

## Addressing the Habitual Practice Issue: The Role of Unlearning in Promoting Evidence-Based Practice and Lifelong Learning

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**Context:** Habits play a large role in health care professionals' behaviors. Although habitual practice patterns limit cognitive overload, routinized approaches can compromise the provision of quality and contemporary patient care. To address the issue of habit, unlearning has been suggested across health care fields but remains a relatively new concept in athletic training.

**Objectives:** This commentary aims to (1) describe the concept of unlearning, including barriers to and facilitators of this process, (2) discuss the steps in the unlearning process via a published unlearning framework, (3) highlight the role of unlearning on improving evidence-based practice and lifelong learning among clinicians, and (4) apply a context-specific example to the unlearning framework to highlight the role of unlearning on improving patient care.

**Background:** Although evidence-based practice can result in improved quality of care, literature suggests that routine uptake and incorporation of evidence into patient care is limited. The reason for this gap is likely multifactorial, but may, in part, be related to the need for unlearning.

**Synthesis:** Rapid changes in health care delivery require medical professionals to adapt their practice behaviors to maintain competence over time. Unlearning facilitates behavior change because it involves an intentional act of moving away from knowledge and skills that are no longer effective. As such, unlearning may also improve evidence-based practice efforts.

**Recommendation(s):** To abide by changing recommendations, clinicians must unlearn outdated behaviors first before replacing them with evidence-based techniques. As new knowledge is acquired, it is important to reflect on its applicability to one's practice setting and identify what, if any, outdated practices the new knowledge could replace.

**Conclusion(s):** Self-reflection is essential for successful unlearning to occur. Identifying the overall effectiveness of various practice behaviors and acting on areas of improvement can help ensure the care provided to patients is evidence-based while simultaneously optimizing patient outcomes.

**Key Words:** Evidence-based medicine, clinical practice, contemporary care

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# Addressing the Habitual Practice Issue: The Role of Unlearning in Promoting Evidence-Based Practice and Lifelong Learning

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## KEY POINTS

- Unlearning is an intentional process, that when implemented, can help overcome habitual practice patterns and promote contemporary patient care.
- The unlearning framework may be a useful resource for athletic trainers as it outlines key steps to ensure knowledge acquisition leads to clinical practice behavior changes and implementation of evidence into patient care.
- Athletic trainers can use mindset-oriented strategies and form communities of practice to overcome common barriers to unlearning, such as habit and security and fear of the unknown.

In a world where we are frequently introduced to new and evolving information, habitual behaviors can be used as powerful coping mechanisms. Habits consist of repetitious behaviors characterized by automaticity.<sup>1</sup> As behaviors are repeated over time within a specific setting and/or context, the association between behavior and context strengthens,<sup>2</sup> whereas alternative behaviors become less retrievable from memory. We come to rely on our habits, not only because of the strong mental associations that develop, but also because they are easy (demand less conscious attention) and familiar to us. Whereas habitual behaviors are not always detrimental, depending on the specific habit and context, they can become problematic when they impede our ability to perform optimally and effectively in our personal lives and as health care professionals.

Humans, by nature, are creatures of habit—evidenced by the fact that 43% of individuals' daily behaviors are enacted habitually.<sup>3</sup> A real-world example of habit that has been exacerbated due to advances in and reliance on technology is obsessively checking our phones. The association between behavior and context become so strong, that at times, we may find ourselves scrolling on our phones or opening an app without purpose or intention. The repeated act of reaching for the phone eventually becomes an automatic, subconscious behavior. Technology certainly has its benefits, but the habitual act of checking our phones prevents individuals from taking in the world around them and engaging with the people in it. Another example of habit is caffeine consumption. While coffee and other caffeinated beverages can provide a boost of energy, repeated consumption can quickly lead to habitual behaviors. Over time, behavior (coffee consumption) and context (first thing in the morning) strengthen, so much so that individuals may find themselves turning on the coffee pot or grabbing their favorite caffeinated beverage automatically, even when the energy boost is not needed.

