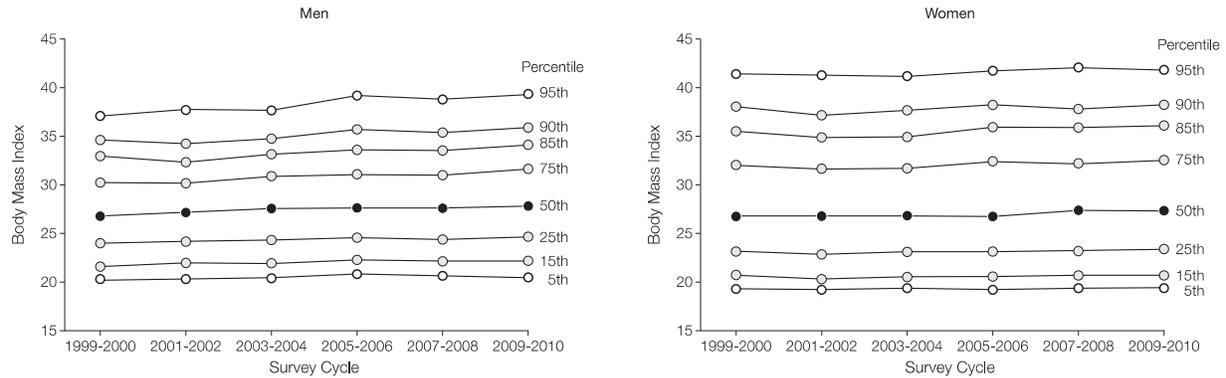


1) Obesity is often blamed for a whole host of things as well as many estimates and predictions for the future. It is also often said that obesity is growing at an "alarming rate." Estimates of costs are often overinflated. When more reliable data is used such as CDC or NHANES data (where weights are actually measured) obesity rates have been fairly stable for most groups of people since the 1990's) Example: "predicted" that people will die younger....but we just set a record for life expectancy. Often claims are driven by 60 Billion dollar weight loss industry. Some of the reason that the rate of obesity increased is that in 1998 the criteria changed. Executive of a weight loss industry was the leader of the group that got the criteria changed. The "epidemic" is that 1980 23% overweight/obese and in 2008 34%.. but look at what they are calling overweight (see picture- Also add actual picture of a person with a BMI of 25) For a person who is 5'4" they are overweight at a weight of 150 lbs. New American Diabetes Association guidelines defining overweight for a BMI of 23 for Asians. For someone 5'4" a BMI of 23 is 135 lbs.



Figure. Selected Body Mass Index Percentile Values by Survey Cycle, 1999-2010



Values are weighted estimates.

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- 2) There is a big difference between an "association" and a "causal" relationship. Example: male pattern baldness is "associated" with cardiovascular disease, but that does not mean that hair loss is what "causes" cardiovascular disease or that growing hair will fix it.
- 3) There has never been a "causal" relationship established between obesity and illness. Nor has there been a study that showed us that weight loss itself will improve the outcome. The Look Ahead Trial (very large, long term, multicenter with a randomized clinical prospective design-most reliable way of doing research) showed us no difference in outcome (health or death rate) in the long term between people who lost weight and those that did not. Often studies that state an "association" between weight and health do not take into consideration differences in fitness/activity, nutrition, socioeconomic status, body image, weight cycling
- 4) What we do know is that fitness/healthy behavior does make a difference. Difficult to know what is giving us the benefit, the weight loss, **OR** the behavior that caused the weight loss.
- 5) If you lose weight in an unhealthy way (surgically removing fat, liposuction, bulimia, illness, diabetic who stops taking insulin) you do not improve health.
- 6) If you gain weight (like a summa wrestler) but do it with healthy behavior, health does not decrease.
- 7) If you do healthy behavior, but do not lose weight you get benefit anyway
- 8) You cannot tell by someone's weight or BMI how much healthy behavior they are doing. There are thin people who follow very unhealthy behavior and those that follow very healthy behavior who are not thin.
- 9) It is not that people do not want to lose weight or try hard to do so. 60 Billion dollars are spent annually on weight loss efforts. This is a battle I have fought for 50 years and have lost over 1000 pounds in my life. We know that weight cycling (yo-yo) is bad for health. Focusing on sustainable

healthy behavior is much better than cycling. Weight cycling actually causes weight gain and the focus on weight may actually be contributing to the "epidemic"



"I don't think this is what your doctor meant by lowering your carbs, honey."

