

Is multitasking mastery in the genes?

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Human factors/ergonomics researchers have long studied the connection between cognitive function and the ability to perform well on multiple simultaneous tasks, and recently a group of neuroergonomics researchers went a step further to examine a genetic link to multitasking ability. Neuroergonomics is the study of the brain in relation to performance.

In their *Human Factors* paper, "Interactive Effects of the COMT Gene and Training on Individual Differences in Supervisory Control of Unmanned Vehicles," Parasuraman and colleagues hypothesized that individuals with the Met/Met genotype of the Val158Met variant of the Catechol-O-Methyltransferase (COMT) gene would perform better in a simulated air-defense task than would people without that genotype. The presence of the COMT gene has been shown to increase [dopamine levels](#) in the [prefrontal cortex](#) (PFC), which controls executive function (e.g., memory, reasoning, problem solving). "Dopamine availability in the PFC appears to be particularly important when task demands are high," the authors note in the paper.

Parasuraman et al. examined the performance of 99 men and women ages 18 to 38, who were divided into three genotyped groups based on the Val158Met variant. Over the course of four training blocks, participants controlled six [unmanned aerial vehicles](#) (UAVs) in low- and high-task-load conditions to destroy enemy targets, prevent enemy incursions, and avoid friendly fire while attending to a communications task.

The researchers did indeed find that participants with the Met/Met

genotype of the COMT gene showed more improvement with training and performed better than did those in the other two genotype (Val/Met and Val/Val) groups.

The results of this study, which was supported by a grant from the Air Force Research Lab, Wright-Patterson Air Force Base, are promising for improving the training of real-world operators of multiple UAVs.

Parasuraman et al. also note that the work has value for illustrating that matching training to individuals based on their cognitive abilities could be more important than other factors in personnel selection.

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