

HEART NEWS FOR YOU

# D is for Diet

Jack Wilmore, PhD

For those of you who have been following this series on the “ABCs” of preventing cardiovascular disease or preventing the recurrence of, or complications from, cardiovascular disease, you knew that we would eventually get to your least favorite topic – diet!

It’s the dreaded four-letter word. But if you don’t take it seriously, it can turn into a very ugly five-letter word, like heavy or obese ... and early death.

We all love to eat, and most of us do not like to be told that we are eating too much – particularly too much of the foods that we enjoy most. Yet most of us cannot deny that our weight has increased over the past few years.

The United States is in the middle of an obesity epidemic, as is most of the Western world. But, before we go into the shocking details, we need to define obesity. Simply stated, obesity means that a person has an excessive amount of body fat (i.e., he or she is “over fat”). For purposes of simplification, people are placed into one of four categories: underweight, normal weight, overweight and obese. In a clinical or research laboratory, the actual fat content of your body can be accurately estimated, using underwater weighing or imaging techniques. Good estimates also can be obtained from skin-fold thickness measures, air displacement or bioelectric impedance.

Scientists, however, have come up with a much simpler method of classifying people by their body fat levels – the Body Mass Index (BMI). The BMI is a ratio of your weight to height squared (weight/height<sup>2</sup>). For those of us who are mathematically challenged, a table was developed to make it easy for us to calculate our BMI (see Table 1). Since most of us are not familiar with what a BMI value means, a panel of obesity experts was convened by the World Health Organization to establish BMI values for the four weight classification categories (see Table 2). There is one additional factor that has been added to this table – waist circumference. When fat is stored predominantly in the waist area (this is termed visceral fat), the risk for cardiovascular diseases and diabetes increases. Note: Women typically store more fat in the hip, buttock and thigh areas, while men store more fat in the waist area.

We will use two hypothetical examples to show you how this works. In the first example, we have a 50-year-old man who is 6 feet tall and weighs 235 pounds. From Table 1, using 72 inches and 235 pounds, we see he has a BMI of 32. From Table 2, we see that this places him in the Class I obesity range. His waist circumference is 44 inches, so he is considered at very high risk. In the

second example, we have a 40-year-old woman who is 5 feet, 6 inches tall (66 inches) and weighs 160 pounds. Her BMI would be 26, which would place her in the overweight range. With a waist circumference of 34 inches, she would be in the increased risk category.

With this as background, we can now better understand what has happened to our country over the past 40 years. National health surveys conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention (CDC) provide a rich

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height (inches)	Body Weight (pounds)																
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287

Table 1. Estimation of Body Mass Index from height (inches) and weight (pounds). From: National Heart, Lung and Blood Institute, NIH. The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. NIH Publication #00-4084, October 2000. Note: You can calculate your BMI by visiting [www.heart.arizona.edu/patientinfo/bmi.asp](http://www.heart.arizona.edu/patientinfo/bmi.asp)

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Classification	BMI	Obesity Class	Disease Risk Relative to Waist Circumference	
			Men 40 inches	Men > 40 inches
			Women 35 inches	Women > 35 inches
Underweight	< 18.5			
Normal weight	18.5 – 24.9			
Overweight	25.0 – 29.9		Increased	High
Obesity	30.0 – 34.9	I	High	Very high
	35.0 – 39.9	II	Very high	Very high
Extreme obesity	40.0	III	Extremely high	Extremely high

Table 2. Classification of overweight and obesity by BMI, waist circumference, and associated disease risk for cardiovascular disease, hypertension and type 2 diabetes. World Health Organization, 1998.

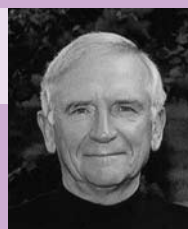
source of information on health trends across time in the United States. Data are collected on large samples of the U.S. population allowing estimates of national trends for various risk factors for disease. Studies reported in *The Journal of the American Medical Association* show that, from 1960 through 1976-80, the prevalence of obesity in the United States was relatively stable, at about 10 percent to 13 percent of the total population for men and 15 percent to 17 percent for women. However, from 1980 through the year 2000, the prevalence increased to about 28 percent for men and about 34 percent for women – about two and a half times higher in just 20 years (JAMA, 2002; 288: 1723-1727)! When looking at both overweight and obesity (BMI values of  $\geq 25$ ), the percentage of men and women in the U.S. who are overweight or obese increased from about 48 percent of the total population in 1976-80 to about 65 percent of the total population in 1999-2000. Sadly, this same trend has been reported in children and adolescents (JAMA, 2002; 288: 1728-1732).

As body fat levels have increased, so has the risk for cardiovascular diseases, diabetes, cancer and the metabolic syndrome. The metabolic syndrome is a combination of hypertension, high triglycerides, low HDL, abdominal obesity and insulin resistance – a grouping of risk factors that places the individual at a much higher risk of cardiovascular disease (See SHC newsletter, Summer 2005).

In fact, many scientists now suspect that increasing body fat is the trigger for the metabolic syndrome. Resting blood pressure and fasting blood sugar (glucose) levels increase in direct proportion to gains in body fat. Conversely, as body fat levels are reduced, blood pressure and blood glucose levels are reduced.

In summary, good health is directly related to keeping your body weight in the normal weight range. We have demonstrated that as body weight goes up into the overweight and obese categories, the risk for chronic

debilitating disease increases proportionally. There also are health risks associated with being underweight, so moderation is the key. It has become clear that there is a genetic basis for overweight and obesity, but even with a genetic predisposition, you can maintain your weight in the normal range with proper nutrition and physical activity. Most importantly, prevention is the key, as once you become overweight or obese, it is very difficult to achieve and sustain the weight loss needed to get you into the normal weight category. ♥



**PAUL BALTES**  
MEMORIAL HEART HEALTH LECTURE

**Tuesday, Oct. 18, 2005**  
**3 p.m. - 5 p.m.**

UA Student Union Memorial Center  
in the North Ballroom.

*This lecture is held in honor of Paul Anthony Baltes, who died unexpectedly in December 2003. A graduate of the U.S. Military Academy in West Point, N.Y., Baltes had served as director of Engineering Professional Development at the UA College of Engineering since retiring from the U.S. Army in 1984.*

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