

Advancements in Medical Weight Loss: Diets and Drugs

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Objectives

- The Scope of the Obesity Problem
- History of Diets
- The Science Behind Diets
- Diets that Work
- Drugs for Medical Weight Loss



Weight Management

- In your practice, how many patients do you see for just weight management?



Scope

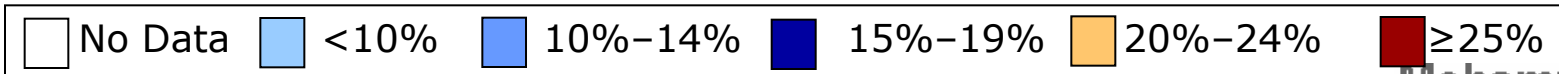
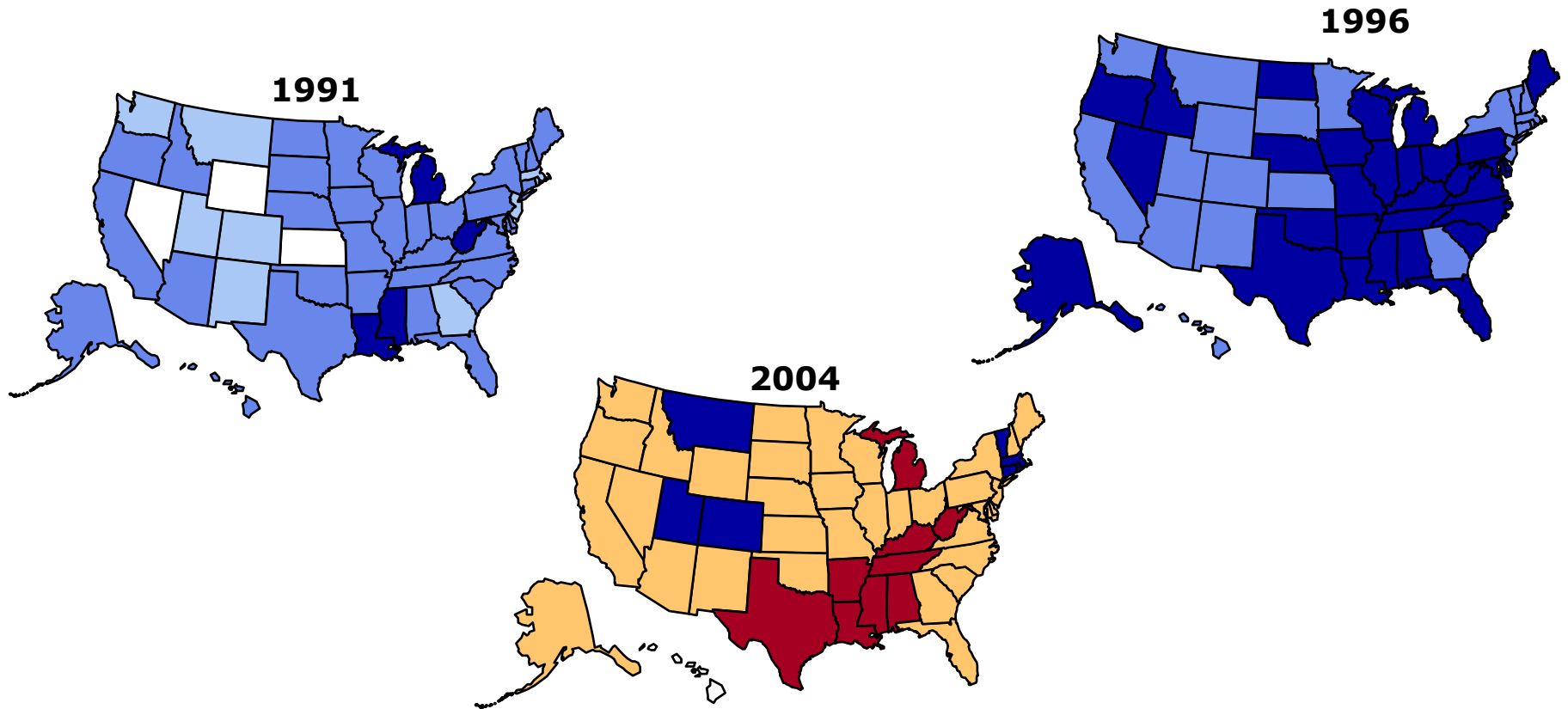
- 68% of adults overweight
- 39% of adults obese
- 18% of children 6-19 years of age are overweight
- 12% of children 2-5 years of age are overweight



Obesity Trends* Among U.S. Adults

BRFSS, 1991, 1996, 2004

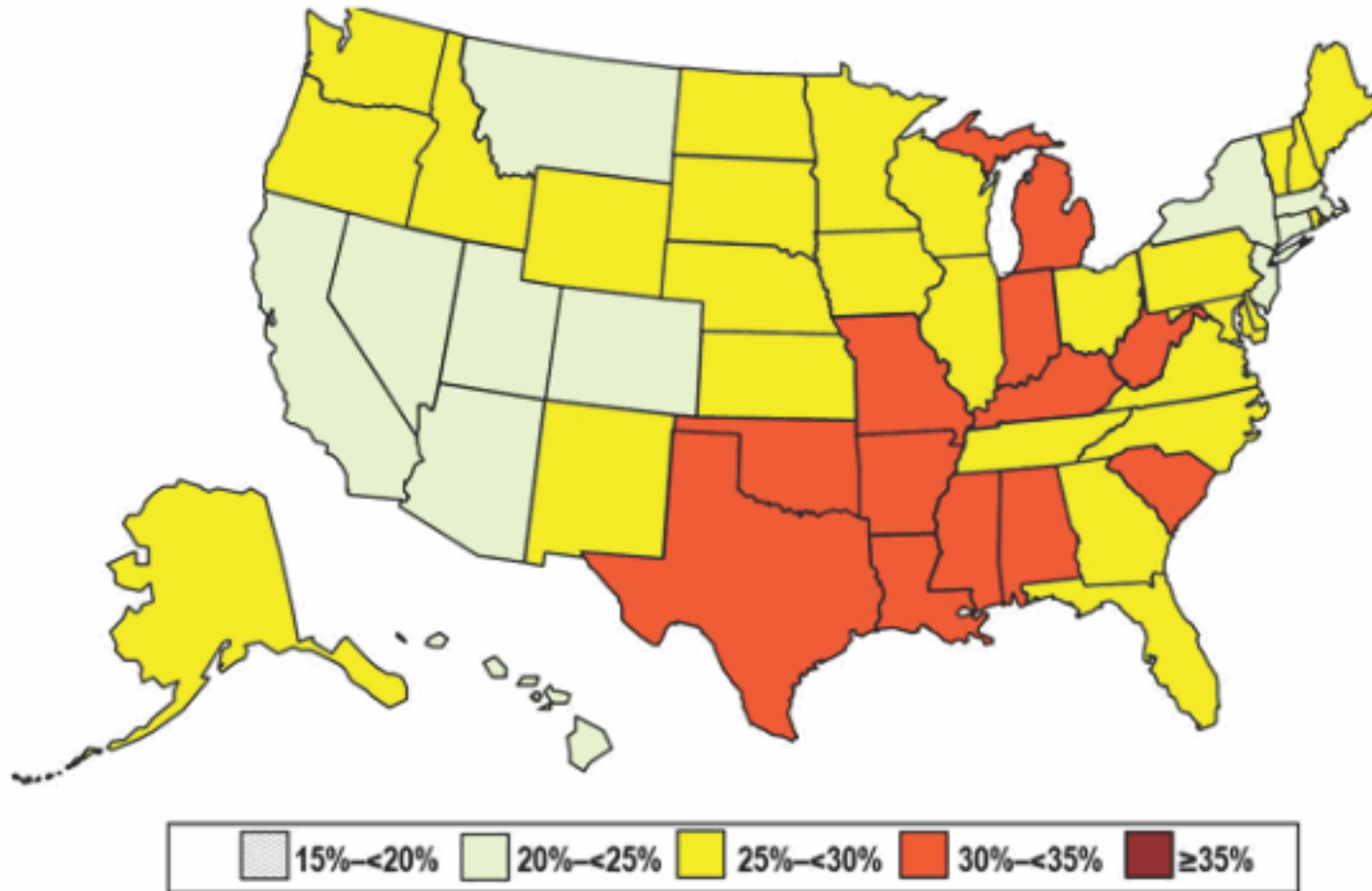
(*BMI ≥ 30 , or about 30 lbs overweight for 5'4" person)



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Prevalence of Self-Reported Obesity Among U.S. Adults BRFSS, 2011



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Chicago fattest city in U.S.

January 6, 2006

BY MEGAN REICHGOTT ASSOCIATED PRESS

Advertisement

Put down that slice of deep-dish pizza, Chicago.

The "City of Big Shoulders" is now the city with the thickest waistline, according to an annual survey.

Men's Fitness magazine has named Chicago the nation's fattest city.

In 1980, 46% of US adults age 20 and older were overweight or obese; by 1999, the number had increased to 60%. This dramatic increase has coincided with several trends:

- Higher energy intake from larger portion at home and at restaurants ("super-sizing")
- Greater consumption of high-fat foods
- Widespread availability of low-cost, good-tasting, energy-dense foods
- Decreased physical activity at work, at home, and during leisure time.

At any given time, 44% of women and 29% of men are dieting

Americans spend \$50 billion a year on weight-loss products, programs, and pills



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Growth Stopped

- CDC says for past 7 years we have not gained any more weight and have plateaued
- But haven't started reversing yet
- Hispanic women have started reversing



Costs of obesity?

Q: What is the cost of obesity?

A: Total cost: \$117 billion , Direct cost: \$61 billion,* Indirect cost: \$56 billion (comparable to the economic costs of cigarette smoking)

Q: What is the cost of heart disease related to overweight and obesity?

