

How do exercise and diet compare for weight loss?

Evidence-based answer

Exercise alone produces short-term weight loss that is comparable with that induced by diet, after which a plateau in weight loss appears to occur (strength of recommendation [SOR]: **B**). Exercise in combination with diet promotes maintenance of weight loss above either intervention alone in both obese and overweight men and women (SOR: **A**). Exercise-induced weight loss has been

shown to preferentially reduce abdominal fat and increase lean skeletal muscle compared with that induced by diet (SOR: **B**).

Multiple short bouts of exercise per day are as effective as a single long bout in producing weight loss (SOR: **B**). Adherence improves when exercise can be completed at home or home equipment is used (SOR: **B**).

Clinical commentary

The real challenge:

Motivating patients to exercise

The evidence is pretty clear. The real challenge is motivating patients to start and maintain an exercise plan. The key points I make with my patients are: Aim for 5 to 7 times each week. Start slowly

(10 minutes per session) and gradually build (at least to 20 minutes within a few months). Walking is often preferred, but do what you enjoy. Having a “buddy” work out with you may help you stick with it.

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Evidence summary

Exercise vs diet:

Some conflicting results

Studies comparing the effectiveness of exercise and diet in weight reduction have yielded conflicting results. Earlier studies, including a meta-analysis and randomized (noncontrolled) study, favored interventions that included caloric restriction (diet alone or diet plus exercise).^{1,2}

However, subjects on caloric restriction regained a significant amount of weight over time (0.9 kg ± 7.7 at 2-year follow-up). Subjects who did

aerobic exercise but did not diet lost less weight initially (0.7 kg ± 2.8) but maintained their weight loss better than those who dieted or dieted with exercise.

These earlier studies failed to control for the confounding variable of energy balance—that is, ensuring the amount of calories reduced was comparable with the amount of calories burned through exercise between groups. A more recent randomized controlled trial suggests that aerobic exercise and caloric restriction are equally beneficial in reducing weight for obese men when controlling for negative energy balance.³ However,

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FAST TRACK

Exercise alone is comparable with diet for short-term weight loss

TABLE

How much exercise is best? Government agencies weigh in

AGENCY	PHYSICAL ACTIVITY LEVEL	ACTIVITIES	DURATION	FREQUENCY	NOTES
CDC ¹²	Moderate	Bicycling 5–9 mph, level terrain or with a few hills, brisk walking, golf, mowing lawn, recreational swimming, scrubbing floors/washing windows, tennis (doubles), weight lifting/Nautilus machines/free weights	30 min	5 or more days/week	All adults
CDC ¹² (alternative)	Vigorous	Bicycling more than 10 mph or on steep uphill terrain, circuit training, moving/pushing furniture, mowing lawn (hand mower), racewalking, jogging, running, swimming laps, tennis (singles)	20 min	3 or more days/week	All adults
DHHS ¹	Moderate	Bicycling (<10 mph), dancing, golf, hiking, light gardening/yard work stretching, walking (3.5 mph), weight lifting (general light workout)	60–90 min	Daily	All adults attempting to lose weight
NHLBI ¹⁰	Moderate	Basketball, bicycling 5 miles/30 min, gardening, running 10 min/mile, social dancing, swimming laps, walking 15–20 min/mile	30 min	Daily	All adults

FAST TRACK

Exercising at home—or with a “buddy”—should help patients adhere to their regimen

those who exercised experienced greater fat reduction and maintenance of skeletal muscle mass than those who only restricted calories. Similar findings regarding fat reduction have been reported elsewhere.⁴

Combining diet and exercise appears to be superior to diet alone, based on the results of a recent meta-analysis of randomized controlled trials.⁵ However, this meta-analysis did not specify type of exercise, so it is unclear whether outcomes varied by activity.

Exercise: Is there a dose-response relationship?

Several studies have looked at the relationship between duration and intensity for exercise and weight loss. A dose-response relationship has been observed between the amount of time spent in aerobic exercise per week and the amount of weight lost for overweight women.^{6,7}

There appears to be no significant difference in weight loss based on duration of a single aerobic exercise episode;

rather, weight loss is similar whether completed in short or long bouts.^{7,8} One study found that at 12 months, individuals exercising more than 200 minutes per week lost 7.8 kg more ($P < .01$) than those exercising less than 150 minutes per week.⁷ Another study noted that at 18 months, subjects exercising more than 200 minutes per week lost 9.6 kg more than subjects exercising less than 150 minutes per week ($P < .05$).⁶

Studies with energy expenditure, rather than time spent exercising, as the independent variable had similar results. At 18 months, individuals with higher energy expenditure (2500 kcal/week) lost 6.7 kg \pm 8.1 compared with a mean loss of 4.1 \pm 8.3 in subjects with lower energy expenditure (maximum of 1000 kcal/week).⁹

Recommendations from others

The National Institutes of Health’s National Heart, Lung and Blood Institute,¹⁰ the US Department of Health and Human Services,¹¹ the Centers for Disease

Control and Prevention's *Healthy People 2010*¹² recommend between 30 to 90 minutes of daily moderate physical activity, and that this activity be done at least 5 days a week—or even 7 days per week—depending on whether a person's goal is weight maintenance or weight loss.

Another option, offered by the CDC, is that people do 20 minutes of vigorous activity 3 days or more per week. All of the groups recommend staying within caloric intake requirements (TABLE). ■

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