Weight as a Measure of Health vs. Health at Every Size

Society for Nutrition Education and Behavior

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BIG FAT LIES

Learn the astonishing facts.

THE TRUTH ABOUT YOUR WEIGHT AND YOUR HEALTH

GLENN A. GAESSER, PH.D.
Non-weight-loss-centered approach to treating “obesity-related” health conditions

Increase in physical activity and/or improved quality of diet

- Fasting blood glucose
- Fasting plasma insulin
- Glucose tolerance
- Insulin sensitivity
- HbA1c

- Systolic BP
- Diastolic BP
- Ambulatory BP

- Cholesterol
- LDL-Cholesterol
- HDL-Cholesterol
- Triglycerides
  - Improved lipid subfractions

Vasodilatory function

Anti-inflammatory markers
- Pro-inflammatory markers

Body weight or body fat

Reduced T2D risk
Reduced CVD risk

▲ Increase
▲ Decrease
▲ No change
Two Billion Reasons for a New Perspective on Obesity Prevention and Treatment
THE SCIENCE OF FAT
After ‘The Biggest Loser,’ Their Bodies Fought to Regain
Weight Contestants lost hundreds of pounds during
Season 8, but gained them back. A study of their
struggles helps explain why so many people fail to keep
off the weight they lose.

By GINA KOLATA MAY 2, 2016

Persistent Metabolic Adaptation 6 Years After “The Biggest
Loser” Competition
Erin Fothergill¹, Juen Guo¹, Lilian Howard¹, Jennifer C. Kerns², Nicolas D. Knuth³, Robert Brychta¹, Kong Y. Chen¹,
Monica C. Skarulis¹, Mary Walter¹, Peter J. Walter¹, and Kevin D. Hall¹

Obesity, 2016
Weight, fat-free mass, and fat mass changes after 30 weeks of Biggest Loser competition and 6 years later

**Figure 2** Individual (*) and mean (gray rectangles) changes in (A) body weight, (B) fat-free mass, and (C) fat mass at the end of “The Biggest Loser” 30-week weight loss competition and after 6 years. Horizontal bars and corresponding *p* values indicate comparisons between 30 weeks and 6 years. *P* < 0.05 compared with baseline.
Changes in RMR and Metabolic Adaptation after 30 weeks of Biggest Loser competition and 6 years later

Figure 4 Individual (*) and mean (gray rectangles) changes in (A) resting metabolic rate and (B) metabolic adaptation at the end of “The Biggest Loser” 30-week weight loss competition and after 6 years. Horizontal bars and corresponding P values indicate comparisons between 30 weeks and 6 years. *P < 0.001 compared with baseline.
Probability of an Obese Person Attaining Normal Body Weight: Cohort Study Using Electronic Health Records

American Journal of Public Health, July 16, 2015 (online)

- United Kingdom’s Clinical Practice Research Datalink from 2004 to 2014
- 76,704 obese men and 99,791 obese women
- 9 years of follow-up
Results

• 1283 men and 2245 women attained normal body weight

• Annual probability of attaining normal weight:
  • 1 in 210 for men; 1 in 124 for women,
  • 1 in 1290 for men and 1 in 677 for women with BMI 40.0–44.9

• Annual probability of achieving a 5% weight reduction was 1 in 8 for men and 1 in 7 for women with BMI 40.0-44.9
Two Billion Reasons for a New Perspective on Obesity Prevention and Treatment
Obesity Prevalence by State, 1985 - 2010
Prevalence of Weight Loss Attempts
1980’s – 2000’s

Cumulative Weight-Loss Attempts by U.S. Adults, 1980 - present

- ~ 2 Billion weight-loss attempts
- ~ 7 weight loss attempts for every U.S. adult during the past thirty years
LOST 34.5 POUNDS IN 8 WEEKS!

Sandi
AVON, NY, USA

AFTER

Hi, I'm James Zeta, and I'm going to show you how I lost...

18 Pounds
IN 4 Days!

BURN FAT
LOSE WEIGHT!

Reduce Belly Fat! with 5 key all natural super-foods

V BURN BELLY FAT
V Get a Huge ENERGY BOOST
V SHED INCHES
V DETOXIFY while losing fat
V ACCELERATED calories burned

ACT NOW AND CLAIM YOUR WEIGHT LOSS KIT

Lisa Samuel
lost 58 pounds!

“The plan was easy to follow and I was never hungry. Because it included my favorite treats like chocolate, chips and wine, I could stick to it until I lost all the weight.”

Lisa Samuel

“It Literally Melted Away 25 Pounds in Just 2 Weeks!”
-Kathleen Hodges, California

New Weight-Loss “Wonder Nutrient” Helps Women and Men Lose 10-25-50 lbs or More!

