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Current Literature Summary

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Evidence-based practice collectively involves research evidence, clinician expertise, and patient preference while making health care decisions. Due to health care reform legislation, there is greater emphasis on evidence-based practice as a means for improving the quality, and lowering the cost, of health care. Principles of evidence-based practice must be integrated into athletic training curricula for students to develop the skill set of accessing, understanding, and evaluating research to appropriately apply evidence–based procedures in clinical practice. We will provide brief synopses of current research related to teaching evidence-based practice and discuss possible applications to athletic training.

Kim SC, Brown CE, Fields W, Stichler JF. Evidence-based practice-focused interactive teaching strategy: A controlled study. *J Adv Nurs*. 2009;65(6):1218-1227.

Reviewed by Sarah A. Manspeaker, Texas Christian University

Summary of research context and methods: Nursing educators are challenged to implement new and effective teaching strategies relating to evidence-best practice (EBP). Although EBP inherently involves incorporation of the best research evidence, little evidence is available to demonstrate effectiveness of EBP teaching strategies. Teaching methods that employ clinical integration have been found to improve knowledge and attitudes toward EBP.

The purpose of this study was to assess the effectiveness of the EBP-focused teaching (E-FIT) strategy in the areas of knowledge, attitudes, use, and future use of EBP. The E-FIT strategy included a combination of classroom lessons and clinically integrated group projects in collaboration with clinical preceptors. Senior level nursing students (n = 208) from 2 nursing schools participated in this study and were assigned to either the intervention or control group based upon semester of enrollment in Nursing Leadership/ Management Theory and Clinical Practicum courses.

Summary of research findings: Nursing students' EBP knowledge and use, as assessed by the Knowledge, Attitudes, and Behaviors Questionnaire for EBP, significantly increased from pre-test to post-test; however, no difference in attitudes or future use of evidence-based practice was identified. Regression analysis indicated that the E-FIT intervention explained 7.6% and 5.1% of EBP knowledge and use, respectively.

Implications for athletic training education/research: This study proposes that the E-FIT strategy may be helpful in educating nursing students in EBP, particularly in the areas of knowledge and use. Interactive projects requiring group participation and guidance from clinical preceptors appear to provide a successful mechanism for clinical application of EBP. Athletic training students could benefit from similar educational methods that permit direct involvement with clinical instructors and infusion of the EBP process within clinical decision making. Recent research in athletic training education has evaluated teaching strategies, both didactic and interactive, though more research is needed to determine teaching best practices. In addition to the teaching strategies themselves, specific areas for future research should include longitudinal evaluation of student retention and application of knowledge, attitudes, and use of EBP in clinical practice.

Bloom RL. A Case-based approach to teaching evidence-based practice and motor speech disorders. *Contemp Issues Commun Sci Disord*. 2010;37:123-130.

Reviewed by Lisa S. Jutte, Xavier University

Summary of research context and methods: Current standards from the American Speech-Language-Hearing Association require evidence based practice (EBP) in both the didactic and clinical curriculum for speech-language practitioners. Research on inductive teaching methods, such as case-based teaching, suggests that students are better motivated to figure things out independently using a scholarly approach to solving problems. The process of problem solving must be introduced along with the classic steps of EBP to provide a framework for case-based learning to be successful.

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The purpose of this descriptive study was to demonstrate how case-based learning is used to teach the intricate steps of EBP in a capstone graduate motor speech disorders course. Prior to enrolling in the course, students completed both a graduate level research methods course and a minimum of 2 semesters of supervised practicum in at least two different settings. Students were provided with 3 weeks of instruction on the 5 steps of EBP and then assigned to 1 of 2 cases to implement the EBP process as a group project. These cases were designed by the faculty to be realistic, context-based clinical scenarios in motor speech disorders. At the end of the semester, students submitted a written report and made a 30 minute oral presentation on the case including any necessary elaboration of relevant medical history, a treatment plan with potential patient progress, and documentation of how the EBP process would influence treatment.

Summary of research findings: The EBP case-based project approach provided students with a collaborative learning experience that demonstrated how research can complement clinical decision-making. Each case demonstrated a different way EBP influences patient care. One case study demonstrated how early treatment would impact the patients future communication abilities while the other case study demonstrate how the evidence did not connect an improved outcome with any type of treatment. These researchers reported that the case-based EBP approach encouraged students to practice clinical decision making by weighing clinical opinion against available evidence.

Implications for athletic training education/research: Many athletic training professionals are concerned with the ability of new clinicians to apply their knowledge and make appropriate clinical decisions. A case-based approach to teaching the EBP process may assist athletic training educators in addressing 2 learning outcomes with a single project: (1) applying the intricate steps of EBP and (2) making appropriate clinical decisions. The authors do identify that EBP cannot be taught in a single class or practical experience. Student must have basic knowledge regarding research and clinical practice; therefore, the integration of such a project is best for higher level classes after students have been exposed to basic research methods content. As such, athletic training education programs may want to consider teaching research methods earlier in their education programs. Since this was a descriptive study, it is difficult to know the actual impact of such a project on students' abilities to use EBP. A more quantitative assessment of EBP case-based learning is warranted.

