Is It Necessary to be Thin to be Healthy?

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Americans are heavier now than ever before. The prevalence of overweight individuals and obesity has increased markedly in the past two decades.[1-4] Changes in American dietary and fitness habits, such as over-consumption and an increasingly sedentary lifestyle, have significantly contributed to this weight-gain epidemic.[5] To combat this "battle of the bulge," most overweight Americans diet. Indeed, attempts at weight loss are common in the United States, with an estimated 43.6% of women and 28.8% of men trying to lose weight.[6] Currently, there are about 70 million Americans on various diets.

Since the early 1990s, the average weight of the U.S. adult has increased by about one pound each year,[2] and, consequently, the number of Americans on diets has increased dramatically.[6,7] However, dieting seems to have had little, if any, positive impact on shrinking Americans' ever-expanding waistlines. Indeed, the long-term efficacy of calorie restriction programs is very poor.[8] Furthermore, several long-term studies on men and women indicate that a history of dieting may increase chances for subsequent – and significant – weight gain.[9-11] Ironically, cutting calories may perpetuate that which dieting is usually intended to cure – obesity! Even if dieting does not lead to obesity, a diet mentality may lead to chronic weight fluctuation, which, in time, may actually become the norm for most Americans.[12] Weight fluctuation (typically defined in research studies as the loss or gain of more than about 5% of body weight) has been associated with a number of adverse health outcomes.[13,14] Although most people lose weight for aesthetic reasons, health concerns are usually high on the list of reasons to lose weight. Indeed, it is for health concerns that overweight individuals are routinely advised by health care professionals to lose weight.

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Current public health recommendations encourage weight loss for overweight and obese individuals, with calorie-restricting diets as an integral part of such weight loss prescriptions.[15]

A legitimate question is whether a continued emphasis on weight loss is the best course of action for the increasingly large number of Americans considered to be overweight or obese. Is it really necessary to be thin to be healthy? Is weight loss necessary to improve weight-related health problems? Or, have the health risks of obesity, as well as the health benefits of weight loss, been overstated? What are the best options for overweight and obese persons? This article addresses such questions.

Risks of Overweight and Obesity Exaggerated

One primary justification for the public health recommendation that fat people should lose weight is the conventional belief that obesity "kills." When former U.S. Surgeon General C. Everett Koop launched his *Shape Up America!* campaign in 1994, he asserted that obesity is responsible for approximately 300,000 deaths every year in the United States. Since then, this statistic has gone virtually unchallenged. A Lexis database search performed in September 2003 revealed mention of this statistic in nearly 2,400 news stories since 1998, and in more than 1,600 stories in the past two years alone.

The major problem with this "obesity kills" statistic is the lack of compelling evidence to substantiate it. In fact, the two sources cited in its support have been misinterpreted.[16,17] One, published in 1993, does not even mention obesity as a contributing cause of death.[16] The authors of this study attempted to rectify the continued misuse of their data in a letter to the *New England Journal of Medicine* in 1999: "The figure you cite applies broadly to the combined effects of various 'dietary factors and activity patterns that are too sedentary,' not to the narrower effect of obesity alone. Indeed, given the contribution of multiple diet-related factors to problems such as high blood pressure, heart disease, and cancer, we noted explicitly the difficulty of sorting out the independent contribution of any one factor."[18] In the second source, published more recently in 1999, none of the studies used by the authors to generate estimates of annual deaths attributable to obesity adequately considered possible confounding factors, such as fitness levels, diet and dieting history, weight fluctuation, use of weight loss drugs, and less than adequate access to health care, to mention a few.[17] The authors assumed that, after controlling for age, sex, and smoking, "all excess mortality in obese people is due to their adiposity." The authors neglected to discuss the possibility that other factors, such as those mentioned above, could have explained some, or all, of the excess mortality in obese persons.

