

# Quarterly - Medical Education - UPdate



McGovern  
Medical School



## Students' perceptions of learning environment and their leisure-time exercise in medical school: Does sport background matter?

Babenko O, Mosewich A, Sloychuk J. *Perspect Med Educ.* 2020 Apr;9(2):92-97.  
PMID: 32016812

According to Ryan and Deci's self-determination theory, individual's personal and professional well-being is tied to one's perceived innate psychological needs for autonomy, competence, and relatedness being met. This perception is heavily influenced by both the environment they exist in, as well as the environment from which they came (i.e their background and previous experiences). Self-determination theory may help explain, at least in part, why certain individuals thrive in certain positions. Evidence suggests medical students with a sports background are more successful and achieve higher levels of well-being while enduring the rigors of medical school. Building upon this, the authors in this study attempt to parse out which innate physiologic needs (autonomy, competence, and relatedness) are associated with a sports background at one Canadian medical school. The authors recruited 276 medical students to participate by answering an online questionnaire, and 200 (75%) responded. They found that participation in team-based sports of any kind was associated with a greater degree of perceived relatedness, and the more competitive the sport, the more autonomy was sensed. Sports background was not associated with increased perception of competence. Regardless of sports background, all students' leisure time exercise decreased over the years in training, but students with a sports background participated to a greater extent than those without. While the authors are careful to warn against the use of a sports background in admission decisions based on this study, it does highlight the idea that a demanding specialty like emergency medicine might do well to consider predictors of success before matriculating trainees. This study does not answer whether a sports background is a significant predictor of success in an emergency medicine program, but it does pave the way for further exploration.

-Greg Ducach, MD (MedED Fellow) / Benjamin Cooper, MD

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## Acute and chronic sleep deprivation in residents: Cognition and stress biomarkers

Choshen-Hillel S, Ishqer A, Mahameed F, Reiter J, Gozal D, Gileles-Hillel A, Berger I. Med Educ. 2021 Feb;55(2):174-184. PMID: 32697336

This study aimed to evaluate both the cognitive and biochemical effects of chronic and acute-on-chronic sleep deprivation in resident physicians

Three groups of physicians were recruited (n=51) 1) Young attendings who did not participate in night shift schedules and were thus assumed to have no acute or chronic sleep deprivation; 2) Resident physicians with night shift schedules (4-8 night shifts per month), and thus had chronic sleep deprivation, but were allowed to sleep well for three consecutive nights thus did not have a superimposed acute component; 3) Post-call residents which were the same individuals in group 2 but were assessed immediately after a night shift. Sleep quality, attention, executive function, and risk-taking tendency were assessed. C-reactive protein and cortisol levels were also obtained for comparison.

Results showed impaired executive function and attention in the group with chronic sleep deprivation, which was further exacerbated in the group with acute-on-chronic deprivation. Increased impulsive behavior was noted in the chronic sleep deprivation group compared to attendings but was not further exacerbated by acute-on-chronic deprivation. This study showed no difference in risk-taking between the three groups. hs-CRP was elevated to the high-cardiovascular risk range for residents compared to attendings, but there was no significant difference in these elevations between the two resident groups. Similarly, cortisol level alterations were also detected in the resident groups compared to the attending group with no difference between the acute and chronic sleep deprivation groups.

This study demonstrates some of the deleterious effects resulting from chronic and acute-on-chronic sleep deprivation. This research can be taken into account when assessing areas to improve resident schedules to decrease the short and possible long-term effects of sleep deprivation on resident health and well-being.

- Linnea Lantz DO (EM Resident)  
Aaron Danielson, MD MAS



## A Multicenter Collaboration for Simulation-Based Assessment of ACGME Milestones in Emergency Medicine

Salzman DH, Watts H, Williamson K, Sergel M, Dobiesz V, DeGarmo N, Vora S, Sharp LJ, Wang EE, Gisondi MA. Simul Healthc. 2018 Oct;13(5):348-355. PMID: 29620703

High-fidelity simulation has been increasingly used to assess the ACGME milestones in emergency medicine (EM) residencies and to provide feedback to the residents. In this article, six allopathic EM training programs in Chicago have collaborated to create a simulation-based assessment based on the ACGME milestones. More than 300 second-year residents were assessed in this project.

