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## **Summary of research**

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We have recently completed meta-analyses involving millions of subjects, which showed that, although smoking increased risk considerably in both sexes, women who smoke have a 25% greater excess relative risk for coronary heart disease compared to men who smoke. Although not as strong, there is also a trend towards a similar excess risk for stroke among women smokers compared with men. Furthermore, we have published other data, which suggest an excess relative risk of around 100% from smoking for women, compared to men, for lung cancer mortality. One possible reason for these excess relative risks in women is that their smoking habits tend to be more risk-inducing. For example, they may smoke more, or start at a younger age. On the other hand, it may be that women have less risk-inducing smoking habits, in which case the excess relative risks we, and others, have found are even more remarkable, with implications for targeted public health measures to prevent smoking and promote quitting.

We request the use of the baseline UK Biobank data on smoking habits to make comparisons between women and men, so as to understand whether variations in habits may explain the excess relative risks we have found. We shall also explore whether sex differences persist within important subgroups of the UK Biobank population, by age, self-reported illness, socio-demographic status, and ethnicity. These will all be cross-sectional analyses; in the future we propose to make a further application to investigate whether sex-specific smoking habits contribute to the risk of the major smoking-related chronic diseases using longitudinal UK Biobank data.

