Clinical Reasoning Abilities of Entry Level Athletic Training Students and Certified Post Professional Students Using the Diagnostic Thinking in Athletic Training Inventory: Does Educational Program Matter?


**Context:** Clinical reasoning (CR) is an aspect of medical cognition recognized as essential for clinical problem solving, yet measuring it has been difficult because valid tools for assessing CR in various practitioners, especially ATs and students are scarce. The Diagnostic Thinking Inventory for Athletic Training (DTI-AT) measures CR abilities in athletic trainers but has not yet been tested in different populations of ATs to discern potential differences due to educational background, clinical experiences, or concept familiarity. **Objective:** To administer the DTI-AT to different levels of AT students in order to assess differences in clinical reasoning based on formal educational and experiential preparation mode (entry-level or post-professional). **Design:** Cross sectional. **Setting:** Senior students in CAATE accredited bachelor’s programs; last year master’s students in CAATE accredited entry-level programs, and last year students in post-professional master’s programs. Only undergraduate programs with current 3 year, >90% first time BOC pass rate were invited to be part of the undergraduate group. **Patients or Other Participants:** We invited directors of entry-level and post-professional AT education programs in the United States to invite their final year students to complete an online, 41-item Likert scale inventory of diagnostic thinking. Participation was voluntary, and was sought via program director invitation after random program selection and geographic representation. **Main Outcome Measures:** The DTI-AT produces 3 scores relative to clinical reasoning skills: Total diagnostic thinking (DT, max score = 246), structure of memory (SOM, max score = 120) and flexibility in thinking (FIT, max score = 126). The independent variable was group (entry-level vs. post-professional). Separate independent t-tests were used to assess group differences on the 3 DTI-AT scores. Alpha level was set a priori at p≤0.05. **Results:** 89 students (76 entry-level, 13 post-professional) completed the DTI-AT inventory. Post-professional students scored significantly higher on overall DT (post-professional: 187.2±15.2, entry-level: 179.0±13.7, p=0.05) and FIT (post-professional: 95.0±7.8, entry-level: 87.7±8.2, p<0.01), but not on SOM (post-professional: 92.2±8.4, entry-level: 91.2±8.3, p=0.73). **Conclusions:** Both SOM (organized, linked and experiential case knowledge) and FIT (ability to problem solve using different strategies) are strong indicators of higher-level clinical reasoning and hallmarks of more expert clinicians. Of the 2 subscales, FIT is more dependent upon clinical exposure and experience, particularly as they regard independent problem solving and reflection, while SOM is more dependent upon how knowledge is learned, organized and made meaningful. Given their increased clinical experiences, our certified post professional students showed higher overall levels of DT and higher FIT than did entry level students, yet almost identical SOM scores as their younger counterparts; indicating that independent and more intensive clinical exposures may be more important for developing DT & FIT, and that educational content and delivery may be similar amongst the different programs. **Word Count:** 448