LOSE WEIGHT 4EVER

Lose 20 Lbs In Just 10 days!
Prevalence of Desire to Weigh Less
National Health and Nutrition Examination Surveys 2003-2008

Prevalence of Trying to Lose Weight Among BMI Categories
BRFSS 2000

Most obese persons will not stay in treatment for obesity.

Of those who stay in treatment, most will not lose weight and of those who do lose weight, most will regain it.

--Albert Stunkard, 1958
Nurses’ Health Study II: 1989 -1993
Binge Eating and Weight Control Practices by Weight Cycling Status

Field et al. *Int J Obes* 2004; 28: 1134-1142
Published Risks Associated With Weight Cycling:

- Higher mortality rates
- Cardiovascular Disease
- Metabolic Syndrome/Diabetes
- Hypertension
- Higher HbA1c
- Hyperinsulinemia
- Dyslipidemias; lower HDL
- Decreased resting and endothelium-dependent myocardial blood flow
- Decreased adiponectin
- Inflammation (elevation in CRP)
- Gall bladder disease; cholecystectomy
Published Risks Associated With Weight Cycling:

- Endometrial cancer
- Renal Cancer
- Colorectal cancer
- Lymphohematopoietic cancers
- Decreased Natural killer cell activity (compromised immune function)
- Poor physical function
- Attenuated improvements in health markers with weight loss
- Android fat pattern
- Decreased BMD
- Forearm fractures
- Hip fractures
- Decreased telomere length
- Loss of lean body mass
BMI and Mortality
Typically a U- or J-Shaped Relationship

- Weight cycling?
- Use of weight-loss medications?
- Low fitness?
Fitness versus Fatness: Which Influences Health and Mortality Risk the Most?

Glenn A. Gaesser, PhD; Wesley J. Tucker, MS, RD; Catherine L. Jarrett, MS, RD; and Siddhartha S. Angadi, PhD

Current Sports Medicine Reports, 2015
Association of BMI and all-cause mortality in U.S. adults [from Flegal et al, JAMA 2013]
Association of cardiorespiratory fitness, BMI, and all-cause mortality in U.S. adults
[from Barry et al, Prog Cardiovasc Dis, 2014]
Long-term Effects of Dieting: Is Weight Loss Related to Health?

A. Janet Tomiyama¹, Britt Ahlstrom¹ and Traci Mann²*

¹UCLA
²University of Minnesota

We believe the ultimate goal of diets is to improve people’s long-term health, rather than to reduce their weight. Our review of randomized controlled trials of the effects of dieting on health finds very little evidence of success in achieving this goal. If diets do not lead to long-term weight loss or long-term health benefits, it is difficult to justify encouraging individuals to endure them.
Change in systolic and diastolic blood pressure by amount of weight loss maintained

**Figure 1** Change in systolic and diastolic blood pressure (mmHg) by amount of weight loss (kg) maintained. Symbol size refers to sample size, with, from smallest to largest symbol, n ≤ 100, 100 < n ≤ 500, 500 < n ≤ 1000, and n > 1000. Percent dropouts from each study are depicted by the opaqueness of the symbol (≥20% or <20%). The statistical significance of the difference between diet and control groups in amount of weight lost is depicted by color, with green = statistically significant difference, red = no statistically significant difference, and yellow = unknown statistical significance.
Change in blood glucose by amount of weight loss maintained

Figure 2 Change in blood glucose (mmol/L) by amount of weight loss (kg) maintained. Symbol size refers to sample size, with, from smallest to largest symbol, $n \leq 100$, $100 < n \leq 500$, $500 < n \leq 1000$, and $n > 1000$. Percent dropouts from each study are depicted by the opaqueness of the symbol (>20% or <20%). The statistical significance of the difference between diet and control groups in amount of weight lost is depicted by color, with green = statistically significant difference and red = no statistically significant difference.
Change in cholesterol and triglycerides by amount of weight loss maintained

Figure 3: Change in cholesterol and triglycerides (mmol/L) by amount of weight loss (kg) maintained. Symbol size refers to sample size, with, from smallest to largest symbol, $n \leq 100$, $100 < n \leq 500$, $500 < n \leq 1000$, and $n > 1000$. Percent dropouts from each study are depicted by the opaqueness of the symbol (>20% or <20%). The statistical significance of the difference between diet and control groups in amount of weight lost is depicted by color, with green = statistically significant difference and red = no statistically significant difference.
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Increase
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No change
BRFSS 2000

Prevalence of Dieting and Physical Activity Among Those Trying to Lose Weight
