

Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods

Network meta-analysis methods

In the network meta-analysis (NMA), we estimated the posterior densities for all unknown parameters using Markov chain Monte Carlo methods for each model. Given the inclusion of meta-regression in some models (see below), for each analysis, we used 3 chains with 300,000 iterations after an initial burn-in of 50,000. We assessed convergence based on trace plots and time series plots. All results for the analysis are reported as posterior distribution medians with corresponding 95% credibility intervals (CrI), the Bayesian equivalent of 95% confidence intervals. Additionally, for the analyses of diet classes, we estimated the probability of each diet class being the best (i.e. resulting in the largest weight loss).

Multiple models were considered for each network. The considered models included all combinations of: 1) random and fixed effects models; 2) the inclusion/exclusion of one or more of the three potential effect modifiers, exercise, calorie restrictions and behavioral support; and 3) the modeling of effect modifiers as diet-specific or not. The effect modifiers were measured at the study arm level and were included in the model through meta-regression.¹ To assess evidence of inconsistency, the disagreement of direct and indirect evidence, we fit inconsistency models.¹ These allowed for inconsistency to be assessed while accounting for potential effect modification. We assessed the fit of competing models using the deviance information criterion (DIC), a measure of model fit that penalizes for model complexity.² The consistency model including a random-effects term and accounting for exercise and behavioral support through meta-regression was favored by the deviance

information criterion. This model was therefore chosen for our primary analysis. Results for each analysis are reported as the diet effect when the diet is well supported (*i.e.*, includes regular counseling) and is not accompanied by exercise.

As a sensitivity analysis, we restricted the primary analysis to studies using overweight and obese individuals who were otherwise healthy, thus removing studies that exclusively contained individuals with type 2 diabetes or who were recovering from various types of surgeries. Where P-values were used, all tests were 2-sided. All analyses were conducted using WinBUGS version 1.4 (Medical Research Council Biostatistics Unit, Cambridge) and R version 3.0.2 (<http://www.r-project.org/>).

1. Dias S, Sutton A, Welton N, Ades A. *Technical Support Document 3: Heterogeneity: subgroups, meta-regression, bias and bias-adjustment*. 2011. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3704206/>
2. Spiegelhalter DJ, Best NG, Carlin BP, Van Der Linde A. Bayesian measures of model complexity and fit. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*. 2002;64(4):583-639.

Probability Rankings

Probability rankings are an easily interpretable manner by which to present the results of a network. However, simplifying the results of a network down to probabilities can lead to misinterpretations. Probability rankings are obtained by recording the best treatment at each Markov iteration and using the resulting proportions. For example, if *Low CHO* diets are best in 35,000 out of 50,000 iterations, we will report a probability of being best of 70% (35/50). The innate problem with this approach is that it rewards both high effect estimates and high variability. As such, probability rankings should be used with caution and restricted to well-connected networks. We opted not to use rank probabilities for the brand networks because some nodes were too poorly connected.

GRADE confidence in estimates of effect

Our confidence assessment addressed the following categories: risk of bias, imprecision, inconsistency, and indirectness. For both direct and indirect comparisons, the starting point for confidence in estimates was ‘high’. Confidence in indirect estimates was inferred from examination of the first-order links with the largest sample size associated with the particular comparison. The confidence rating chosen was the lowest of the direct estimates contributing to the indirect comparison. For instance, consider a comparison of A versus B that is informed by A versus C and B versus C. If A versus C was rated as high confidence and B versus C as moderate confidence, the overall indirect confidence rating was moderate (moderate from the B versus C comparison). The overall NMA confidence rating was the higher of the confidence in the direct and indirect comparisons with the possibility of rating up further for gains in precision with pooling of direct and indirect comparisons.

eTable 1. Description of dietary programs

Dietary program*	Calorie & macronutrient recommendations	Exercise recommendations	Behavioral supports	Other co-interventions
<i>Atkins</i>	Though several studies incorporating this diet program did not recommend a specific caloric intake, among those that did the daily intake ranged from 1400-2200 and 1200-1600 calories for males and females, respectively. This program was often based on an Atkins manual, and typically involved an initial induction phase in which carbohydrates (CHO), proteins and fats were, respectively, 4-5%, 35% and 60% of the daily caloric intake. This was followed by a gradual increase in carbohydrate intake until a goal weight was achieved.	Several studies encouraged exercise, consisting of at least 30 minutes per day, 3 days of the week.	Participants were offered supports such as individualized daily calorie targets; weekly calorie controlled, low-fat menu plans, grocery lists, and exercise plans; access to a web-based food and exercise diary and community forums; and group meetings and dietitian-led education sessions.	Among studies providing additional co-interventions, this typically consisted of multivitamin supplements or prepared foods to aid with adherence.
<i>Biggest Loser</i>	Daily caloric intake targets were individualized in this program. Though specific macronutrient recommendations were not clearly provided, this program generally suggests no more than 30% daily caloric intake from fats.	Weekly physical activity was encouraged and based on exercise preferences.	Participants were provided with access to online calorie-controlled, low-fat menu plans and grocery lists; weekly physical activity plans based on exercise preferences; and web-based community forums and newsletters	No additional co-interventions.
<i>Jenny Craig**</i>	This program typically suggested a daily caloric intake between 1200-2000 calories. Though macronutrient recommendations were not clearly provided, in general the Jenny Craig program encourages a macronutrient intake of 50-60% CHO, 20-30% protein and 20-30% fats. ¹	Recommendations of 30 minutes of exercise on 5 or more days of the week were provided.	Participants in this program were provided with personalized meal and exercise plans, and one-to-one counseling sessions with a Jenny Craig certified consultant.	Participants were provided with prepackaged, prepared foods.
<i>Nutrisystem</i>	The recommended daily caloric intake for this program was 1250 and 1550 calories for females and males respectively. Nutrisystem foods were provided to participants, and supplemented a recommended macronutrient intake of 55-60% CHO, 20-25% protein and 20-25% fats.	Exercise consisting of a minimum of 20 minutes per day, 4 days a week was encouraged.	Participants were offered group behavioral treatment sessions covering topics such as self-monitoring, goal setting and relapse management. In addition, they were provided with written support materials such as daily planners and grocery guides.	Participants were further provided with Nutrisystem foods.
<i>Ornish</i>	A daily caloric recommendation was not clearly provided in this program. However, participants were encouraged to follow a macronutrient intake of 75% CHO, 15% protein, and 10% fats.	Participants engaged in twice-weekly supervised exercise sessions. Independent, daily exercise of at least 30 minutes per day was encouraged.	Participants were provided with sessions that included supervised exercise, stress management, a meal, lifestyle-related lecture and group support.	Participants were offered to supplement their diet with a multivitamin and omega-3 fatty acids.
<i>Rosemary Conley</i>	Caloric and macronutrient recommendations were not clearly provided. Rosemary Conley's 'Eat Yourself Slim' manual suggests 60% CHO, 15% protein, and selection of foods containing <4% fats. ²	Weekly, group exercise classes were offered to participants.	Group meetings; one-on-one support; additional supports via e-mail and telephone; and exercise sessions were offered to participants.	No additional co-interventions.
<i>Slimming World</i>	Weight loss goals in this program were individualized, and macronutrient recommendations were not clearly indicated. The approach of this program, however, is in accordance with the British Nutrition Foundation, which recommends a diet consisting of 60% CHO and 35% fats. ^{3,4}	Participants were encouraged to gradually build up to 30 minutes of intense physical activity 5 days a week.	Participants were offered group meetings and group support; one-to-one phone support from a consultant or group members; and access to program websites and magazines.	No additional co-interventions.

eTable 1 continued. Description of diet programs

Dietary program*	Calorie & macronutrient recommendations	Exercise recommendations	Behavioral supports	Other co-interventions
<i>South Beach</i>	Specific caloric and macronutrient recommendations were not clearly specified in this program. Participants followed the initial phase of the diet for 2 weeks and consumed small quantities of low glycemic-index carbohydrates, high intake of protein, and moderate intake of mono- and polyunsaturated fats. Following this phase participants gradually added carbohydrates back to their diet.	Exercise and physical activity were assessed, but not clearly recommended to participants in this program.	Individual counseling and support from a bariatric nutritionist were provided to participants in this diet program. In addition, participants were provided with sample meal plans and written instructions about the diet	No additional co-interventions.
<i>Volumetrics</i>	The key component of the program involves consumption of foods with low energy density (foods that contain a small number of calories relative to their size). Specific macronutrient recommendations were not clearly provided in this program, though Volumetrics generally suggests a daily macronutrient intake of 55% carbohydrates, 15-25% protein and 20-30% fats. ⁵	Participants were encouraged to exercise daily for 30 minutes, 5 days a week.	Participants were provided with written materials and instructions from a dietitian in an effort to help them achieve a reduced fat diet	No additional co-interventions.
<i>Weight Watchers</i>	In general, this program consists of tracking daily points (each point is about 50 kcal) based on a participant's current weight and weight loss goals. Though a recommended macronutrient intake was not clearly specified, this program is generally consistent with the National Academy of Sciences acceptable macronutrient distribution ranges for adults, which are 45-65% carbohydrates, 10-35% protein and 20-35% fats. ⁶	Thirty minutes of exercise on most days of the week was encouraged.	Participants were typically provided with access to weekly group meetings and support, behavioral counseling, individual contact with the dietitian and educational resources such as recipes and meal ideas, as well as community discussion boards.	No additional co-interventions.
<i>Zone</i>	This program typically consisted of an active weight loss-phase in which the daily caloric intake was reduced to 1500 and 1200 calories for males and females respectively, followed by a weight maintenance phase. The recommended macronutrient intake during both phases was 40% carbohydrates, 30% protein and 30% fats.	Thirty minutes of exercise on most days of the week was encouraged.	Participants were typically offered meal planning and nutritional counseling from a dietitian and group support.	Among studies providing additional co-interventions, this typically consisted of prepared foods to aid with adherence.

