Syncopated time

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Central Message

Evolution in traditional time-based training paradigms is needed to minimize individual learning curves to ensure competence using true standardized technical assessments, which are not yet established.

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In 1972, the National Collegiate Athletic Association (NCAA) granted college freshmen eligibility to participate in collegiate football. Before this rule change, future superstars such as Jim Brown and Roger Staubach were relegated to the practice squad during their freshmen year to allow more time for their cognitive and physical development. Although it was not the primary impetus for the rule change, player development subsequently accelerated. In 1990, the NCAA approved another rule change, which allowed college nongraduates to enter the National Football League (NFL) draft. These and other rule changes allowed student-athletes the opportunity to tailor development to ensure appropriate maturation in their game before they progressed to the NFL.

Just like in the NCAA, the goal of surgical training is to progress a learner on the Dreyfus scale from novice to competent by completion of training, and eventually to expert during years of practice.¹ Achieving this goal has become more challenging with duty hour restrictions, case complexity, and emphasis on outcomes. Indeed, residents completing a 2-year traditional cardiothoracic residency in the United States have commented on more difficulty in meeting case requirements and feeling less prepared compared with residents completing a 3-year residency.² Therefore, the development of streamlined training programs to ensure adequate exposure and training is paramount. In this issue of *The Journal of Thoracic and Cardiovascular Surgery*, Shi and colleagues³ detail cardiothoracic surgery training in Australia and New Zealand. After medical school, trainees participate in 3 to 4 years of clinical rotations and/or graduate coursework before entering cardiothoracic training. Interestingly, because of the wide range of clinical and surgical experiences at various centers throughout both countries, trainees rotate through 3 or 4 centers over the 6-year training to maximize their training experience. It is also intriguing to note that because of this differential clinical

experience, trainees obtain their surgical case numbers at different time points during training. They therefore might be deemed “competent” by their Board at various times, thereby potentially shortening, or lengthening training time.

We in the United States can learn from the paradigm presented. As surgical outcomes are tracked, more rigorously scrutinized, and linked to reimbursements, alternatives to traditional time-based training are needed to ensure competence of graduating surgical residents. In the United States as well as in Australia and New Zealand, “competence” is largely measured according to case volumes. The Milestones project attempts to codify this, but there is ultimately no objective measure of surgical proficiency in either system. Much like the NCAA evolved their regulations to maximize the development of student-athletes before progressing to the NFL, surgical regulatory bodies can evolve training paradigms to minimize individual learning curves, and build in true assessments of technical proficiency. There is no better example of this than the NFL Combine, where there is standardization in the physical assessment of NFL prospects. Because of stylistic differences in surgical procedures, and effect on direct patient care, a technical evaluation of surgical ability is not as readily achievable. Perhaps with the evolution of simulation and virtual reality, this can be achievable in the near future. Regardless, as Shi and colleagues describe,³ the cardiothoracic

surgery training model in Australia and New Zealand aptly evolved their resident development to tailor individual learning experiences in a system with diverse training environments. We can envision a similar evolution in the training paradigm in the United States, and see an opportunity to increase our accountability to society by creating a Surgical Combine of our own.

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