



**Targeting vascular (endothelial) dysfunction**

**Author:** Thomas Münzel, Santiago Lamas, Huige Li, et al

**Publication:** British Journal of Pharmacology

**Publisher:** John Wiley and Sons

**Date:** Jul 4, 2016

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**Publisher:** Springer Nature

**Date:** Oct 29, 2019

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**Author:** Kröller-Schön, Swenja; Daiber, Andreas

**Publication:** European Heart Journal

**Publisher:** Oxford University Press

**Date:** 2018-06-14

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# WHO Noise Guidelines

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## Abstract



The WHO report focused on whole-day noise exposure, but new epidemiological and translationa field noise studies indicate that nighttime noise, in particular, is an important risk factor for cardiovascular disease (CVD) through increased levels of stress hormones and vascular oxidative stress, leading to endothelial dysfunction and subsequent development of various CVDs. Novel experimental studies found noise to be associated with oxidative stress–induced vascular and brain damage, mediated by activation of the NADPH oxidase, uncoupling of endothelial and neuronal nitric oxide synthase, and vascular/brain infiltration with inflammatory cells. Noise-induced pathophysiology was more pronounced in response to nighttime as compared with daytime noise. This review focuses on the consequences of nighttime noise.

## **Keywords**

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traffic noise, cardiovascular disease, CVD, sleep disturbance, oxidative stress, circadian clock, mitigation