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How best to help kids lose weight

An aggressive approach—paired with medication for older kids—can help obese youngsters successfully slim down.

PRACTICE CHANGER

Screen children and adolescents for obesity and offer them multifaceted weight loss interventions, based on new evidence (and a recent US Preventive Services Task Force [USPSTF] recommendation) of their effectiveness. Consider adding a weight loss medication as further help for adolescents.^{1,2}

STRENGTH OF RECOMMENDATION

A: Based on a systematic review of 23 randomized and 2 nonrandomized controlled trials.

Whitlock E, O'Connor E, Williams S, et al. Effectiveness of weight management interventions in children: a targeted systematic review for the USPSTF. *Pediatrics*. 2010;125:e396-e418.

ILLUSTRATIVE CASE

A 10-year-old boy comes in with his mother for a well-child check-up. His BMI is 40 kg/m²—above the 99th percentile for his age and up from 37 a year ago. His blood pressure is 120/84 mm Hg. What treatment, if any, should you offer for his obesity?

Childhood obesity is a global epidemic. In the United States, 19.6% of children ages 6 through 11 and 18.1% of 12- to 19-year-olds are obese, a 3-fold increase in the last 30 years.³ Without intervention, most obese adolescents will become obese adults, threatening to reverse the progress in slowing cardiovascular morbidity and mortality that has occurred over the past few decades.³

Obese kids get adult diseases

Obesity is a risk factor for a variety of chronic conditions, including cardiovascular disease, cerebrovascular disease, and arthritis. Severe

obesity is also associated with higher mortality rates.⁴ Unfortunately, these comorbidities are not limited to adulthood.

“Adult” diseases, such as obstructive sleep apnea, dyslipidemia, and type 2 diabetes, are increasingly seen in children and adolescents.¹ Nutritional deficits such as vitamin D and iron deficiency are often seen in obese children, as well.⁵ There are also psychological ramifications of childhood obesity, including social isolation and depression.⁶

The USPSTF recently upgraded its recommendation regarding obesity screening in children ages 6 and older from I (insufficient evidence) to B (a positive grade based on high or moderate certainty of the benefit of the intervention), citing new evidence in favor of screening and treating or referring children when appropriate.² The systematic review we report on here, which formed the basis for the USPSTF's upgrade, focused on management options for children identified as overweight or obese.

STUDY SUMMARY

Intense, comprehensive efforts pay off

This systematic review¹ included studies of children ages 4 to 18 years who were overweight (defined as a body mass index [BMI] in the 85th to 94th percentile for age and sex) or obese (either a BMI at or above the 95th percentile for age and sex or a BMI >30 kg/m²). The researchers found 25 trials—15 of behavioral interventions alone and 10 that combined behavioral and pharmacologic interventions—that met their criteria: The studies focused on weight loss and/or maintenance, reported outcomes ≥6 months from baseline, and were con-

ducted (or feasible) in a primary care setting.

Behavioral interventions were categorized by treatment intensity (as measured by hours of contact, which ranged from <10 hours to >75) and comprehensiveness (including nutritional counseling, physical activity counseling or participation, and counseling on behavioral management techniques). Weight outcomes were categorized as short-term (6-12 months since treatment initiation) or maintenance (≥ 12 months after the end of active treatment).

The 15 behavioral intervention trials included 1258 children ages 4 to 18 years, most of whom were obese. Most trials were small and reported high retention rates. All had beneficial effects on weight in the intervention group compared with the controls, but not all changes were statistically significant. Higher intensity and more comprehensive programs had better outcomes.

■ **The largest effects** were in 3 moderate- to high-intensity, comprehensive weight management programs with ≥ 26 hours of contact. These 3 trials demonstrated a difference in BMI of 1.9 to 3.3 in the intervention groups at 12 months compared with the controls. (A 3.3 difference in BMI is equal to approximately 13 lb in an 8-year-old and 17 lb in a 12-year-old.)

Four behavioral intervention studies reported outcomes ≥ 12 months after completing the intervention (range 15-48 months). Three of the 4 reported continued beneficial effects on weight after the active treatment period, but the effects were markedly attenuated.

■ **The only adverse effect** reported in the trials of behavioral interventions was the injury rate among children in an exercise program, but it was minimal: One fracture was reported, vs no injuries for the controls. No differences were reported in height, eating disorders, or depression. However, fewer than half of the behavioral intervention trials reported on adverse effects.