Whereas habits certainly play a role in our personal lives, they are also prominent during patient care. For example, health care professionals identify and educate patients/clients on habitual behaviors that are detrimental and could lead to long-term health consequences (eg, smoking, excessive alcohol consumption, poor eating habits, sedentary lifestyle).<sup>4</sup> Beyond

these behaviors, health care professionals, including athletic trainers (ATs), also have a large role in recognizing and correcting dysfunctional movement patterns in their patients/clients that will become ingrained over time.<sup>5</sup> For example, patients/clients with poor squat form must be provided with cues to replace their dysfunctional movement patterns with proper functional movement. Similarly, patients/clients having gone through lower extremity surgery must be provided with cues during the gait retraining process to correct improper gait mechanics. Although it may not be thought of as a frequent component of health care professionals' roles, patients/clients benefit greatly from overcoming bad habits and forming healthier ones.

In addition to helping patients/clients overcome unhealthy habits, health care professionals themselves engage in habitual practices. A recent systematic review and meta-analysis illustrated the role habit plays in professionals' health care behavior.<sup>1</sup> Whereas habitual practice patterns lead to efficient use of skills from a cognitive load perspective,<sup>1</sup> routinized approaches can not only compromise quality of care but also prevent the provision of contemporary patient care. To address the issue of habit, the concept of unlearning has been suggested across health care fields, specifically due to the practical benefits it may have on improving efforts related to evidence-based practice. Therefore, the purpose of this article is to (1) describe the concept of unlearning, including barriers to and facilitators of this process, (2) discuss the steps involved in the unlearning process as described by a published unlearning framework, (3) highlight the role of unlearning on improving evidence-based practice and lifelong learning behaviors among clinicians, and (4) apply a discipline-specific example to the unlearning framework to illustrate the role of unlearning on improving patient care.

## UNLEARNING: WHAT IS IT AND WHY IS IT IMPORTANT?

There are various definitions of *unlearning* in the literature,<sup>6</sup> but a major similarity across all of them is that *unlearning* is an intentional process of letting go of behaviors that were once effective but now limit success.<sup>7</sup> In the context of athletic training, *success* can be defined as improving and enhancing the quality of care provided, which includes care that is safe, timely, effective, and patient centered. Yamaguchi et al<sup>8</sup> expanded the definition of *unlearning* to show the role of changes in time and the environment. Evidence-based practice is a fluid and evolving process, and as the best available evidence adapts over time, so should clinicians' practice behaviors. The environment can also play a large role in how clinicians practice, because it is the system in which they work, which involves anything from available resources to coworkers, peers, supervisors, and patients, who are at the center of all medical decisions made. Evidence-based practice does not just involve the best available evidence, but also clinician expertise and patient values,<sup>9</sup> which is captured in these 2 definitions.

It is not only vital to know what unlearning is but also why it is important to the broader health care arena. Rapid changes in health care delivery require medical professionals to adapt their practice behaviors to maintain competence over time.<sup>10,11</sup> As a result of these changes and the evolving evidence base, best-practice recommendations that guide clinicians' practice behaviors also change.<sup>10,11</sup> To abide by these recommendations and provide contemporary patient care, clinicians must intentionally unlearn outdated behaviors first before replacing them with skills and techniques that are better supported by evidence.<sup>12</sup> Unlearning is also imperative to keep up with advances in technology that improve the level of care provided,<sup>11</sup> including the use of electronic medical records to efficiently document routine patient care. The medical community has engaged in unlearning over the years. If society never unlearned over time, historical medical practices such as bloodletting, lobotomies, and asthma cigarettes would still be accepted today. Although this is an extreme example, it demonstrates the importance of unlearning on continually improving medical practices for the betterment of the patients.