A: Direct cost: \$8.8 billion (17 percent of the total direct cost of heart disease, independent of stroke)

Q: What is the cost of type 2 diabetes related to overweight and obesity?

A: Total cost: \$98 billion (in 2001)

Q: What is the cost of osteoarthritis related to overweight and obesity?

A: Total cost: \$21.2 billion, Direct cost: \$5.3 billion, Indirect cost: \$15.9 billion

Q: What is the cost of hypertension (high blood pressure) related to overweight and obesity?

A: Direct cost: \$4.1 billion (17 percent of the total cost of hypertension)

Q: What is the cost of gallbladder disease related to overweight and obesity?

A: Total cost: \$3.4 billion, Direct cost: \$3.2 billion, Indirect cost: \$187 million



More costs...

Q: What is the cost of cancer related to overweight and obesity?

- Breast cancer: Total cost: \$2.9 billion, Direct cost: \$1.1 billion, Indirect cost: \$1.8 billion
- Endometrial cancer: Total cost: \$933 million, Direct cost: \$310 million, Indirect cost: \$623 million
- Colon cancer: Total cost: \$3.5 billion, Direct cost: \$1.3 billion, Indirect cost: \$2.2 billion

Q: What is the cost of lost productivity related to obesity?

- The cost of lost productivity related to obesity (BMI \geq 30) among Americans ages 17–64 is \$3.9 billion. This value considers the following annual numbers (for 1994):
- Workdays lost related to obesity: 39.3 million
- Physician office visits related to obesity: 62.7 million
- Restricted activity days related to obesity: 239.0 million
- Bed-days related to obesity: 89.5 million



Medical Complications of Obesity

Pulmonary disease

abnormal function
obstructive sleep apnea
hypoventilation syndrome

Nonalcoholic fatty liver disease

steatosis
steatohepatitis
cirrhosis

Gall bladder disease

Gynecologic abnormalities

abnormal menses
infertility
polycystic ovarian syndrome

Osteoarthritis

Skin

Gout

Idiopathic intracranial hypertension

Stroke

Cataracts

Coronary heart disease

Diabetes

Dyslipidemia

Hypertension

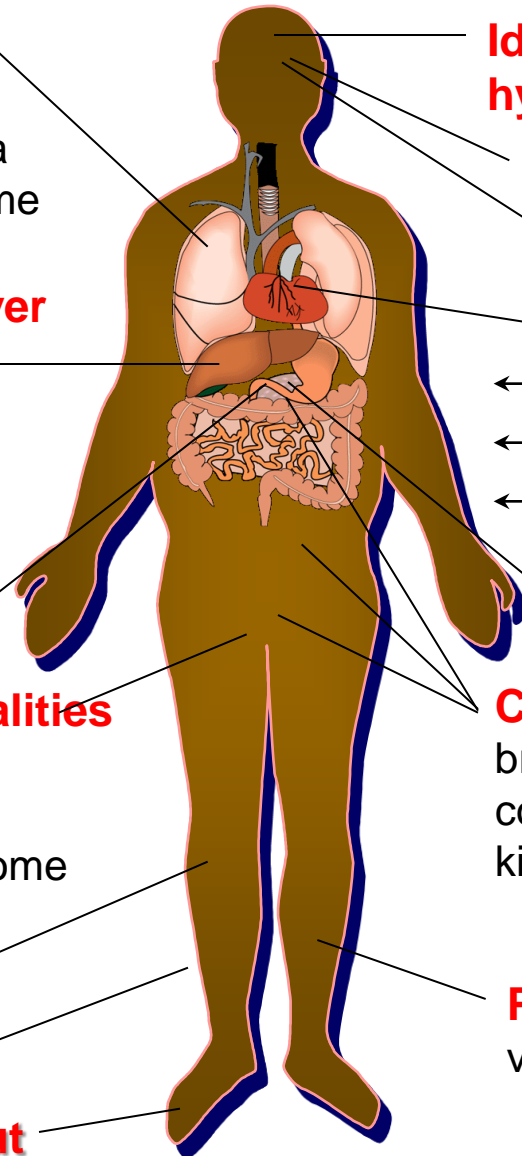
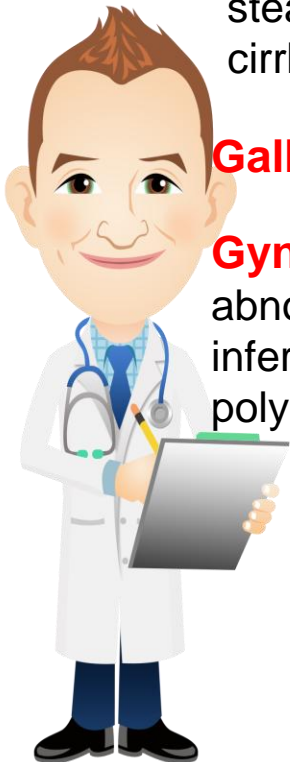
Severe pancreatitis

Cancer

breast, uterus, cervix
colon, esophagus, pancreas
kidney, prostate

Phlebitis

venous stasis

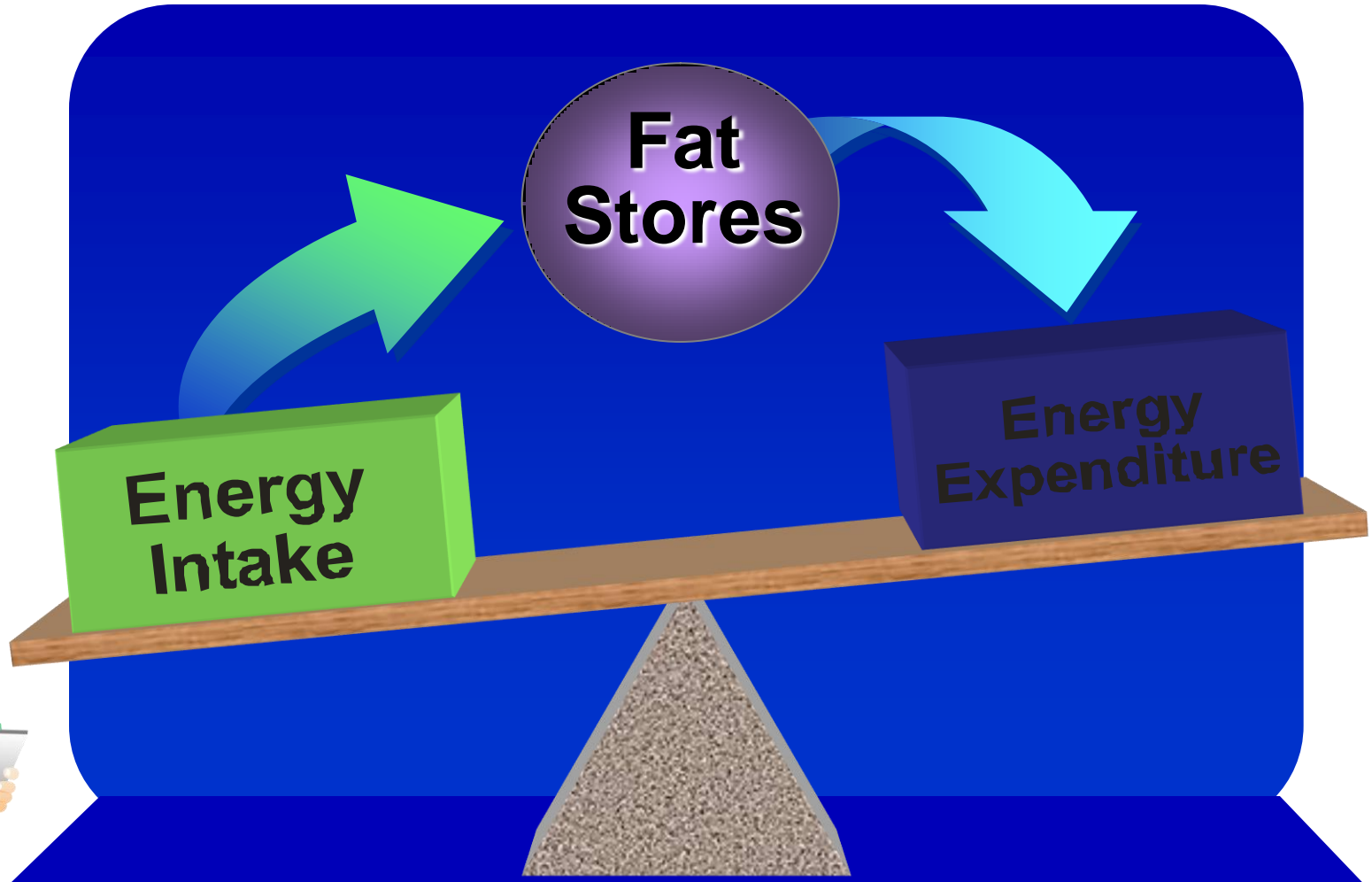


Complications no one talks about

- Not fitting in CT scanner
- Abdominal surgery and healing
- Medical emergencies-can they carry you?
- Difficulty dosing medications
- Operating tables not capable
- Not fitting in airplane



