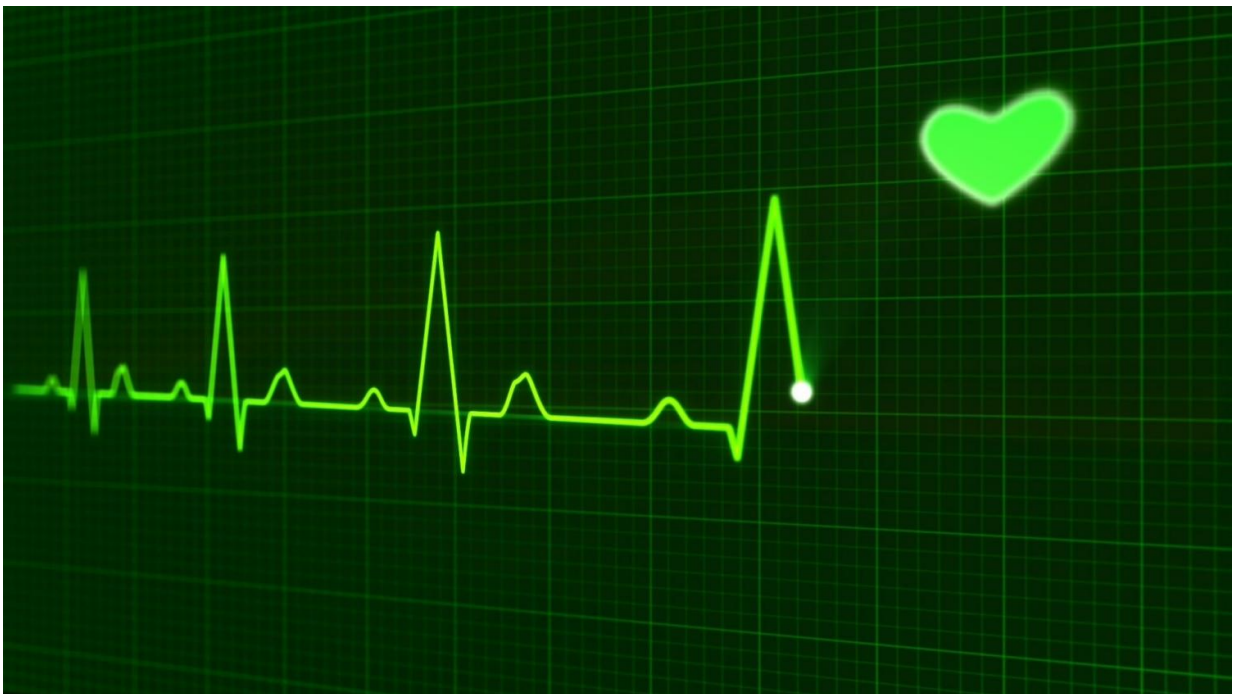


Examining correlation between occupational noise, heart disease

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Occupational settings can involve exposure to loud noise, a known and preventable contributor to hearing loss. Hearing conservation programs and policies aim to protect workers from noise-induced hearing loss, but it remains unclear whether stress reactions caused by noise exposure might also lead to other negative health outcomes—possibly at sound levels below those associated with hearing impairment.

In *The Journal of the Acoustical Society of America*, researchers from the Canadian Federal Department of Health describe how data from the Canadian Health Measures Survey do not support an association between [loud noise](#) exposure and changes in biomarkers for cardiovascular disease or outcomes, such as hypertension, [myocardial infarction](#), or stroke.

This very large cross-sectional study reproduced expected results for [hearing loss](#) but did not support the underlying theory that noise is a serious contributor to cardiovascular disease.

"Noise is definitely capable of acting as a stressor and causing reactions in the body, and there is a large science base showing the links between stress and cardiovascular disease," said co-author David Michaud. "But the question remains: Is occupational noise sufficient to cause stress-related illness when exposure is at levels below those known to impair hearing?"

There were associations found between noise and several biomarkers and cardiovascular outcomes in the data. However, none of these remained statistically significant after adjusting for important variables such as age, sex, and socioeconomic status.

Since many of these variables themselves are linked to cardiovascular disease and related biomarkers, the relationship between noise and adverse outcomes is complicated, and it remains difficult to assess the degree to which noise may contribute to impaired cardiovascular health.

Hearing loss induced by noise, often characterized by high-frequency hearing loss, was present in audiometry data for this study and correlated with noise exposure. While this was expected, it also indicates that self-reported loud noise exposure, defined as having to raise your voice to speak to someone at arm's length, was likely an accurate indication of

one's exposure to loud noise.

"Our main interest was related to hearing among Canadians, not specifically to investigate whether [noise exposure](#) may contribute to cardiovascular disease," said Michaud. "We realized we had the data to look at the relationship between noise and cardiovascular outcomes on a national level."

While this study was not designed to look at either [cardiovascular disease](#) outcomes or classic stress biomarkers in specific settings, historical studies designed specifically to evaluate this link show mixed results. Some researchers contest there is adequate evidence for causal connections.

More information: "Self-reported exposure to occupational noise and cardiovascular disease in Canada: Results from the Canadian Health Measures Survey" *Journal of the Acoustical Society of America* (2021). aip.scitation.org/doi/10.1121/10.0005588

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