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10) A lot of false advertisement with weight loss supplements and treatments. FDA does not control "food supplements" Recently FTC did crack down on several false claims and the government is asking Media to be more vigilant when advertising. Biggest loser makes it seem that it is realistic to lose large amounts of weight.

11) We have identified over 100 genes that are related to weight, and diabetes.

12) Insulin resistance (which is difficult to measure) is largely genetic. When the insulin does not work well, muscles lack energy and send a message that they need fuel. This causes increased hunger. We have identified that when you eat more and exercise less, it makes insulin resistance worse. Since insulin resistance is difficult to measure, what you see is weight gain. It is easy to "assume" that weight gain caused the increase in insulin resistance, when insulin resistance may be actually the real cause of disease.

13) People who are thin and insulin resistant have more health problems than overweight people with insulin resistance. People who are overweight but not insulin resistant, do not have increased risk

14) Strong evidence exists to show that people in the overweight category actually live longer than normal weight. Underweight is actually worse than class 3 morbid obesity. This is true for heart disease, cancer, kidney disease, congestive heart failure and diabetes. They call it the "obesity paradox" because it does not make sense if you think the increased weight itself is what causes illness. I personally think that this is not due to extra weight being healthy, but that likely people who are overweight are probably doing more healthy behavior than thin people who do not have to constantly struggle with weight.

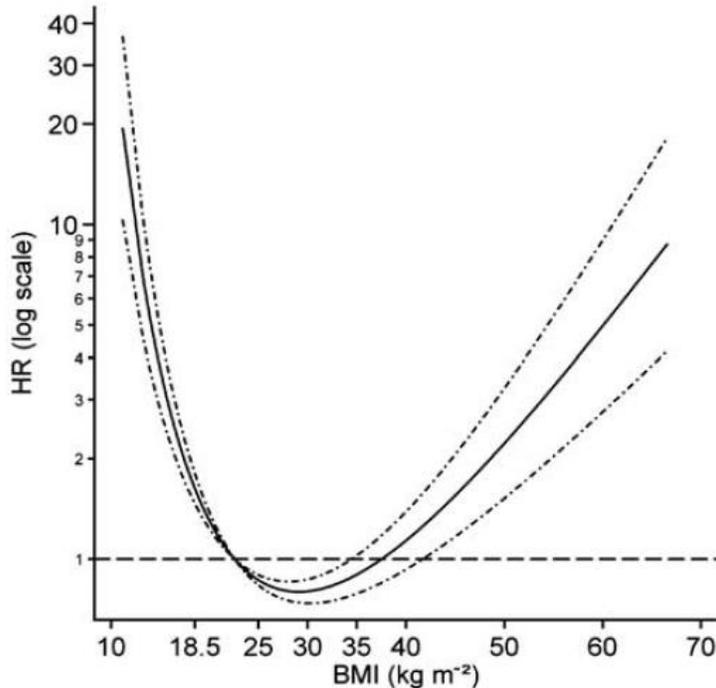
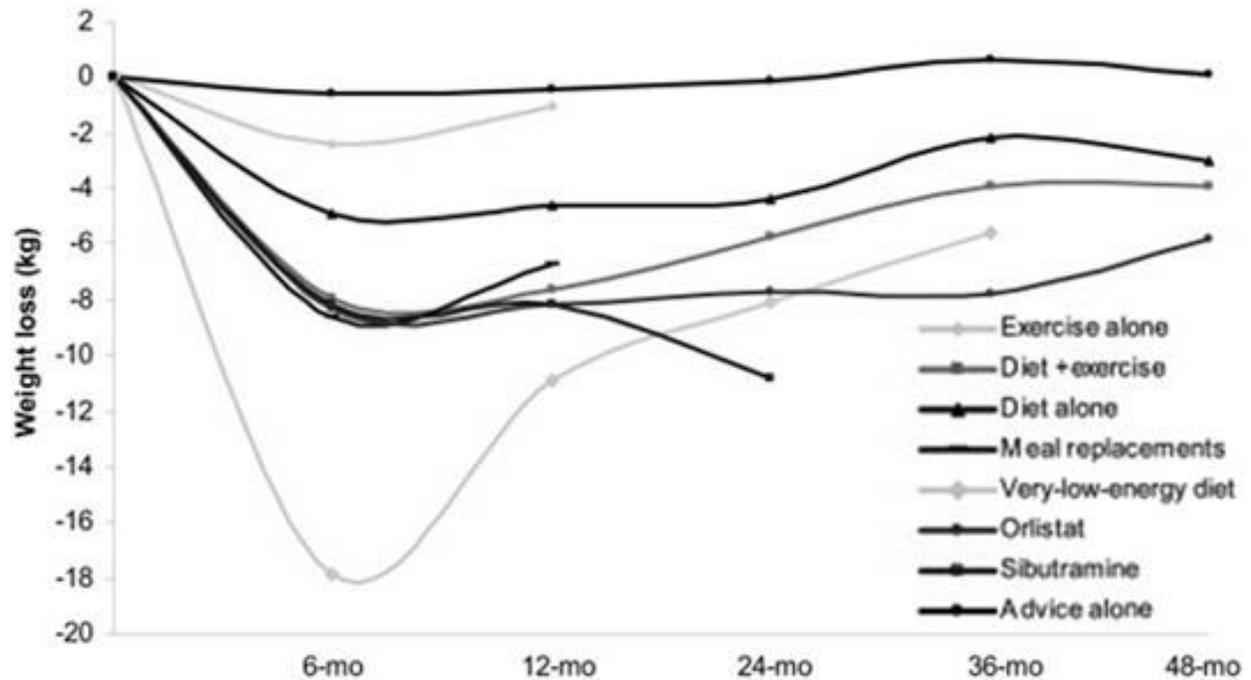