### Unlearning Versus Deskillling

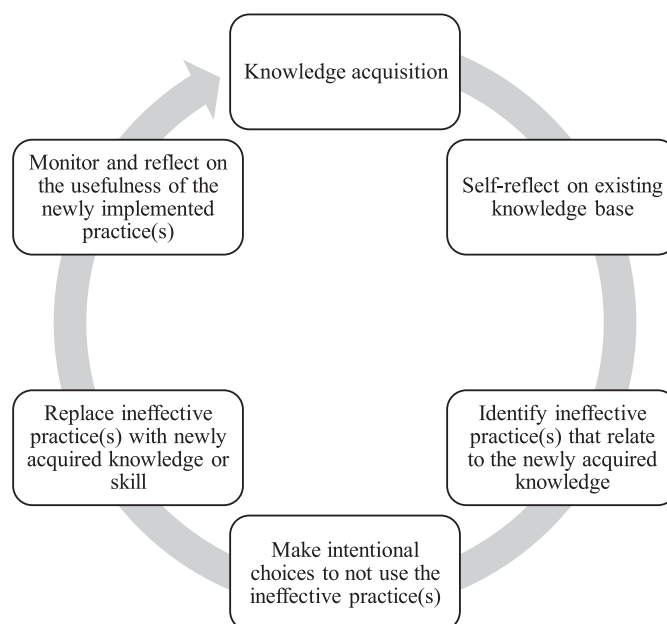
Now that unlearning has been identified as an intentional process, it is important to distinguish unlearning from a process it is often confused with, *deskillling*. The difference between the 2 processes is rooted in the level of intentionality and the result of the action. For successful unlearning to occur, individuals must intentionally let go of outdated and/or harmful practices.<sup>13</sup> Oftentimes clinicians' practice patterns become habitual, and it takes an intentional act to break those patterns and remove the knowledge that is no longer necessary. *Deskillling*, on the other hand, is an unintentional process that is characterized by losing or forgetting a skill over time,<sup>14</sup> essentially the "if you don't use it, you lose it" philosophy. The result of the action is another way to distinguish unlearning from deskillling. Unlearning occurs when ineffective practices are replaced by new skills, procedures, or techniques,<sup>12</sup> as opposed to deskillling, which results in a lost or forgotten skill.<sup>14</sup> To put this into context, cardiopulmonary resuscitation (CPR) refresher courses are offered to ensure individuals do not lose the knowledge and skillset to perform CPR correctly. Without these refresher courses, health care professionals would likely become deskillled in CPR over time due to lack of use in routine practice. Unlearning and deskillling both affect clinicians' maintenance of competence, but it is important to recognize these concepts as 2 distinct processes.

### Unlearning Framework

Low<sup>12</sup> created a framework for unlearning that clearly outlines the steps involved in the unlearning process (Figure 1), which starts when an individual acquires new knowledge or learns new information, regardless of the medium. Examples of acquiring knowledge include more-formal methods, such as attending a conference presentation or completing an online educational course or module, but knowledge can also be acquired through informal methods, including reading a research article, listening to a podcast, or talking to a colleague.

Once exposed to the new knowledge, it is important to self-reflect and think about how the acquired knowledge relates to

**Figure 1. Low's unlearning framework.<sup>12</sup>**

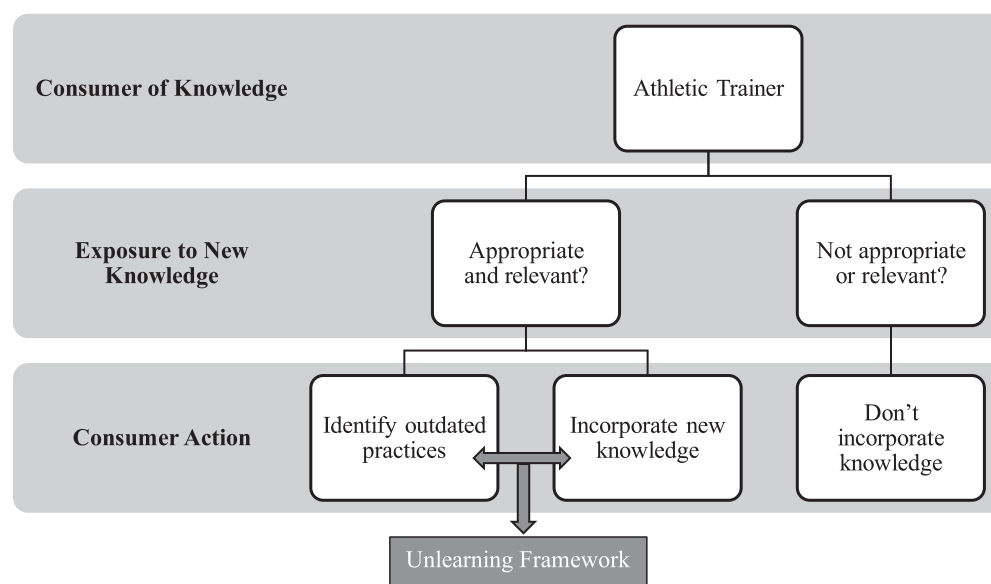


or aligns with one's existing knowledge base.<sup>12</sup> The process of thinking about what is being learned allows individuals to identify how, or in what ways, that new knowledge can be applied into daily clinical practice. Globally, across the profession, ATs likely engage in the first 2 steps of the unlearning framework. This is because there are mechanisms in place, such as continuing education for recertification, that require clinicians to stay abreast of new research findings that can inform their clinical-practice decisions. However, despite attending presentations, completing online courses, and reading articles to acquire new knowledge, that knowledge oftentimes is not used to make changes in clinical practice,<sup>15,16</sup> thus putting a halt to the unlearning process. As creatures of habit, even after acquiring new knowledge, it is easier to stick to what is known and maintain usual practice patterns and behaviors.