Weight loss drugs have modest effects

Ten trials combining pharmacologic and behavioral interventions involved a total of 1294 obese adolescents ages 12 to 19. All evaluated short-term weight loss effects of either sibutramine (10-15 mg/d) or orlistat (120 mg tid). Trials ranged from 3 to 12 months. Par-

ticipants in both the control and intervention groups received behavioral counseling.

The trials all favored the treatment groups, although not all of the results were statistically significant. Trials of longer duration (12 months) had more favorable results than those lasting 6 months.

The largest sibutramine trial (n=498) reported a mean BMI reduction of 2.9 in the treatment group, compared with a reduction of 0.3 in the control group ($P<.001$). This corresponds to an average weight loss of 14 lb in the intervention group, vs 4.2 lb in the control group, after 12 months.

The largest orlistat trial (n=539) reported a mean BMI reduction in the treatment group of 0.6, vs 0.3 in the control group ($P<.001$)—an average weight loss of 4.2 lb in the intervention group, compared with 2.1 lb among the controls after 12 months. None of the trials evaluated weight change after cessation of the study drug, and none compared orlistat with sibutramine.

Adverse effects in the sibutramine-treated patients were primarily cardiovascular and gastrointestinal. Cardiovascular effects included tachycardia and increases in systolic and diastolic blood pressure. The differences between the intervention and control groups were small, and no differences were observed in discontinuation rates caused by adverse events. Nor were differences reported in growth and maturation between the intervention and control groups.

Adverse effects in the orlistat-treated patients were also low and similar in the intervention and control groups. Gastrointestinal effects were common. The number needed to harm (NNH) for fatty or oily stools was 2,⁴ and the NNH for fecal incontinence was 12.⁵

WHAT'S NEW?

Clinicians treating obese kids have cause for optimism

Although the trials included in this review were heterogeneous and many were small, this systematic review provides evidence that intensive, comprehensive behavioral weight loss interventions for obese children can be effective up to 12 months after the conclusion of the program. Family physicians should con-

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INSTANT POLL QUESTION

Which of the following interventions best describes what you offer to obese children and adolescents?

- Counseling on diet and exercise
- Counseling and intensive follow-up
- Referral to a formal weight loss program
- A recommendation to patients (and parents) to lose weight
- None

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➤ **Family physicians should consider referring obese children and adolescents to weight management programs—or finding ways to provide supportive strategies themselves.**

sider referring obese children and adolescents to such programs—or finding ways to provide supportive strategies themselves.

Sibutramine and orlistat may be helpful in the context of comprehensive, intensive behavioral interventions, although there is no follow-up data to demonstrate long-term safety and weight maintenance after the medication is stopped.

CAVEATS

Little is known about long-term safety of the drugs

There have been few randomized trials of pharmacologic interventions in adolescents and none evaluating weight maintenance after 12 months (or discontinuation of treatment), or assessing long-term safety of the medication.

Sibutramine is not approved by the US Food and Drug Administration (FDA) for use in children or adolescents.⁷ Orlistat is currently approved only for individuals over the age of 12.⁸

In January 2010, an additional contraindication was added to the sibutramine drug label, stating that it is not to be used in patients with a history of cardiovascular disease.⁹ And the FDA is currently investigating a rare association between orlistat and liver injury, although no conclusions have been released.¹⁰ Children and adolescents are particularly vulnerable to long-term side effects, given their relatively young age at the time of drug initiation, so we urge caution with the use of these drugs in this patient population.

CHALLENGES TO IMPLEMENTATION

Intensive approach may be hard to reproduce

Implementation of high-intensity comprehensive interventions for obese children faces a number of roadblocks, including limited availability of programs, cost, and reimbursement. Most of the intensive interventions in these trials took place in specialty centers rather than in primary care offices. Replicating them could require a referral—or significant resources within the primary care setting itself. Yet many, if not most, insurance policies still do not cover such extensive lifestyle interventions. (For information on weight loss interventions for adults, see “Weight loss strategies that really work” on page 378).

None of these trials reported on cost or cost effectiveness. Despite the considerable cost of a comprehensive obesity management program, however, a successful weight-maintenance model could be a worthwhile investment in long-term health.

Lastly, the results of this trial should not negate the importance of obesity prevention efforts by parents, who are in the best position to reverse the childhood obesity epidemic.¹¹ **JFP**

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