Obesity Is Caused by Long-Term Positive Energy Balance

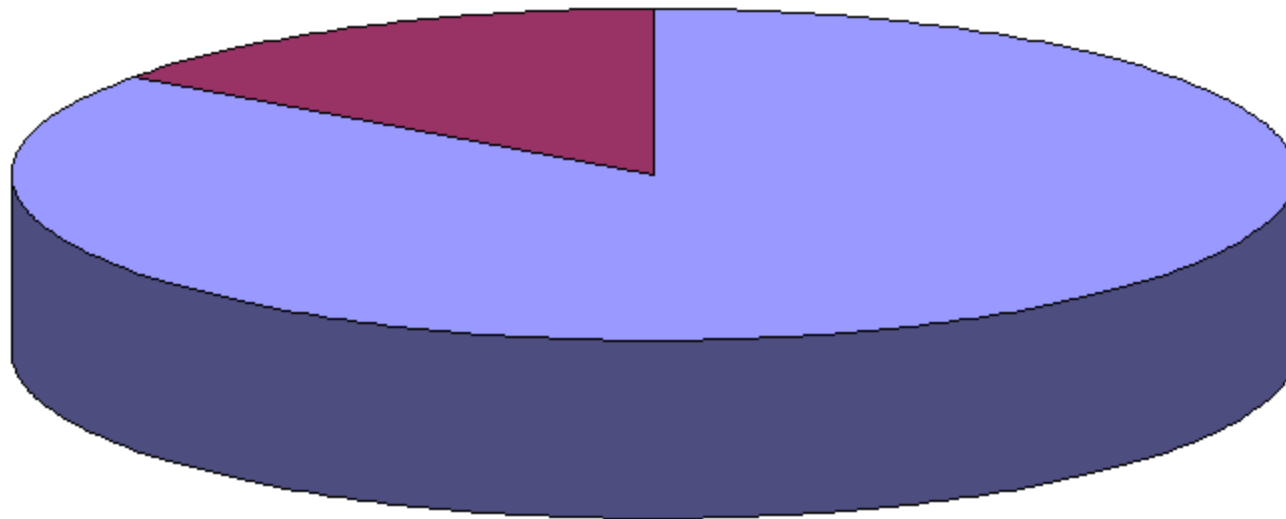
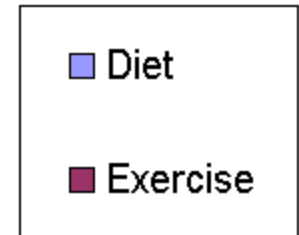


Diet or Exercise?

What is more important in determining your body composition?



Diet or Exercise?



90% Diet

10% Exercise

Effects of anti-obesity drugs, diet, and exercise on weight-loss maintenance after a very-low-calorie diet or low-calorie diet: a systematic review and meta-analysis of randomized controlled trials.

Johansson K¹, Neovius M, Hemmingsson E.

Author information

Abstract

BACKGROUND: Weight-loss maintenance remains a major challenge in obesity treatment.

OBJECTIVE: The objective was to evaluate the effects of anti-obesity drugs, diet, or exercise on weight-loss maintenance after an initial very-low-calorie diet (VLCD)/low-calorie diet (LCD) period (<1000 kcal/d).

DESIGN: We conducted a systematic review by using MEDLINE, the Cochrane Controlled Trial Register, and EMBASE from January 1981 to February 2013. We included randomized controlled trials that evaluated weight-loss maintenance strategies after a VLCD/LCD period. Two authors performed independent data extraction by using a predefined data template. All pooled analyses were based on random-effects models.

RESULTS: Twenty studies with a total of 27 intervention arms and 3017 participants were included with the following treatment categories: anti-obesity drugs (3 arms; n = 658), meal replacements (4 arms; n = 322), high-protein diets (6 arms; n = 865), dietary supplements (6 arms; n = 261), other diets (3 arms; n = 564), and exercise (5 arms; n = 347). During the VLCD/LCD period, the pooled mean weight change was -12.3 kg (median duration: 8 wk; range 3-16 wk). Compared with controls, anti-obesity drugs improved weight-loss maintenance by 3.5 kg [95% CI: 1.5, 5.5 kg; median duration: 18 mo (12-36 mo)], meal replacements by 3.9 kg [95% CI: 2.8, 5.0 kg; median duration: 12 mo (10-26 mo)], and high-protein diets by 1.5 kg [95% CI: 0.8, 2.1 kg; median duration: 5 mo (3-12 mo)]. Exercise [0.8 kg; 95% CI: -1.2, 2.8 kg; median duration: 10 mo (6-12 mo)] and dietary supplements [0.0 kg; 95% CI: -1.4, 1.4 kg; median duration: 3 mo (3-14 mo)] did not significantly improve weight-loss maintenance compared with control.

CONCLUSION: Anti-obesity drugs, meal replacements, and high-protein diets were associated with improved weight-loss maintenance after a VLCD/LCD period, whereas no significant improvements were seen for dietary supplements and exercise.

PMID: 24172297 [PubMed - indexed for MEDLINE] PMCID: PMC3862452 [Free PMC Article](#)

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Regular exercise attenuates the metabolic drive to regain weight after long-term weight loss.

MacLean PS¹, Higgins JA, Wyatt HR, Melanson EL, Johnson GC, Jackman MR, Giles ED, Brown IE, Hill JO.

[+](#) Author information

Abstract

Weight loss is accompanied by several metabolic adaptations that work together to promote rapid, efficient regain. We employed a rodent model of regain to examine the effects of a regular bout of treadmill exercise on these adaptations. Obesity was induced in obesity-prone rats with 16 wk of high-fat feeding and limited physical activity. Obese rats were then weight reduced (approximately 14% of body wt) with a calorie-restricted, low-fat diet and maintained at that reduced weight for 8 wk by providing limited provisions of the diet with (EX) or without (SED) a daily bout of treadmill exercise (15 m/min, 30 min/day, 6 days/wk). Weight regain, energy balance, fuel utilization, adipocyte cellularity, and humoral signals of adiposity were monitored during eight subsequent weeks of ad libitum feeding while the rats maintained their respective regimens of physical activity. Regular exercise decreased the rate of regain early in relapse and lowered the defended body weight. During weight maintenance, regular exercise reduced the biological drive to eat so that it came closer to matching the suppressed level of energy expenditure. The diurnal extremes in fuel preference observed in weight-reduced rats were blunted, since exercise promoted the oxidation of fat during periods of feeding (dark cycle) and promoted the oxidation of carbohydrate (CHO) later in the day during periods of deprivation (light cycle). At the end of relapse, exercise reestablished the homeostatic steady state between intake and expenditure to defend a lower body weight. Compared with SED rats, relapsed EX rats exhibited a reduced turnover of energy, a lower 24-h oxidation of CHO, fewer adipocytes in abdominal fat pads, and peripheral signals that overestimated their adiposity. These observations indicate that regimented exercise altered several metabolic adaptations to weight reduction in a manner that would coordinately attenuate the propensity to regain lost weight.

PMID: 19587114 [PubMed - indexed for MEDLINE] PMCID: PMC2739786 [Free PMC Article](#)



Original article

Beneficial effects of exercise: shifting the focus from body weight to other markers of health

Neil King^{1,*}, Mark Hopkins², Phillipa Caudwell³, James Stubbs⁴, John Blundell³

+ Author Affiliations

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Abstract

Background: Exercise is widely promoted as a method of weight management, whilst the other health benefits are often ignored. The purpose of this study was to examine whether exercise-induced improvements in health are influenced by changes in body weight.

Methods: Fifty-eight sedentary overweight/obese men and women (BMI 31.8 ±4.5kg/m²) participated in a 12 week supervised aerobic exercise intervention (70% heart rate max, 5 times a week, 500kcal per session). Body composition, anthropometric parameters, aerobic capacity, blood pressure and acute psychological response to exercise were measured at weeks 0 and 12.

Results: Mean reduction in body weight was -3.3 ±3.63kg (P<0.01). However, 26 of the 58 participants failed to attain the predicted weight loss estimated from individuals' exercise-induced energy expenditure. Their mean weight loss was only -0.9 ±1.8kg (P<0.01). Despite attaining lower than predicted weight reduction, these individuals experienced significant increases in aerobic capacity (6.3 ±6.0ml.kg⁻¹.min⁻¹; P<0.01), decreased systolic (-6.00 ±11.5mmHg; P<0.05) and diastolic blood pressure (-3.9 ±5.8mmHg; P<0.01), waist circumference (-3.7 ±2.7cm; P<0.01) and resting heart rate (-4.8±8.9bpm, p<0.001). In addition, these individuals experienced an acute exercise-induced increase in positive mood.

Conclusions: These data demonstrate that significant and meaningful health benefits can be achieved even in the presence of lower than expected exercise-induced weight loss. Less successful reduction in body weight does not undermine the beneficial effects of aerobic exercise. From a public health perspective, exercise should be encouraged and the emphasis on weight loss reduced.

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Diet or exercise interventions vs combined behavioral weight management programs: a systematic review and meta-analysis of direct comparisons.

Johns DJ, Hartmann-Boyce J, Jebb SA, Aveyard P; Behavioural Weight Management Review Group.

Abstract

Weight loss can reduce the health risks associated with being overweight or obese. However, the most effective method of weight loss remains unclear. Some programs emphasize physical activity, others diet, but existing evidence is mixed as to whether these are more effective individually or in combination. We aimed to examine the clinical effectiveness of combined behavioral weight management programs (BWMPs) targeting weight loss in comparison to single component programs, using within study comparisons. We included randomized controlled trials of combined BWMPs compared with diet-only or physical activity-only programs with at least 12 months of follow-up, conducted in overweight and obese adults (body mass index ≥ 25). Systematic searches of nine databases were run and two reviewers extracted data independently. Random effects meta-analyses were conducted for mean difference in weight change at 3 to 6 months and 12 to 18 months using a baseline observation carried forward approach for combined BWMPs vs diet-only BWMPs and combined BWMPs vs physical activity-only BWMPs. In total, eight studies were included, representing 1,022 participants, the majority of whom were women. Six studies met the inclusion criteria for combined BWMP vs diet-only. Pooled results showed no significant difference in weight loss from baseline or at 3 to 6 months between the BWMPs and diet-only arms (-0.62 kg; 95% CI -1.67 to 0.44). However, at 12 months, a significantly greater weight-loss was detected in the combined BWMPs (-1.72 kg; 95% CI -2.80 to -0.64). Five studies met the inclusion criteria for combined BWMP vs physical activity-only. Pooled results showed significantly greater weight loss in the combined BWMPs at 3 to 6 months (-5.33 kg; 95% CI -7.61 to -3.04) and 12 to 18 months (-6.29 kg; 95% CI -7.33 to -5.25). Weight loss is similar in the short-term for diet-only and combined BWMPs but in the longer-term weight loss is increased when diet and physical activity are combined. Programs based on physical activity alone are less effective than combined BWMPs in both the short and long term.

