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BMI and Mortality

If you've read what I write for very long, you know I'm not a fan of science by press conference. I understand it because everyone has to justify the money spent on research, but often the details show that what hits the headlines may not be as profound as everyone thinks. Such is the case with a recently published Australian study on the Body Mass Index (BMI) and mortality in an elderly population (1). What hit the headlines was that elderly people over 70 years of age who have a BMI that is considered overweight have a lower death rate than those who were normal weight or obese. Is it okay to be overweight if you're over 70? Maybe, maybe not.

The Study

In two separate studies in Australia, men and women 70 to 75 were recruited to participate in the two studies—one with only men and the other with only women. The objective was to monitor close to 10,000 subjects for 10 years or until death. The BMI was calculated from surveys of self-reported heights and weights; in addition, demographic data, alcohol and tobacco use, and exercise levels were collected from each participant via survey. The data were collected once at the beginning of the trial.

For data analyses, the reference standard was set at 1.0 for exercising normal-weight women. The Hazard Ratios, the risk of dying over 10 years, were then calculated for each BMI group, each gender, and between those who exercise and those who were sedentary.

The Results

The groups with the lowest mortality were those classified as overweight according to BMI (25.0-29.9) whether exercising or sedentary and whether they were men or women; note that the category was overweight and not obese, which is a BMI of 30 or more. The only confounding variable was smoking. When that effect was removed, the results for mortality were lower—smokers almost always die sooner—but the overweight group still had the

The researchers concluded that overweight older people are not at a great mortality risk and therefore need not diet to lose weight. In fact, losing weight at that age may be considered harmful.

The Problem

On the surface, the results as presented show that being overweight might be beneficial. But in my opinion, there are three problematic issues.

Self Reporting Height and Weight

The research in this area is clear: people put their best foot forward when self-reporting height and weight on surveys. They say that they're taller than they are and they say they weigh less than they do. Why wouldn't they? No one is actually measuring them. For someone who is 5'9" claiming to be 5'10" and weighs 168 pounds, that one-inch difference in reported height is the difference between a BMI of 24 versus 25. The same holds true for weight. For someone who is 5'4" tall, under-reporting weight by just five pounds changes the BMI from 25 to 24. The researchers acknowledged this as a potential problem, and I agree—it's hard to arrive at an accurate conclusion when you start off with faulty measurements.

Adiposity

The researchers did not measure body fat. Given that men and women lose about 1% of their muscle mass per year starting at about 30, there's a big difference in the body-fat distribution between a 40 year old and a 70 year old; the older person can have much higher body fat even if the BMI is normal. The researchers acknowledged that a simple waist measurement might have given an indication of the visceral adiposity (belly fat), but the data were not collected in the women's part of the study and therefore were not used.

Morbidity

The real problem is that they didn't report whether the subjects had any chronic diseases—just because they were alive didn't mean they were healthy. It might not have been the purpose of the study, but it would have been good to know.

Benefit?

In reality, there may be a benefit to carrying a few extra pounds—10 to 15 pounds—if you're over 70. Having the extra energy in the form of fat may benefit people with a wasting disease such as cancer throughout treatment. In short, they have enough extra energy to keep their immune system supplied with fuel to fight disease. But it's not the extra 50 pounds that too many Americans carry.

The Bottom Line

The BMI with the lowest mortality was 26.6 for men and 26.2 for women. From those low points, mortality increases as you weigh more or less. Assuming that's true, that really means only a few extra pounds are safe if you're over 70 and may not decrease your lifespan—definitely less than 10 pounds. Those BMIs correspond to a 5'4" woman weighing about 153 pounds and a 5'10" man weighing 183 pounds. But the average 5'4" woman in the U.S. weighs 175 pounds and the average 5'10" man weighs 204 pounds—both with BMIs of 30 or a couple of pounds from it, putting them in the obese category. And obviously, we're not all 70—the younger we are, the more important it is that we get to a normal weight.

The researchers' conclusions were ill advised. While absolutely true, it's relatively meaningless except for those very few elderly people who are within 10 pounds of a healthy weight. Given our tendency to be obese, it just doesn't apply, especially to a younger population who may think this is an excuse to stay overweight.

I think the real benefit of this study was in the difference between the sedentary versus exercising subjects. Those subjects who exercised had close to half the mortality compared to those who didn't.

For those of us who are working on losing that extra 30 pounds, it means that even if we get close to our weight goal without reaching it, we'll add years to our lives by getting fit and staying there—and continuing to exercise. It all depends on one thing:

What are you prepared to do today?

Dr. Chet

Reference: Journal of Geriatric Science. 2010;58:234-41.

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