A ten-person committee that consisted of simulation faculty identified 11 sub-competencies and milestones appropriate for assessment of a postgraduate year (PGY) 2 resident. The sub-competencies and milestones were used to develop simulation scenarios and assessment tools. The faculty were given the assessment tools along with checklists and prompts to minimize variability in rater interpretation. Residents from one institution were paired with faculty from a different institution to reduce bias. Faculty were given a 1-hour orientation and learners were given a 15-minute orientation. Nursing prompts were used to encourage residents to verbalize their thought process and to assess for medical knowledge. After each scenario, immediate debriefing and direct feedback were provided. Faculty completed the checklist while observing the learner. Performance data was collected using the online platform Qualtrics. Score reports given to the program leadership included the individual resident performance, the corresponding mean program performance as well as citywide performance.

Simulation-based assessments provided a standardized approach to evaluate difficult-to-rate milestones. Some limitations of this project include: (1) missing an opportunity to identify residents who are performing at a higher level, (2) disrupting the flow of the case due to nurse prompts, (3) lack of measurement of the inter-rater reliability, (4) labor intensiveness of developing the scenarios and implementation, and (5) maintaining the integrity of the simulation scenarios. Nevertheless, these assessments allowed for summative assessment as well as direct feedback and teaching. Overall, this project received excellent feedback from the program leadership.

- Amrita Vempati, MD

# Quarterly Medical Education UPdate



## Does Community or University Based Residency Sponsorship Affect Graduate Perceived Preparation or Performance?

Carek PJ, Mims L, Kirkpatrick S, Williams MP, Zhang R, Rooks B, Datta S, Peterson LE, Mainous AG 3rd. J Grad Med Educ. 2020 Oct;12(5):583-590. PMID: 33149828

In this interesting paper from our Family Medicine colleagues, Carek et. al. use a national sample to link FM graduates' practice with their type of residency program. Data was collected via a survey on specific content areas (survey development described in PMID 29075373). For each content area, the graduate was asked whether residency prepared them for the area, and whether their current practice includes the area. Responses were linked back to the graduates' residency program. Residency programs were classified into three groups based on the apparent medical school influence over training - nonaffiliated, partnership and medical school-based programs. The study captured 62% of all 2013 & 2014 graduates (91% of all programs). Overall differences were small, but nonaffiliated and partnership program graduates perceived better preparation for practice and broader current practice compared to medical school-based programs. The largest differences were noted in hospital based skills like intubation, ventilator management and implantable long-acting reversible contraceptives.

This study adds to the evidence on how variations in residency training programs may have long-term impacts on graduates' practice and their patients' outcomes. It would be interesting to see a similar analysis of data from ABEM or PRAT. Data like these form the basis for ACGME's CLER program and the ongoing emphasis on resident immersion in quality, scholarship and healthcare disparities, as residency training continues to be a powerful tool shaping the future of US healthcare. The study also highlights the importance of using outcomes-based data in medical education research. As EHR data accumulates and interconnectivity improves, perhaps some day our recruitment talks can focus on how many lives our graduates saved, rather than how desirable the program was on the ACGME survey.

- Nikhil Goyal, MD



## Impostor syndrome among physicians and physicians in training: A scoping review.

Gottlieb M, Chung A, Battaglioli N, Sebok-Syer SS, Kalantari A. Med Educ. 2020 Feb;54(2):116-124. PMID: 31692028

Imposter syndrome (IS) is a known phenomenon that often affects high-achieving individuals. This inability to recognize one's success has been described in multiple professions and has been linked to burnout and suicide. The understanding of its effects on physicians is limited. Using a scoping review, the authors aimed to evaluate existing literature addressing IS among physicians and physicians in training. 117 articles pertaining to IS among physicians were reviewed; 18 were found to meet inclusion criteria of specifically addressing IS among medical students, residents, or attending physicians. The authors performed quantitative and qualitative analysis on the collated data examining the following factors of IS in the context of medicine: prevalence, contributing and protective factors, and the extent of contribution to burnout. Analyzed studies were somewhat heterogenous and not all performed in the U.S.; the majority were survey studies and focused primarily on medical students with a few including physicians in training.

Prevalence of IS among medical students was found to be 22-60% and 33-44% among resident physicians (none evaluated the rates of IS among attending physicians). Possible contributing factors to IS among physicians include gender and unconscious bias, with women at higher risk, although this was not consistent across studies. Low self-esteem and perfectionism were also associated with higher rates of IS. Few studies examined protective factors; a range of strategies were suggested among those that did. Most concerning, the majority of studies demonstrated an association between IS, anxiety, depression, and burn-out. The authors discussed that further studies examining the above factors could improve our ability to prevent burnout. Additional needs include better understanding of the evolution of IS during medical training and effective interventions. Given the potential negative consequences of IS, gaining a better grasp of its extent and prevalence in medicine is imperative. As best practices to support ourselves and our learners continue to evolve, this thoughtful article points out imposter syndrome as an important consideration.

- Amy Stubbs, MD

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