Editorial Commentary: Perfecting Practice: Can We Train Residents to Be Proficient Arthroscopists Before Actually Treating Patients?

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Abstract: Although a spaced retraining schedule improved resident arthroscopic task completion time and camera path length on a virtual simulator, it did not improve the degree of cartilage injury. To quote former Green Bay Packer Head Coach Vince Lombardi: "Practice does not make perfect. Only perfect practice makes perfect."

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Make no mistake, performing arthroscopic surgery and playing football require two different skill sets. However, there are many parallels. Both require intimate knowledge of your opponent's tendencies (patient's comorbidities), pregame (preoperative) planning, and of course, execution of that plan. In football, the opportunity to practice over and over again is abundant, and mistakes can be corrected before competition. But until simulators were common, teaching arthroscopy to proficiency was difficult because of cost, lack of cadavers, and hesitancy to allow residents to "practice" on patients.[1,2] With the advent of nonanatomic and anatomic simulators and proficiency-based training methods, the ability to train residents before patient exposure is now possible and even recommended.[3,4] Nonanatomic simulators can teach basic motor skills such as telescoping, periscoping, and triangulation.[5] Anatomic simulators have the added benefit of providing realistic anatomy with haptic feedback.[6] But there is still the question of how best to use these simulators in resident education.

Congratulations to Li, Zhang, Yao, Xie, Han, Xiong, and Tian for adding another piece to the puzzle in their study, "Arthroscopic Skills Using a Spaced Retraining Schedule Reduces Short-Term Task Completion Time and Camera Path Length."[7] Comparing one group of residents who performed repetitive simulator training with a fixed time interval to another group who had a single training session, they noted that task completion time and camera path length were significantly reduced. Then, by using task completion time and camera path length as surrogates for skill retention and efficiency, the authors showed that a spaced retraining schedule prevented skill deterioration compared with massed learning and confirmed what we already intuitively knew: that practice makes perfect.

However, questions still remain. What is the optimal spaced retraining schedule that minimizes cost and time but still allows for skill retention? Not only the interval, but also the duration of the training schedule needs to be considered. This would seem to require two separate studies, one that adjusts the fixed interval (e.g., every other day versus once a week) for a specific duration (e.g., 1 month) and a second study that uses a fixed interval (e.g., once a week) but for a variable duration (e.g., 1 month versus 1 year). In that way, we can learn what is both the longest interval and the minimum duration that allows for retention of arthroscopic skills that may best prepare residents before performing procedures on patients.

Finally, although this study advances resident arthroscopic education, it must be noted that skill retention and efficiency do not necessarily translate to competency. In the study, the authors reported that although task completion time and camera path length improved, the degree of cartilage injury did not. Unfortunately, this is probably one of the most important measures of technical proficiency that we use to judge when evaluating our procedures.[8] Perhaps it was due to the short duration of the testing period (1 week) or the notion that arthroscopic motor skills take much longer to obtain proficiency. We

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must now qualify the statement that arthroscopic practice makes perfect. To quote former Green Bay Packer Head Coach, Vince Lombardi, "Practice does not make perfect. Only perfect practice makes perfect."

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