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KEYWORDS: Behavioral programme; Diet; Exercise; Obesity; Weight loss

PMID: 25257365 [PubMed - in process] PMCID: PMC4180002 **Free PMC Article**

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Long-term effectiveness of diet-plus-exercise interventions vs. diet-only interventions for weight loss: a meta-analysis.

Wu T¹, Gao X, Chen M, van Dam RM.

Author information

Abstract

Diet and exercise are two of the commonest strategies to reduce weight. Whether a diet-plus-exercise intervention is more effective for weight loss than a diet-only intervention in the long-term has not been conclusively established. The objective of this study was to systemically review the effect of diet-plus-exercise interventions vs. diet-only interventions on both long-term and short-term weight loss. Studies were retrieved by searching MEDLINE and Cochrane Library (1966 - June 2008). Studies were included if they were randomized controlled trials comparing the effect of diet-plus-exercise interventions vs. diet-only interventions on weight loss for a minimum of 6 months among obese or overweight adults. Eighteen studies met our inclusion criteria. Data were independently extracted by two investigators using a standardized protocol. We found that the overall standardized mean differences between diet-plus-exercise interventions and diet-only interventions at the end of follow-up were -0.25 (95% confidence interval [CI]-0.36 to -0.14), with a P-value for heterogeneity of 0.4. Because there were two outcome measurements, weight (kg) and body mass index (kg m(-2)), we also stratified the results by weight and body mass index outcome. The pooled weight loss was 1.14 kg (95% CI 0.21 to 2.07) or 0.50 kg m(-2) (95% CI 0.21 to 0.79) greater for the diet-plus-exercise group than the diet-only group. We did not detect significant heterogeneity in either stratum. Even in studies lasting 2 years or longer, diet-plus-exercise interventions provided significantly greater weight loss than diet-only interventions. In summary, a combined diet-plus-exercise programme provided greater long-term weight loss than a diet-only programme. However, both diet-only and diet-plus-exercise programmes are associated with partial weight regain, and future studies should explore better strategies to limit weight regain and achieve greater long-term weight loss.

PMID: 19175510 [PubMed - indexed for MEDLINE]

Meta-analysis: the effect of dietary counseling for weight loss.

Dansinger ML¹, Tatsioni A, Wong JB, Chung M, Balk EM.

⊕ Author information

Abstract

BACKGROUND: Dietary and lifestyle modification efforts are the primary treatments for people who are obese or overweight. The effect of dietary counseling on long-term weight change is unclear.

PURPOSE: To perform a meta-analysis of the effect of dietary counseling compared with usual care on body mass index (BMI) over time in adults.

DATA SOURCES: Early studies (1980 through 1997) from a previously published systematic review; MEDLINE and the Cochrane Central Register of Controlled Trials from 1997 through July 2006.

STUDY SELECTION: English-language randomized, controlled trials (> or =16 weeks in duration) in overweight adults that reported the effect of dietary counseling on weight. The authors included only weight loss studies with a dietary component.

DATA EXTRACTION: Single reviewers performed full data extraction; at least 1 additional reviewer reviewed the data.

DATA SYNTHESIS: Random-effects model meta-analyses of 46 trials of dietary counseling revealed a maximum net treatment effect of -1.9 (95% CI, -2.3 to -1.5) BMI units (approximately -6%) at 12 months. Meta-analysis of changes in weight over time (slopes) and meta-regression suggest a change of approximately -0.1 BMI unit per month from 3 to 12 months of active programs and a regain of approximately 0.02 to 0.03 BMI unit per month during subsequent maintenance phases. Different analyses suggested that calorie recommendations, frequency of support meetings, inclusion of exercise, and diabetes may be independent predictors of weight change.

LIMITATIONS: The interventions, study samples, and weight changes were heterogeneous. Studies were generally of moderate to poor methodological quality. They had high rates of missing data and failed to explain these losses. The meta-analytic techniques could not fully account for these limitations.

CONCLUSIONS: Compared with usual care, dietary counseling interventions produce modest weight losses that diminish over time. In future studies, minimizing loss to follow-up and determining which factors result in more effective weight loss should be emphasized.

Comment in

Review: dietary counselling promotes modest weight loss, but the effect diminishes over time. [Evid Based Med. 2008]

Long-term weight loss after diet and exercise: a systematic review.

Curioni CC¹, Lourenço PM.

Author information

Abstract

OBJECTIVE: To assess the effectiveness of dietary interventions and exercise in long-term weight loss in overweight and obese people.

DESIGN: A systematic review with meta-analysis.

SUBJECTS: Overweight and obese adults-18 years old or older with body mass index (calculated as weight divided by the square of height in meters)>25.

DATA SOURCE: Medline, Cochrane Library and Lilacs databases up to March 2003. Also, published reviews and all relevant studies and their reference lists were reviewed in search for other pertinent publications. No language restrictions were imposed.

STUDY SELECTION: Randomised clinical trials comparing diet and exercise interventions vs diet alone. All trials included a follow-up of 1 y after intervention.

DATA EXTRACTION: Two reviewers independently abstracted data and evaluated the studies' quality with criteria adapted from the Jadad Scale and the Delphi list.

DATA SYNTHESIS: The estimate of the intervention's effect size was based on the differences between the comparison groups, and then the overall effect was calculated. A chi-squared test was used to assess statistical heterogeneity.

RESULTS: A total of 33 trials evaluating diet, exercise or diet and exercise were found. Only 6 studies directly comparing diet and exercise vs diet alone were included (3 additional studies reporting repeated observations were excluded). The active intervention period ranged between 10 and 52 weeks across studies. Diet associated with exercise produced a 20% greater initial weight loss. (13 kg vs 9.9 kg; $z=1.86$ - $p=0.063$, 95%CI). The combined intervention also resulted in a 20% greater sustained weight loss after 1 y (6.7 kg vs 4.5 kg; $z=1.89$ - $p=0.058$, 95%CI) than diet alone. In both groups, almost half of the initial weight loss was regained after 1 y.

CONCLUSION: Diet associated with exercise results in significant and clinically meaningful initial weight loss. This is partially sustained after 1 y.

Comment in

Review: dietary intervention plus exercise is no better than dietary intervention alone for inducing long term weight loss. [Evid Based Nurs. 2006]

**Do the commercial programs
work? Or just cost a lot of
money?**



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Systematic review: an evaluation of major commercial weight loss programs in the United States.

Tsai AG¹, Wadden TA.

Author information

Abstract

BACKGROUND: Each year millions of Americans enroll in commercial and self-help weight loss programs. Health care providers and their obese patients know little about these programs because of the absence of systematic reviews.

PURPOSE: To describe the components, costs, and efficacy of the major commercial and organized self-help weight loss programs in the United States that provide structured in-person or online counseling.

DATA SOURCES: Review of company Web sites, telephone discussion with company representatives, and search of the MEDLINE database.

STUDY SELECTION: Randomized trials at least 12 weeks in duration that enrolled only adults and assessed interventions as they are usually provided to the public, or case series that met these criteria, stated the number of enrollees, and included a follow-up evaluation that lasted 1 year or longer.

DATA EXTRACTION: Data were extracted on study design, attrition, weight loss, duration of follow-up, and maintenance of weight loss.

DATA SYNTHESIS: We found studies of eDiets.com, Health Management Resources, Take Off Pounds Sensibly, OPTIFAST, and Weight Watchers. Of 3 randomized, controlled trials of Weight Watchers, the largest reported a loss of 3.2% of initial weight at 2 years. One randomized trial and several case series of medically supervised very-low-calorie diet programs found that patients who completed treatment lost approximately 15% to 25% of initial weight. These programs were associated with high costs, high attrition rates, and a high probability of regaining 50% or more of lost weight in 1 to 2 years. Commercial interventions available over the Internet and organized self-help programs produced minimal weight loss.

LIMITATIONS: Because many studies did not control for high attrition rates, the reported results are probably a best-case scenario.

CONCLUSIONS: With the exception of 1 trial of Weight Watchers, the evidence to support the use of the major commercial and self-help weight loss programs is suboptimal. Controlled trials are needed to assess the efficacy and cost-effectiveness of these interventions.

Comment in

There is insufficient evidence about the efficacy of commercial weight loss programmes. Commentary. [Evid Based Cardiovasc Med. 2005]

Commercial weight loss programs. [Ann Intern Med. 2005]

Review: little evidence supports the efficacy of major commercial and organised self help weight loss programmes. [Evid Based Nurs. 2005]

Review: little evidence supports the efficacy of major commercial and organized self-help weight loss programs. [ACP J Club. 2005]

Summary for patients in

Ann Intern Med. 2005 Jan 4;142(1):142.

Do dietary supplements work?



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Comparison of traditional and nontraditional weight loss methods: an analysis of the national health and nutrition examination survey.

Post RE, Johnson SP, Wright RU, Mainous AG 3rd.

Author information

Abstract

OBJECTIVES: To evaluate the real-world use of various weight loss techniques and to compare the effectiveness of nontraditional methods with diet and exercise in helping nongeriatric adults lose weight.

METHODS: A cross-sectional analysis of the 2005-2010 National Health and Nutrition Examination Survey was performed. Adult, nonpregnant participants aged 20 to 65 years with a body mass index of ≥ 18.5 who tried to lose weight in the previous year were analyzed (weighted n = 53,570,979). Outcome measures included the proportion of patients who used nontraditional weight loss methods and a comparison of weight loss between those who used diet and exercise and those who used nontraditional methods.

