



If You Are Over 65—Can You Have Your Cake and Eat It Too?

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Two women, in their 70s, are walking on Blackstone Boulevard.

Both are 5 feet 2 inches tall. One weighs 146 pounds; the other, 118 pounds. Corresponding **body mass index (BMI)** is 26.5 (overweight) for the first and 21.6 (normal) for the second. They are both healthy without any chronic medical conditions. Each takes vitamins and calcium supplementation. Which woman has the lower mortality risk?

Many would choose the woman with the normal BMI. The standard weight recommendations support this decision; these guidelines suggest that a BMI of 25 is the upper limit of ideal weight for all adults.^{1,2} Recent evidence, however, suggests that in spite of the increased risk for diabetes and hypertension in those who are overweight, BMI >25 may be protective with regard to mortality. (Table 1)

A study published in February 2010 supported the findings of other recent work indicating that older adults who are overweight by BMI calculations are at reduced mortality risk, compared with those who have a lower BMI.³ Flicker et al analyzed a cohort of adults (4,677 men and 4,563 women) aged 70 to 75 years old who were followed for 10 years or until death if sooner.³ With regards to gender differences, the major differences were that more men were married (more than 80% men and 54% women) and more men reported a history of bronchitis or emphysema. The lowest all-cause mortality risk was at a BMI of 26.6 kg/m² in men and 26.26 kg/m² in women and the risk of death increased as BMI decreased.² The degree of medical illness or co-morbidity did not alter the relationship between BMI and mortality risk, even though mortality risk increased with degree of illness. Degree of physical activity also reduced risk for mortality, but again the lowest risk of mortality was seen in those who were classified as overweight, regardless of degree of physical activity.³

The authors identified limitations; e.g., they catalogued height and weight only once during the study period, and they did not record fluctuations in participants' weight.³ However, the results coincided with other recent studies and reviews. One, published in 2007, looked at 32 observational studies.⁴ The systematic review and meta-analysis suggested that a BMI in the overweight range is not associated with increased mortality in elderly men and women. The **relative risk (RR)** of all-cause mortality was 1.00 (95% confidence intervals, 0.97-1.13).⁴ Only a modest increase in mortality was noted for those in the obese category RR 1.10 (95% confidence intervals, 1.06-1.13).

These results were similar to those reported in an earlier systematic review published in 2001.⁵ Published articles that

examined the relationship between BMI and all-cause mortality and cardiovascular or coronary heart disease mortality in adults over 65 years of age were reviewed. The review included 13 studies and demonstrated several uniform findings. First, most studies failed to show a significant association between higher BMI and increased mortality.⁵ Also, the association tended to be U-shaped: lower BMIs and those on the higher end were more closely associated with higher mortality. However, the higher BMIs that were associated with higher mortality were in the obese category; again implying that being "overweight," in contrast to "obese," is not associated with higher mortality.⁵ The authors did identify limitations that could affect the results, including lack of control for smoking, lack of identification of underlying disease in the underweight participants, and lack of control of some weight-related conditions, such as hypertension, diabetes and dyslipidemia.⁵ They chose studies that controlled for these factors for the review. The review, similar to the others discussed, demonstrated that low BMI is more consistently associated with higher mortality than high BMI in older adults.

A major limitation in the interpretation of these results is that the BMI measurement does not take into account body composition. As people age, the amount of body fat mass increases and fat free mass, mostly muscle, decreases. However, these studies suggest that perhaps having excess body fat in older age is not as dangerous as in young age. The excess body fat may have less of an effect on mortality in older age.⁴ It appears that being underweight is more closely associated with mortality. The other alternative consideration is that the BMI does not take the fat distribution into account, and waist circumference, a better measure of fatness in older persons, would correlate with increased mortality in older adults. Further study using waist circumference and other measures are needed. It has also been hypothesized that there is a selection bias in these patient populations. Perhaps those who were going to die of

Table 1.

BMI	Weight Category
< 18.5	Underweight
18.5 – 24.9	Normal weight
25 – 29.9	Over weight
> 30	Obese

BMI (kg/m²) = weight in kilograms/height in meters²

being overweight or of its co-morbidities have already done so before reaching old age. Surviving older adults may be resistant in some way to the adverse effects of being overweight or have some unidentified protective factors that are at play.^{4,5}

The studies indicate that holding older adults to strict weight standards may not be necessary to minimize mortality. However, it remains important to emphasize to older patients that having extra weight can still affect quality of life by stressing joints, limiting physical conditioning and reducing the control of diseases such as diabetes or hypertension. As with everything in life, balance is important. Being underweight and being obese are of concern, but if older adults fall into the overweight category they may be at lower risk. There does not appear to be evidence to support calorie restriction for individuals who fall in the mild-to-moderate overweight category in order to reduce all-cause mortality or cardiovascular mortality. These analyses and comments are not intended to deny the morbidity associated with sarcopenic obesity, in which obesity and more than 50% loss of muscle mass create a condition fraught with physical function limitation and disability.⁶

These findings are happy ones, given the known pattern of increased weight with age. Maintaining health is more about maintaining physical activity, function and muscle mass with exercise and eating a balanced diet. The absolute number on the scale and the category of BMI appear to be less important for older adults. Therefore, the advice to both women on the boulevard: continue walking, taking calcium and vitamins and maintaining a healthy diet. The one who weighs 146 pounds need not diet to look more like her friend who weighs 118 pounds, unless afflicted with one of the weight-associated diseases; e.g., diabetes, hypertension, sarcopenia.



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