

# High stress hormone levels linked to increased cardiovascular mortality

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High levels of the stress hormone cortisol strongly predict cardiovascular death among both persons with and without pre-existing cardiovascular disease according to a new study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism (JCEM)*.

In stressful situations, the body responds by producing the hormone cortisol. The effects of cortisol are intended to help the body recover from stress and regain a status of homeostasis, however chronically elevated cortisol levels have been associated with cardiovascular risk factors, such as the metabolic syndrome and accelerated atherosclerosis.

"Previous studies have suggested that cortisol might increase the risk of cardiovascular mortality, but until now, no study had directly tested this hypothesis," said Nicole Vogelzangs, PhD, of VU University Medical Center in The Netherlands and lead author of the study. "The results of our study clearly show that cortisol levels in a general older population predict cardiovascular death, but not other causes of mortality."

In this study, researchers evaluated 861 people aged 65 years and older who participated in a prospective cohort study. Within six years of the beginning of the study 183 participants had died. Urinary cortisol levels of subjects were measured at the beginning of the study and cause of death was ascertained from death certificates. Researchers found that urinary cortisol did not increase the risk of non-cardiovascular mortality but did increase cardiovascular mortality risk. The third of the subjects with the highest urinary cortisol had a five-fold increased risk of dying of [cardiovascular disease](#).

"Cortisol is an important component of the stress system of the human body but in higher concentrations can be harmful," said Vogelzangs. "Our study shows that older persons with high

levels of cortisol have an increased risk of dying from cardiovascular disease. This finding significantly adds evidence to the belief that [cortisol](#) can be damaging to the cardiovascular system."

**More information:** The article, "Urinary cortisol and six-year risk of all-cause and cardiovascular mortality," will appear in the November 2010 issue of *JCEM*.

Provided by The Endocrine Society

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