Using Simulations to Assess Clinical Skills of Student Athletic Therapists

Andrea L. Vallevand, MS; David M. Paskevich, PhD;
and Bonnie Sutter, BS, CAT(C) • University of Calgary

PROVIDING "REAL-LIFE" learning situations to student athletic therapists can be challenging and time consuming. A series of well-designed simulations, however, can expose students to a variety of clinical and field-injury experiences that might occur during the course of the practicum.

Simulations are learning and assessment opportunities that attempt to reproduce or represent an identical or near-identical situation that could occur in the real world.[1] Simulations can be developed for a variety of learning and assessment purposes and can help students maintain skills that are not often called on. Furthermore, the chance to manage a simulated injury where the "injured athlete" will not be injured further as a result of poor skill application or the inability to initiate a time-critical intervention is better than experiencing a similar injury situation in real life, when being ineffective and inefficient could be catastrophic.

Simulations can be developed for a variety of learning or assessment purposes. A simulation can provide students with the opportunity to be placed in charge of the injury management rather than always having to defer this role to certified supervisory personnel. This deferment is typically mandatory in the case of a serious injury, but the purpose of an athletic therapy education program is to prepare students for a professional career in which they will eventually be in charge of various situations. A series of well-designed simulations can provide students with feedback on their knowledge and skill development as they progress through the athletic therapy curriculum. From a program standpoint, simulations allow supervisors to objectively and subjectively evaluate student performance and assess whether the instructional objectives have been met and whether changes in the curriculum should be addressed. The purpose of this column is to introduce strategies to aid in the development of simulations for the athletic therapy educational environment.

Developing Simulations

Simulations need to be inherently meaningful to the students, because their purpose is to increase the transfer of learning from the classroom

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environment to the real world.[2] A five-step process is used to develop simulations (see Table 1). The first step is to select skills or problems that are encountered in the clinical or field setting.[3] Common skills can be selected in addition to skills that are not commonly used but require impeccable technique and communication to perform appropriately. Step 2 requires a careful assessment of the skill level of the student.[1,4] It is as easy to overwhelm a novice student as it is to bore an advanced one. Step 3 involves a meticulous analysis of the tasks or skills selected. This analysis involves identifying the critical elements of the skill or task and examining the essential relationships among them.[5] Constructing a checklist that represents the items or steps of what constitutes the appropriate performance of these tasks or skills is Step 4 in the simulation-developing process.[3] The purpose of this checklist is to increase the reliability of the assessment by basing the evaluation on clear definitions of what defines acceptable and unacceptable performance.[6] This checklist can guide the evaluator's feedback by clearly outlining what is expected. The final step is to create a scoring rubric by assigning a weighted point value to each checklist item and identifying the simulation's fail points.[3]

Determining the Appropriate Level of "Real Life"

Simulations can be used in a variety of evaluation or learning situations. The degree to which the simulation mimics its real-life situation is called fidelity. There are two types of fidelity, objective and perceptual. Objective fidelity refers to how closely the simulation (or simulator) physically represents its real-world counterpart.[1] For example, a space-shuttle simulator, with all the bells and whistles found in the real shuttle, is categorized as a high-objective-fidelity simulator. A variety of time-critical simulations can be run to evaluate the flight crew's response to the loss of one, two, or all three main shuttle engines. Admittedly, we are somewhat limited in what we can do in the athletic therapy field from a high-objective-fidelity standpoint. Rarely are we presented with a volunteer who will cheerfully fracture a femur for our students' learning and assessment purposes. But is high objective fidelity even necessary in the athletic therapy setting? High-objective-fidelity simulations are typically geared to the master performer rather than the novice, intermediate, or even advanced student.[1] An extremely complex simulation can overwhelm less skilled participants, making the experience confusing, unsuitable for developing skills and knowledge, and ultimately ineffective for learning and unsuitable for the valid and reliable assessment of the student.[1,4] This is not to say that a high-objective-fidelity simulation could not be, or should not be, developed for student athletic therapists. A simulation could be developed around the management of a prone, unresponsive athlete who is not breathing. Simply creating a time parameter for the initiation of artificial resuscitation with a pocket mask and oxygen will increase the fidelity of the simulation.

Research generally reveals an advantage for lower objective fidelity in improving initial learning and the development of knowledge and new skills, because only the essential elements of the situation are presented.[1,4] For example, there are no broken bones, no severe bleeding, no unstable vital signs, and no screaming athlete. But does this mean we are doomed to using a mannequin or soliciting a large football player to lie prone on the turf, in full regalia, while our students repeatedly roll him onto a spine board?

This is where the concept of perceptual fidelity enters into the simulation equation. Perceptual fidelity refers to the degree to which the student perceives the

Table 1. The Five-Step Program

Step	Example
Step 1: Select a skill or problem.	Brachial plexus impingement (C7) with an associated mild concussion.
Step 2: Assess skill level of the student.	This simulation would be more appropriate for an advanced student.
Step 3: Analyze elements of the skill.	Student must demonstrate an assessment of the brachial plexus dermatomes.
Step 4: Construct a checklist.	Specify each dermatome the student should assess (e.g., C5, over the deltoid).
Step 5: Create a scoring rubric.	Failure to comprehensively assess the brachial plexus dermatomes will result in the student failing the simulation.