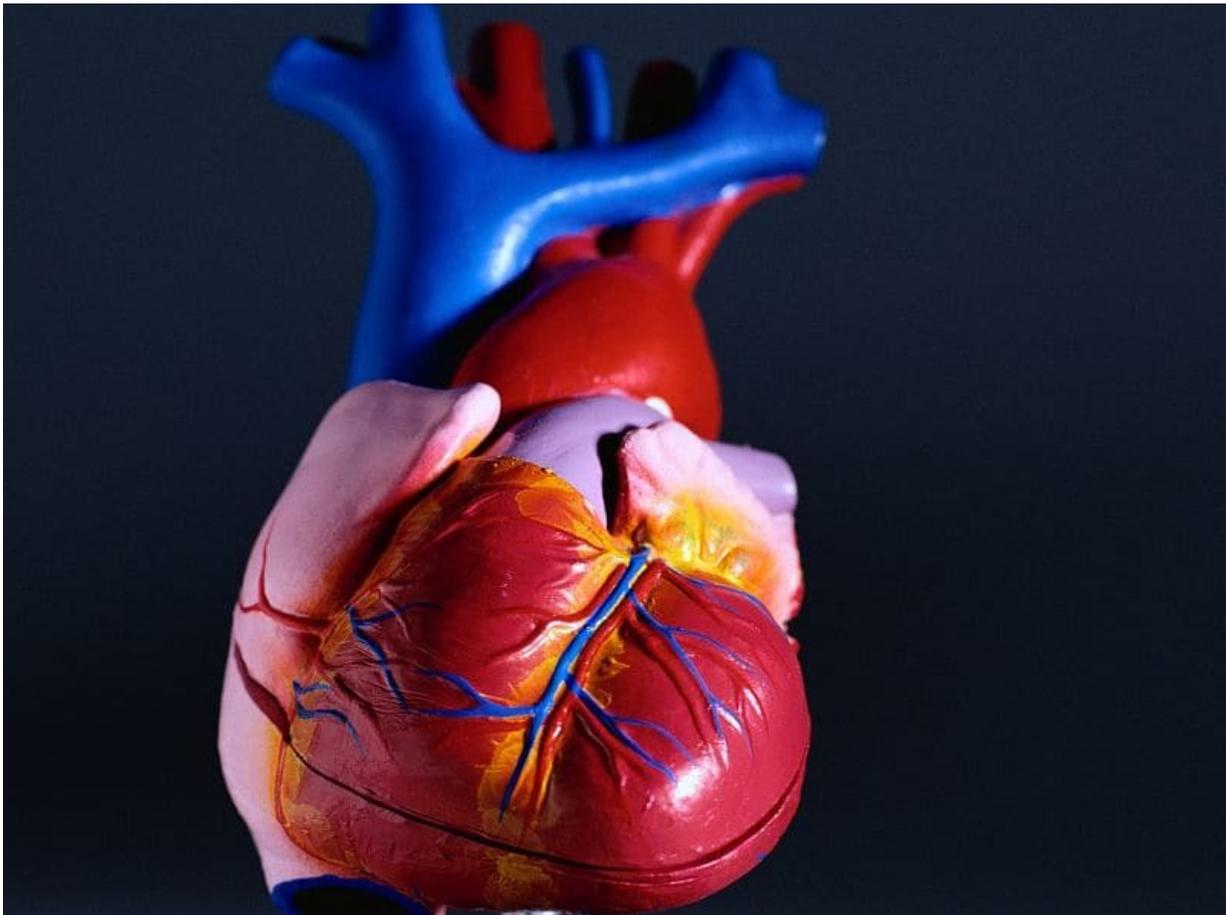


# High variability in metabolic measures may up mortality

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(HealthDay)—High variability in metabolic parameters is associated

with increased risk for mortality and cardiovascular events, according to a study published online Oct. 1 in *Circulation*.

Mee Kyoung Kim, M.D., Ph.D., from the Catholic University of Korea in Seoul, and colleagues used nationally representative data from the Korean National Health Insurance System for 6,748,773 people who were free of diabetes mellitus, hypertension, and dyslipidemia and underwent three or more health examinations during 2005 to 2012. Variability in fasting blood glucose (FBG) and total cholesterol (TC) concentrations, [systolic blood pressure](#) (SBP), and [body mass index](#) (BMI) were measured.

During a median follow-up of 5.5 years, there were 54,785 deaths (0.8 percent), 22,498 cases of stroke (0.3 percent), and 21,452 myocardial infarctions (MI, 0.3 percent). In each metabolic parameter, high variability was correlated with increased risk for all-cause mortality, MI, and stroke. There was a significant increase in the risk for adverse outcomes with the number of high-variability metabolic parameters. Comparing a score of 0 versus 4, the hazard ratios were 2.27, 1.43, and 1.41 for all-cause mortality, MI, and stroke in the multivariable-adjusted model.

"High variability of FBG and TC levels, systolic BP, and BMI was an independent predictor of mortality and [cardiovascular events](#)," the authors write. "There was a graded association between the number of high-variability parameters and [cardiovascular outcomes](#)."

**More information:** [Abstract/Full Text \(subscription or payment may be required\)](#)

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