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Cardiorespiratory Fitness in Children and Youth – A Call for Surveillance, But Now How Do We Do It?

Jennifer M. Sacheck and Sarah A. Amin

Tufts University, Friedman School of Nutrition Science and Policy, Boston, MA

The release of the first Physical Activity (PA) Guidelines for Americans in 2008 (1) and subsequent release of national statistics on objectively measured PA (2), heightened awareness of the need to increase PA levels across all demographic groups. Unfortunately, much of the American population is still woefully uninformed about how physically inactive our children and youth are. Demonstrating how critical PA and fitness are to the health of our population will remain an unmet challenge unless routine surveillance measures are adopted and implemented. In this issue of *Exercise and Sport Sciences Reviews*, Lang *et al.* (3) detail the utility of the 20-meter shuttle run test (and more recently the Progressive Aerobic Cardiovascular Endurance Run (PACER) test), which has been used to monitor cardiorespiratory fitness (CRF) since the 1980s. This is a valid, reliable, and feasible measure of CRF and untapped opportunity for national surveillance of pediatric population health. Importantly, CRF is associated with PA engagement, yet has independent and often stronger associations with health outcomes.

Schools represent a logical and promising setting for conducting CRF measures but buy-in is needed, where competing academic demands diminish efforts in promoting PA, especially among resource-strapped schools. Routine assessment in schools is not mandated nationally, although some states are conducting annual assessments as mounting evidence surrounding PA and academic achievement has begun to capture their attention. As a community of PA and public health researchers and practitioners, we must continue to underscore the value of PA and CRF to teachers, administrators, and policy makers.

To promote the success of CRF assessment in schools, local efforts are needed to train and empower schools to implement CRF assessment, while at the same time disentangling the facilitators of and barriers to this process. In fact, supportive PA environments in schools is often reflected in the commitment to providing time and resources to conduct fitness testing (4). In our own research, we implemented PACER testing in over 1,000 children from low-income schools and were successful in training PE teachers to integrate PACER into their curriculum (5). Emphasizing to schools that assessments can be feasibly implemented in a group setting where children can be encouraged to strive for their personal best is a critical step. Still, training PE teachers to routinely conduct fitness tests, record data, and ensure that students understand the test while still making it a “fun,” will take great care.

The capacity for local progress to inform national efforts cannot be underestimated. To propel a national movement towards the systematic measurement of CRF, garnering support from multiple stakeholders including those involved with key national issues is essential. For example, if hot-button issues such as military preparedness and national security highlight

the dire need for increased fitness of recruits, then the impetus for a national policy to start promoting CRF testing during the earlier school years might be set in motion. Getting there, however, still requires a greater national conversation with an eye towards developing a feasible action plan for mobilizing CRF assessments that harnesses insight from those who have been successful with implementation. If a national policy were mandated for routine CRF assessment among children and youth, local resources and time need to be thoughtfully allocated. Generating momentum for the routine assessment of CRF will be no easy feat — data are needed to fuel policy, but policy is also needed to promote CRF surveillance.

References

1. US Department of Health and Human Services (USDHHS). 2008 US Physical Activity Guidelines for Americans. Washington, DC: USDHHS; 2008. (11/7/17) www.health.gov/paguidelines
2. Troiano RP, Berrigan D, Dodd KW, Masse LC, Tilert T, McDowell M. Physical activity in the United States measured by accelerometer. *Med Sci Sports Exerc.* 2008; 40(1):181–8. [PubMed: 18091006]
3. Lang JJ, Tomkinson GR, Janssen I, et al. Making a case for cardiorespiratory fitness surveillance among children and youth. *Exer Sports Sci Rev.* 2018; 46(2):xxx–xxx.
4. Amin SA, Wright CM, Boulos R, et al. The physical activity environment and academic achievement in Massachusetts schoolchildren. *J School Health.* 2017; 87(12):932–940. [PubMed: 29096413]
5. Wright CM, Duquesnay PJ, Anzman-Frasca S, et al. The Fueling Learning through Exercise (FLEX) Study – A randomized controlled trial of the impact of school-based physical activity programs on children’s physical activity, cognitive function, and academic achievement. *BMC Public Health.* 2016; 16(1):1078. [PubMed: 27737676]