Figure 1 Functional form of the association of BMI with the relative hazard of death estimated in a Cox proportional hazards model adjusted for age, gender, smoking, alcohol consumption and survey year. The function was fitted using two-term fractional polynomial functions with powers (log, log). The function was standardized such that the HR was 1 at the mean of the desirable weight category for BMI ($18.5 < \text{BMI} < 25 \text{ kg m}^{-2}$) = 22.57 kg m^{-2} . Dot-dash lines indicate the 95% confidence interval.

For someone who is 5'4" who is 110 lbs would have a BMI of 18.5 (lower limit of "normal") On the j-curve of death risk this would be equal to a BMI of about 45, so until they reached a weight over 260 lbs they would have a decreased risk of death at a higher weight. If less had a BMI less than 18.5 risk goes up dramatically faster than high BMI's

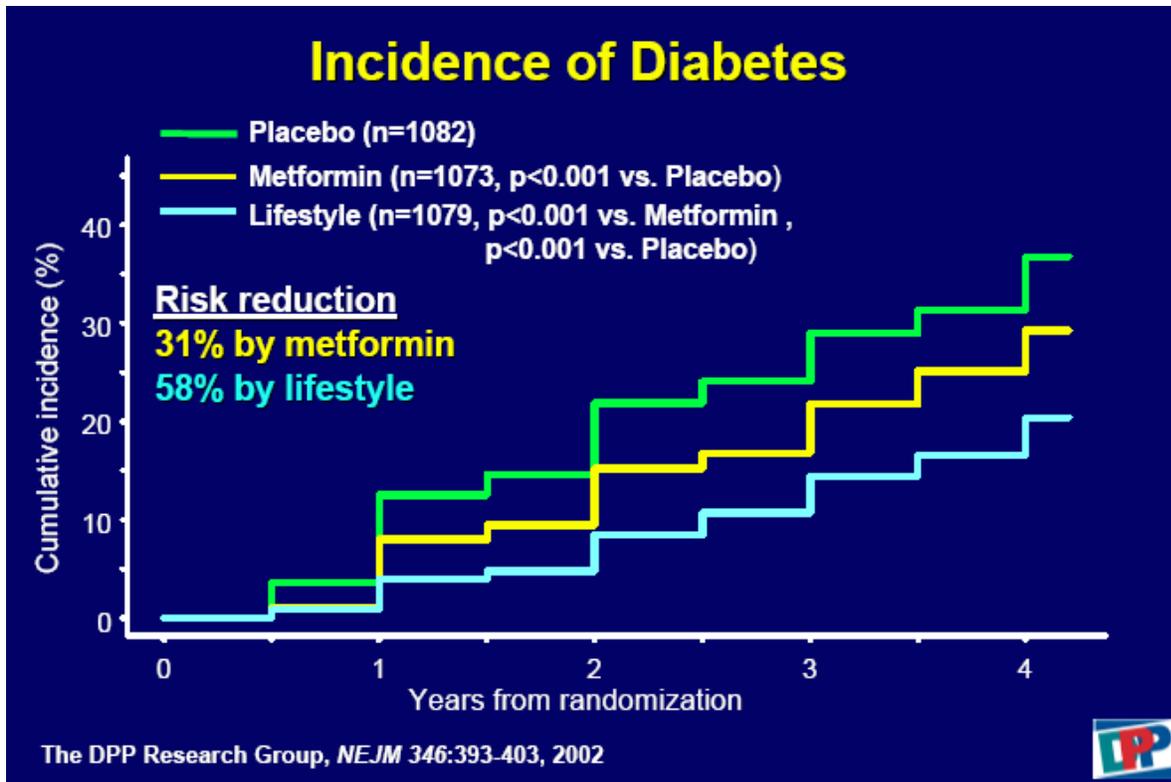
15) Less than 5% of people can lose more than about 5-10% of their weight and keep it off. Studies claim that people can "prevent" diabetes with weight loss. In these studies, they did not differentiate benefit from healthy behavior and weight loss. It is important to note that 20% of the people who made the healthy changes became diabetic in the 4 year study anyway. If you could "prevent" diabetes in everyone who lost weight, no one that lost weight would have become diabetic. A better term would

be that we can delay the onset of diabetes with healthy lifestyle. The truth is we actually do not have a method or a plan that is successful and recommendations often fluctuate between low fat, low carb. There are only 4 things that calories can be: fat, carbohydrate, protein and alcohol. If you decrease any of them without increasing another for the rest of your life, you will eventually starve to death. Too much of any of them can be unhealthy. It is the balance that is beneficial. Bariatric surgery does have a better success at weight loss but have to weigh and measure benefits and risk. Whatever method or obesity treatment or service is offered if the focus is on helping a person be able to eat more healthy or be able to become more active, benefits may outweigh the risk for some people.



Franz, et al. Jour Am Diet Assoc. 2007; 107(10): 1755-1767.

(Large Meta-analysis representing 80 studies and 80,000 people)

