Providing athletic training students (ATS) with realistic opportunities to gain the proficiency and self-confidence in the performance of skills related to the recognition and treatment of exertional heat illnesses (EHIs) is not always feasible. Regardless, it is vital for athletic training educators to create authentic experiences for ATS to apply their knowledge and skills in order to become competent clinicians.

Furthermore, particular athletic training concepts warrant hands-on training for skill acquisition and retention; rectal thermometry is a prime example. By providing opportunities for skill application, the educator can enhance student learning and mastery of the skill. Continued practice of psychomotor skills will help improve ATS’ self-confidence, which can ultimately aid in their ability to perform the skill when the situation arises. The use of rectal thermometers to diagnose and treat exertional heat stroke (EHS) is one such case.

As discussed briefly in Part 2 of this series, rectal temperature is the gold standard for recognizing EHS for those who are exercising in the heat. The chance for survival from EHS is increased—and possibly guaranteed—if an athletic trainer promptly recognizes it and immediately initiates whole-body cooling (including obtaining an accurate measure of core body temperature and assessment of central nervous system [CNS] function). Although rectal thermometer devices should be used when evaluating a suspected EHS, many athletic trainers are utilizing other invalid mechanisms such as oral, tympanic, temporal, and axillary devices to assess core body temperature when athletes are exercising in the heat.

In contrast, a majority of certified athletic trainers have read the current NATA position statement on EHI and recognize that rectal thermometry is the most valid method. A plausible explanation for the lack of utilization of rectal thermometry when assessing a suspected EHS, regardless of the acknowledgment of its accuracy, may be centered on a lack of confidence or insufficient training with the diagnostic device. Additionally, disparagements by athletic trainers (ATs) regarding the use of the device to assess core body temperature include invasiveness and impracticality. This mindset may carry into an AT’s future clinical practice decisions as well as influence those whom they mentor (peers, ATS, etc.). Currently, the NATA Competencies only require athletic training educators to discuss how to assess core body temperature but do not recognize rectal thermometry as the gold standard or require clinical proficiency or competence in performance of the skill.

Consequently, athletic training educators may discuss the validity of rectal thermometry...
but forgo the practical application for students. Based upon this assumption, the purpose of this report is to discuss several educational methods to eliminate any impediments that could be associated with the use of rectal thermometers in the evaluation of a suspected EHS and its integration into athletic training curricula. When providing students with multiple opportunities to apply the knowledge and skill through supportive realistic experiences, ATS may be more likely to make the connection between recommended practice and optimal care and to utilize that skill in the future.

**Discussion**

Recent research in the function of the brain engaged in learning has led to teaching principles that can be used to enhance student learning; many can be applied to athletic training education. One such principle focuses on the role of emotions, which likely plays a significant role in rectal thermometry. Students who are emotionally connected to a particular concept will understand the concept more fully and at a higher level. "Emotions directly influence attention, meaning, and memory, all of which are enhanced when we create lessons to engage emotions in a productive way." In addition, brain-based teaching principles suggest educators use multiple senses, help reduce stress, and encourage students to attach personal meaning to experiences. In line with these recommendations, authentic experiences, whether observational or hands-on, have been documented as pedagogic strategies to enhance ATS learning. By implementing both observational and hands-on learning, classroom experiences regarding the utilization of rectal thermometry, athletic training educators can increase a student’s comfort, confidence, and skills with the device.

Table 1 provides suggested teaching strategies to address the essential objectives in the learning of rectal thermometry so that an entry-level AT can carry out the use of the assessment device as recommended by that NATA Position Statement regarding recognition of EHS. As a whole, the teaching strategies address the emotional aspect of learning and have been designed to help establish a positive environment. It is important for AT educators to be aware of their own inhibitions in order to model an accepting and positive disposition while teaching what may be an uncomfortable skill with a stigma attached to it. Because this skill helps to provide a diagnosis of a potentially life-threatening condition, creating this environment is essential. We highly recommend that AT educators participate in the suggested activities with their students, particularly when they self-insert the rectal probe.

We provide background connection, experiential learning, and dialogic discussion activities, all teaching strategies which are described in further detail in Part 1 of this series. Because the proper use of a rectal thermometer is a precise skill, directed instruction should be used with the other activities. Directed instruction is a method utilized when introducing basic or concrete skills that allow the ATS to be actively engaged while being supervised by a skilled clinician/instructor. The keys to effective implementation of this strategy include having a clear explanation and demonstration of the skill, presenting the steps sequentially, and making sure to be specific and concrete while checking frequently that students are mastering the given skill. The specific steps and examples for directed instruction in rectal thermometry are presented in Table 1, and Table 2 provides details about the preparation needed for the lab activity requiring students to self-insert the rectal thermometer.

In order to include the teaching of rectal thermometry in AT education programs, permission for activities supporting the development of these skills (e.g., self-insertion, standardized patient) from administrators may be warranted. Table 3 provides some recommendations on how to address this challenge and Table 4 lists supplies. We strongly believe standard instruction should include all the suggested activities, but if permission

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<th>Objectives</th>
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<td>Students will investigate possible trepidations of using rectal thermometers.</td>
<td><strong>Background connection.</strong> Have students close their eyes, then write “rectal thermometer” on the board. Have them free write about their reaction to the device. Define a rectal “thermistor” vs. thermometer by showing students the device. Show how the thermistor is a flexible thermometer, and tell them it sometimes is referred to as a “probe”. Point out how a thermometer is an inflexible device. Ask students to investigate how their clinical supervisors, athletes, and/or other constituents</td>
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