*This table was derived from data provided in the studies. If this information was not reported, then the data was taken from the dietary program website or other available resources; please note there is often considerable variability between branded diets within included studies. **Only female participants were enrolled in the 2 eligible and included Jenny Craig trials.

1. Jenny Craig. Science of Weight Loss - How It Works: Jenny Craig. http://www.jennycraig.com/site/how-it-works/science-weight_loss. Accessed August 12, 2014.
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5. Rolls BJB, Robert A. *The Volumetrics Weight-Control Plan: Feel Full on Fewer Calories*. New York: HarperCollins Publishers Inc.; 2000.
6. Weight Watchers International Inc. http://www.weightwatchers.com/util/art/index_art.aspx?art_id=20921&tabnum=1&sc=805&subnav=Science+Library%3a+Health+y+Nutrition. Accessed August 12, 2014.

eTable 2. Summary of risk of bias by diet class and brand

Diet Class		Low Carbohydrate									
Diet Brand		Atkins & Atkins-like (n=20)				South Beach (n=1)		Zone & Zone-like (n=12)			
Risk of Bias (RoB)		Low RoB (n=11)		High RoB (n=9)		High RoB (n=1)		Low RoB (n=9)		High RoB (n=3)	
RoB assessment		n	%	n	%	n	%	n	%	n	%
Sequence generation	Low	6	30.0	5	25.0	0	0.0	6	50.0	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	5	25.0	4	20.0	1	100.0	3	25.0	3	25.0
Allocation concealment	Low	7	35.0	0	0.0	0	0.0	4	33.3	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	4	20.0	9	45.0	1	100.0	5	41.7	3	25.0
Blinding (participants, study personnel)	Low	4	20.0	2	10.0	1	100.0	3	25.0	0	0.0
	High	4	20.0	2	10.0	0	0.0	3	25.0	0	0.0
	Unclear	3	15.0	5	25.0	0	0.0	3	25.0	3	25.0
Blinding (outcome assessors)	Low	4	20.0	2	10.0	1	100.0	4	33.3	0	0.0
	High	4	20.0	2	10.0	0	0.0	1	8.3	0	0.0
	Unclear	3	15.0	5	25.0	0	0.0	4	33.3	3	25.0
Missing participant outcome data *	Low	8	40.0	0	0.0	0	0.0	7	58.3	0	0.0
	High	3	15.0	9	45.0	1	100.0	2	16.7	3	25.0

* based on 12-month follow up data. If 12-month data not available, 6-month data was used.

eTable 2 continued. Summary of risk of bias by diet class and brand

Diet Class		Moderate Macronutrient Distribution							
Diet Brand		Biggest Loser (n=1)		Jenny Craig (n=2)		LEARN & LEARN-like (n=7)			
Risk of Bias (RoB)		Low RoB (n=1)		Low RoB (n=2)		Low RoB (n=4)		High RoB (n=3)	
RoB assessment		n	%	n	%	n	%	n	%
Sequence generation	Low	1	100.0	1	50.0	1	14.3	1	14.3
	High	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	0	0.0	1	50.0	3	42.9	2	28.6
Allocation concealment	Low	1	100.0	0	0.0	1	14.3	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	0	0.0	2	100.0	3	42.9	3	42.9
Blinding (participants, study personnel)	Low	0	0.0	0	0.0	2	28.6	0	0.0
	High	1	100.0	1	50.0	0	0.0	0	0.0
	Unclear	0	0.0	1	50.0	2	28.6	3	42.9
Blinding (outcome assessors)	Low	1	100.0	0	0.0	2	28.6	0	0.0
	High	0	0.0	1	50.0	0	0.0	0	0.0
	Unclear	0	0.0	1	50.0	2	28.6	3	42.9
Missing participant outcome data*	Low	1	100.0	2	100.0	4	57.1	0	0.0
	High	0	0.0	0	0.0	0	0.0	3	42.9

* based on 12-month follow up data. If 12-month data not available, 6-month data was used. LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 2 continued. Summary of risk of bias by diet class and brand

Diet Class		Moderate Macronutrient Distribution							
Diet Brand		Nutrisystem (n=2)		Volumetrics (n=1)		Weight Watchers (n=8)			
Risk of Bias (RoB)		Low RoB (n=2)		High RoB (n=1)		Low RoB (n=5)		High RoB (n=3)	
RoB assessment		n	%	n	%	n	%	n	%
Sequence generation	Low	2	100.0	0	0.0	3	37.5	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	0	0.0	1	100.0	2	25.0	3	37.5
Allocation concealment	Low	0	0.0	0	0.0	4	50.0	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	2	100.0	1	100.0	1	12.5	3	37.5
Blinding (participants, study personnel)	Low	0	0.0	0	0.0	1	12.5	0	0.0
	High	0	0.0	1	100.0	2	25.0	2	25.0
	Unclear	2	100.0	0	0.0	2	25.0	1	12.5
Blinding (outcome assessors)	Low	0	0.0	0	0.0	2	25.0	0	0.0
	High	0	0.0	0	0.0	1	12.5	1	12.5
	Unclear	2	100.0	1	100.0	2	25.0	2	25.0
Missing participant outcome data*	Low	2	100.0	0	0.0	2	25.0	0	0.0
	High	0	0.0	1	100.0	3	37.5	3	37.5

* based on 12-month follow up data. If 12-month data not available, 6-month data was used.

eTable 2 continued. Summary of risk of bias by diet class and brand

Diet Class		Low Fat							
Diet Brand		Ornish (n=3)				Rosemary Conley (n=2)			
Risk of Bias (RoB)		Low RoB (n=2)		High RoB (n=1)		Low RoB (n=1)		High RoB (n=1)	
RoB assessment		n	%	n	%	n	%	n	%
Sequence generation	Low	2	66.7	0	0.0	0	0.0	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	0	0.0	1	33.3	1	50.0	1	50.0
Allocation concealment	Low	2	66.7	0	0.0	1	50.0	0	0.0
	High	0	0.0	0	0.0	0	0.0	0	0.0
	Unclear	0	0.0	1	33.3	0	0.0	1	50.0
Blinding (participants, study personnel)	Low	2	66.7	0	0.0	0	0.0	0	0.0
	High	0	0.0	1	33.3	1	50.0	1	50.0
	Unclear	0	0.0	0	0.0	0	0.0	0	0.0
Blinding (outcome assessors)	Low	2	66.7	0	0.0	1	50.0	0	0.0
	High	0	0.0	0	0.0	0	0.0	1	50.0
	Unclear	0	0.0	1	33.3	0	0.0	0	0.0
Missing participant outcome data*	Low	1	33.3	0	0.0	0	0.0	0	0.0
	High	1	33.3	1	33.3	1	50.0	1	50.0
* based on 12-month follow up data. If 12-month data not available, 6-month data was used.									

eTable 3. Difference in mean weight loss at 6 and 12-months across all diet classes with 95% credible intervals when restricted to obese/overweight yet otherwise healthy populations

		12 Month Weight Loss (kg)				
		No Diet (0.00/0.00)	5.17 (2.43, 7.84)	4.87 (3.21, 6.65)	6.25 (4.06, 8.52)	6.80 (4.50, 9.19)
6 Month Weight Loss (kg)		5.69 (3.86, 7.47)	LEARN (0.00/0.08)	-0.27 (-2.66, 2.21)	1.09 (-1.33, 3.61)	1.63 (-1.11, 4.51)
		6.51 (5.00, 8.05)	0.83 (-0.77, 2.45)	Moderate Macronutrients (0.00/0.00)	1.37 (-0.28, 3.02)	1.91 (-0.05, 3.88)
		8.75 (7.05, 10.49)	3.06 (1.40, 4.79)	2.24 (1.20, 3.33)	Low CHO (0.80/0.25)	0.55 (-1.38, 2.47)
		8.05 (6.04, 10.09)	2.36 (0.36, 4.47)	1.53 (-0.29, 3.41)	-0.70 (-2.39, 1.00)	Low Fat (0.20/0.67)

Legend: The values below the diet class names correspond to the difference in mean weight lost between the row and the column. The values above the diet class names correspond to the difference in mean weight lost between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). The values directly below the treatment names represent the estimated probability of that treatment being the best treatment at 6-months and at 12-months, respectively. LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 4. Difference in mean weight loss at 6 and 12-months across all diet classes with 95% credible intervals when restricted to low risk of bias studies

		12 Month Weight Loss (kg)				
		No Diet (0.00/0.00)	5.58 (2.21, 8.93)	4.93 (3.20, 6.79)	5.96 (3.70, 8.30)	6.64 (3.94, 9.41)
6 Month Weight Loss (kg)	No Diet (0.00/0.00)	5.55 (3.47, 7.56)	LEARN (0.01/0.01)	-0.65 (-3.73, 2.59)	0.38 (-2.67, 3.54)	1.06 (-2.23, 4.49)
	LEARN (0.01/0.01)	6.82 (4.97, 8.61)	1.28 (-0.91, 3.50)	Moderate Macronutrients (0.01/0.01)	1.03 (-0.56, 2.55)	1.71 (-0.49, 3.89)
	Moderate Macronutrients (0.01/0.01)	8.08 (6.08, 10.08)	2.54 (0.31, 4.84)	1.26 (0.26, 2.29)	Low CHO (0.77/0.21)	0.68 (-1.36, 2.74)
	Low CHO (0.77/0.21)	7.35 (4.73, 9.98)	1.79 (-0.89, 4.60)	0.52 (-1.53, 2.60)	-0.74 (-2.61, 1.13)	Low Fat (0.21/0.77)
	Low Fat (0.21/0.77)					

