

# Higher resting heart rate linked to increased risk of death from all causes

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Human heart. Credit: copyright American Heart Association

A higher resting heart rate is associated with an increased risk of death from all causes in the general population, even in people without the usual risk factors for heart disease, according to new research published in *CMAJ* (*Canadian Medical Association Journal*).

"The association of resting [heart rate](#) with risk of all-cause and cardiovascular mortality is independent of traditional [risk factors](#) of cardiovascular disease, suggesting that resting heart rate is a predictor of mortality in the [general population](#)," writes Dr. Dongfeng Zhang, Medical College of Qingdao University, Shandong, China, with coauthors.

Current evidence for resting heart rate and risk of death and risk of death from [heart disease](#) is inconsistent. To understand if resting heart rate is correlated with an increased risk of death, researchers assessed 46 studies involving 1 246 203 patients and 78 349 deaths from all causes, and 848 320 patients and 25 800 deaths from heart disease.

"Results from this meta-analysis suggest the risk of all-cause and cardiovascular mortality increased by 9% and 8% for every 10 beats/min increment of resting heart rate," write the authors. "The risk of all-cause mortality increased significantly with increasing resting heart rate in a linear relation, but a significantly increased risk of cardiovascular mortality was observed at 90 beats/min ... consistent with the traditionally defined tachycardia threshold of 90 or 100 beats/min for prevention of [cardiovascular disease](#)."

The authors found that people with a resting heart rate of more than 80 beats/min had a 45% higher risk of death from any cause than those with a resting heart rate of 60-80 beats/min, who had a 21% [increased risk](#). However, the absolute risk is still small. Findings were similar for people with cardiovascular risk factors.

"The available evidence does not fully establish resting heart rate as a risk factor, but there is no doubt that elevated resting heart rate serves as a marker of poor health status," states Dr. Zhang. "Our results highlight that people should pay more attention to their resting heart rate for their health, and also indicate the potential importance of physical activity to

lower resting heart rate."

The authors note the limitation that various factors can affect measurement of resting heart rate and that nighttime heart rate could be a better risk predictor.

"The magnitude of association between resting heart rate and all-cause mortality was stronger than that with [cardiovascular mortality](#), and this discrepancy can be expected because resting heart rate has been also found to be associated with noncardiovascular mortality," write the authors.

They call for more research to develop an algorithm that considers both resting heart rate and cardiovascular risk factors to help doctors assess resting heart rate in clinical care.

**More information:** *Canadian Medical Association Journal*,  
[www.cmaj.ca/lookup/doi/10.1503/cmaj.150535](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.150535)

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