RESULTS: During the previous year, 56.9% (95% confidence interval 54.5-59.4) of participants used nontraditional methods (nonexclusive of diet and exercise) as their attempted weight loss methods. Overall, individuals gained a mean (standard error) of 4.9 (0.3) lb in the 12 months preceding the National Health and Nutrition Examination Survey questionnaire. Only 19.6% (95% confidence interval 18.0-21.2) of the sample lost weight within the previous 12 months. Those who used nontraditional methods gained more weight during the previous year than those who used diet and exercise only (for body mass index ≥ 18.5 , 5.5 vs 3.5 lb; $P < 0.01$) in the overall sample, but there was no difference in the obese subgroup.

CONCLUSIONS: Physicians need to reaffirm that diet and exercise are better methods for weight loss, and they need to advise their patients to avoid other methods when attempting to lose weight because they do not enhance weight loss attempts.

Comment in

Commentary on "comparison of traditional and nontraditional weight loss methods: an analysis of the national health and nutrition examination survey". [South Med J. 2014]

PMID: 25010580 [PubMed - indexed for MEDLINE]

Exercise?

- The amount of exercise you'd have to do to lose weight is time prohibitive.
- Burning an extra 500 calories per day would require jogging for 5-6 miles per day.
- That may take 90 minutes
- Do not drink sports drinks afterwards



- Exercise is good for keeping lost weight off, but will not help you lose weight
- Eating less and healthier is the key
- Exercise suppresses appetite
- Exercise activates fight/flight response and puts the rest/digest system on hold
- Exercise before dinner if you eat most of your calories at night
- Walk after dinner to prevent eating dessert
- Lowers cardiovascular mortality significantly



Mortality

J Am Coll Cardiol. 2014;64(5):472-481

- Running at even at a slow pace for 5-10 minutes just 1 or 2 times per week decreases cardiovascular mortality by 45%
- Doing it every day reduces cardiovascular mortality by 50%
- Reduced all cause mortality by 29%

You are what you eat!



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Do you exercise?



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Weight Loss

- 90% can be achieved with diet alone.
- Exercise is good for cardiovascular health, but not necessary for weight loss

Don't say "diet **AND** exercise"



So, What kind of Exercise?

Treadmill

- Assuming you weigh 200 pounds, if you walk or jog for 3 miles you will burn about 300 calories. That's not much! That's one plain with cheese bagel from Panera.

Weights

- A 200 pound person doing squats for 2 minutes straight, non-stop burns 320 calories. That's only 2 minutes of resistance training! Even if you aren't putting up any weight, just your body weight. Two minutes, 320 calories. Better to do two minutes of squats than run for 3 miles if you just want to burn calories.
- See my youtube video on this:
<http://YouTube.com/themohammedalo>



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Exercise

- Weights and resistance training is much more effective than running on a treadmill
- Explosive runs/sprints
- Especially true for women and people with low metabolism



LIFT WEIGHTS TO BURN CALORIES!

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Let's Talk DIET!



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1943

*For Health...eat some food
from each group...every day!*



**IN ADDITION TO THE BASIC 7...
EAT ANY OTHER FOODS YOU WANT**

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1992

Fats, Oils & Sweets
USE SPARINGLY

KEY

- Fat (naturally occurring and added)
- Sugars (added)

These symbols show fats and added sugars in foods.

Milk, Yogurt &
Cheese Group
2-3 SERVINGS

Meat, Poultry, Fish, Dry Beans,
Eggs & Nuts Group
2-3 SERVINGS

Vegetable Group
3-5 SERVINGS

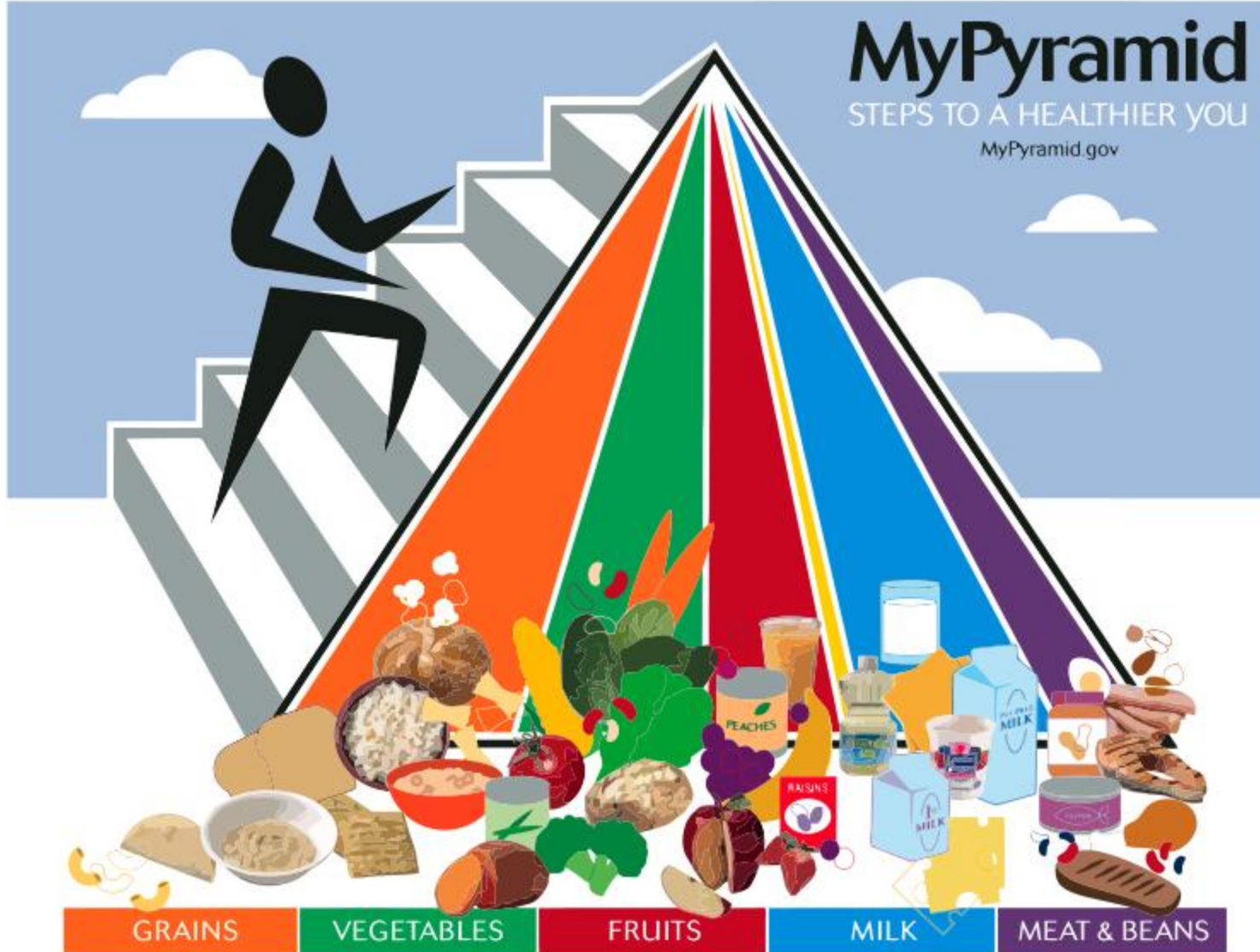
Fruit Group
2-4 SERVINGS

Bread, Cereal,
Rice & Pasta
Group
**6-11
SERVINGS**

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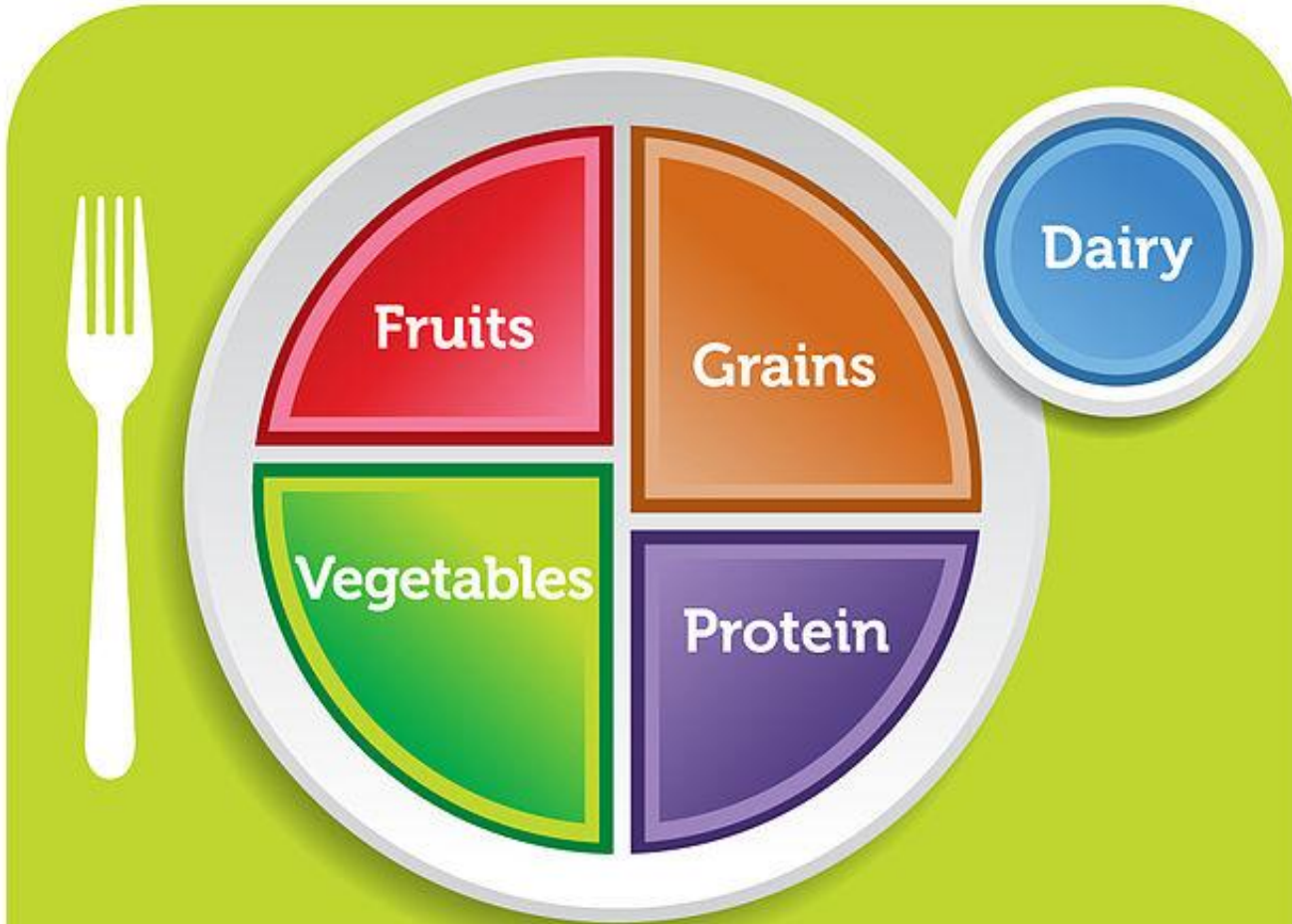
2005