Legend: The values below the diet class names correspond to the difference in mean weight lost between the row and the column. The values above the diet class names correspond to the difference in mean weight lost between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). The values directly below the treatment names represent the estimated probability of that treatment being the best treatment at 6-months and at 12-months, respectively. LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 5. Difference in mean weight loss at 6 and 12-months across all diet classes with 95% credible intervals when adjusting for percentage loss to follow-up (continuous measure)

		12 Month Weight Loss (kg)				
		No Diet (0.00/0.00)	4.71 (2.27, 7.06)	5.55 (3.97, 7.17)	6.81 (4.88, 8.77)	7.38 (5.36, 9.43)
6 Month Weight Loss (kg)		5.63 (3.77, 7.47)	LEARN (0.01/0.01)	0.85 (-1.35, 3.09)	2.11 (-0.14, 4.43)	2.67 (0.36, 5.09)
		5.81 (4.51, 7.13)	0.18 (-1.58, 1.95)	Moderate Macronutrients (0.00/0.00)	1.26 (-0.13, 2.65)	1.82 (0.14, 3.52)
		7.69 (6.21, 9.20)	2.06 (0.25, 3.92)	1.88 (1.00, 2.77)	Low CHO (0.68/0.25)	0.57 (-1.16, 2.32)
		7.29 (5.27, 9.35)	1.67 (-0.56, 3.95)	1.48 (-0.21, 3.19)	-0.40 (-2.02, 1.22)	Low Fat (0.31/0.74)

Legend: The values below the diet class names correspond to the difference in mean weight lost between the row and the column. The values above the diet class names correspond to the difference in mean weight lost between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

Table 6. Difference in mean weight loss at 6 and 12-months across all diet classes with 95% credible intervals when adjusting for baseline weight (overweight to obese vs. morbidly obese)

		12 Month Weight Loss (kg)				
		No Diet (0.00/0.00)	3.91 (0.84, 6.93)	4.88 (2.91, 6.90)	6.07 (3.74, 8.42)	6.55 (4.06, 9.06)
6 Month Weight Loss (kg)		5.45 (3.49, 7.40)	LEARN (0.04/0.01)	0.96 (-1.44, 3.44)	2.15 (-0.29, 4.66)	2.63 (0.11, 5.22)
		5.61 (4.12, 7.13)	0.16 (-1.59, 1.96)	Moderate Macronutrients (0.00/0.01)	1.19 (-0.31, 2.66)	1.67 (-0.17, 3.48)
		7.53 (5.88, 9.20)	2.08 (0.26, 3.94)	1.92 (1.05, 2.79)	Low CHO (0.66/0.29)	0.48 (-1.38, 2.37)
		7.19 (5.09, 9.31)	1.74 (-0.49, 4.00)	1.58 (-0.10, 3.25)	-0.34 (-1.95, 1.29)	Low Fat (0.34/0.69)

Legend: The values below the diet class names correspond to the difference in mean weight lost between the row the columns. Values in bold are estimated effects that are statistically significant (significance level of 0.05). LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 7. Difference in mean weight loss at 6 and 12-months across all diet classes with 95% credible intervals when adjusting for proportion female (continuous measure).

		12 Month Weight Loss (kg)				
		No Diet (0.00/0.00)	2.91 (0.20, 5.53)	3.56 (1.59, 5.55)	4.97 (2.77, 7.16)	5.69 (3.49, 7.87)
6 Month Weight Loss (kg)		5.62 (3.70, 7.53)	LEARN (0.00/0.01)	0.66 (-1.46, 2.86)	2.06 (-0.12, 4.28)	2.78 (0.49, 5.13)
		5.79 (4.39, 7.22)	0.17 (-1.60, 1.98)	Moderate Macronutrients (0.00/0.00)	1.41 (0.05, 2.74)	2.12 (0.47, 3.78)
		7.69 (6.13, 9.32)	2.08 (0.28, 3.96)	1.90 (1.04, 2.79)	Low CHO (0.66/0.19)	0.71 (-0.96, 2.41)
		7.35 (5.28, 9.47)	1.73 (-0.52, 4.04)	1.56 (-0.12, 3.27)	-0.35 (-1.97, 1.29)	Low Fat (0.34/0.80)

Legend: The values below the diet class names correspond to the difference in mean weight lost between the row and the column. The values above the diet class names correspond to the difference in mean weight lost between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 8. Difference in mean weight loss at 6 and 12-months across all diet brands with 95% credible intervals when restricted to obese/overweight yet otherwise healthy populations

		12 Month Weight Loss (kg)													
		No Diet	4.25 (1.38, 7.20)	3.99 (1.51, 6.75)	6.01 (2.61, 9.60)	5.58 (2.73, 8.66)	5.14 (2.17, 8.33)	4.23 (1.84, 6.80)	5.80 (2.33, 9.56)	6.42 (3.07, 9.62)	5.50 (0.11, 11.13)	6.36 (2.08, 10.88)	N/A	N/A	3.52 (-0.23, 7.41)
6 Month Weight Loss (kg)	5.88 (3.87, 7.85)	LEARN	-0.27 (-2.78, 2.41)	1.75 (-1.94, 5.59)	1.33 (-1.31, 4.10)	0.89 (-2.00, 3.89)	-0.02 (-3.10, 3.14)	1.56 (-1.75, 5.02)	2.17 (-2.35, 6.47)	1.23 (-4.14, 6.80)	2.13 (-2.45, 6.77)	N/A	N/A	-0.73 (-4.81, 3.44)	
	6.90 (4.70, 9.15)	1.02 (-0.85, 2.97)	Moderate Macronutrients	2.03 (-1.55, 5.53)	1.60 (-0.54, 3.68)	1.16 (-1.43, 3.67)	0.25 (-2.07, 2.50)	1.83 (-1.40, 5.04)	2.42 (-2.14, 6.58)	1.49 (-3.26, 6.30)	2.38 (-1.30, 5.99)	N/A	N/A	-0.47 (-4.22, 3.16)	
	7.67 (5.00, 10.34)	1.79 (-0.95, 4.53)	0.77 (-1.93, 3.48)	Low fat	-0.41 (-4.09, 3.26)	-0.85 (-4.13, 2.33)	-1.77 (-5.42, 1.82)	-0.18 (-4.32, 3.96)	0.42 (-4.75, 5.20)	-0.52 (-6.48, 5.46)	0.37 (-4.52, 5.19)	N/A	N/A	-2.48 (-7.38, 2.29)	
	9.68 (7.33, 12.07)	3.80 (1.81, 5.89)	2.78 (1.52, 4.07)	2.02 (-0.79, 4.82)	Atkins	-0.43 (-3.07, 2.15)	-1.35 (-4.10, 1.32)	0.22 (-2.80, 3.26)	0.83 (-3.93, 5.19)	-0.10 (-5.28, 5.15)	0.78 (-3.45, 4.94)	N/A	N/A	-2.07 (-6.15, 1.91)	
	7.96 (5.60, 10.31)	2.08 (-0.08, 4.25)	1.05 (-0.61, 2.72)	0.28 (-2.08, 2.66)	-1.73 (-3.61, 0.14)	Zone	-0.92 (-3.81, 1.96)	0.65 (-2.38, 3.78)	1.27 (-3.55, 5.70)	0.33 (-5.04, 5.87)	1.22 (-3.17, 5.60)	N/A	N/A	-1.62 (-5.84, 2.54)	
	6.31 (3.80, 8.85)	0.43 (-2.25, 3.17)	-0.60 (-2.83, 1.65)	-1.36 (-4.31, 1.62)	-3.36 (-5.76, -0.98)	-1.64 (-4.10, 0.81)	Weight Watchers	1.59 (-1.84, 5.03)	2.19 (-2.13, 6.19)	1.26 (-4.04, 6.61)	2.13 (-2.02, 6.32)	N/A	N/A	-0.71 (-4.47, 3.02)	
	7.87 (4.78, 11.02)	2.00 (-0.85, 4.91)	0.97 (-1.67, 3.70)	0.21 (-3.15, 3.61)	-1.80 (-4.46, 0.84)	-0.08 (-2.71, 2.61)	1.57 (-1.52, 4.68)	Ornish	0.61 (-4.63, 5.33)	-0.34 (-6.07, 5.44)	0.57 (-4.34, 5.38)	N/A	N/A	-2.30 (-6.90, 2.28)	
	5.80 (3.18, 8.45)	-0.08 (-3.35, 3.18)	-1.09 (-4.57, 2.32)	-1.86 (-5.63, 1.83)	-3.87 (-7.46, -0.36)	-2.15 (-5.70, 1.38)	-0.50 (-4.14, 3.10)	Jenny Craig	-2.06 (-6.16, 1.97)	-0.93 (-7.22, 5.80)	-0.05 (-5.62, 5.89)	N/A	N/A	-2.91 (-7.67, 2.28)	
	9.09 (4.45, 13.77)	3.22 (-1.33, 7.78)	2.19 (-1.91, 6.31)	1.43 (-3.48, 6.32)	-0.59 (-4.90, 3.72)	1.14 (-3.27, 5.63)	2.77 (-1.89, 7.47)	1.21 (-3.70, 6.11)	3.28 (Rosemary Conley	-2.06 (-5.12, 6.97)	0.86 (-5.12, 6.97)	N/A	N/A	-1.97 (-8.11, 4.01)	
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Volumetrics	N/A	N/A	-2.86 (-7.88, 2.08)
	6.76 (2.10, 11.38)	0.90 (-3.63, 5.39)	-0.13 (-4.98, 4.63)	-0.90 (-6.53, 4.61)	-2.91 (-7.88, 1.90)	-1.19 (-6.26, 3.85)	0.46 (-5.07, 5.89)	-1.09 (-6.57, 4.22)	0.96 (-4.33, 6.17)	-2.34 (-8.67, 3.91)	N/A	Biggest Loser	N/A	N/A	N/A
	8.52 (4.00, 13.09)	2.64 (-1.85, 7.14)	1.61 (-3.15, 6.40)	0.84 (-4.65, 6.36)	-1.17 (-6.03, 3.67)	0.57 (-4.45, 5.57)	2.21 (-3.25, 7.73)	0.67 (-4.71, 5.96)	2.71 (-2.54, 7.95)	-0.57 (-6.85, 5.67)	N/A	1.77 (-3.15, 6.67)	Nutrisystem	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Slimming World