For example, overweight and obese individuals are more likely to be sedentary and have lower aerobic fitness levels than their non-overweight counterparts. Aerobic fitness levels may mitigate much, if not all, of the risk associated with obesity, as data from the Aerobics Center Longitudinal Study in Dallas, Texas, has demonstrated.[19] In this ongoing study, obese men who are classified as "fit" based on an exercise treadmill test have death rates just as low as lean-fit men, and, more importantly, have death rates one-half those of

lean-unfit men – suggesting that fitness is more important than leanness in reducing the risk of premature death. The results are the same whether body fat in men is expressed as a percent of total weight or in terms of actual pounds of body fat. For example, a fit man carrying 50 pounds of body fat had a death rate less than one-half that of an unfit man with only 25 pounds of body fat. ["Fit" in this study was defined as being in the top 80 percent of one's age group while performing a treadmill walking test—a very generous standard. In terms of physical activity, this level of fitness can be achieved by brisk walking of approximately 30 minutes per day, 4-5 days per week.]

Similar results have been shown for women participating in the Aerobics Center Longitudinal Study.[20] Although a recent study on men and women in the Lipid Research Clinic's Study indicated that fitness did not entirely reverse the increased mortality risk associated with obesity, fitness did attenuate the risk.[21] Additionally, data from the Behavioral Risk Factor Surveillance System shows that lack of physical activity is more important than excess body weight as a predictor of cardiovascular mortality.[22]

Low fitness and sedentary lifestyle, however, are not the only factors that might explain the higher mortality rates of obese persons. Overweight and obese women and men are also far more likely to have tried extreme weight loss practices, including calorie-restriction, unbalanced diets and weight loss drugs. They also tend to experience more significant weight fluctuation. Weight cycling may elevate blood pressure,[23,24] reduce the level of HDL ("good") cholesterol,[25] and deplete body reserves of important omega-3 fatty acids.[26] It has also been linked to increased risk for gall bladder disease,[27] kidney cancer,[28] breast cancer,[29,30] and premature death – primarily from cardiovascular disease.[13,14,31] In fact, a 1991 report from the famous Framingham Heart Study revealed that virtually all of the "excess" cardiovascular disease mortality in obese men and women could be explained by lifetime weight fluctuation.[31]

To date, no published report on the alleged annual death toll attributable to obesity has satisfactorily eliminated the possibility that the higher death rate observed in obese men and women is, instead, due to one or more possible contributing factors, such as those mentioned above, that are prevalent in this population. This is not to say that obesity is entirely benign, or that body weight is unimportant to health. Certainly, at the extremes – both very high and very low – body weight may adversely impact health. However, for the majority of Americans closer to the middle of the height-and-weight bell-curve, body weight *itself* may not be as important to health as commonly believed.[13,32,33]

Weight-Related Health Problems Resolved Independently of Weight Loss

There is a good deal of evidence indicating that many of the more prevalent weight-related health problems, such as high blood pressure, elevated cholesterol and triglyceride levels, insulin resistance, and glucose intolerance, can be improved independently of weight loss.

Exercise can significantly lower blood pressure, especially in those with hyperten-

sion.[34] Indeed, lowered blood pressure is observed after a single exercise session and often lasts for several hours.[34] Even when body weight is reduced as a result of long-term exercise participation, reductions in blood pressure are largely independent of weight loss.[35] This suggests that weight loss is not the primary factor responsible for decreased blood pressure.

Similar results are observed with dietary intervention. For example, results from the Dietary Approaches to Stop Hypertension (DASH) clinical trial proved that blood pressures can be effectively lowered by simple changes in diet, without weight loss.[36] Among 133 men and women with high blood pressure, simply eating more fruits and vegetables and consuming dairy foods low in saturated fat, was sufficient to reduce systolic blood pressure by an average of 11.4 mmHg, and diastolic blood pressure by an average of 5.5 mmHg within two weeks. The reductions in blood pressure were comparable to those observed with administration of pharmacotherapy. More significantly, the reductions in blood pressure were achieved without any weight loss.