Schreiber J, Downey P, Traister J. Academic program support for evidence-based practice: A mixed-methods investigation. *J Phys Ther Educ*. 2009;23(1):36-43.

Reviewed by Thomas Hunkele, Minnesota Vikings

Summary of Research context and methods: One of the hottest topics in today's medical care community is the implementation of evidence-based practice (EBP) into our profession. The inclusion of EBP is important for a wide variety of reasons including improved patient care to reimbursement. The purpose of this research study was to examine how a physical therapy academic program may assist clinical educators, who are practicing clinicians, in the application of EBP at their clinical education sites. The researchers aimed to improve the clinical educators' knowledge base in respect to evidence-based research and techniques of implementing it into current clinical practice via a 1-day five hour workshop. The clinical educators completed a survey (baseline) prior to, and 6 months after, the workshop to assess beliefs and attitudes toward research. Additionally, the researchers conducted semi-structured interviews to clarify clinical educators' attitudes, beliefs, and practices of EBP.

Summary of Research Findings: The researchers identified 4 main outcomes from the data. First, clinical educators have a positive attitude toward EBP which was evident at baseline and 6 months after the workshop. The clinical educators believe the use of research and EBP is important to guiding clinical decisions. Second, the clinical educators self-reported modest, yet statistically significant, improvement in their knowledge about research and personal reading of research journals following the workshop. Third, the clinical educators identified challenges and barriers to the implementation of EBP. Lack of time was described as the greatest challenge to employing evidence-based practice, while difficulty with technology and the inability to translate that knowledge into everyday practice were also cited as barriers. Lastly, the clinical educators noted the need for academic program support via workshops, guided practice on research and implementation, and access to research databases.

Implications for athletic training education/research: Athletic training emphasizes the importance of EBP. Previous research, as well as this research study, suggests that health care professionals have a positive attitude toward EBP workshops and continuing education seminars; however, the impact on clinical decision making behavior is lacking. As suggested by the authors of this article, perhaps faculty members could serve as a "knowledge broker" between researchers and clinicians to better facilitate EBP. Athletic training programs must not only integrate EBP in the didactic setting, but also the clinical education setting. As suggested in this article, athletic training education programs should consider the needs of the clinical instructors while integrating EBP into the curriculum by offering educational workshops or seminars, conducting on-site visits, providing on-line information repositories, or developing interactive, web-based discussion groups as appropriate to help educate and socialize students into a culture of evidence-based athletic training practice.

York AM, Nordengren FR, Stumbo T. Teaching evidence-based medicine with an asynchronous web module: Measuring student preferences and outcomes. *J Physician Assist Educ*. 2009;20(1):44-50.

Reviewed by Bonnie Van Lunen, Old Dominion University

Summary of research context and methods: Web-based education in evidence-based practice (EBP) concepts provides a medium that can be implemented into educational programming as it can be accessed while students are at various clinical experiences and providing patient care. The purposes of this study were to demonstrate that evidence-based practice principles could be effectively taught to physician assistant students via a Web-based tutorial and to identify student preference for delivery format. Students (n=42) were able to choose their format preference of (1) an interactive slide-based format with music, (2) a text-based PDF format, or (3) a combination of the previously mentioned formats. The tutorials were presented using Blackboard course management software and consisted of 5 modules that included information related to the 5 steps of evidence-based practice.

Summary of research findings: The physician assistant students perceived that they increased their understanding in most of the EBP concepts presented with the exception of "searching for evidence" and "confidence intervals." Searching for evidence may require more practice opportunities for students to utilize all of the components related to the content of the module. The students also achieved an 85% or higher on the EBP content posttest, therefore indicating that the Web-based tutorials effectively teach students the concepts of EBP. The students preferred the combination of the interactive slides and the PDF format (65%, n=26/40). Interestingly, most students (78%, n=31/40) also reported that they would like to have the information delivered via a face-to-face lecture format.

Implications for athletic training education/research: As athletic training educators further develop the professional curriculum to include more structured evidence-based practice concepts, they will seek to implement this information within a format that is conducive to student learning and implementation. Web-based delivery is a mechanism that will contribute to a greater understanding of concepts while also providing the student with self-paced learning opportunities. This format may be best utilized when combined with face-to-face lectures to accommodate for interaction with an instructor who can provide direct feedback and more clinical practice examples that apply to the foundational knowledge. Additional research is needed within this area to determine if this instructional method is effective for different learners with varied amounts of clinical experience, and would be most relevant if assessment of implementation and patient care outcomes were also examined.