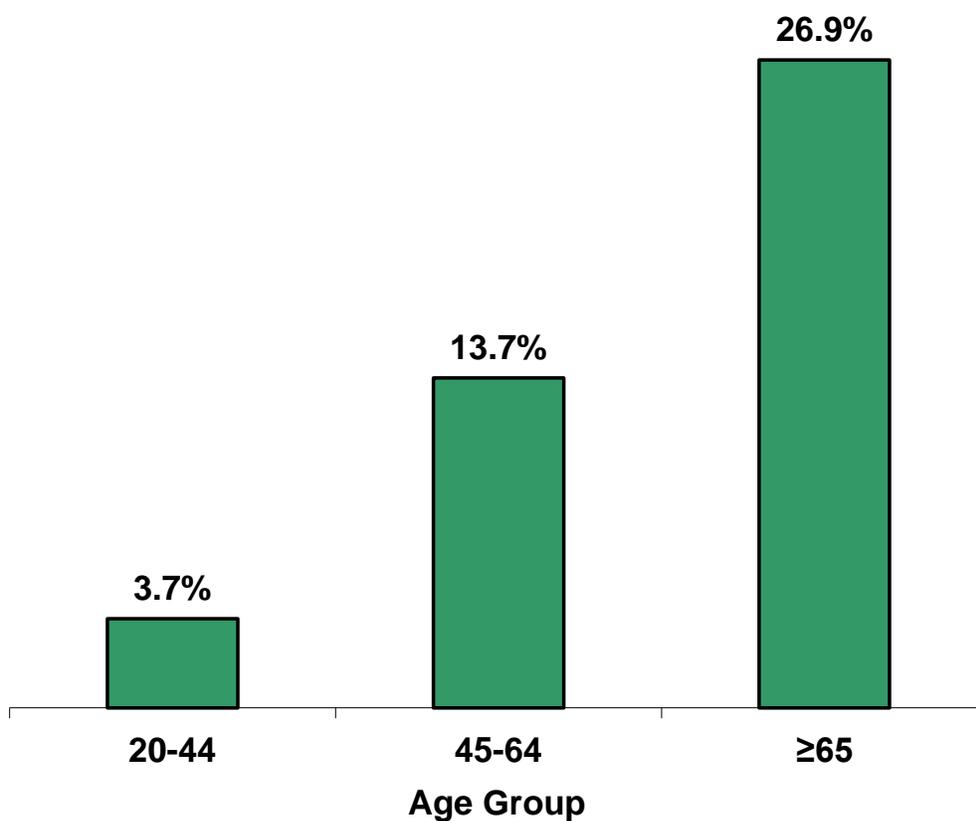


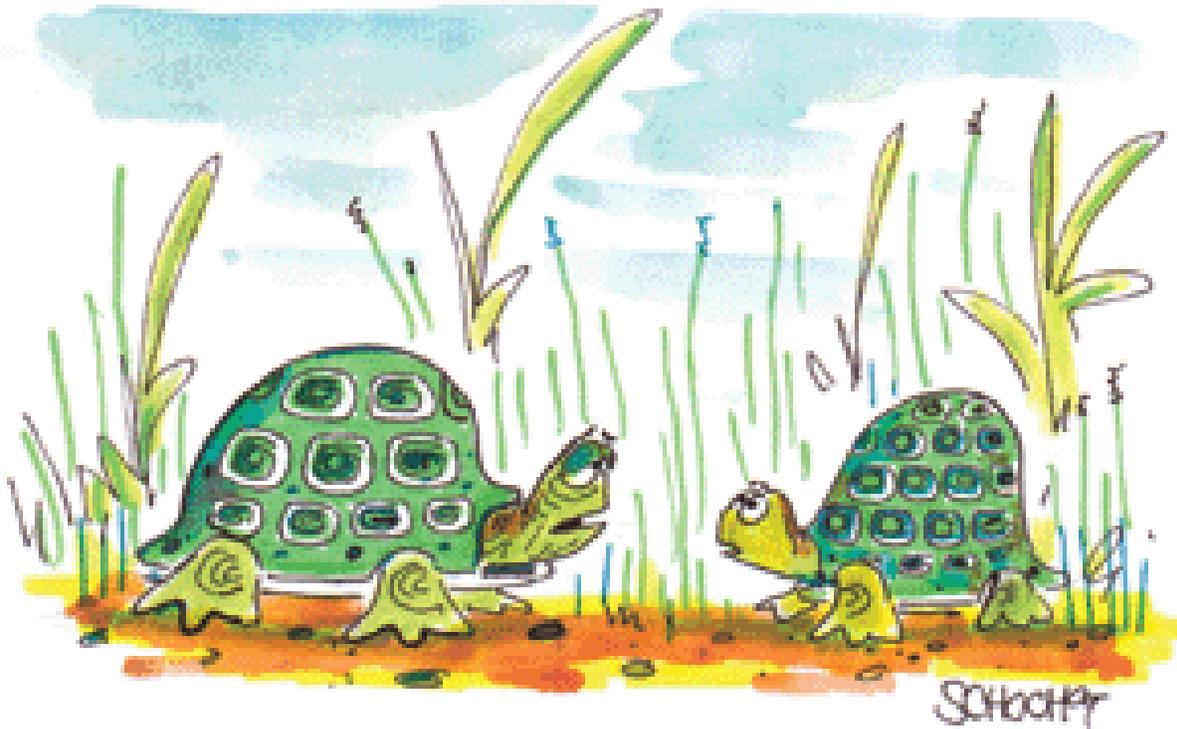
Extension study DPPOS published in *Lancet*. 2009;374:1677-1686 showed that at 10 years, reduction of diabetes in lifestyle group was 34% and in the metformin group was 18%