Legend: The values below the diet brand names correspond to the difference in mean weight lost between the row and the column. The values above the diet brands names correspond to the difference in mean weight lost between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 9. Difference in mean weight loss at 6 and 12-months across all diet brands with 95% credible intervals when restricted to low risk of bias studies

		12 Month Weight Loss (kg)											
No Diet		4.76 (0.81, 8.73)	3.88 (1.15, 6.89)	4.47 (-1.48, 10.71)	5.01 (1.89, 8.40)	4.77 (1.14, 8.62)	5.17 (2.66, 8.05)	5.74 (1.74, 10.07)	6.27 (2.53, 9.87)	6.69 (1.82, 11.76)	N/A	N/A	3.52 (-0.65, 7.95)
6 Month Weight Loss (kg)	5.77 (3.45, 8.06)	LEARN	-0.87 (-4.44, 2.87)	-0.28 (-6.39, 6.01)	0.27 (-3.29, 4.03)	0.01 (-3.81, 3.99)	0.42 (-3.43, 4.61)	0.99 (-3.03, 5.24)	1.54 (-4.12, 6.93)	1.94 (-3.53, 7.53)	N/A	N/A	-1.23 (-6.49, 4.15)
	7.58 (4.44, 10.69)	1.80 (-0.92, 4.54)	Moderate Macronutrients	0.59 (-5.09, 6.22)	1.14 (-0.86, 3.19)	0.90 (-2.12, 3.89)	1.30 (-1.32, 4.05)	1.86 (-1.69, 5.49)	2.40 (-2.70, 7.10)	2.83 (-1.36, 6.93)	N/A	N/A	-0.36 (-4.62, 3.86)
	7.00 (2.67, 11.34)	1.23 (-2.79, 5.29)	-0.57 (-3.77, 2.61)	Low fat	0.54 (-5.01, 6.21)	0.29 (-4.46, 5.07)	0.70 (-5.11, 6.69)	1.27 (-4.60, 7.22)	1.82 (-5.66, 8.84)	2.22 (-4.77, 9.16)	N/A	N/A	-0.96 (-7.80, 5.94)
	9.52 (6.31, 12.77)	3.75 (0.98, 6.62)	1.95 (0.68, 3.25)	2.51 (-0.77, 5.85)	Atkins	-0.25 (-3.23, 2.72)	0.15 (-2.77, 3.24)	0.73 (-2.67, 4.13)	1.27 (-4.09, 6.15)	1.69 (-3.01, 6.28)	N/A	N/A	-1.50 (-6.06, 3.05)
	7.84 (4.60, 11.14)	2.08 (-0.73, 4.95)	0.28 (-1.13, 1.68)	0.85 (-1.99, 3.75)	-1.67 (-3.37, 0.00)	Zone	0.41 (-2.97, 3.96)	0.98 (-2.50, 4.54)	1.52 (-4.04, 6.71)	1.94 (-3.20, 7.06)	N/A	N/A	-1.25 (-6.20, 3.71)
	7.18 (2.78, 11.57)	1.41 (-2.62, 5.51)	-0.39 (-3.66, 2.93)	0.18 (-4.21, 4.62)	-2.34 (-5.64, 0.99)	-0.67 (-3.99, 2.66)	Weight Watchers	0.57 (-3.31, 4.41)	1.11 (-3.69, 5.34)	1.53 (-3.62, 6.40)	N/A	N/A	-1.64 (-5.92, 2.42)
	7.88 (4.16, 11.71)	2.11 (-1.19, 5.51)	0.30 (-2.44, 3.07)	0.89 (-3.05, 4.90)	-1.64 (-4.35, 1.11)	0.03 (-2.65, 2.77)	0.71 (-3.03, 4.45)	Ornish	0.53 (-5.38, 6.00)	0.97 (-4.58, 6.33)	N/A	N/A	-2.22 (-7.53, 2.99)
	5.90 (3.17, 8.56)	0.14 (-3.39, 3.62)	-1.66 (-5.84, 2.41)	-1.09 (-6.26, 3.94)	-3.62 (-7.89, 0.53)	-1.94 (-6.22, 2.20)	-1.29 (-6.47, 3.84)	-1.99 (-6.66, 2.56)	Jenny Craig	0.42 (-5.99, 7.16)	N/A	N/A	-2.77 (-8.11, 2.94)
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rosemary Conley	N/A	N/A	-3.19 (-9.02, 2.64)
	6.06 (0.65, 11.17)	0.28 (-5.51, 5.87)	-1.52 (-7.62, 4.38)	-0.96 (-7.90, 5.75)	-3.48 (-9.75, 2.56)	-1.79 (-8.10, 4.27)	-1.11 (-9.06, 6.53)	-1.84 (-8.57, 4.65)	0.15 (-5.75, 5.88)	N/A	Biggest Loser	N/A	N/A
	7.49 (3.99, 11.00)	1.71 (-2.46, 5.97)	-0.08 (-4.70, 4.57)	0.49 (-5.11, 6.10)	-2.04 (-6.81, 2.73)	-0.35 (-5.17, 4.45)	0.31 (-5.95, 6.58)	-0.41 (-5.62, 4.82)	1.59 (-2.79, 6.05)	N/A	1.45 (-3.24, 6.29)	Nutrisystem	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Slimming World

Legend: The values below the diet brand names correspond to the difference in mean weight lost between the row and the column. The values above the diet brands names correspond to the difference in mean weight lost between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 10. GRADE confidence in direct estimates: 12-month weight loss

Comparison (# trials)	Direct estimate	Precision	Consistency	Risk of bias	Quality of evidence
LEARN vs No diet 2 trials	3.67 (-3.88, 11.21)	-1	-1 (I ² =99.9%)	0	⊕⊕Low
Moderate vs No diet 7 trials	4.84 (2.82, 6.86)	0	-1 (I ² =99.6%)	-1	⊕⊕Low
Low CHO vs No diet 1 trial	9.34 (7.31, 11.37)	-1	n/a	-1	⊕⊕Low
Low fat vs No diet 3 trials	5.97 (2.01, 9.92)	0	-1 (I ² =75%)	0	⊕⊕⊕Moderate
Moderate vs LEARN 2 trials	0.21 (-4.64, 5.05)	-1	-1 (I ² =99.4%)	0	⊕⊕Low
Low CHO vs LEARN 2 trials	1.23 (-1.22, 3.67)	-1	-1 (I ² =99.4%)	0	⊕⊕Low
Low fat vs LEARN 2 trials	4.00 (-0.21, 8.21)	-1	-1 (I ² =95.0%)	0	⊕⊕Low
Low CHO vs Moderate 10 trials	1.07 (0.16, 1.97)	-1	0 (I ² =30.4%)	0	⊕⊕⊕Moderate
Low fat vs Moderate 4 trials	1.84 (0.96, 2.72)	-1	0 (I ² =68.9%)	0	⊕⊕⊕Moderate
Low fat vs Low CHO 4 trials	0.33 (-0.86, 1.52)	-1	-1 (I ² =86.5%)	0	⊕⊕Low

Legend: For direct estimates start with high quality evidence. -1 symbolizes a choice to rate down (e.g. high quality to moderate quality evidence); 0 symbolizes choice to not rate down; n/a = not applicable because only 1 trial. I² is the percentage of variability in the treatment estimates that is attributable to heterogeneity between studies rather than to sampling error.

