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Dear Bill,

I appreciate your interest in the relation between body mass index and mortality. There are two major questions. One concerns the common assumptions of the distribution of the variables: normal linear or quadratic. In almost all of the analyses and published reports there is no interest and certainly no proof that these assumptions are warranted.

To avoid any such assumptions I have examined the data on 25-year mortality of the men in decile classes of the body mass index. I enclose a brief summary of the findings. Because there was no suggestion of a trend in the middle classes of the BMI, I have omitted them to shorten the table. You will see there is no indication of excess risk of shortened life in the men with the higher body mass index. In contrast, there is a distinct tendency for a shortened life of the men with low BMI.

The second point of concern is the question of confounding by smoking habit. This was examined by confining the analyses to the 2,751 men in the Seven Countries Study who had never smoked or had stopped at least ten years before entering the Study. The 25-year mortality of those men was not related to BMI.

The Cox equation for 25-year survival was solved with age, systolic blood pressure, smoking habit and BMI as co-variates. The BMI was not significant for survival in any cohort while the other co-variates were significant. Serum cholesterol was borderline.

You mention "ill health" causing weight loss. Our men were more rigorously screened for present and past health than any other prospective study I know about. Our data noted above cover over 8000 deaths in 25 years. We are beginning to examine 30-year data. Extremely bad eyesight retards my work doing all BMDP calculations.

All good wishes,

Ancel Keys