After applying or integrating the new knowledge into one's existing knowledge base, the unlearning process truly begins. It is important to next identify potentially ineffective practices or methods that are currently being used in clinical practice that are no longer relevant, helpful, or effective.<sup>12</sup> Although this may not be appropriate every time new knowledge is acquired, this step forces clinicians to not only think about the components of their clinical practice but to also identify what is and is not working to enhance patient care. To successfully move to the next step in the framework, clinicians must intentionally move away from the ineffective practices identified<sup>12</sup> to make way for new methods that are supported by evidence.

The last 2 steps in the framework involve incorporating and ingraining the new knowledge into routine practice. A key component of this step is to create the usefulness of the new knowledge into one's existing system.<sup>12</sup> This can be achieved by monitoring the effectiveness of the new knowledge, skill, or method that was implemented. Understanding the effectiveness of the new knowledge will inform future decisions about whether to ingrain this skill or method into routine practice. This framework was purposefully designed as a cyclical

**Figure 2. Unlearning decision algorithm for knowledge consumers.**



process that starts with the acquisition of new knowledge to replace existing, outdated knowledge. The unlearning process should occur frequently throughout a clinician's career. Creating a culture in which this evaluative process is the norm will ensure that clinicians are enhancing the care they provide and that their medical decisions are backed by the best available evidence at that time.

### Decisions Promoting the Unlearning Process

Unlearning is a multistep process that ultimately starts with the consumers of knowledge. Figure 2 outlines Low's unlearning framework<sup>12</sup> in an alternative way and highlights the decisions clinicians must make to move away from outdated practices. All ATs are inherently consumers of knowledge because they work within the ever-evolving health care industry. As consumers, ATs are exposed to new knowledge on a frequent basis and in a variety of ways (eg, conference presentation, continuing education course, listening to a podcast, talking to a colleague/mentor). After becoming exposed to the new knowledge and information, clinicians must actively reflect on what was learned and determine whether the skill, practice, or method is appropriate and relevant to the setting or environment in which they work. What this really involves is asking "Could this work in my setting for my patients with the level of resources I have at my disposal?" Asking this question is crucial, because it not only helps to assess the feasibility of implementing what was learned but also addresses the other tenets of evidence-based practice, clinician expertise and patient values, which also play a role in clinical practice.

The consumer's action is the last major step of the process. The specific action that results is dictated by the level of appropriateness and relevance of the evidence to the clinician's practice site.<sup>10,17</sup> For example, if the information acquired is not appropriate or relevant, the consumer action is relatively straightforward in that the evidence is not incorporated into daily practice. However, if it is decided that the information learned is appropriate and relevant, the unlearning process begins. To truly accept the new knowledge

acquired, after determining it to be valid and important, one must purposefully and intentionally identify and let go of outdated practices that are no longer effective<sup>11</sup> at improving and enhancing patient care. Identifying the outdated practices and intentionally moving away from them ultimately creates room to implement the new knowledge that is better supported by evidence. In figure form, the process of unlearning seems relatively simple and straightforward, but there are cited barriers in the literature<sup>13</sup> that make this process complex, and at times, challenging. Highlighting these challenges now will allow clinicians to recognize and respond to them earlier if they notice them playing a role in their own clinical-practice behaviors.

