Accurate Measures of Adioposity.
Dr. Margaret M. Gaglione
Tidewater Bariatrics

A lead study in the NEJM in November 2008 by Pishcon et al of nearly 360,000 European men and women followed for greater than nine years, indicates that both general adiposity and abdominal adiposity are associated with an increased risk of death. This study is important in that it clearly identifies that the distribution of fat as measured by waist circumference and waist to hip ratio, is a critical factor in increasing mortality risk. Where the fat is located is paramount in whether a patient will develop the disease complications of obesity and as this study suggests, increase their risk of dying because of their obesity. The second key outcome of this study is that BMI and reliance on self reported anthropometric measurements will no longer be sufficient assessment parameters.

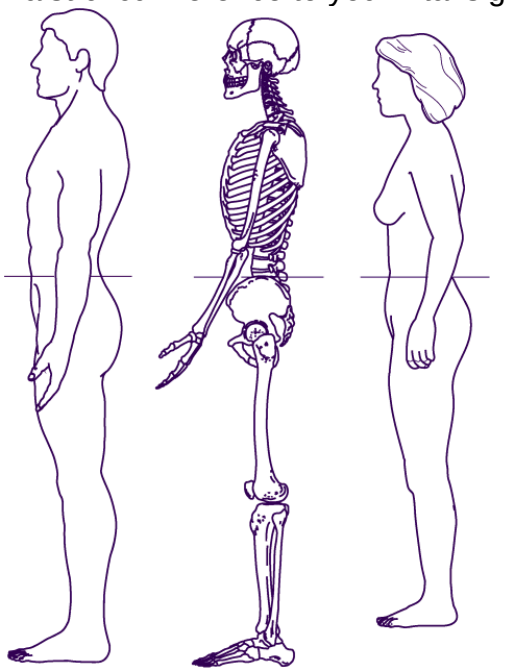
As has been noted by others, Pishcon et al found that the association of BMI with the risk of death was J shaped, meaning that higher risk of death were observed with those with low BMIs (underweight) as well as high BMI (overweight and obese). Notably, however, once BMI was accounted for, elevated waist circumference was associated with increased risk of death. In other words, even those with a low or normal BMIs but had a large abdominal waist, had a higher risk of death than those who had a normal sized waist. Therefore, once general adiposity was controlled for, abdominal fat was a risk factor for increased death. For a given BMI in both men and women, Pischon et al found that a waist circumference that was 5 cm (1.9 inches) larger was associated with 17% (increased by a factor of 1.17; 95% CI 1.15-1.20) higher risk of dying for men and 13% (increased by a factor of 1.13; 95% CI 1.11-1.15) higher risk of dying for women.

As in other studies, smoking and obesity are interestingly related. In this study, as in others, smokers had a lower body weight but a higher risk of death than non-smokers. BMI may be particularly inadequate marker of risk for smokers. Pischon et al found that when BMI was adjusted for, the association of waist circumference and risk of death was stronger for smokers than non smokers. The authors reference Barrett-Connor et al from her study nearly 20 years ago that “smokers tend to have a metabolically more adverse fat-distribution profile, with higher central adiposity, than non smokers.

A challenging issue with this study is where to measure the waist! The accepted standard for measuring the waist circumference put forth by the NHANES III Protocol , as noted in Williams Textbook of Endocrinology is “to measure waist circumference, locate the top of the right iliac crest. Place a measuring tape in a horizontal plane around the abdomen at the level of the iliac crest. Before reading the tape measure, ensure that the tape is snug but does not compress

the skin and is parallel to the floor. Measurement is made at the end of a normal expiration." (see image at end of document). However, Pischon et al describe that in their study, waist circumference was measured either at the narrowest circumference of the torso or at the midpoint between the lower ribs and the iliac crest. International acceptance of measurement tools is paramount.

This study highlights the importance of abdominal fat, or visceral adiposity, even for our patients that are of normal weight. Normal waist circumferences for women are less than 35 inches and for men are less than 40 inches . Adding waist circumference to your vital sign measurements may be a valuable tool.



Dr. Margaret MacKrell Gaglione is the Medical Director of Tidewater Bariatrics in Chesapeake, a practice dedicated to the care of overweight and obese patients. She is a board certified Internal Medicine physician and Bariatric Specialist. She can be reached at (757) 644-6819 or www.tidewaterbariatrics.com