

ORIGINAL ARTICLE

## Smoking Cessation, Weight Change, Type 2 Diabetes, and Mortality

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### \* ABSTRACT

#### BACKGROUND

Whether weight gain after smoking cessation attenuates the health benefits of quitting is unclear.

#### METHODS

In three cohort studies involving men and women in the United States, we identified those who had reported quitting smoking and we prospectively assessed changes in smoking status and body weight. We estimated risks of type 2 diabetes, death from cardiovascular disease, and death from any cause among those who had reported quitting smoking, according to weight changes after smoking cessation.

#### RESULTS

The risk of type 2 diabetes was higher among recent quitters (2 to 6 years since smoking cessation) than among current smokers (hazard ratio, 1.22; 95% confidence interval [CI], 1.12 to 1.32). The risk peaked 5 to 7 years after quitting and then gradually decreased. The temporary increase in the risk of type 2 diabetes was directly proportional to weight gain, and the risk was not increased among quitters without weight gain ( $P < 0.001$  for interaction). In contrast, quitters did not have a temporary increase in mortality, regardless of weight change after quitting. As compared with current smokers, the hazard ratios for death from cardiovascular disease were 0.69 (95% CI, 0.54 to 0.88) among recent quitters without weight gain, 0.47 (95% CI, 0.35 to 0.63) among those with weight gain of 0.1 to 5.0 kg, 0.25 (95% CI, 0.15 to 0.42) among those with weight gain of 5.1 to 10.0 kg, 0.33 (95% CI, 0.18 to 0.60) among those with weight gain of more than 10.0 kg, and 0.50 (95% CI, 0.46 to 0.55) among longer-term quitters (>6 years since smoking cessation). Similar associations were observed for death from any cause.

#### CONCLUSIONS

Smoking cessation that was accompanied by substantial weight gain was associated with an increased short-term risk of type 2 diabetes but did not mitigate the benefits of quitting smoking on reducing cardiovascular and all-cause mortality. (Funded by the National Institutes of Health.)

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