Clinical Practice in Athletic Training: In the Eye of the Beholder

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Depending on the day or time, athletic trainers and athletic training students encounter an array of injuries and medical conditions in their various patient populations. As such, there are a variety of approaches we can take to assess and treat our athletes. The athletic training profession has many tools, some of which are controversial in the current evidence-based culture. Therapeutic modalities (eg, cold-water immersion and ultrasound) are often the subjects of criticism by skeptics who point to a lack of conclusive, high-quality experimental evidence to support their effectiveness. If we cannot verify a clear, consistent, and physiological effect for a particular intervention, is it justifiable to keep that strategy or technique in our clinical toolkit and continue to use it despite the lack of clear, objective evidence?

Many of us have encountered evidence-based medicine debates surrounding our clinical practices, sometimes in our local clinics and increasingly in the virtual debate halls found on social media platforms. These debates vary widely in both civility and relative expertise of the participants, but there is often a unifying theme to the conversations.

On one side of the debate are individuals who rely on experimental evidence. For these professionals, treatment or intervention strategy “x” is “bunk” if it lacks reliable support from high-quality randomized controlled trials that conclusively demonstrate its effectiveness. The focus of such evidence-based clinicians is almost entirely on clinician-oriented outcomes, which are those best suited to objective measurement and quantification. However, this perspective fails to appreciate the nuances and complexities of the many human factors associated with live clinical practice. If we are completely honest with ourselves, we will admit there are often more “gray spaces” and gaps in our clinical knowledge and evidence than we might care to admit. Accepting this premise, it might be wise to appreciate and incorporate an element of “epistemic humility” into our clinical toolkit if we are going to avoid such rigid adherence to decisions backed by hard data.

Clinicians know that the effects of many common therapeutic interventions vary from person to person, potentially altering the intended effects for different patients, and even for the same patient on different days. Such variance has been found with the application of therapeutic ultrasound.\(^1,2\) Additionally, we know that patients respond differently to various interventions due to mul-
tiple physiological and psychosocial factors. Given these contextual and complex realities, a rigid laser-like focus on objective, clinician-oriented data at the expense of subjectivity and context can operate as blinders, preventing us from appreciating the complex and contextual human elements of clinical practice.

On the other side of the debate are the traditionalists. These are clinicians who are more reluctant to change, and are thus sometimes labeled as “old school.” They might assume that we should continue doing things the way we always have, or do things the way we were originally taught “back in the day.” This is an oversimplified version of the argument, but the core of this mode of thinking is perhaps more common among clinicians than it should be. We’ve been icing injuries for decades, so it must be effective! The athletes seem to like it, and it’s not hurting anyone, so why throw it away, even if the supporting science has been found to be inconclusive? Although more subjective and thus less empirical by nature, this approach to clinical practice does bring with it the advantage of including patient values in the decision-making process.

Perhaps there is a more optimal, more contextually sensitive middle ground between these two polarized positions that represents best practice for clinicians, one already accessible and well known by our profession. Sackett’s original three-part model for evidence-based practice is an apt guide for clinicians struggling to decide which side of the debate they are going to support, but only if they appreciate the inherently contextual and fluid nature of putting the model into real practice.

Experimental dogmatists are correct to value available and objective evidence, and to incorporate relevant findings into their daily practice. Prudent incorporation of what can be appreciated as “external evidence” (information vetted and reported in the literature) can help clinicians be more effective and safer by revealing what might work, and what might not work in clinical practice. Traditionalists are also right to value the power of “internal evidence” (information and insight generated from experience) in clinical practice, or how clinical expertise informs clinical decisions and applications. Inherent in this tension between internal and external evidence is acceptance that, despite its immense authority and history, medical science is not a perfect or complete science. Progress is often glacial and contradictory, and even given what is “known,” the delivery and application of medical science remains a fundamentally human endeavor—interpreted, understood, and applied by flawed and imperfect human beings.

As a branch of medical and health science, athletic training is not different in this regard. Our body of knowledge is imperfect, incomplete, and human by extension and nature. Our available body of knowledge and evidence grows slowly and stubbornly, and it does not always have objective, high-quality answers for every potential problem a clinician may encounter.

Given this reality, perhaps we should think more about “evidence-informed practice” rather than “evidence-based practice” to better represent the fluid contextuality and incompleteness of clinical practice in athletic training. In other words, perhaps a better way to address the core debate is to use the available evidence to inform our clinical decisions, not blindly rely on them to dictate our clinical decisions without contextual or patient-centered interpretation.

To this end, McKeon and McKeon have introduced practice-based evidence as a more apt foundation for evidence-informed clinical practice in athletic training. Practice-based evidence realizes the fluid duality and interrelationship between objective external evidence (data), which is often limited or absent in many of our domains of practice, and subjective internal evidence (expertise), which requires content and skill mastery, adaptive expertise, and advanced clinical reasoning skills on behalf of the clinician.

Connecting the original evidence-based practice model with the practice-based model for informing our clinical practice, a common bond between the two models can be identified as patient values (a full one-third of Sackett’s original representation). When all is said and done, across all contexts and settings, the one thing that matters most is the individual well-being of each patient. At the core of patient-centered practice is a “n = 1” mindset and approach, an authentic appreciation and respect for the reality that every individual is unique and that each patient encounter is contextual.

All of our patients are composed of unique and organic sets of biological, psychological, and social factors. This intersection of clinical context and patient values poses many evidential quagmires that predictably befuddle the novice clinician, who wonders “what is the best thing to do” in a given situation. Does post-workout cold-water immersion decrease delayed-onset muscle soreness after 24 hours? Some evidence indicates “yes,” whereas some evidence says “no.” The reality is that most evidence remains inconclusive. Does this mean we should drain the cold tubs and send everyone home, deny-
ing our patients the opportunity to receive any physical or mental benefit? Instead we should ask, “Will this make the athlete feel better?” If the answer is “yes” or “maybe,” then that is a perfectly good practice-based model to give our patients the opportunity to use cold-water immersion after an intense workout session. Scientists and clinicians can continue to debate the potential physiological mechanisms. In the end, their conclusions ignore the various contextual and psychosocial factors that may make our patients feel better.

Patient values are the common bond that allows us to synthesize, situate, and prioritize the various external and internal evidence sources to achieve optimal patient outcomes. Effectively, the continual and sage juggling and weighing of external and internal inputs according to both the context and patient values is at the heart of expert clinical reasoning. Knowing when to rely on well-vetted external evidence and when to fall back on one’s duly acquired internal evidence is not easy, nor can it be prescribed. The process requires deliberate and varied practice, reflection, self-learning, epistemic humility, and advanced education. Toggling between external and internal evidence to make patient-centered, evidence-informed decisions is a core requirement for being an adaptive expert in the clinical setting.10

This type of patient-centered focus can also inform how we measure patient progress and design experiments to test our clinical applications, experiences, and ideas.11 Contrary to what many think about the scientific process, the more athletic trainers can incorporate the subjective experiences of our patients into the questions we ask and answers we seek, the better. In fact, the 2020 Commission on Accreditation of Athletic Training Educational Standards for Athletic Training Education include a core competency that requires accredited programs to prepare clinicians who can “provide athletic training services in a manner that uses evidence to inform practice.”12 When we approach clinical problems with patient values and patient outcomes at the center of our work, perhaps we will be able to ditch the blindsers that sustain our old habits and move toward clinical strategies that do the most good for the people who matter most—the patients under our care!

REFERENCES