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## College of Medicine researchers link personality traits to peak energy rates

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Antonio Terracciano

People with a more resilient personality profile are more likely to have greater energy levels.

That's one of the conclusions from a four-year research project by Antonio Terracciano, associate professor of geriatrics at the Florida State University College of Medicine. His findings are outlined in "[Personality, Metabolic Rate and Aerobic Capacity](#)," published in [PLOS ONE](#), a peer-reviewed, open access journal.

With funding from the National Institute on Aging (NIA), Terracciano, College of Medicine Assistant Professor Angelina Sutin and NIA colleagues studied the relationship between personality, metabolic rate and aerobic capacity.

Past studies have demonstrated that personality traits and cardiorespiratory fitness in older adults are reliable predictors of health and longevity. But Terracciano wanted to know more about the link between psychological traits and cardiorespiratory fitness. Could it be that certain personality traits predict the extent of a person's cardiorespiratory fitness?

Or, to take it a step further, are certain personality traits more desirable when it comes to leading a longer, healthier life?

"We tested implicit assumptions that individuals with certain personality dispositions have different metabolic and energetic profiles," Terracciano said. "For example, do those who are assertive and bold expend more energy? Do those who are depressed or emotionally vulnerable have a lower aerobic capacity and less energy? And do conscientious individuals with an active and healthy lifestyle have more energy?"

The answer, on all counts, appears to be yes.

The results indicate that a person's basic rate of metabolism is mostly unrelated to their personality traits. However, a resilient personality profile makes a difference when it comes to aerobic capacity or maximal sustained energy expenditure.

The study involved 642 participants, ages 31 to 96, all part of the Baltimore Longitudinal Study of Aging, an ongoing multidisciplinary study at the NIA.

Terracciano and his team assessed personality traits to include measures of neuroticism, extraversion, openness, agreeableness and conscientiousness. Lower scores on neuroticism and higher scores on the other four dimensions are thought to be a more resilient personality profile.

Subjects were tested to measure their energy expenditure at rest and at normal and maximal sustained walking speeds. Those identified as more neurotic required a longer time to complete the walking task and had lower aerobic capacity.

Conversely, those who scored lower for neuroticism and higher for conscientiousness, extraversion or openness had better aerobic capacity and required less energy to complete the same distance.

"Those with a more resilient personality profile were not just faster and with greater aerobic capacity, but they were also more efficient in their energy expenditure while walking," Terracciano said. "That is, they could go faster while using relatively less energy.

"Of the five domains of personality, we found no association with agreeableness," Terracciano said. "This is somewhat surprising given that antagonistic individuals are likely to engage in health risk behaviors, such as smoking, and they tend to have thicker arteries and are at greater risk of cardiovascular disease."

The results may indicate that aerobic capacity is one mechanism through which our personality traits contribute to better health and longevity. Also, greater aerobic capacity in an individual may be a factor in shaping his or her personality, especially when it comes to behaviors that require a higher level of energy, such as extraversion.

Furthermore, the findings suggest potential pathways through which our personality is linked to health outcomes, such as obesity and longevity.

Terracciano said the results highlight the links between personality traits and cardiorespiratory fitness in older adults.

"Both are powerful predictors of disability and mortality," he said. "I believe this study is informative on the role of psychological traits in lifestyles that are associated with successful aging."