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Evidence-Based Practice: A Lack of Confidence, Knowledge, and Implications in Athletic Training

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Objective: The purpose of this study was to investigate athletic trainers' perceived confidence in knowledge of evidence-based medicine (EBM) concepts and the connection to implementation in certified athletic trainers self-reported clinical practice.

Design and Setting: Using a survey research design, the authors conducted an online survey of athletic trainers. Independent variables were athletic trainers' setting, role, and highest level of education. Dependent variables were perceived knowledge, implementation, and tested knowledge.

Participants: A convenience sampling of 231 athletic trainers resulted in a 19% (N=44) return rate. Participant's settings were high school 34% (n=15), college 36% (n=16), and other 30% (n=13). Those who were preceptors (mentor to athletic training students in a clinical setting) included 39% (n=17), and those who were not preceptors included 61% (n=27). Of the participants, 34% (n=15) had bachelor's degrees, 61% (n=27) had master's degrees, and 5% (n=2) had doctorate degrees.

Intervention: The instrument consisted of twenty questions. Questions one through four related to perceptions of EBM. Questions five through thirteen surveyed athletic trainers' EBM implementation. Questions fourteen through seventeen tested knowledge of EBM concepts. Demographics were asked in questions eighteen through twenty. Face validity was established through a panel of experts in the athletic training field. Content validity was established through a table of specifications. The study was approved for exempted review by the IRB. Data were analyzed through the SPSS, version 21.0. A Kruskal Wallis test analyzed setting and level of education of the participants as grouping variables. A Chi Square test analyzed the preceptor role. Alpha level were set at .05 *a priori* to be statistically significant. Descriptive statistics (percentages and frequency counts) were used for every applicable item.

Main Outcome Measurement: Questions one through six, and ten through fifteen, utilized a four-point Likert scale consisting of 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree. The four-point Likert scale for question seven consisted of 1=never, 2=once a year, 3=once a month, and 4=once a week. Question eight used a four-point Likert scale consisting of

1=never, 2=1 year ago, 3=1 month ago, and 4=1 week ago. Question nine used a four-point Likert scale consisting of 1=<25%, 2=25-50%, 3=50-75%, and 4=75-100%. Question sixteen and seventeen used multiple choice responses. Questions eighteen through twenty used a two-point or a three-point Likert scale.

Results: Only 5% (n=2) of participants responded that they "strongly agree" that they have received adequate training in EBM. Furthermore, only 30% (n=13) correctly identified the appropriate utilization of a PICO (Population, Intervention, Comparison, Outcomes) analysis. Of those surveyed, 21% (n=9) stated that they implemented research into clinical practice "once a week," and 16% (n=7) responded that they use evidence for clinical decisions "75-100%" of the time. There was a statistically significant difference ($H=8.605$, $df=2$, $p=.014$) between settings and implementation of EBP. While 44% (n=7) of athletic trainers working in colleges stated they either "strongly agree" or "agree" that they use the five steps of EBP, only 7% (n=1) of high school athletic trainers said they "agree." There was also a statistically significant difference ($\chi^2=8.436$, $df=3$, $p=.038$) between athletic training role as a preceptor and frequency of implementation. Whereas 71% (n=12) of preceptors reported monthly implementation, only 33% (n=9) and 15% (n=4) of those not in a preceptor role reported monthly implementation or no implementation, respectively. There was a statistically significant differences ($H=6.341$, $df=2$, $p=.042$) between confidence in knowledge and the athletic trainers' highest degree obtained. 100% (n=2) of those with a doctorate degree responded that they "strongly agree" that they are confident in evaluating scientific research, while only 15% (n=4) with a master's degree and 7% (n=1) with a bachelor's degree stated they "strongly agree."

Conclusions: Athletic trainers in this study do not feel confident utilizing EBM; therefore, implementation of EBM into clinical practice is impeded. It is important to note that beginning in 2014, all ATs are now required to have 10 BOC approved EBP CEUs per certification maintenance period. Athletic trainers must take responsibility in increasing their knowledge and implementation of EBM in order for the profession to continue to advance.

Key Words: Athletic training, evidence-based practice, evidence-based medicine, confidence, knowledge, implementation