Precision – For active treatment versus no diet we rated down for precision if the confidence interval crossed 1 kg; For active treatment versus active control, we rated down for precision if the difference between diets was < 2 kg, or the confidence interval crossed 0.5 kg. In instances where very few patients informed the comparison of interest, and the indirect evidence suggested an otherwise large precise estimate, we rated down. This occurred once (i.e. in the Low CHO vs No diet comparison only 49 patients were followed, yet the pooled estimate was large and precise). **Consistency** – We assessed the consistency for direct treatment comparisons using I² estimates and visual inspection of point estimates. An I² of 75% or higher indicates considerable heterogeneity. **Risk of Bias** – For direct estimates we rated down for risk of bias if the majority of studies within a comparison were considered to be at high risk of bias.

eTable 11. GRADE confidence in indirect estimates: 12-month weight loss

Comparison (# trials)	Indirect estimate	Quality of 1 st order link	Similarity of 1 st order links	Quality of evidence
LEARN vs No diet 9 trials	3.63 (0.36, 6.91)	⊕⊕Low	0	⊕⊕Low
Moderate vs No diet 15 trials	4.69 (1.73, 7.75)	⊕⊕Low	0	⊕⊕Low
Low CHO vs No diet 19 trials	5.16 (2.25, 8.18)	⊕⊕⊕Moderate	0	⊕⊕⊕Moderate
Low fat vs No diet 11 trials	6.15 (2.96, 9.40)	⊕⊕⊕Moderate	0	⊕⊕⊕Moderate
Moderate vs LEARN 20 trials	0.94 (-1.74, 3.66)	⊕⊕Low	0	⊕⊕Low
Low CHO vs LEARN 15 trials	2.48 (-0.19, 5.19)	⊕⊕Low	0	⊕⊕Low
Low fat vs LEARN 10 trials	2.64 (-0.02, 5.33)	⊕⊕Low	0	⊕⊕Low
Low CHO vs Moderate 14 trials	2.05 (-0.92, 4.96)	⊕⊕Low	0	⊕⊕Low
Low fat vs Moderate 17 trials	1.38 (-0.75, 3.51)	⊕⊕Low	0	⊕⊕Low
Low fat vs Low CHO 13 trials	0.39 (-1.92, 2.70)	⊕⊕⊕Moderate	0	⊕⊕⊕Moderate

Legend: 0 symbolizes choice to not rate down.

Quality of 1st order link – for each comparison there are 3 first order links. We chose the link with the most patients and then assessed the quality of each paired comparison comprising the chosen 1st order link from the direct evidence (eTable 10). We chose the lowest quality rating of the two paired comparisons;

Similarity – we assessed the similarity (e.g. population, intervention) between trials that informed the direct comparisons for the indirect estimates.

eTable 12. GRADE overall confidence in estimates: 12-month weight loss

Comparison	Direct estimate	Indirect estimate	Network estimate	Quality of evidence
LEARN vs No diet	3.67 (-3.88, 11.21)	3.63 (0.36, 6.91)	5.16 (2.68, 7.63)	⊕⊕Low
Moderate vs No diet	4.84 (2.82, 6.86)	4.69 (1.73, 7.75)	5.70 (4.14, 7.35)	⊕⊕⊕Moderate
Low CHO vs No Diet	9.34 (7.31, 11.37)	5.16 (2.25, 8.18)	7.25 (5.33, 9.25)	⊕⊕⊕Moderate
Low fat vs No diet	5.97 (2.01, 9.92)	6.15 (2.96, 9.40)	7.27 (5.26, 9.34)	⊕⊕⊕Moderate
Moderate vs LEARN	0.21 (-4.64, 5.05)	0.94 (-1.74, 3.66)	0.55 (-1.71, 2.87)	⊕⊕Low
Low CHO vs LEARN	1.23 (-1.22, 3.67)	2.48 (-0.19, 5.19)	2.10 (-0.20, 4.47)	⊕⊕Low
Low fat vs LEARN	4.00 (-0.21, 8.21)	2.64 (-0.02, 5.33)	2.12 (-0.33, 4.59)	⊕⊕Low
Low CHO vs Moderate	1.07 (0.16, 1.97)	2.05 (-0.92, 4.96)	1.55 (0.13, 2.95)	⊕⊕⊕Moderate
Low fat vs Moderate	1.84 (0.96, 2.72)	1.38 (-0.75, 3.51)	1.56 (-0.17, 3.30)	⊕⊕⊕Moderate
Low fat vs Low CHO	0.33 (-0.86, 1.52)	0.39 (-1.92, 2.70)	0.02 (-1.78, 1.79)	⊕⊕⊕Moderate

Legend: For our overall confidence in estimates we used the highest quality of evidence rating from the direct (eTable 10) and indirect estimates (eTable 11).

GRADE confidence in estimates

High confidence - Further research is very unlikely to change our confidence in the estimate of effect; *Moderate confidence* - Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate; *Low confidence* - Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate; *Very low confidence* - Any estimate of effect is very uncertain.

eTable 13. Difference in mean decrease in BMI at 6 and 12-months across diet classes with 95% credible intervals

		12 Month Weight Loss (kg)			
	No Diet (0.00/0.00)	2.06 (0.44, 3.77)	1.55 (0.62, 2.53)	2.02 (0.82, 3.31)	2.25 (1.17, 3.40)
6 Month Weight Loss (kg)	1.62 (0.76, 2.48)	LEARN (0.01/0.33)	-0.52 (-1.97, 0.94)	-0.06 (-1.30, 1.22)	0.18 (-1.14, 1.53)
	2.03 (1.28, 2.78)	0.40 (-0.44, 1.27)	Moderate Macronutrients (0.02/0.02)	0.46 (-0.43, 1.39)	0.71 (-0.10, 1.54)
	2.52 (1.72, 3.32)	0.89 (0.05, 1.75)	0.49 (-0.06, 1.04)	Low CHO (0.52/0.15)	0.24 (-0.61, 1.09)
	2.48 (1.67, 3.30)	0.85 (-0.03, 1.75)	0.45 (-0.30, 1.21)	-0.04 (-0.75, 0.67)	Low Fat (0.45/0.50)

Legend: The values below the diet class names correspond to the difference in mean decrease in BMI between the row and the column. The values above the diet class names correspond to the difference in mean decrease in BMI between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05). The values directly below the treatment names represent the estimated probability of that treatment being the best treatment at 6-months and at 12-months, respectively. LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eTable 14. Difference in mean decrease in BMI at 6 and 12-months across diet brands with 95% credible intervals

		12 Month BMI													
No Diet		1.12 (-0.29, 2.59)	0.40 (-0.82, 1.64)	2.45 (1.10, 3.78)	1.32 (0.00, 2.68)	0.86 (-0.52, 2.26)	1.10 (-0.05, 2.23)	1.21 (-0.09, 2.58)	2.46 (1.01, 3.95)	0.90 (-1.03, 2.85)	1.05 (-0.97, 3.09)	N/A	N/A	N/A	0.59 (-0.74, 1.92)
6 Month BMI	1.20 (0.30, 2.07)	LEARN	-0.72 (-1.82, 0.38)	1.32 (-0.25, 2.89)	0.19 (-0.87, 1.27)	-0.26 (-1.36, 0.81)	-0.03 (-1.39, 1.31)	0.08 (-0.94, 1.15)	1.33 (-0.72, 3.43)	-0.22 (-2.12, 1.64)	-0.07 (-2.00, 1.83)	N/A	N/A	N/A	-0.54 (-2.17, 1.09)
	0.63 (-0.97, 2.20)	-0.57 (-1.84, 0.70)	Moderate Macronutrient	2.04 (0.46, 3.63)	0.92 (-0.01, 1.84)	0.46 (-0.56, 1.48)	0.70 (-0.20, 1.56)	0.81 (-0.05, 1.71)	2.06 (0.14, 4.01)	0.50 (-1.00, 2.02)	0.65 (-1.03, 2.31)	N/A	N/A	N/A	0.19 (-1.06, 1.42)
	3.04 (1.79, 4.28)	1.84 (0.43, 3.28)	2.41 (0.45, 4.39)	Low fat	-1.13 (-2.73, 0.49)	-1.58 (-3.24, 1.48)	-1.35 (-2.86, 0.13)	-1.23 (-2.83, 0.40)	0.02 (-1.99, 2.04)	-1.54 (-3.73, 0.64)	-1.39 (-3.59, 0.81)	N/A	N/A	N/A	-1.86 (-3.67, -0.05)
	1.53 (0.01, 3.01)	0.34 (-0.87, 1.54)	0.91 (0.20, 1.58)	-1.50 (-3.37, 0.34)	Atkins	-0.45 (-1.35, 0.41)	-0.22 (-1.28, 0.80)	-0.11 (-0.95, 0.76)	1.14 (-0.85, 3.15)	-0.42 (-2.18, 1.37)	-0.27 (-2.12, 1.58)	N/A	N/A	N/A	-0.73 (-2.20, 0.72)
	0.98 (-0.52, 2.48)	-0.22 (-1.40, 1.01)	0.35 (-0.46, 1.18)	-2.06 (-3.93, -0.19)	-0.55 (-1.32, 0.26)	Zone	0.23 (-0.87, 1.33)	0.34 (-0.52, 1.27)	1.59 (-0.43, 3.64)	0.03 (-1.79, 1.86)	0.18 (-1.70, 2.08)	N/A	N/A	N/A	-0.28 (-1.80, 1.24)
	0.81 (-0.79, 2.41)	-0.39 (-1.81, 1.06)	0.18 (-0.84, 1.21)	-2.24 (-4.10, -0.35)	-0.73 (-1.66, 0.23)	-0.17 (-1.25, 0.90)	Weight Watchers	0.11 (-0.89, 1.20)	1.36 (-0.49, 3.26)	-0.20 (-1.93, 1.57)	-0.04 (-1.84, 1.76)	N/A	N/A	N/A	-0.51 (-1.77, 0.79)
	1.28 (-0.21, 2.80)	0.09 (-1.09, 1.32)	0.66 (-0.18, 1.53)	-1.76 (-3.58, 0.13)	-0.25 (-1.05, 0.61)	0.30 (-0.55, 1.18)	0.47 (-0.61, 1.57)	Ornish	1.25 (-0.76, 3.25)	-0.30 (-2.08, 1.43)	-0.16 (-2.00, 1.66)	N/A	N/A	N/A	-0.62 (-2.10, 0.81)
	1.95 (0.85, 3.04)	0.75 (-0.64, 2.16)	1.33 (-0.59, 3.25)	-1.08 (-2.77, 0.58)	0.42 (-1.40, 2.28)	0.97 (-0.88, 2.82)	1.15 (-0.81, 3.08)	0.67 (-1.19, 2.49)	Jenny Craig	-1.56 (-4.00, 0.84)	-1.41 (-3.92, 1.09)	N/A	N/A	N/A	-1.88 (-3.87, 0.11)
	1.43 (-0.74, 3.58)	0.23 (-1.72, 2.17)	0.80 (-0.67, 2.28)	-1.61 (-4.06, 0.84)	-0.11 (-1.72, 1.54)	0.44 (-1.24, 2.12)	0.62 (-1.19, 2.41)	0.14 (-1.55, 1.84)	-0.53 (-2.92, 1.88)	Volumetrics	0.15 (-2.08, 2.40)	N/A	N/A	N/A	-0.31 (-2.26, 1.63)
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rosemary Conley	N/A	N/A	N/A	-0.46 (-2.48, 1.55)
	1.75 (0.09, 3.39)	0.56 (-1.05, 2.13)	1.13 (-0.89, 3.09)	-1.29 (-3.64, 1.02)	0.22 (-1.80, 2.22)	0.77 (-1.27, 2.75)	0.95 (-1.38, 3.22)	0.47 (-1.57, 2.42)	-0.21 (-2.16, 1.73)	0.32 (-2.16, 2.76)	N/A	Biggest Loser	N/A	N/A	N/A
	2.32 (0.65, 4.02)	1.13 (-0.69, 2.97)	1.70 (-0.54, 3.92)	-0.71 (-2.90, 1.46)	0.80 (-1.41, 2.98)	1.35 (-0.86, 3.53)	1.52 (-0.82, 3.86)	1.05 (-1.16, 3.22)	0.37 (-1.65, 2.42)	0.90 (-1.77, 3.57)	N/A	0.57 (-1.59, 2.76)	Nutrisystem	N/A	N/A
	4.49 (2.23, 6.73)	3.30 (0.94, 5.64)	3.87 (1.14, 6.56)	1.45 (-0.42, 3.30)	2.96 (0.31, 5.58)	3.51 (0.85, 6.12)	3.68 (1.02, 6.26)	3.21 (0.53, 5.80)	2.53 (0.05, 5.04)	3.06 (-0.02, 6.15)	N/A	2.74 (-0.22, 5.76)	2.17 (-0.70, 5.01)	South Beach	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Slimming World