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2010



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Previous Diets

- Portion control- Weight Watchers, Zone
- Prepared food- Nutrisystem, Jenny Craig
- Low Carb/High protein- Atkins, South Beach
- Liquid/Fad diets
- Mediterranean- most proven
- Raw- Paleo, Halleluiah, God, Caveman
- Glycemic Index Diet



All Diets Work!

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Glycemic Index

- High: white sugar, white bread, beer, baked potato, sugary drinks, pasta, rice
- Low: non-starchy vegetables; broccoli, asparagus, spinach, celery, parsley, lettuce, kale, apples, strawberries, blueberries, oranges, cucumbers
- Medium: multigrain, pita, and rye bread, brown and wild rice, certain fruits



Effects of Low-Carbohydrate and Low-Fat Diets: A Randomized Trial

Lydia A. Bazzano, MD, PhD, MPH*; Tian Hu, MD, MS*; Kristi Reynolds, PhD; Lu Yao, MD, MS; Calynn Bunol, MS, RD, LDN; Yanxi Liu, MS; Chung-Shiuan Chen, MS; Michael J. Klag, MD, MPH; Paul K. Whelton, MD, MSc, MB; and Jiang He, MD, PhD

[\[+\] Article and Author Information](#)

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Text Size: [A](#) [A](#) [A](#)

Article

Figures

Tables

References

Summary for Patients

Comments (6)

Background: Low-carbohydrate diets are popular for weight loss, but their cardiovascular effects have not been well-studied, particularly in diverse populations.

Objective: To examine the effects of a low-carbohydrate diet compared with a low-fat diet on body weight and cardiovascular risk factors.

Design: A randomized, parallel-group trial. (ClinicalTrials.gov: NCT00609271)

Setting: A large academic medical center.

Participants: 148 men and women without clinical cardiovascular disease and diabetes.

Intervention: A low-carbohydrate (<40 g/d) or low-fat (<30% of daily energy intake from total fat [<7% saturated fat]) diet. Both groups received dietary counseling at regular intervals throughout the trial.

Measurements: Data on weight, cardiovascular risk factors, and dietary composition were collected at 0, 3, 6, and 12 months.

Results: Sixty participants (82%) in the low-fat group and 59 (79%) in the low-carbohydrate group completed the intervention. At 12 months, participants on the low-carbohydrate diet had greater decreases in weight (mean difference in change, -3.5 kg [95% CI, -5.6 to -1.4 kg]; $P = 0.002$), fat mass (mean difference in change, -1.5% [CI, -2.6% to -0.4%]; $P = 0.011$), ratio of total-high-density lipoprotein (HDL) cholesterol (mean difference in change, -0.44 [CI, -0.71 to -0.16]; $P = 0.002$), and triglyceride level (mean difference in change, -0.16 mmol/L [-14.1 mg/dL] [CI, -0.31 to -0.01 mmol/L {-27.4 to -0.8 mg/dL}]; $P = 0.038$) and greater increases in HDL cholesterol level (mean difference in change, 0.18 mmol/L [7.0 mg/dL] [CI, 0.08 to 0.28 mmol/L {3.0 to 11.0 mg/dL}]; $P < 0.001$) than those on the low-fat diet.

Limitation: Lack of clinical cardiovascular disease end points.

Conclusion: The low-carbohydrate diet was more effective for weight loss and cardiovascular risk factor reduction than the low-fat diet. Restricting carbohydrate may be an option for persons seeking to lose weight and reduce cardiovascular risk factors.

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Conclusions

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Conclusion: The low-carbohydrate diet was more effective for weight loss and cardiovascular risk factor reduction than the low-fat diet. Restricting carbohydrate may be an option for persons seeking to lose weight and reduce cardiovascular risk factors.

Weight and metabolic outcomes after 2 years on a low-carbohydrate versus low-fat diet: a randomized trial.

Foster GD¹, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, Stein RI, Mohammed BS, Miller B, Rader DJ, Zemel B, Wadden TA, Tenhave T, Newcomb CW, Klein S.

+ Author information

Abstract

BACKGROUND: Previous studies comparing low-carbohydrate and low-fat diets have not included a comprehensive behavioral treatment, resulting in suboptimal weight loss.

OBJECTIVE: To evaluate the effects of 2-year treatment with a low-carbohydrate or low-fat diet, each of which was combined with a comprehensive lifestyle modification program.

DESIGN: Randomized parallel-group trial. (ClinicalTrials.gov registration number: [NCT00143936](#))

SETTING: 3 academic medical centers.

PATIENTS: 307 participants with a mean age of 45.5 years (SD, 9.7 years) and mean body mass index of 36.1 kg/m² (SD, 3.5 kg/m²).

INTERVENTION: A low-carbohydrate diet, which consisted of limited carbohydrate intake (20 g/d for 3 months) in the form of low-glycemic index vegetables with unrestricted consumption of fat and protein. After 3 months, participants in the low-carbohydrate diet group increased their carbohydrate intake (5 g/d per wk) until a stable and desired weight was achieved. A low-fat diet consisted of limited energy intake (1200 to 1800 kcal/d; <or=30% calories from fat). Both diets were combined with comprehensive behavioral treatment.

MEASUREMENTS: Weight at 2 years was the primary outcome. Secondary measures included weight at 3, 6, and 12 months and serum lipid concentrations, blood pressure, urinary ketones, symptoms, bone mineral density, and body composition throughout the study.

RESULTS: Weight loss was approximately 11 kg (11%) at 1 year and 7 kg (7%) at 2 years. There were no differences in weight, body composition, or bone mineral density between the groups at any time point. During the first 6 months, the low-carbohydrate diet group had greater reductions in diastolic blood pressure, triglyceride levels, and very-low-density lipoprotein cholesterol levels, lesser reductions in low-density lipoprotein cholesterol levels, and more adverse symptoms than did the low-fat diet group. The low-carbohydrate diet group had greater increases in high-density lipoprotein cholesterol levels at all time points, approximating a 23% increase at 2 years.

LIMITATION: Intensive behavioral treatment was provided, patients with dyslipidemia and diabetes were excluded, and attrition at 2 years was high.

CONCLUSION: Successful weight loss can be achieved with either a low-fat or low-carbohydrate diet when coupled with behavioral treatment. A low-carbohydrate diet is associated with favorable changes in cardiovascular disease risk factors at 2 years.

PRIMARY FUNDING SOURCE: National Institutes of Health.

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Definitions and potential health benefits of the Mediterranean diet: views from experts around the world.

[Trichopoulos A](#)¹, [Martínez-González MA](#), [Tong TY](#), [Forouhi NG](#), [Khandelwal S](#), [Prabhakaran D](#), [Mozaffarian D](#), [de Lorgeril M](#).

Author information

Abstract

The Mediterranean diet has been linked to a number of health benefits, including reduced mortality risk and lower incidence of cardiovascular disease. Definitions of the Mediterranean diet vary across some settings, and scores are increasingly being employed to define Mediterranean diet adherence in epidemiological studies. Some components of the Mediterranean diet overlap with other healthy dietary patterns, whereas other aspects are unique to the Mediterranean diet. In this forum article, we asked clinicians and researchers with an interest in the effect of diet on health to describe what constitutes a Mediterranean diet in different geographical settings, and how we can study the health benefits of this dietary pattern.

'Mediterranean' dietary pattern for the primary prevention of cardiovascular disease.

Rees K¹, Hartley L, Flowers N, Clarke A, Hooper L, Thorogood M, Stranges S.

⊕ Author information

Abstract

BACKGROUND: The Seven Countries study in the 1960s showed that populations in the Mediterranean region experienced lower cardiovascular disease (CVD) mortality probably as a result of different dietary patterns. Later observational studies have confirmed the benefits of adherence to a Mediterranean dietary pattern on CVD risk factors. Clinical trial evidence is limited, and is mostly in secondary prevention.

OBJECTIVES: To determine the effectiveness of a Mediterranean dietary pattern for the primary prevention of CVD.

