

# Smoking cigarettes is worse for women's hearts than men's: study

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(Medical Xpress) -- Rates of smoking have been reducing in men but increasing in young women in some countries, and now a new review of earlier studies has shown that smoking cigarettes poses a larger risk factor for heart disease in women than in men.

The study was a systematic review and meta-analysis of published data from cohort studies available from four online databases. It was carried out because the variation between earlier studies made it difficult to establish if reported [sex differences](#) between the studies was real or “an artifact of methodological differences.” The researchers therefore searched the literature and found 86 prospective cohort studies between January 1st 1966 and December 31st 2010, with follow-up periods ranging from 5-40 years.

The data for the almost four million individuals included in the studies were pooled using a random effects model with inverse variance weighting, to give the researchers an estimate of the relative risk (RR) and relative risk ratios (RRRs) for men and women.

In one review, the researchers, Dr Rachel Huxley from the University of Minnesota and colleague Dr Mark Woodward of John Hopkins University, found that in 75 cohort studies, involving some 2.4 million individuals, the risk for coronary heart disease was 25 percent greater for women who smoked than for men who smoked. This increased by two percent for each additional year of follow-up, and was independent of other cardiovascular [risk factors](#).

Another analysis of pooled data from 54 studies on age-adjusted relative risk, including around 3.3 million individuals, also showed the risk of coronary heart disease was significantly greater for women than for men. When the researchers looked at the risk at different ages, women aged 60-69 were most at risk, and women of all age groups between 30 and 80, except the group 30-44, had a greater risk of [coronary heart disease](#) than men.

The analysis of 53 cohort studies of people who had never smoked or who had given up [smoking](#) found that some of the studies showed men who gave up smoking had a slightly better chance of avoiding heart disease than women who quit. The remaining studies showed no difference in outcome for women and men who gave up smoking.

The study, published online in *The Lancet*, did not determine if the differences found between women and men were due to physical differences (such as level of body fat, which is known to store toxins), or behavioral differences such as inhaling or intensity of smoking, but the authors concluded that the design of programs intended to reduce the prevalence of smoking should take the perspective of [women](#) into

account.

**More information:** Cigarette smoking as a risk factor for coronary heart disease in women compared with men: a systematic review and meta-analysis of prospective cohort studies, *The Lancet*, Early Online Publication, 11 August 2011. [doi:10.1016/S0140-6736\(11\)60781-2](https://doi.org/10.1016/S0140-6736(11)60781-2)

## Summary

### Background

Prevalence of smoking is increasing in women in some populations and is a risk factor for coronary heart disease. Whether smoking confers the same excess risk of coronary heart disease for women as it does for men is unknown. Therefore, we aimed to estimate the effect of smoking on coronary heart disease in women compared with men after accounting for sex differences in other major risk factors.

### Methods

We undertook a systematic review and meta-analysis of prospective cohort studies published between Jan 1, 1966, and Dec 31, 2010, from four online databases. We selected cohort studies that were stratified by sex with measures of relative risk (RR), and associated variability, for coronary heart disease and current smoking compared with not smoking. We pooled data with a random effects model with inverse variance weighting, and estimated RR ratios (RRRs) between men and women.

### Findings

We reviewed 8005 abstracts and included 26 articles with data for 3 912 809 individuals and 67 075 coronary heart disease events from 86 prospective trials. In 75 cohorts (2·4 million participants) that adjusted for cardiovascular risk factors other than coronary heart disease, the pooled adjusted female-to-male RRR of smoking compared with not smoking for coronary heart disease was 1·25 (95% CI 1·12—1·39, p

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