## THE UNLEARNING PROCESS: BARRIERS AND STRATEGIES

### Barriers to the Unlearning Process

Rushmer and Davies<sup>13</sup> identified 4 common barriers to unlearning: habit and security, fear of the unknown, fixed mental models and mindsets, and lack of awareness of the need to unlearn (Table). Habits are routines that demand less conscious attention, so by default, individuals tend to continually act in accordance with those habits until they become increasingly easy, known, and trusted over time, which forms the "comfort zone."<sup>13</sup> Unlearning requires change, and change often challenges individuals' comfort zones, so the habits that are developed over time often stand in the way of successful unlearning. Similarly, fear of the unknown is the second cited barrier to unlearning.<sup>13</sup> Individuals have an innate desire to stick to what is tried and tested, to stick with what works or what is well known.<sup>13</sup> When stepping into an unfamiliar zone, as with the unlearning process, it creates unsettling feelings and individuals often revert to their usual routines and behaviors. Rushmer and Davies<sup>13</sup> identified the third barrier, fixed mental models and mindsets, as the mental shortcuts developed over time, and lack of awareness in terms of the need to unlearn. When individuals are able to go about their days with minimal to no challenges or setbacks, there is no direct feedback indicating a

**Table. Barriers and Associated Strategies That Accompany the Unlearning Process**

| Barrier                                  | Description of Barrier  | Mindset-Oriented Strategies to Address Barrier   | Concrete Examples to Overcome Barrier  |
|--|---|--|--|
| Habit and security                       | Routinized approach to care characterized by habits that have developed over time and formed our “comfort zone” | Altering change mindset (eg, being open-minded) <sup>13</sup><br>“Channel courage over seeking comfort” <sup>7</sup>   | Analyze patient-care documentation for trends and habitual practice behaviors  |
| Fear of the unknown                      | The desire to stick to what works or what is well known to us   | Altering change mindset (eg, being open-minded) <sup>13</sup><br>Working in a high-functioning environment <sup>11,13</sup><br>Forming communities of practice <sup>19</sup> | Identify colleagues in your network and establish regular, ongoing modes of communication to discuss best-practice recommendations and the evolving evidence base<br>Surround yourself with like-minded people   |
| Fixed mental models and mindsets         | Mental shortcuts developed over time; can also think of this as tunnel vision                                   | Altering change mindset (eg, being open-minded) <sup>13</sup><br>Working in a high-functioning environment <sup>11,13</sup><br>Forming communities of practice <sup>19</sup> | Engage in growth mindset activities (eg, seek constructive feedback from a colleague or supervisor, schedule weekly self-reflection)<br>Start or participate in a book club that centers around leadership, development (personal and/or professional), and a growth mindset |
| Lack of awareness of the need to unlearn | No direct feedback (eg, setbacks, challenges) indicating a need to unlearn                                      | Working in a high-functioning environment <sup>11,13</sup><br>Forming communities of practice <sup>19</sup>  | Engage in reflective journaling on a routine basis (eg, think about what happened, why the “what” matters, and identify actionable steps to take should the situation arise again) <sup>27</sup>   |

<sup>a</sup> Barriers presented in the table were published by Rushmer and Davies.<sup>13</sup>

need to unlearn.<sup>13</sup> Something that may sound more familiar that aligns with this lack of awareness barrier is the “if it ain’t broke, don’t fix it” mentality.<sup>13</sup> Collectively, these barriers challenge individuals during the unlearning process and can be difficult to overcome, especially because they are often self-inflicted.

### Strategies to Promote Unlearning

Despite the common published barriers to unlearning, there are various strategies that can be used at both the personal and organizational levels to make the unlearning process easier and more effective. The Table outlines mindset-oriented strategies and concrete examples to address and overcome the common barriers to unlearning. The first strategy involves altering one’s mindset about change and being more open-minded in one’s approach to change.<sup>13</sup> Although this strategy is complex in itself (ie, it takes time and must be worked on with intention), it *can* be an effective way of embracing unlearning and making it a part of routine practice. Altering change mindsets involves moving away from the “change is bad” mentality or the “if it ain’t broke, don’t fix it” mentality. In the words of O’Reilly,<sup>7</sup> it requires one to “channel courage

over seeking comfort.” Altering change mindsets is an important strategy because it is one that individuals have complete control over and entails a shift toward embracing change instead of fighting it. In his article on unlearning and organizational change, Rampersad<sup>18</sup> outlines common statements, or *resistance expressions*, that represent the “old” way of thinking about change; that is, what clinicians should be moving away from to successfully unlearn. Individuals can slowly chip away at their fixed mindsets about change if they start replacing resistance expressions, such as “I’m certain it is not going to work,”<sup>18</sup> with more progressive ones.

