

A Review of the Air Force Fitness Assessment

SEAN ROBSON, ISABEL LEAMON, MARIA C. LYTELL, MIRIAM MATTHEWS, MARGARET CHAMBERLIN

To access the full report, visit www.rand.org/t/RRA762-1



ISSUE

To ensure that service members are sufficiently physically fit to serve, the U.S. Air Force (AF) has established a variety of medical and physical standards. As part of its fitness program, the AF administers a fitness assessment (FA) to all airmen that contains four components: (1) a 1.5-mile run or 2.0-kilometer walk, (2) abdominal circumference (AC) measurement, (3) push-ups, and (4) sit-ups. RAND Project AIR FORCE was asked to evaluate the relevance of these tests to ensure mission readiness and support the National Defense Strategy.



APPROACH

Our study team conducted its evaluation of the AF-FA using scientific evidence drawn from published literature on relevant fitness components, with an emphasis on the potential for current assessments to meet overall health and deployment requirements. Evidence from the literature was augmented with workshops and discussions with a variety of subject-matter experts, including those familiar with deployment readiness training.



CONCLUSIONS

Our results suggest that the AF-FA has several strengths and a few potential gaps that could be addressed with dedicated resources.

- Overall, the current AF-FA is a practical assessment that measures critical components of health-related fitness using well-supported assessments:
 - The 1.5-mile run is a valid and well-supported measure of cardiorespiratory fitness. Alternative tests, such as the shuttle run, bike test, and row ergometer, are also valid measures and may have utility in specific cases.
 - AC (or waist circumference) is a valid measure of body composition. Alternative measures, such as the waist-to-height ratio, may provide some additional benefits beyond AC.
 - Sit-ups and push-ups are acceptable measures of muscular endurance. However, there are concerns about subjectivity associated with evaluating these tests and the risk of injury associated with sit-ups.
 - Muscular strength is not currently measured in the AF-FA, but including it should be considered to ensure that airmen can perform common military tasks during deployment.

- Flexibility is not measured by the AF-FA, but it is not clearly linked to health outcomes, injuries, or military task performance.
- The AF does not fully address the physical fitness of airmen for advanced deployments, specifically to hostile or uncertain environments.

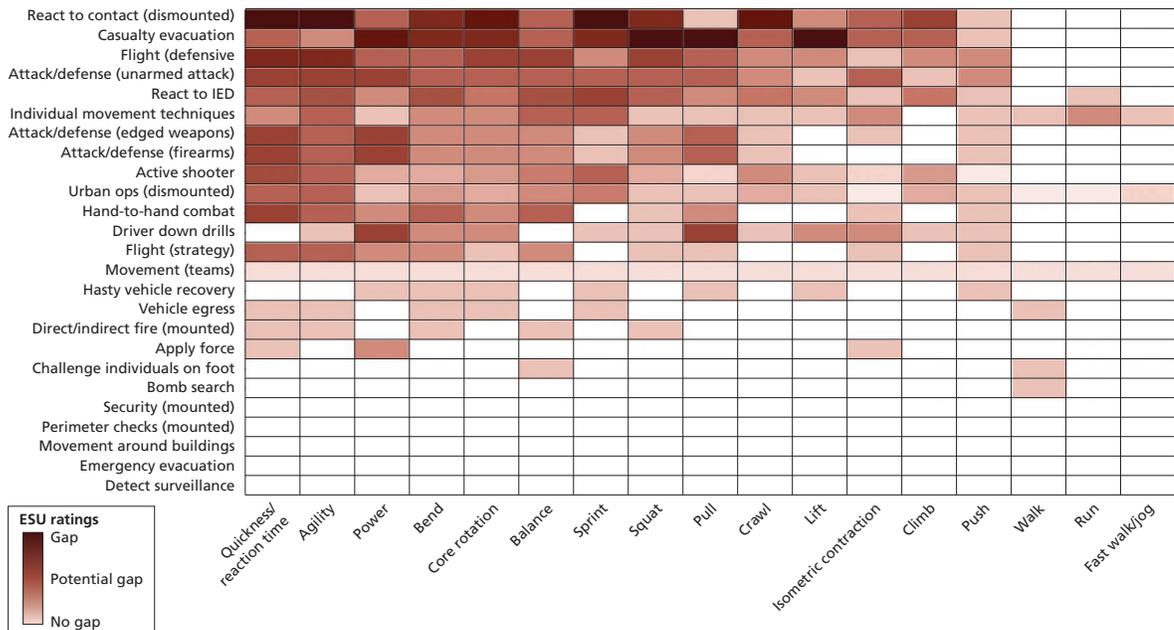


RECOMMENDATIONS

To address potential gaps in the current AF-FA, we offer the following recommendations:

- *Conduct a trial study to explore alternative assessments.* Many alternative tests could be considered. In addition to determining the reliability and validity of alternative assessments, the cost-benefit of changes needs to be considered.
- *Leverage AF data to establish criterion-referenced standards based on health risks (or other important outcomes) for all fitness components.* Linking relevant data would allow the AF to establish meaningful cutoff scores directly tied to health risk and readiness.
- *Consider developing a predeployment FA.* Many movement patterns and fieldcraft training tasks might require physical abilities not covered by AF-FAs (see Figure S.1). Reports from training instructors suggest that up to 30 percent of airmen arrive at training without the requisite fitness. A new assessment would require the exploration of such topics as the standard setting for an FA, who should take the test and how often, and what tests should be included.

FIGURE S.1. SUBJECT-MATTER EXPERT RATINGS OF MOVEMENT PATTERNS AND FIELDCRAFT TRAINING TASKS NOT SUFFICIENTLY COVERED BY THE AIR FORCE FITNESS ASSESSMENT



NOTE: ESU = Exercise Science Unit; IED = improvised explosive device; ops = operations.



PROJECT AIR FORCE

RAND Project AIR FORCE (PAF), a division of the RAND Corporation, is the Department of the Air Force's (DAF's) federally funded research and development center for studies and analyses, supporting both the United States Air Force and the United States Space Force. PAF provides DAF with independent analyses of policy alternatives affecting the development, employment, combat readiness, and support of current and future air, space, and cyber forces. For more information, visit PAF's website at www.rand.org/paf.