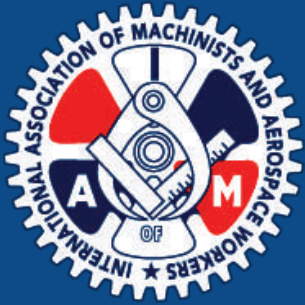


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IN THE NEWS

ITN

Experienced air traffic controllers work smarter, not harder, making up for normal mental aging

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By August Cole

Older air traffic controllers can head off mid-air collisions at least as well as younger controllers, using experience to compensate for age-related declines in mental sharpness, a new study finds. The evidence that experience triumphs over the normal changes of aging could help to overturn myths about older workers that are contributing to the draining of the pool of skilled professionals.

These findings appear in the March issue of *The Journal of Experimental Psychology: Applied*, which is published by the American Psychological Association.

There is a growing shortage of air traffic controllers around the world, note study co-authors Ashley Nunes, PhD (now with CSSI Inc.), and Arthur Kramer, PhD, of the University of Illinois at Urbana-Champaign. For example, of the 15,000 U.S. air traffic controllers, about 7,100 will reach the mandatory retirement age of 56 by 2012, according to the Federal Aviation Administration. The authors report concern that controller shortages could force airlines to choose between canceling, delaying or diverting flights, or having loaded jetliners flying through uncontrolled airspace.

In a study funded by the National Institute on Aging, Nunes and Kramer sought to determine whether decades-old mandatory retirement policies are justified. They evaluated 36 licensed air traffic controllers and 36 non-controllers, with 18 older and 18 younger adults per group. Older controllers were on average 57 years old, with an average of 34 years of experience. Younger controllers were on average 24 years old, with an average of nearly two years on the job. Non-controllers were matched for age and education, to eliminate one variable confounding the other.

Participants completed a comprehensive battery of cognitive and simulated air traffic control tasks, the latter of which included conflict detection (of two planes on course to collide), conflict resolution (a more complicated variation in which controllers have to issue instructions to head off collisions), vectoring (a dynamic simulation requiring controllers to navigate aircraft within a specific airspace to reach a destination without any conflicts), and airspace management (a more complicated variation of vectoring, managing traffic flow along different airways through a specified sector of airspace).

On most lab tests of cognitive processes such as inhibitory control, task switching, visual spatial processing, working memory and processing speed, the authors observed predictable age-related declines among all groups. However, on the simulations, experience helped the older controllers to compensate to a significant degree for age-related declines, especially in their performance of the more complex simulations.

“Older controllers performed quite well on the air traffic control tasks,” the authors wrote, adding that the benefit of experience was greatest when it came to solving the most complex simulated air traffic problems.

Older controllers also issued fewer commands than younger controllers, while achieving the same results. According to the researchers, older controllers acted “in a more measured fashion to achieve performance that rivals that of their younger counterparts, who exhibited better cognitive ability.”

Inspection of the conflict error data from the airspace management task revealed again that older controllers performed like younger controllers. The authors noted that these findings contradict longstanding arguments that older controllers are more likely to exhibit age-related performance lapses.

The authors suggest that mandatory retirement policies be re-examined. “Given substantial experience, older adults may be quite capable of performing at high levels of proficiency on fast-paced demanding real-world tasks,” they wrote.

More broadly, Nunes and Kramer asserted the results could “provide a staffing solution in domains beyond air traffic control, where similar skilled labor shortages are likely to be observed, such as medicine.”

The authors added that to harness the abilities of older workers, society needs to overcome negative stereotypes about aging. “Workers should get and keep jobs on the basis of their ability, not their age,” they concluded.