For example, someone who has the “if it ain’t broke, don’t fix it” mentality may say, “It’s going well, why should we do it differently?”<sup>18</sup> This question aligns with a negative outlook or mindset about change. Someone who views change in a positive manner has the mindset that implementing the most recent evidence, whether a new method, skill, procedure, or tool, may lead to even better outcomes for patients, and therefore responds with something like “How can we learn more about that?” The resistance to change may not be a personal barrier but may in fact be stemming from someone in a position of supervisory authority. The supervisor may say

that a change brought up or requested is “organizationally absolutely impossible,”<sup>18</sup> whereas a change champion, or someone who supports and drives change in the workplace, may be set on finding alternative ways to make sure the change is successfully implemented.

Oftentimes barriers to unlearning may be out of someone’s direct control. For example, the system and environment in which one works plays a large role in how he or she functions and can carry out the day-to-day responsibilities. Working in a high-functioning environment, although not entirely under one’s control, is another published strategy for promoting unlearning.<sup>11,13</sup> When individuals work within organizations characterized by trust among members, appreciation for each other’s efforts, openness to feedback, and vulnerability, there is an established culture around change that helps make the implementation process easier and more streamlined.<sup>11,13</sup>

The last strategy that can be implemented to promote unlearning in the workplace builds off a high-functioning environment. Forming a community of practice<sup>19</sup> is another way to accomplish unlearning in clinical practice. If an individual’s work environment is not a high-functioning environment, an alternative solution is to find change champions outside the immediate organization. With advances in technology, individuals have the ability, through social media or otherwise, to connect with clinicians and other ATs across the country and the world. Finding other clinicians who share similar interests or who want to expand their knowledge and skillset can serve as an excellent support system. Not only can individuals within a community of practice attempt to make changes in their practice together, but they can also troubleshoot together and bounce ideas off one another. One technique that has the potential to work well in a community of practice while simultaneously supporting unlearning is a journal club. In an environment with the means or resources to do so, journal clubs allow clinicians to stay informed of the literature. Journal clubs provide opportunities to discuss new knowledge openly and evaluate whether the new knowledge is appropriate and applicable to the setting and environment. If it is determined that the information discussed is applicable, the team can make plans during the meetings on how the new knowledge will/can be incorporated into routine practice.

## UNLEARNING IN ATHLETIC TRAINING

Where unlearning holds the most value in athletic training and can be of great benefit to clinicians is through promoting evidence-based practice. Evidence-based practice is the integration of scientific evidence, clinician expertise, and patient values and perspectives.<sup>9</sup> Although all 3 of these tenets play a role in the unlearning process and influence our medical decisions, a heavier emphasis will be placed on the evidence portion of the evidence-based practice model because of the 17-year translation gap between dissemination of new knowledge and its use in clinical practice.<sup>15</sup> The purpose of evidence-based practice, in part, is to promote lifelong learning, but to be successful at this, clinicians must first master the skill of unlearning—changing practice behaviors on the basis of available evidence and its applicability to one’s setting and patients. The following 2 examples highlight the

importance of evidence-based practice and demonstrate the value of evidence-informed clinical decision-making.

