

# EFFECTS OF TRANSPORTATION NOISE ON MYOCARDIAL INFARCTION

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**Background and Aims:** Both, traffic-related air pollution and noise exposure were found to increase the risk for myocardial infarction (MI). The effect of traffic noise exposure on MI was evaluated in a cohort study that also considered indicators for air pollution exposure.

**Methods:** In the Swiss National Cohort 4.6 million persons were followed from 2000 to 2005. Exposure to aircraft noise, background PM10 and distance to a major road was calculated (Huss, *Epidemiology* 2010). Results were compared with a population-based case-control study that was conducted in Stockholm County between 1992 and 1994 considering exposure to road traffic noise and NO<sub>2</sub> in 3666 participants (Selander, *Epidemiology* 2009) as well as the Dutch Cohort Study on Diet and Cancer where road traffic noise, background black smoke and traffic intensity was measured for 121,000 subjects (Beelen, *OEM* 2009).

**Results:** In the Swiss study MI mortality was increased by 28% (95% CI: -5 to 73%) in the highest aircraft noise exposure category (>60dB). Close to major roads (<100 m) MI mortality was significantly increased by 10%. In the Swedish study the OR for MI was 1.12 (0.95–1.33) for long-term road traffic noise exposure (•50 dB). The OR increased to 1.38 (1.11–1.71) in a subsample without hearing loss or exposure to noise from other sources. In the Dutch study ischemic heart disease mortality was increased by 15% (-14 to 53%) in the highest noise exposure category (>65dB). Interestingly no strong effect modification from air pollution was observed in the Swedish and the Swiss study whereas in the Dutch study the risk estimate dropped to unity when concurrently considering air pollution indicators in the model.

**Conclusions:** Epidemiological studies link traffic noise exposure to increased MI risk; although there is considerable uncertainty about the mutual effects of road traffic generated air pollution and noise exposure.