SEARCH METHODS: We searched the following electronic databases: the Cochrane Central Register of Controlled Trials (CENTRAL, Issue 9 of 12, September 2012); MEDLINE (Ovid, 1946 to October week 1 2012); EMBASE (Ovid, 1980 to 2012 week 41); ISI Web of Science (1970 to 16 October 2012); Database of Abstracts of Reviews of Effects (DARE), Health Technology Assessment Database and Health Economics Evaluations Database (Issue 3 of 12, September 2012). We searched trial registers and reference lists of reviews and applied no language restrictions.

SELECTION CRITERIA: We selected randomised controlled trials in healthy adults and adults at high risk of CVD. A Mediterranean dietary pattern was defined as comprising at least two of the following components: (1) high monounsaturated/saturated fat ratio, (2) low to moderate red wine consumption, (3) high consumption of legumes, (4) high consumption of grains and cereals, (5) high consumption of fruits and vegetables, (6) low consumption of meat and meat products and increased consumption of fish, and (7) moderate consumption of milk and dairy products. The comparison group received either no intervention or minimal intervention. Outcomes included clinical events and CVD risk factors.

DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data and contacted chief investigators to request additional relevant information.

MAIN RESULTS: We included 11 trials (15 papers) (52,044 participants randomised). Trials were heterogeneous in the participants recruited, in the number of dietary components and follow-up periods. Seven trials described the intervention as a Mediterranean diet. Clinical events were reported in only one trial (Women's Health Initiative 48,835 postmenopausal women, intervention not described as a Mediterranean diet but increased fruit and vegetable and cereal intake) where no statistically significant effects of the intervention were seen on fatal and non-fatal endpoints at eight years. Small reductions in total cholesterol (-0.16 mmol/L, 95% confidence interval (CI) -0.26 to -0.06; random-effects model) and low-density lipoprotein (LDL) cholesterol (-0.07 mmol/L, 95% CI -0.13 to -0.01) were seen with the intervention. Subgroup analyses revealed statistically significant greater reductions in total cholesterol in those trials describing the intervention as a Mediterranean diet (-0.23 mmol/L, 95% CI -0.27 to -0.2) compared with control (-0.06 mmol/L, 95% CI -0.13 to 0.01). Heterogeneity precluded meta-analyses for other outcomes. Reductions in blood pressure were seen in three of five trials reporting this outcome. None of the trials reported adverse events.

AUTHORS' CONCLUSIONS: The limited evidence to date suggests some favourable effects on cardiovascular risk factors. More comprehensive interventions describing themselves as the Mediterranean diet may produce more beneficial effects on lipid levels than those interventions with fewer dietary components. More trials are needed to examine the impact of heterogeneity of both participants and the intervention on outcomes.

[Curr Atheroscler Rep](#). 2013 Dec;15(12):370. doi: 10.1007/s11883-013-0370-4.

Mediterranean diet and cardiovascular disease: historical perspective and latest evidence.

de Lorgeril M.

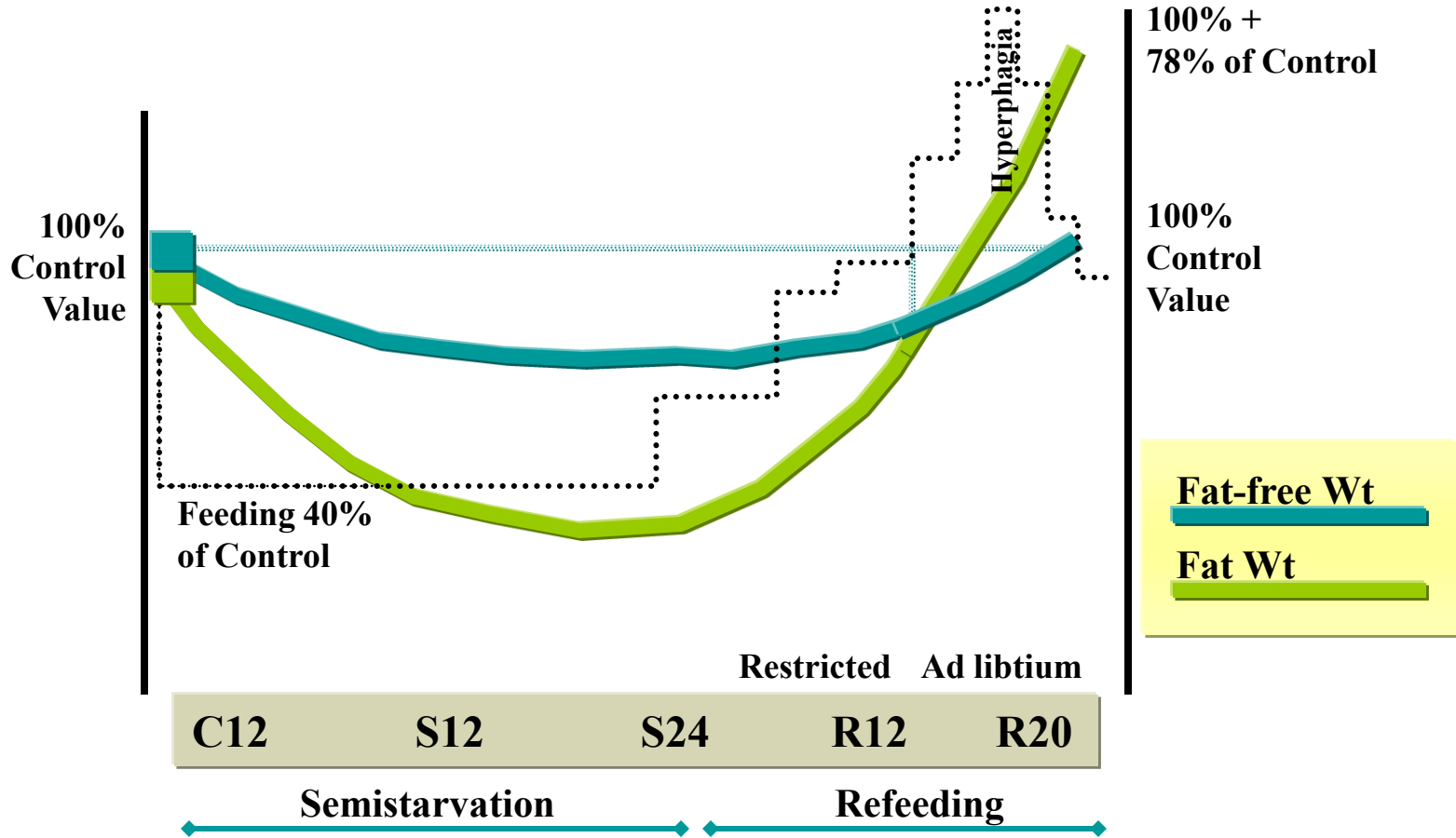
⊕ Author information

Abstract

The concept that the Mediterranean diet was associated with a lower incidence of cardiovascular disease (CVD) was first proposed in the 1950s. Since then, there have been randomized controlled trials and large epidemiological studies that reported associations with lower CVD: in 1994 and 1999, the reports of the intermediate and final analyses of the trial Lyon Diet Heart Study; in 2003, a major epidemiological study in Greece showing a strong inverse association between a Mediterranean score and the risk of cardiovascular complications; in 2011-2012, several reports showing that even non-Mediterranean populations can gain benefits from long-term adherence to the Mediterranean diet; and in 2013, the PREDIMED trial showing a significant risk reduction in a low-risk population. ~~Contrary to the pharmacological approach of cardiovascular prevention, the adoption of the Mediterranean diet has been associated with a significant reduction in new cancers and overall mortality.~~ Thus, in terms of evidence-based medicine, the full adoption of a modern version of the Mediterranean diet pattern can be considered one of the most effective approaches for the prevention of fatal and nonfatal CVD complications.

PMID: 24105622 [PubMed - indexed for MEDLINE]

Yo-yo dieting is horrible



Keys, 1950; Dulloo, AJCN - 1997

Why Diets Fail

- Calorie counting
- Expensive
- Difficult to follow
- Unhealthy
- Not good fit for you
- Fighting Against Your Set Point
- Lose interest after plateau

Set Point

Dr. George Blackburn – Harvard Physician. Set point. 35 years of research on Weight Loss. Lose 10%, hold steady for 6 months, repeat. Invented formula for SlimFast Shakes.

Vermont Prison Experiment 1964 – overfeeding and underfeeding prisoners, all went back to original weight when left alone

Minnesota Starvation Study – Dr. Ancel Keys. Difficult to lose a lot of weight over short period of time. Body will rebel and bad outcomes occur.

Top Down Weight Loss

People lose weight from the top down and gain it back in opposite order

Fight to Maintain

The biggest battle in weight loss is the fight to keep it off.

Life Revolves Around Food

- Our lives shouldn't revolve around eating
- What are you doing for lunch?
- Lets go out to eat
- Funerals, weddings, parties, birthdays
- Happy, depressed, emotional eating
- Eat to live. Don't live to eat!



What causes Weight gain?



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Hypothalamus & Hormones

- Controls hunger and satiety, homeostasis
- Insulin, leptin, adiponectin, ghrelin
- Ghrelin- hunger hormone. Tells the brain the stomach is empty. Gastric bypass surgery eliminates parts of stomach that secrete this. Traditional dieting, boosts this level. Signals hunger 4 hours after previous meal.
- Incretins in small bowel tell brain to stop eating.
- Leptin- made in adipose tissue. Signals to brain that enough fat has been stored in body to be able to sustain a pregnancy. People without it are gigantic.
- Vagus nerve – stomach stretch response tells brain it's full. Was target of early meds.



Weight gain?

All about the insulin

Blood Sugar Level

120

Insulin

Store Fat!

90

Normal, Fat Burning

60

Fatigue, Hunger, Cravings



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Normal Weight

- Weight set by age 18
- Gain 1 pound per year from ages 20-50
- Body works hard to protect itself from quick short term weight gain and weight loss
- The reason why it's hard to lose weight
- Men slightly higher metabolic rate than women



Calories?