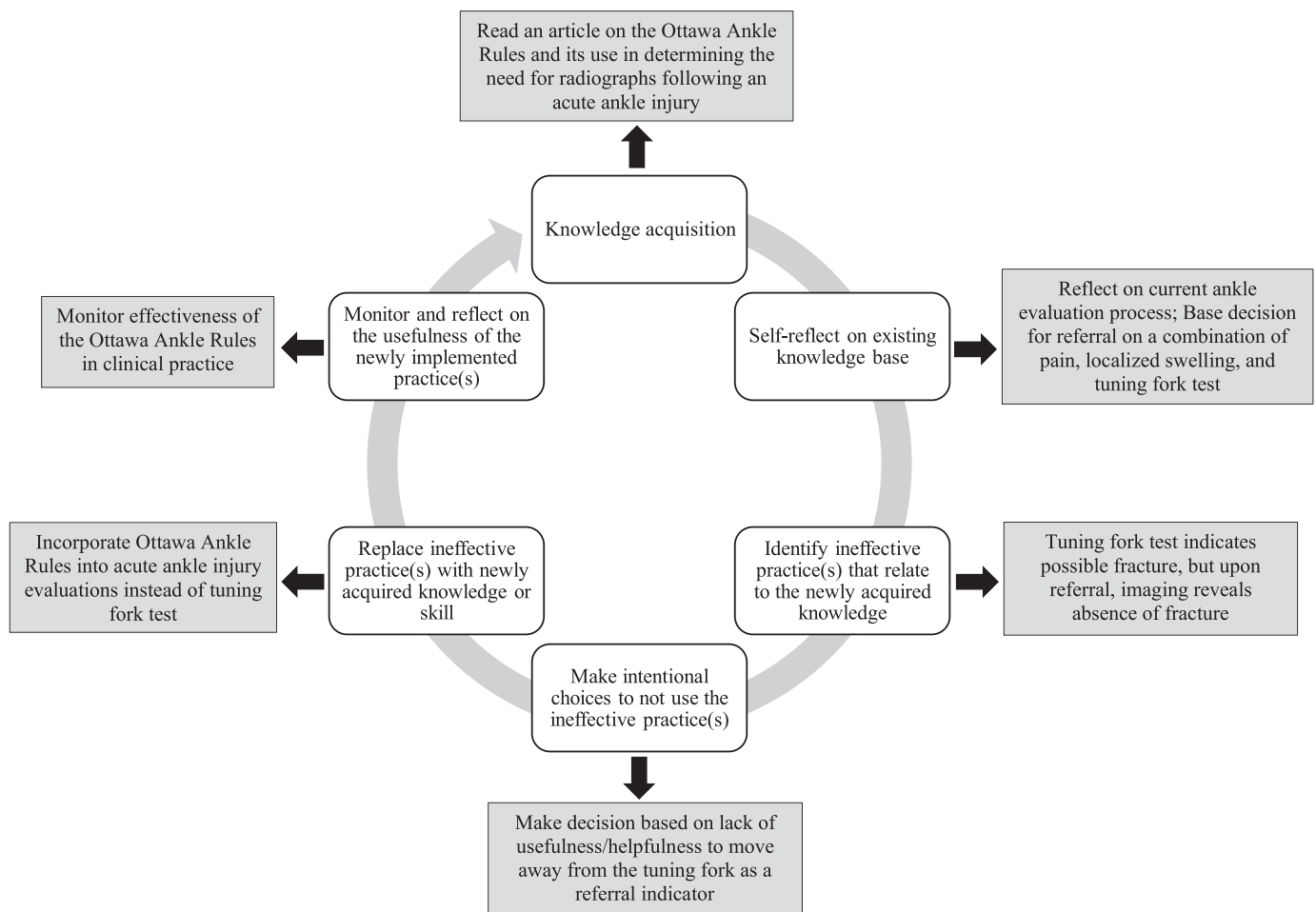
Therapeutic ultrasound is frequently used as a modality and component of treatment protocols. Published literature reviews<sup>20,21</sup> show there is limited high-quality evidence to support the healing properties and use of therapeutic ultrasound, yet clinicians are still using it habitually in their practice. Shanks et al<sup>20</sup> and Robertson and Baker<sup>21</sup> report little evidence that active therapeutic ultrasound is more effective than placebo ultrasound for treating people with pain and musculoskeletal injuries. This raises a few questions. Is it worth clinicians’ time to implement therapeutic ultrasound if it is shown not to be effective? Can clinicians use alternative methods that are better supported by evidence to promote tissue healing? Conversely, there are methods and techniques heavily supported in the literature, such as the Ottawa Ankle Rules, yet very few clinicians are incorporating them into their clinical practice. Barelds et al<sup>22</sup> conducted a systematic review and meta-analysis of the diagnostic accuracy of clinical decision rules to exclude fractures in acute ankle injuries and reported that the Ottawa Ankle Rules were the most accurate. Furthermore, research<sup>23</sup> has shown that implementing the Ottawa Ankle Rules on a routine basis should reduce the number of unnecessary radiographs by 30%–40%, which would in turn reduce the number of patients exposed to radiation and decrease health care costs overall.

