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Moderate obesity takes years off life expectancy, though not as many as smoking

A new analysis of almost one million people from around the world has shown that obesity can trim years off life expectancy. It found that moderate obesity, which is now common, reduces life expectancy by about 3 years, and that severe obesity, which is still uncommon, can shorten a person's life by 10 years. This 10 year loss is equal to the effects of lifelong smoking.

The analysis brought together data from 57 long-term research studies mostly based in Europe or North America. People were followed for an average of 10 to 15 years, during which 100,000 died, making it the largest ever investigation of how obesity affects mortality. It was coordinated by the Clinical Trial Service Unit (CTSU) in Oxford and the results are published online today (18 March; print version 28 March) in *The Lancet*.

The studies used body mass index (BMI) to assess obesity. BMI is calculated by dividing a person's weight in kilograms (kg) by the square of their height in metres (m). If a person has a BMI of 30 to 35, then they are moderately obese; if they have a BMI of 40 to 50, they are severely obese. Though not perfect, BMI is useful for assessing the extent to which fatty tissue causes ill health.

Among the 900,000 men and women in the study, mortality was lowest in those who had a BMI of 23 to 24. This means that if a person were 1.70m (5 feet 7 inches) tall, for example, his or her optimum weight would be about 70kg (154 pounds or 11 stone).

Epidemiologist Dr Gary Whitlock of Oxford University, who led the analysis, said of the findings: "Excess weight shortens human lifespan. In countries like Britain and America, weighing a third more than the optimum shortens lifespan by about 3 years. For most people, a third more than the optimum means carrying 20 to 30 kilograms [50 to 60 pounds, or 4 stone] of excess weight. If you are becoming overweight or obese, avoiding further weight gain could well add years to your life."

Comparing the effects of obesity with those of smoking, the study's main statistician, Oxford University Professor Sir Richard Peto said: "This study has shown that continuing to smoke is as dangerous as doubling your body weight, and three times as dangerous as moderate obesity. Changing your diet but keeping on smoking is not the way to increase lifespan. For smokers the key thing is that stopping smoking works."

In those who were moderately obese (BMI 30 to 35, which is now common), the lifespan was reduced by 3 years. Severe obesity (BMI 40 to 50, which is still uncommon) reduced life expectancy by about 10 years; this is similar to the effect of lifelong smoking. Although severe obesity is more common in North America than in Europe, in both places it is much less common than moderate obesity, which has only a third of the effect on lifespan that smoking does.

There was also a higher death rate among those who had a BMI well below 23 to 24. This hazard was much greater for smokers than for non-smokers. The exact reason for this remains unknown.

Obesity increases death rates for some types of cancer, but the main way it kills is by increasing risk of heart disease and stroke. Amongst middle-aged people in the UK, as many as one in four deaths from heart attack or stroke and one in 16 cancer deaths are due to being overweight or obese. In the US, where middle-aged people are typically a few kilograms heavier, the figures are even higher: one in three heart attack or stroke deaths and one in 12 cancer deaths in the US are due to being overweight or obese.

Funding for the overall analysis was provided by the Medical Research Council, the British Heart Foundation and Cancer Research UK supporting the Clinical Trial Service Unit at the University of Oxford.

Sir Leszek Borysiewicz, Chief Executive of the Medical Research Council, said: "As this study demonstrates, obesity is an increasingly serious public health problem of global significance. Researchers funded by the Medical Research Council are continuing to investigate potential causes of and solutions to obesity in both children and adults to help to tackle obesity and its consequences in the long-term."

Sara Hiom, Cancer Research UK's director of information, said: "Surveys have repeatedly shown that a worryingly high number of people simply don't know that being overweight or obese increases the risk of a range of cancers. And these same surveys also suggest that those who are overweight often do not realise it. This study confirms that excess weight increases the risk of dying from cancer."

"Moderate obesity is becoming worryingly common in the UK and these factors combined are great cause for concern. We can eat less and move more to reduce weight. But smoking remains the single most significant cause of cancer death – and stopping smoking works."

Professor Peter Weissberg, Medical Director at the British Heart Foundation, said: "This is the latest and most convincing demonstration of the close relationship between being overweight and poor heart health, and confirms that smoking is harmful regardless of your weight. We all have a role to play in maintaining a healthy weight ourselves, but this study emphasises the importance of public health measures, such as the recently launched Change 4 Life campaign, as part of a raft of Government initiatives that will be needed to reduce the nation's weight."

Notes to editors

For more information please contact the Medical Research Council press office on 020 7637 6011 or press.office@headoffice.mrc.ac.uk out of hours call 07818 428 297.

Original paper: *Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies* is published in *The Lancet*.

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Cancer Research UK

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