary, and we anticipate conducting research to determine the effect of formalized training on the reliability of peer assessment.

## Summary

Peer assessment can be readily implemented as a component of the learning over time process to enhance student performance of psychomotor skills. Students benefit from giving and receiving skill performance feedback that supplements evaluations from ACIs and course instructors. A peer assessment program should be structured to be consistent with the goals and objectives of the ATEP. We have observed many benefits in our program from implementing peer assessment. Research is needed to evaluate the accuracy of peer assessments, the effects of peer assessment training programs on the accuracy of peer assessments, and the effect of peer assessment on psychomotor test scores. ■

## References

1. Topping K. Peer assessment between students in colleges and universities. *Rev Educ Res.* 1998;68(3):249-276.
2. Knight K. *Assessing Clinical Proficiencies in Athletic Training: A Modular Approach.* 3rd ed. Champaign, IL: Human Kinetics; 2001.
3. Topping K. *Peer Assisted Learning: A Practical Guide for Teachers.* Newton, MA: Brookline Books; 2001.
4. Henning JM, Weidner TG, Jones J. Peer-assisted learning in the athletic training clinical setting. *J Athl Train.* 2006;41(1):102-108.
5. Commission on Accreditation of Athletic Training Education. *Athletic Training Standards Glossary.* 2006; Available at: [http://caate.net/ss\\_docs/standards.6.8.2006.pdf](http://caate.net/ss_docs/standards.6.8.2006.pdf). Accessed June 8, 2007.
6. National Athletic Trainers' Association. Clinical Instructor Seminar; June 13, 2006; Atlanta, GA.
7. Flynn JP, Marcus MT, Schmadl JC. Peer review: a successful teaching strategy in baccalaureate education. *J Nurs Educ.* 1981;20(4):28-32.
8. Orsmond P, Merry S, Reiling K. The use of student derived marking criteria in peer and self-assessment. *Assess & Eval Higher Educ.* 2000;25(1):23-38.

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