Despite such strong evidence supporting their use, studies conducted by Graham et al<sup>24</sup> and Hankemeier et al<sup>25</sup> highlight a large discrepancy between the number of clinicians familiar with the Ottawa Ankle Rules and the number of clinicians who used them consistently in their practice. Specifically, Graham and colleagues<sup>24</sup> looked at awareness and use of the Ottawa Ankle and Knee Rules in 5 countries and found that 96% of emergency physicians employed in the United States were aware of the Ottawa Ankle Rules, whereas only 31% self-reported using the clinical prediction rule “always” or “most of the time.” Hankemeier and colleagues<sup>25</sup> examined the familiarity and use of various clinical prediction rules among ATs and reported approximately 60% of ATs were extremely or moderately familiar with the Ottawa Ankle Rules. Of the responding ATs who were moderately or extremely familiar with the Ottawa Ankle Rules, 39% used the rules routinely in clinical practice.<sup>25</sup> The reasoning behind the lack of use is likely multifactorial, but one potential explanation is that as a whole, ATs are continuing to use the skills and methods they were taught in their educational programs. Unlearning can be a useful technique in these circumstances to help clinicians replace outdated methods learned years ago with those better supported by evidence.

### Applying an Athletic Training Example to Low’s Unlearning Framework

To support the implementation of methods and techniques that are backed by evidence, consider Low’s unlearning framework<sup>12</sup> to guide implementation of the Ottawa Ankle Rules into routine practice (Figure 3). As a reminder, the unlearning framework starts with the consumer’s acquisition of new knowledge. For purposes of this continued example, an AT is reading an article on the Ottawa Ankle Rules and their use in determining the need for radiographs in acute ankle injuries and, in doing so, has acquired new knowledge.

**Figure 3. Using Low's unlearning framework<sup>12</sup> to guide implementation of the Ottawa Ankle Rules in clinical practice.**



Progressing through the framework, the next step involves reviewing one's existing knowledge, or what one already knows about tools and methods for acute ankle injury evaluations and how he or she uses them in clinical practice. The AT reflects on having knowledge of the tuning fork test to determine whether additional imaging is warranted and recognizes using it frequently in practice. During the reflection process, the AT recalls the helpfulness and usefulness of the tuning fork test, and notes that the test has shown poor diagnostic accuracy<sup>26</sup> (eg, positive test, but imaging reveals no fracture present). As a result, the AT identifies the tuning fork test as a rather ineffective test in their practice.

The next step in the framework involves implementing the new knowledge (eg, Ottawa Ankle Rules) to replace the discarded knowledge (eg, tuning fork test). After reading the article and likely doing more research on the Ottawa Ankle Rules, the AT concludes that the Ottawa Ankle Rules are useful and starts incorporating the clinical prediction rule instead of the tuning fork test in acute ankle injury evaluations. Ideally, as the AT continues to ingrain the new knowledge into routine clinical practice, he or she would monitor its effectiveness in achieving the desired outcome (eg, unnecessary imaging). Monitoring allows the AT to see the effectiveness of the clinical prediction rule (or whatever skill or technique is being implemented), which will encourage continued implementation and promote the unlearning process in the future.

## CONCLUSIONS

Self-reflection is a key component of the unlearning process and may reveal aspects of a clinician's clinical practice routine that are ineffective or not useful and should therefore be unlearned. The unlearning process should occur frequently throughout a clinician's career, but it ultimately starts with being aware of clinical practice patterns and being reflective in practice. Though different models for reflective practice exist, key commonalities include thinking about what happened, why the "what" matters, and identifying the resulting action(s) to be taken should a similar situation arise again.<sup>27</sup> In situations where a technique, skill, or procedure repeatedly does not produce the outcomes a clinician aims for, the resulting action may be the need to unlearn that technique, skill, or procedure. Questions to routinely ask oneself that promote the unlearning process include "What aspects of my clinical practice are working well?"; "What aspects of my clinical practice are not working well or not giving me the desired outcomes I am aiming for?"; and "Is there anything well-supported by evidence that I can implement into my practice to improve patient outcomes?" Asking these questions and acting on them will ensure the care provided to patients is evidence-based while simultaneously optimizing patient outcomes.

Unlearning should become a habitual component of clinical practice, but clinicians must approach this process with intentionality. Because unlearning is not simply forgetting,

clinicians need to make the conscious choice to unlearn previous outdated behaviors and replace them with practices that are supported by evidence. The value of the unlearning process in athletic training is that it promotes the integration of up-to-date evidence. Unlearning allows individuals to maintain competence in their respective disciplines, and for athletic training clinical practice specifically, the integration of the best available evidence helps to enhance patient care and improve measurable outcomes. Most important, unlearning is a strategy to close the 17-year gap between knowledge dissemination and its uptake and routine use in clinical practice because it ensures that knowledge acquisition will lead to a change in clinical practice behaviors and, subsequently, patient care.

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