- 10 Calories for every pound of weight to maintain your body weight even while at rest (REE)
- 200 pound person, needs 2000 calories
- The resting energy expenditure accounts for 70% of the calories your burn each day (even just laying there doing nothing)
- The other 25-30% are burned from any physical activity



Medications

- Metformin, symlin, acarbose, januvia/galvus, byetta, ACEIs/ARBs, Norvasc, topamax, wellbutrin, chemo, flagyl, amio, hydralazine, theophylline, fluoxetine, adderall, abilify, geodon, sulphasalazine, caffiene, acetazolamide, quinidine, amphotericine B,



Weight Loss Medications

- **Xenical**
- **Adipex**
- **Qsymia**
- **Contrave**
- **Belviq**



Xenical

- Prevents fat absorption
- SE: Loose stool, diarrhea, oily stool
- Modest Weight loss 4-6 pounds/year



Adipex

- Affects hypothal to release norepi. Also works on other tissues to release epi to break down stored fat. Also releases small amounts of serotonin and dopamine.
- Significant pHTN and valvular heart disease when used with fenfluramine and dexafenfluramine
- Tolerance to effect after a few weeks
- 3 months duration
- Amphetamine abuse
- Stimulant side effects
- Withdrawal gives fatigue, sleepy
- Avoid alpha blockers, anti-depressants



Qsymia

- Combo: phentermine and topamax

Topamax: anticonvulsant, migraines

Modified fructose, excreted in urine

SE: Somnolence, depression, fatigue,
hairloss, glaucoma, nystagmus,
parasthesias



Contrave

Bupropion/Naltrexone combination

Bup: dopa, norepi reuptake inhib and pure opioid antagonist reduces reward from eating, reduce cravings

Synergistic effect on weight loss

Affects hypothal decreases appetite

11-16 pounds/year (or 5% of starting weight)



Belviq

Lorcaserin- agonist of 5-HT_{2C} in brain, activates POMC and satiety. Mechanism not fully understood.

Can lose 4-13 pounds in 3 months depending on dose even without diet or exercise.

Gained weight back more rapidly after stopping medication.

Bloom, Blossom, Bloom-DM studies

SE: Headache

No statistically significant rates of valvulopathies



Adjunct

- **FIRST: DIET, DIET, DIET!** (they have to learn how to eat right first)
- Maximize short time on drugs
- Frequent physician visits
- Social support
- Phone apps: MyFitnessPal
- Diet resources
- Daily weigh ins
- Accountability



Goals of a Perfect Diet

- Cheap/Free
- Good for your health
- Easy to follow
- Doesn't require masters degree
- Sustainable long term
- Doesn't rely on fads or trends
- No outrageous promises
- Evidence based





AloDiet.com

- Healthy, wholesome, simple, nutritious diet that everyone can follow very easily
- Good for diabetes
- Good for hypertension
- Good for cholesterol
- Good for Weight Loss
- Good for Life
- **TOTALLY FREE!**



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Alo Diet Rules

1. Drink a tall glass of water before each meal
2. Eat 1/3 of what you used to eat
3. Wait 20 minutes
4. If still hungry, eat another 1/3 and wait
5. No eating 3 hours before bedtime
6. Eat every 2-3 hours. Small frequent meals.



Alo Diet

- 2 phases
- One to lose weight
- One to maintain lifelong healthy eating



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Phase 1

- Clean out the system
- Very strict
- 2-4 weeks
- Absolutely no carbohydrates
- Eat fat and protein and non-starchy veggies
- Favor healthier fats and proteins, but doesn't matter much



Phase 2

The rest of your life

- Eat healthy fats
- Avoid simple carbs
- Eat lean protein
- Eat complex carbs
- Eat small amounts more frequently
- No processed, baked, canned foods, refined sugars



A free, healthy, easy to follow, physician approved diet that works!



Other diets have come along over the years and advanced our knowledge of metabolism, nutrition and weight loss. The Alo Diet aims to take all of the information from previous diets, improve on certain aspects, eliminate concepts that have been proven wrong, and bring us up to date on everything we know on diet and weight loss.

- What have we learned from other diets?
- Why is the Alo Diet different?
- Why do women have trouble losing weight?
- Is Obesity genetic?
- Never feel hungry
- Calculating your Body Mass Index
- How to break through a plateau
- Substitution
- Losing weight year round
- Do I have to count calories
- You don't have to exercise to lose weight
- Things humans should never eat
- Diabetes and weight loss
- You can eat cholesterol



Renee from Perrysburg, Ohio started out at 266 pounds and transformed herself! Read her story.



Tiffany, from Bowling Green, Ohio, had 4 kids and 4 back surgeries and still lost weight. Read more.



Chicago's Omar Samara lost 85 pounds from April 2012 through December 2012! Without exercise! You can do it too!

Follow us:



Free Download:

Download the Alo Diet cheatsheet for a quick introductory course on the Alo Diet. Quick read!

Alo Diet Handout

Physicians, feel free to download this and give it to all your patients for a cardiologist approved easy to follow diet!

Video

Watch Dr. Alo explain the entire Alo Diet in 80 minutes on video! The best 80 minutes of video you will ever watch!



<http://youtu.be/KhtAQejOp7o>



Don't blame your thyroid

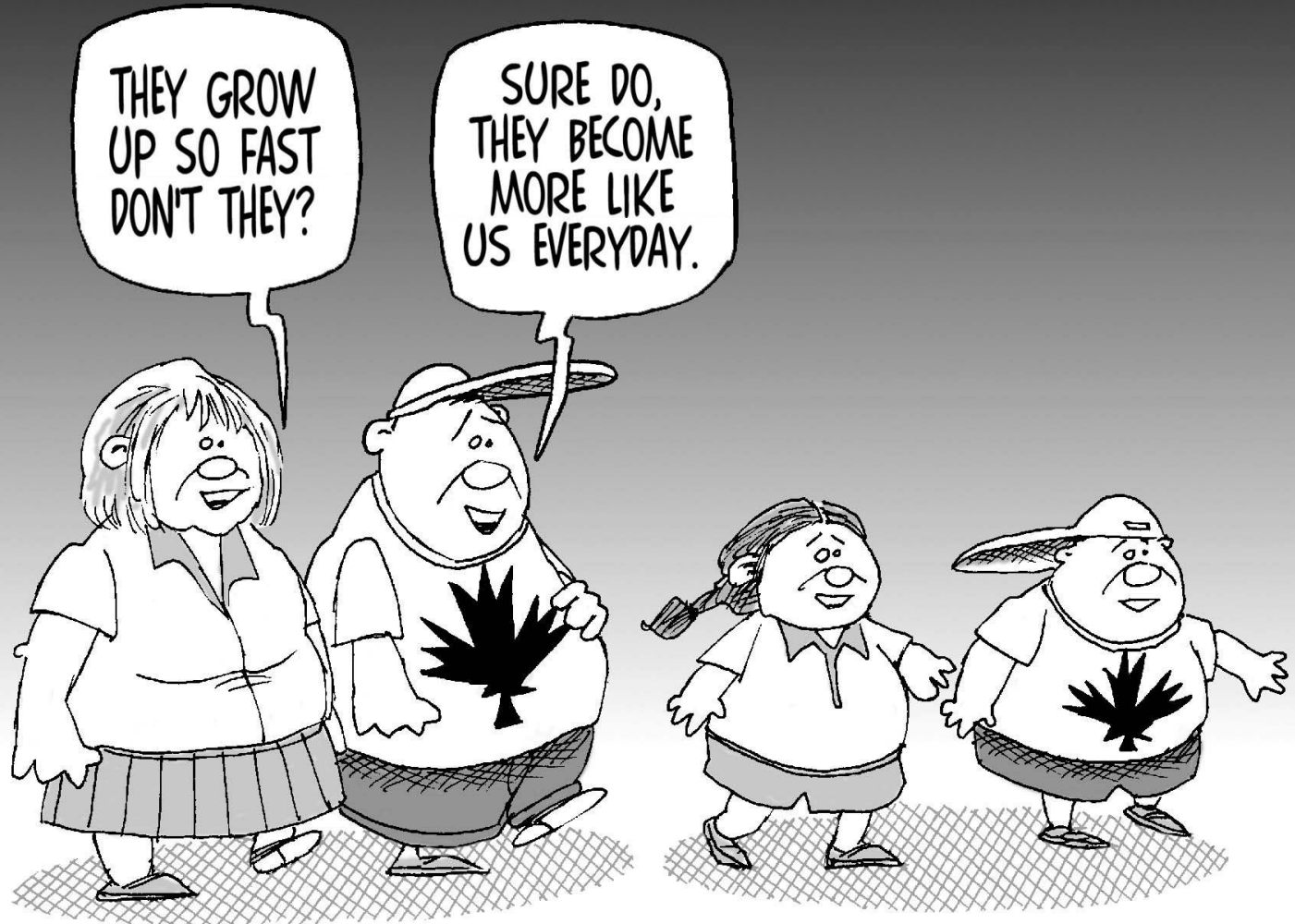
- It's not your thyroid
- Hypothyroidism decreases appetite so you shouldn't gain weight
- Hyperthyroidism increases appetite and maintain your weight
- Find another excuse!
- We don't put everyone on Synthroid
- Too much thyroid medicine causes heart failure and other problems- sorry



Weight is not genetic!

NEW SURVEY REPORTS HIGH OBESITY RATE
IN YOUNG PEOPLE AND BABY BOOMERS...

@fewings
fewings.ca



Why fat kids?

www.barryscartoons.com

Barry
©2011

WHEN I WUZ
A KID, MY MOM COULD
NEVER GET US TO
COME INSIDE...

NOW THIS
MOM CAN'T GET
HER KIDS TO
GO OUT!

**OVERWEIGHT
KIDS AT RISK!**

More for Health
throughout the country



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