Exercise can also improve blood lipid profiles independently of changes in body weight. Kraus et al. reported that six months of exercise training was sufficient to improve lipoprotein profiles with minimal weight change in 111 overweight men and women with mild-to-moderate dyslipidemia.[37] Combined exercise and nutrition programs have provided even more compelling evidence, as illustrated by the changes observed in more than 4,500 men and women who completed a 3-week stay at the Pritikin Longevity Center in Santa Monica, California.[38] The Pritikin program advocates a low-fat, high-complex starch, high-fiber diet (with no emphasis on rapid weight loss) and daily moderate-to-vigorous aerobic exercise. Within three weeks the average cholesterol level dropped from ~234 mg/dl to ~180 mg/dl; low-density lipoprotein cholesterol (the bad kind) decreased from ~151 mg/dl to ~116 mg/dl; and triglycerides were reduced by one-third (from 200 mg/dl to 135 mg/dl).[38]

Pritikin program participants also lowered their blood pressure by an average of 5-10%, and more than one-third of the men and women with high blood pressure were able to discontinue antihypertensive medications.[39] Those with Type-II diabetes also experienced tremendous improvements: 39% of those taking insulin and 71% of those on oral hypoglycemic agents were able to discontinue medication.[40]

As might be expected from such dramatic changes in lifestyle, participants lost weight (typically about 5-10 pounds). However, weight loss itself seemed to have little to do with the improved lipid profiles: less than 5% of the reductions in cholesterol, LDL-cholesterol, and triglycerides, for example, could be attributed to changes in body weight.

Improvements in insulin sensitivity and blood lipids as a result of aerobic exercise training have been documented even in persons who actually *gained* body fat during the intervention.[41] This suggests that for improving "metabolic" fitness, exercise alone is considerably more important than reducing body fat. Although gaining body fat is not a typical expectation of an exercise program, it is not uncommon, especially in women.[41] This obviously has the potential to adversely impact adherence to an exercise regimen.

Lifestyle Changes Preferred to Drugs

For reducing the risk of heart disease and diabetes, lifestyle intervention is as good as, or better than pharmacotherapy.[42,43] The U.S. Diabetes Prevention Program found that lifestyle intervention involving physical activity and diet was about twice as effective as drug therapies, such as metformin, in reducing the risk of developing full-blown diabetes among men and women who were glucose intolerant at the start of the study.[42] A recent randomized, controlled study demonstrated that a unique nutrition intervention (diet high in plant sterols, soy protein, viscous fibers, and almonds) was just as effective as statin therapy (lovastatin) in combination with a diet low in saturated fat in reducing blood lipids and C-reactive protein in overweight, hyperlipidemic men and women.[43] After one month, significant (25-30%) and equal reductions were observed in both special nutrition intervention and lovastatin groups for total cholesterol, LDL-C, LDL-C/HDL-C, apolipoprotein B, and C-reactive protein. It must be emphasized that these changes occurred despite no reduction in body weight.

Health at Every Size: An Alternative, Non-weight-centered Paradigm

The possibility of "health at every size" is not to say that we should be complacent about obesity, for there are some health problems that weight loss would undoubtedly alleviate, such as osteoarthritis. But many of the more prevalent health problems linked to obesity, such as those mentioned in previous sections, can be effectively treated with a focus on lifestyle changes not linked to decreases in body weight. Focus on weight loss may actually be counterproductive and hazardous to the health of those who continually battle their weight.

It might be more prudent to adopt a new approach to health and fitness – one that places less emphasis on body weight (or body fat) and more emphasis on a healthy lifestyle. Recent evidence suggests that this may be a viable alternative to the traditional weight-loss-centered approach to treating obesity.[7, 44] Bacon and colleagues randomly placed 78 nonsmoking, obese women with a history of dieting into one of two groups.[7] The "diet" group used traditional cognitive-behavioral methods to restrict calories. Those in the "non-diet" group focused on enhancing body- and self-acceptance, and were, according to the researchers, "supported in leading as full a life as possible, regardless of their body weight or whether they succeed at weight control." All women were encouraged to increase physical activity. Women in both groups attended 24 weekly supervised sessions, were subsequently observed at 52 weeks.