Legend: The values below the diet brand names correspond to the difference in mean decrease in BMI between the row and the column. The values above the diet brands names correspond to the difference in mean decrease in BMI between the columns and row. Values in bold are estimated effects that are statistically significant (significance level of 0.05).

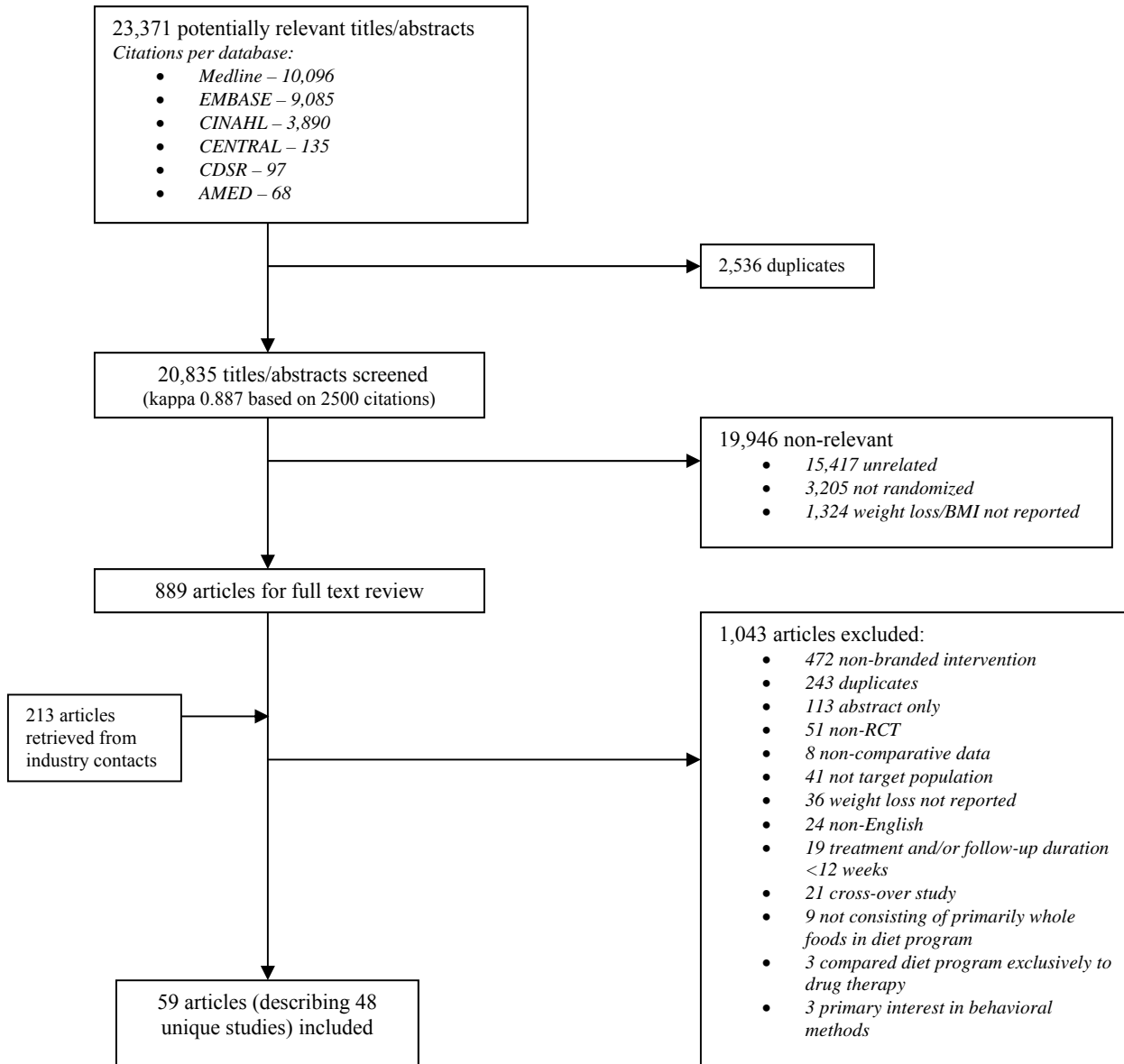
eTable 15. Key differences between this analysis and recent joint guidelines from the American Heart Association (AHA), American College of Cardiology (ACC), and The Obesity Society (TOS)

Current Network Meta-Analysis	AHA/ACC/TOS Guidelines for the Management of Overweight and Obesity in Adults
<i>Research Question*</i>	
In overweight or obese adults, what is the comparative effectiveness of different popular diet approaches based on macronutrient diet classes and diet brands in achieving weight loss?	In overweight or obese adults, what is the effectiveness of diets of differing forms and structures (macronutrient content, carbohydrate and fat quality, nutrient density, amount of energy deficit, and dietary pattern) or other dietary weight loss strategies (e.g., meal timing, portion-controlled meal replacements) in achieving or maintaining weight loss?
<i>PICO</i>	
<p>Population: Overweight (body mass index [BMI] 25 – 29 kg/m²) or obese (BMI ≥ 30 kg/m²) adults (≥18 years of age).</p> <p>Intervention: Popular branded diets (i.e., Atkins, Biggest Loser, Jenny Craig, Nutrisystem, Ornish, Rosemary Conley, Slimming World, South Beach, Volumetrics, Weight Watchers, Zone) and non-branded macronutrient diets (Moderate macronutrient content, low fat, low carbohydrate [CHO]).</p> <p>Comparison: No diet, LEARN, other diets, including the use of physical exercise and behavioral modification components.</p> <p>Outcome: Weight loss at 6-months (+/- 3 months) and 12-months (+/- 3 months) measured using change from baseline, and percent weight reduction. Similar measurements of BMI. Adverse events.</p> <p>Study design: Randomized clinical trials.</p> <p>Publication time frame: Database inception to April 2014.</p>	<p>Population: Overweight (BMI 25 – 29 kg/m²) or obese (BMI ≥ 30 kg/m²) adults (≥18 years of age)</p> <p>Intervention: Diet interventions including low calorie, very low calorie count (VLCD), low fat, high fiber, high protein, high CHO, low CHO, scheduling (meals & meal pattern), CHO counting, meal replacement, low-glycemic index, glycemic load, Dietary Approaches to Stop Hypertension (DASH), Omni, Atkins, vegetarian, Therapeutic Lifestyle Changes, Portfolio, Ketogenic, Mediterranean, South Beach, Zone, Ornish, Pritikin, energy density, portion control, Volumetrics.</p> <p>Comparison: No diet, other diets, including the use of physical exercise and behavioral modification components if these were standardized across treatment groups.</p> <p>Outcome: Reduction in body weight as measured by weight (kg, lbs., %), BMI and BMI change, waist circumference, waist-hip ratio, % body fat, % reduction of excess weight and weight loss maintenance at study conclusions. Other questions examined morbid events.</p> <p>Study design: Randomized clinical trials with at least 15 subjects per treatment group if published in 2009 or earlier, studies with ≥ 100 patients per group published after 2009.</p> <p>Publication time frame: 1998 - 2009.</p>
<i>Eligibility Criteria</i>	
<p>Include (beyond PICO): Concomitant behavioral intervention and/or physical exercise regardless of whether this differs across treatment arms. Peer-reviewed publication in English.</p> <p>Exclude: Studies including children, animal studies, non-overweight populations, concomitant pharmacotherapy, surgical interventions, studies with no branded diets (e.g., the Mediterranean diet), studies < 3-months in length in either follow-up time or intervention time. Studies not published in English.</p>	<p>Include (beyond PICO): Abstract available in English, patients recruited from Westernized countries, Intervention period ≥3-months and follow-up period ≥6-months as measured from randomization.</p> <p>Exclude: Studies including children, animal studies, non-overweight populations, concomitant pharmacotherapy, surgical interventions, dropout rate ≥ 40% after 6-months, studies published before 1998.</p>