16) It is often said that 3500 calories equal a pound. People are often told that if they decrease calories by 500 per day they would lose a pound a week. It is a "simple" equation....eat less and exercise more. But what they don't realize is that when the body is in calorie deficit, it doesn't burn as many calories. Like when you lose your job, you don't spend as much money.

17) Diabetes is a chronic and progressive disease. As you get older you keep needing more and more insulin and being able to produce less and less. So even with weight loss or weight loss surgery, diabetes can occur or reoccur with time. Studies show that it is actually the calorie deficit that causes the benefit before weight is lost. So if someone has had diabetes for a long time, they are less likely to be able to get off of diabetes medications when they decrease need for insulin with weight loss (even with bariatric surgery) And even someone who is able to get off of medication when they lose weight, they are likely to need medication again as they age. Healthy behavior is more of a treatment rather than a cure for diabetes. Graph below from CDC:

Estimated percentage of people aged 20 years or older with diagnosed and undiagnosed diabetes, by age group, United States, 2005–2008





**“When I hit 120 years, I developed
adult-onset diabetes.”**

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18) Focusing on weight loss rather than healthy behavior does more harm than good.

-frustration and feelings of failure decrease motivation

-weight cycling causes harm

-discrimination and stigmatization (example: doctors often refuse to do surgery)

Dr Attia's TEDMed talk is an example of a physician that realizes his mistake:

TEDMed talk by Dr. Peter Attia: <http://www.youtube.com/watch?v=U3oI104STzs#at=101>

-bullying

-eating disorders and death (example Rick Stream's 18 year old daughter's death from bulimia) Of 100,000 children 12 will have diabetes, but 2700 will have an eating disorder (229 times more likely)

19) Even if weight loss remains the goal, how you do it is with healthy behavior (there is no melting machine.) So the goals need to be the behavior, not the weight loss. Positive reinforcement has been well established as better than negative punishment.

20) Everyone of all sizes can benefit from healthy behavior. If we focus on the weight, we miss the opportunity to help thin people.

21) More motivation to keep doing healthy behavior if not tied to weight loss

22. It is time to recognize the devastating effects of the "war against obesity" We need to make peace. Until we understand the true causes of obesity better AND have a solution that works, we need to stop placing blame and shame. Especially for our children we need to focus on positive behavior changes. All children can benefit from healthy behavior.

27) Even though we know all of this, protocols and recommendations still make recommendations for weight loss. It is time for a paradigm shift. What we are doing is not working.

In Summary:

- Obesity is not growing at an alarming rate, real studies using measured weights rather than stated weights (not funded by weight loss industry) actually show it is leveled off or decreasing
- Obesity is related to but has not been shown to be causal of health problems (genes cause both weight and health issues, which healthy behavior can affect to some degree) But it is the activity that causes the weight loss rather than the weight loss itself that benefits health. With healthy behavior, these benefits can result with or without weight loss.
- Fitness makes much more difference than fatness/BMI in mortality and health issues
- Fewer than 5% of people who attempt weight loss can lose more than about 20 pounds and keep it off (even when they do healthy behavior consistently)and weight cycling or yo-yoing is worse than being obese .
- Weight loss itself does not improve mortality/health (when there is benefit, it is most likely the healthy behavior that caused the benefit rather than the weight loss itself)
- We have more than 100 genes identified related to weight
- Weight loss efforts can be harmful, focusing on sustainable healthy behavior is better
- Placing blame leads to stigma which decreases health and leads to a lot of discrimination
- We could help people be more healthy if we focus on fitness rather than weight loss