As expected, only the diet group lost weight – an average of about 13 pounds. However, 16 of 39 (41%) women in this group dropped out of the study. By comparison, only 3 of 39 (8%) women in the non-diet group dropped out. At the mid-point of the study, in response to the statement "the program has helped me feel better about myself," 93% of the non-diet group indicated "agree" or "strongly agree," compared to only 51% of the diet group. At the end of the study, in response to

the statement, "I feel like I have failed (or am failing) in the program," 35% of the diet group indicated "agree" or "strongly agree," compared to only 7% of the non-diet group.

In terms of physical health measures tracked in this study, both groups demonstrated significant and equal reductions in total cholesterol (~16%) and LDL-cholesterol (~8-10%), as well as triglycerides (24-27%). Also, blood pressure reductions were similar in both groups (~5-8 mmHg). Additionally, a recent study from researchers in Colorado has demonstrated the superiority of a non-weight-centered approach to increasing physical activity and aerobic fitness among obese women.[44]

Because traditional weight-centered programs that focus on dietary restraint are plagued with high dropout rates, a non-diet approach may be considerably more effective at treating those with weight-related health problems. Given the potential health risks associated with weight fluctuations, it might be more prudent to consider a health-centered paradigm conducive to weight stability, improved metabolic and cardiovascular health, and body-weight acceptance.

The results from two large-scale diabetes intervention trials provide additional evidence that it may be more prudent to focus on specific behaviors rather than on weight loss itself.[42,45] In the Finnish Diabetes Prevention Study, after one year, 86% of participants achieved the physical activity goal of at least 4 hours of exercise per week, but only 43% achieved the relatively modest weight loss goal of at least 5% of initial body weight.[45] In the U.S. Diabetes Prevention Program, mentioned earlier, 58% of participants met the physical activity goal of at least 150 minutes per week, but only 38% of participants achieved the weight loss goal of at least 7% of initial body weight.[42]

Good Health is Accessible to All

It may seem intuitive that exercising more and eating better will naturally result in weight loss. This generally is true, but with a major caveat. Not everyone will lose weight, and it is virtually impossible to tell how much any one person will lose. The human body is not an infinitely malleable mass of calories that can be burned down to any desired shape or size. Most exercise programs and diets typically result in weight loss of no more than 5-10 pounds;[46] however, the average "overweight" U.S. adult wants to lose 20-30 pounds![6] This disparity between what Americans want, and what exercise and diet are able to deliver, highlights the fundamental problem with using weight loss or reductions in body fat to judge the success of an exercise program or nutrition plan. Perhaps this explains why dropout rates are so high for traditional weight loss programs.[7,46]

Exercise and healthy eating should not be viewed merely as a means to an end (weight loss), but rather as having their own intrinsic value (psychological and physical). If someone quits an exercise program out of failure to reach a particular weight loss (or reduced body fat) goal, then all the benefits of the exercise are lost as well. Far too many people who start exercise programs do not stay with them. Indeed, "yo-yo fitness" is becoming as common as yo-yo dieting.

If we can accept the fact that fit and healthy bodies can come in all shapes and

sizes, then the public health message becomes quite simple: be more physically active and adopt a healthier diet. An average of 30 minutes of moderate-intensity activity – the equivalent of brisk walking – most days of the week is a good start, and is sufficient to produce significant health benefits.[47] Substantial health improvements can also be achieved with rather modest changes in diet by focusing on increasing consumption of fruits, vegetables and fiber-rich foods.[48-50]

A "health at every size" paradigm not only allows for a more compassionate view of body weight, but has significantly positive effects on public health. Millions of overweight women and men, perpetually at war with their bodies, need to be reassured that the road to good health is accessible to all.

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