<i>Search Strategy</i>	
MEDLINE, EMBASE, CENTRAL, CINAHL, AMED and CDSR, and contact with branded diet companies. Bibliographies of review articles and eligible trials, registries clinicaltrials.gov and the metaRegister of Controlled Trials.	PubMed, EMBASE, CINAHL, PsychInfo, EBM, Biological Abstracts, and Wilson Social Sciences Abstracts.
<i>Summary of Data Approach</i>	
Quality Assessment: Cochrane risk of bias tool, and GRADE criteria including assessment of direct and indirect comparisons. Using risk of bias tool, reviewers rated each study as “high”, “low” or “unclear” risk of bias. No trials were excluded based on quality assessment. Effects Estimation: Network meta-analyses using meta-regression for arm-specific effect modifiers (physical exercise, behavioral support and calorie restrictions). Sensitivity analysis for missing participant data, overall risk of bias, baseline weight, gender and specific health conditions.	Quality Assessment: Risk of bias was assessed using a “Quality Assessment Tool for Controlled Intervention Studies”. The NHLBI developed this tool based on criteria from the Agency for Healthcare Research and Quality, the U.S. Preventive Services Task Force, and the National Health Service Centre for Reviews and Dissemination. The tool addressed 14 elements of quality assessment. If a study had a “fatal flaw,” then risk of bias was considered significant, and the study was rated as poor quality and excluded. Reviewers rated each study as “good,” “fair,” or “poor” quality. Of potentially eligible studies, 54 were excluded due to poor quality. Effects Estimation: Evidence tables and summary tables consisting only of data from the original publications of eligible RCTs.
<i>Search Results</i>	
Included: 48 RCTs (described in 59 articles). Diet classes: 7 LEARN, 38 Moderate macronutrient distribution, 29 low CHO and 9 low fat. Brands: 20 Atkins, 12 Zone, 8 Weight Watchers, 3 Ornish, 2 Jenny Craig, 2 Nutrisystem, 2 Rosemary Conley, and one of each of the following diets: Volumetrics, Biggest Loser, South Beach and Slimming World.	
<i>Comments</i>	
Includes 5 studies also included in the AHA/ACC/TOS Guidelines.	

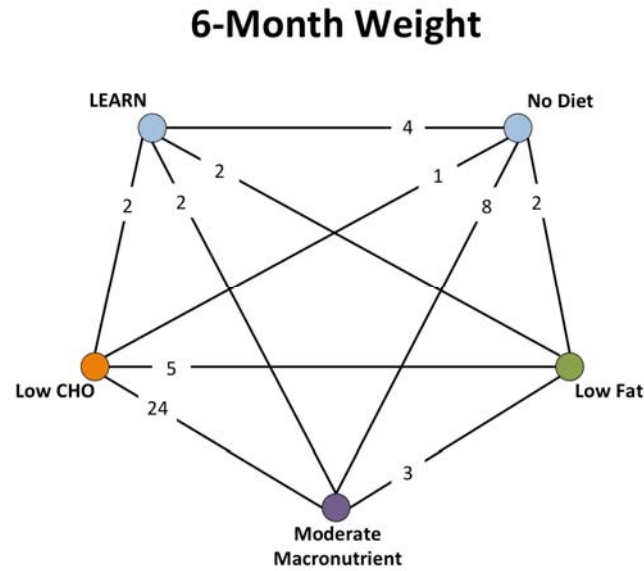
*The research question reported for the guidelines is referred to as Critical Question 3a within the guidelines and is the question that most resembles that asked here. NHLBI: National Heart, Lung, and Blood Institute. LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components.

eFigure 1. Flow Diagram of Search Results

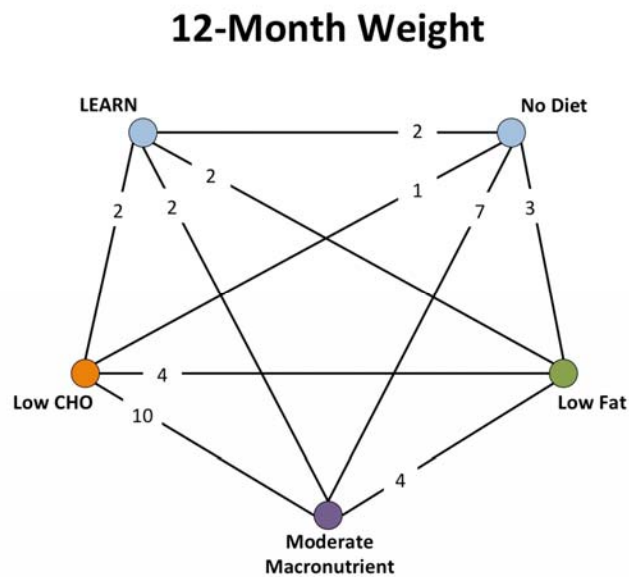


eFigure 2. Network diagrams for randomized controlled trials investigating weight loss among diets, categorized by diet class

Panel A.



Panel B.

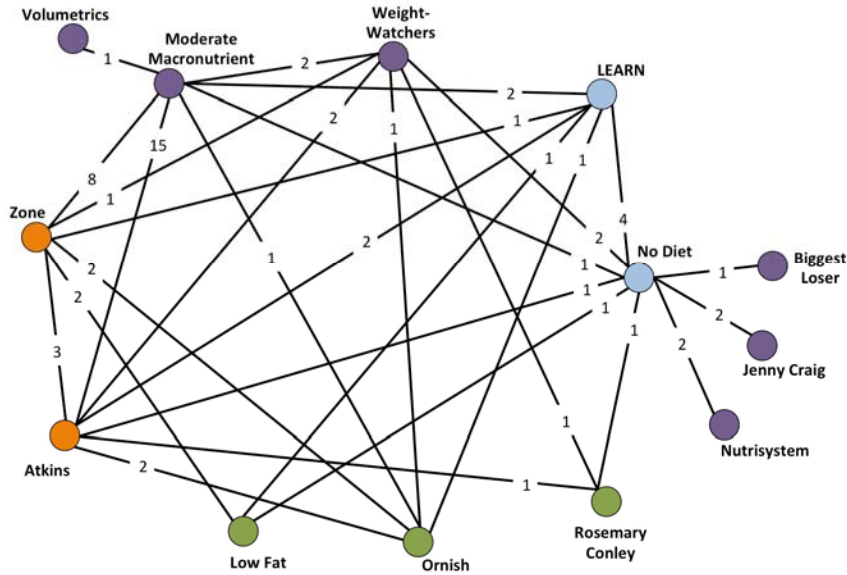


Legend: The colors of each node correspond to the diet class. Orange nodes are low carbohydrate, green nodes are low fat and purple nodes are moderate macronutrient diets. Blue nodes represent control groups (no intervention or LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components). The numbers within each line joining two comparators correspond to the number of studies that compare the treatments. Distances between nodes are not meaningful.

eFigure 3. Network diagrams for randomized controlled trials investigating weight loss among branded diets

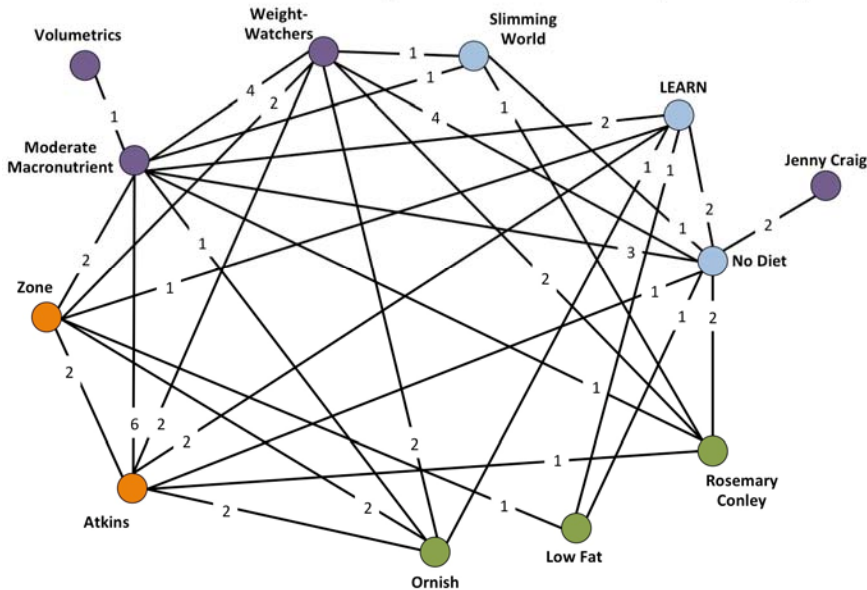
Panel A.

6-Month Weight Reduction (Brands)



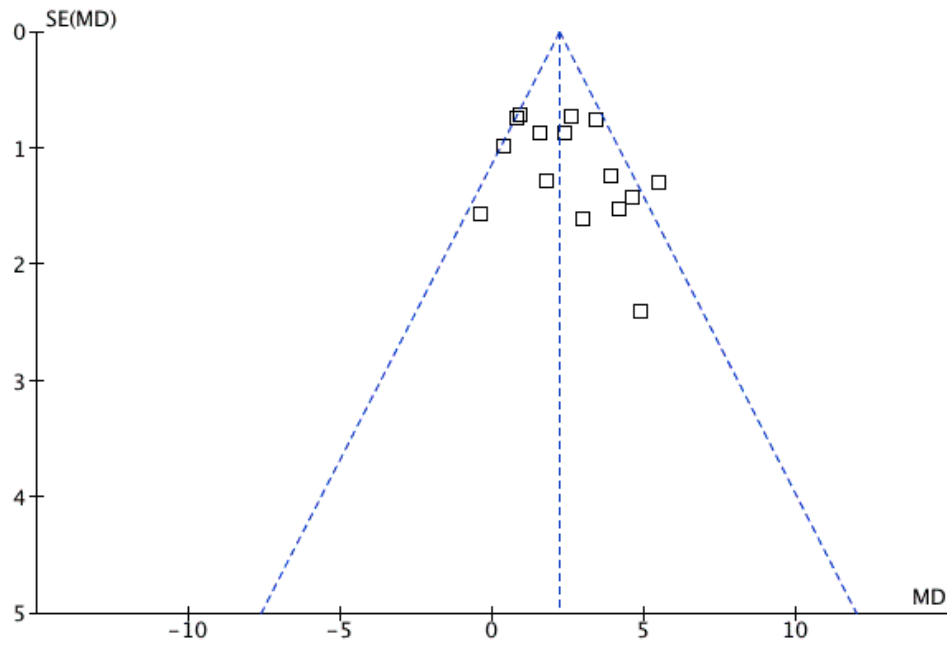
Panel B.

12-Month Weight Reduction (Brands)



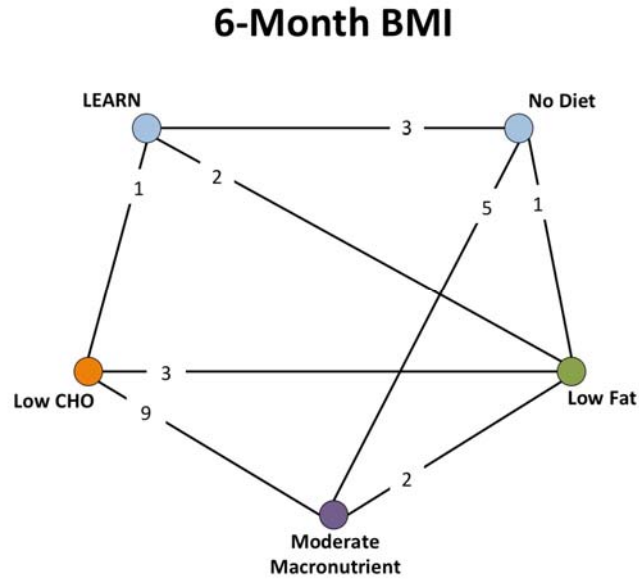
Legend: The colors of the nodes correspond to the diet class to which the brands belong (purple = moderate macronutrients; orange = low carbohydrate; green = low fat; blue = no treatment, standard treatment (i.e. LEARN) or no particular macronutrient composition (i.e. Slimming World)). LEARN represents a common dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components. The numbers within each line joining two comparators correspond to the number of studies that compare the treatments. Distances between nodes are not meaningful.

eFigure 4. Publication bias assessed via funnel plots - Atkins versus moderate macronutrient diets: 6-month weight loss

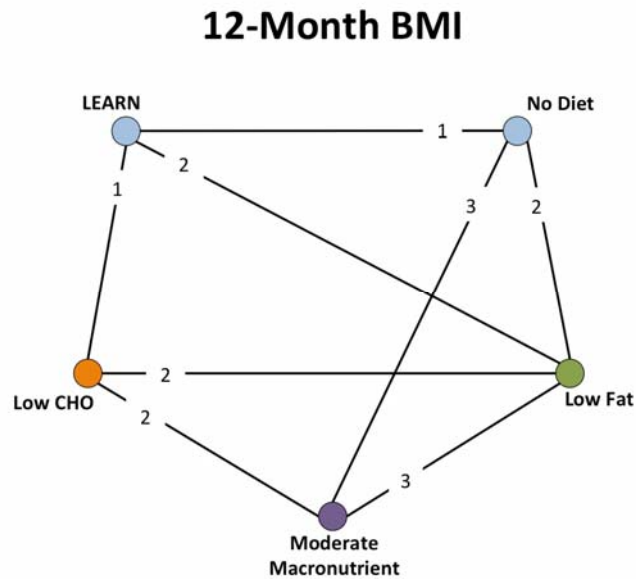


eFigure 5. Network diagrams for randomized controlled trials investigating change in BMI among diets, categorized by diet class

Panel A.



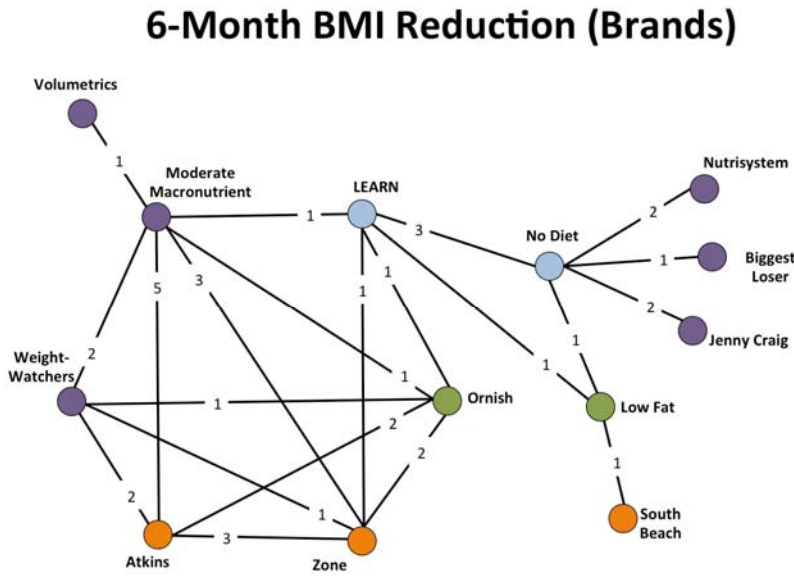
Panel B.



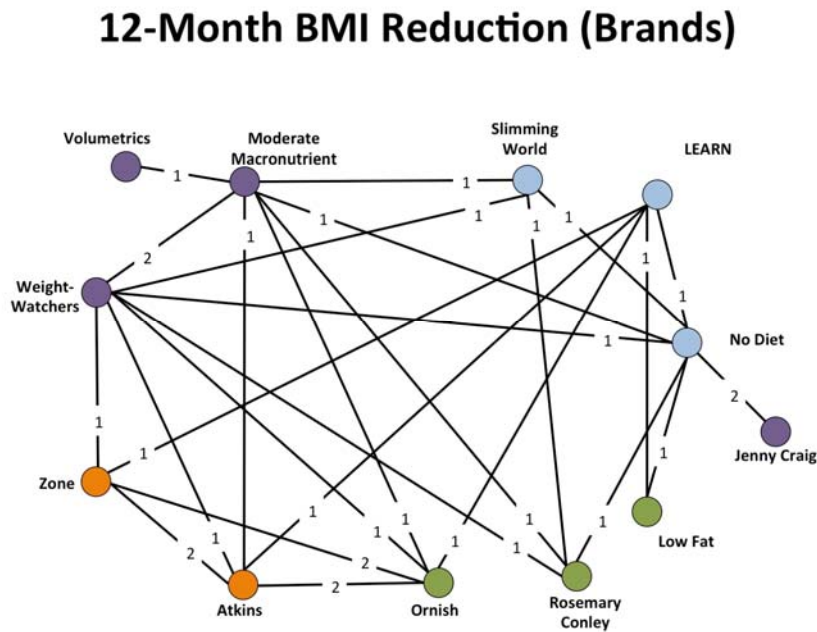
Legend: The colors of each node correspond to the diet class. Orange nodes are low CHO, green nodes are low fat and purple nodes are moderate macronutrient diets. Blue nodes represent control groups (no intervention or LEARN = dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components). The numbers within each line joining two comparators correspond to the number of studies that compare the treatments. Distances between nodes are not meaningful.

eFigure 6. Network diagrams for randomized controlled trials investigating change in BMI among branded and common diets.

Panel A.



Panel B.



Legend: The colors of the nodes correspond to the diet class to which the brands belong (purple = moderate macronutrients; orange = low carbohydrate; green = low fat; blue = no treatment; standard treatment (i.e. LEARN) or no particular macronutrient composition (i.e. Slimming World)). LEARN represents a common dietary program involving Lifestyle, Exercise, Attitudes, Relationships, and Nutrition components. Aside from the orange Atkins and Zone nodes, no additional low carbohydrate node exists because all identified diets involving carbohydrate restrictions were coded as Zone, Zone-like, Atkins or Atkins-like. The numbers within each line joining two comparators correspond to the number of studies that compare the treatments. Distances between nodes are not meaningful.