

# Weight Management Screening and Intervention Guideline

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**Last guideline approval:** April 2022

**Guidelines** are systematically developed statements to assist patients and providers in choosing appropriate health care for specific clinical conditions. While guidelines are useful aids to assist providers in determining appropriate practices for many patients with specific clinical problems or prevention issues, guidelines are not meant to replace the clinical judgment of the individual provider or establish a standard of care. The recommendations contained in the guidelines may not be appropriate for use in all circumstances. The inclusion of a recommendation in a guideline does not imply coverage. A decision to adopt any particular recommendation must be made by the provider in light of the circumstances presented by the individual patient.

## New as of April 2022

- A new section on weight stigma provides tips to help providers minimize weight bias.
- A new section recommends consideration of comorbid eating disorders.
- A shared decision-making approach is now recommended for weight-loss medications and includes discussion of the medications' benefits and harms, the lack of long-term data, and the potential for out-of-pocket costs.
- Intermittent fasting, Noom, and WW have been added to the list of weight-loss diets.
- Semaglutide (Wegovy) has been added to the general list of weight-loss medications; note that it has higher evidence of effectiveness than other weight-loss medications. Lorcaserin has been removed from the list of weight-loss medications due to an increased risk of cancer. **Note:** There is potential for high out-of-pocket costs with weight-loss medications; members should check with Member Services to be certain about their coverage.

## What Is Obesity?

According to the World Health Organization and the U.S. Centers for Disease Control, for **adults** (aged 20 years and older), obesity is defined as a body mass index (BMI) of 30 kg/m<sup>2</sup> or higher. For **children and adolescents** (aged 2–19 years), obesity is defined as a BMI at or above the 95<sup>th</sup> BMI-for-age percentile. The BMI percentile indicates the relative position of the child's BMI number among children of the same age and gender.

Beginning in 2013, obesity was recognized by the American Medical Association and World Health Organization as a chronic disease like diabetes, hypertension, or heart disease. Obesity is also associated with a range of health problems, such as obstructive sleep apnea, arthritis, GERD, hypertension, dyslipidemia, atherosclerosis, and type 2 diabetes. However, the association between obesity and these health problems is stronger for younger adults than for older adults (Must 1999), and these health problems are not always attributable to obesity. Furthermore, many patients with obesity do not have any apparent obesity-related health problems (Iacobini 2020), although they may still be at increased risk for developing them later (Kramer 2013).

### Obesity is not a personal choice

There is a common misperception that obesity is “the patient's fault,” and as a result, patients with obesity frequently experience discrimination and stigmatization by health care providers of all levels and by society (Puhl 2010). However, the assumption that body weight is entirely under an individual's control, and that just eating less and/or exercising more can prevent or reverse weight gain, is at odds with a large body of biological and clinical evidence (Rubino 2020, Aronne 2021).

Obesity is complex and attributed to a variety of different factors including genetic and epigenetic factors, foodborne factors, sleep deprivation and circadian dysrhythmia, psychological stress, endocrine disruptors, medications, and intrauterine and intergenerational effects. These factors do not require overeating or physical inactivity to explain excess weight (Aronne 2021). There is also strong evidence that any attempts at weight loss trigger compensatory reductions in resting energy expenditure and changes in appetite signals that increase hunger and reduce satiety. These metabolic and biologic adaptations can persist long-term after losing weight and are considered the major impediments to weight loss and drivers of long-term weight regain (Hall 2018, Aronne 2021).

Given this evidence, as health care providers, it is vitally important that we recognize our own weight biases and learn to communicate compassionately with our patients about their weight.

## What Is Weight Stigma?

Weight stigma is pervasive and causes significant harm to individuals with obesity. Weight stigma is the bias and discrimination that results from the belief that people with higher body weight are lazy and lack self-discipline and willpower (Rubino 2020). This stigma causes physical and psychological harm to individuals and leads to unfair treatment and discrimination in the workplace, education, and healthcare

Approximately 40–50% of US adults with overweight and obesity experience internalized weight bias, and about 20% of US adults experience this at high levels (Puhl 2018). Internalized weight bias is present in individuals across diverse body-weight categories, but especially among individuals with higher BMI who are trying to lose weight.

Weight stigma, rather than obesity itself, may be particularly harmful to mental health and is associated with depressive symptoms, higher anxiety levels, lower self-esteem, social isolation, perceived stress, substance use, unhealthy eating and weight-control behaviors, such as binge eating, night eating, and emotional overeating (Rubino 2020).

Weight bias can be explicit (consciously and deliberately expressed), as well as implicit (at the unconscious level and involuntarily formed) (Puhl 2016). We can become more aware of our implicit and unconscious biases by taking a brief implicit associations test related to body weight (<https://obesitycompetencies.gwu.edu/article/388>).

## Reducing Stigma When Talking to Patients About Weight

Adapted from material from the UConn Rudd Center for Food Policy & Health: <https://uconnruddcenter.org/wp-content/uploads/sites/2909/2020/11/Reducing-Stigma-Talking-to-Patients.pdf>

Discussing weight with patients can sometimes be uncomfortable, not just for patients, but for health care providers as well. In addition, conversations about weight can make some patients feel stigmatized, and this may make them less receptive to health advice and avoid future health care. In situations where health care providers deem it necessary to discuss weight with their patients, using the following guidelines may help both patients and providers feel more comfortable with these conversations, and may increase patients' receptivity to providers' messages.

### Ask permission to talk about weight

For **adults**, begin any conversation about body weight by first asking the patient for their permission to discuss his/her weight.

Example: ***“Could we talk about your weight today?”*** or ***“Do you want to talk about your weight today?”*** If the answer is “no,” you can ask again in another year.

For **children and adolescents**, keep in mind that conversations with parents about a child's weight can be stigmatizing if they occur in front of the child.

Example: ***“Do you have any questions or concerns about your child's eating habits?”*** If yes, ***“Tell me about your concerns”*** or ***“Would it be okay to talk about your child's growth today?”***

### Use non-stigmatizing language

If the patient agrees to discuss weight, ask them what weight-related terms they prefer that you use. Research shows that many patients dislike the words “fat” and “obese” and would prefer that providers use more neutral terms such as “weight” or “unhealthy weight.”

Example: ***“People have different preferences when it comes how they describe their weight. What words would you feel most comfortable with as we talk about your weight?”***

<b><i>Language to use</i></b>	<b><i>Language to avoid</i></b>
Overweight	Fat
Increased BMI	Obese
Unhealthy weight	Morbid obesity
Healthier weight	Diet or dieting
Eating habits	Exercise
Physical activity	

## Use person-first language

In addition to terminology, some patients may prefer that providers use “**person-first**” language, meaning that the provider describes them as a person with a characteristic instead of using the characteristic to describe them as a person. This terminology avoids labeling or identifying people by their medical condition.

Example: “**People who have obesity can be at increased risk for diabetes**” rather than “*Obese people have increased risk for diabetes.*”

## Ask what support they would find helpful

Some may not want to support with weight loss, but instead would like support in improving other health behaviors like healthy eating, physical activity, sleep, or managing stress. Don’t assume adults or families are not already engaged in healthy behaviors; ask about their current behaviors before offering advice.

Example: “**Body weight is only partly determined by diet and exercise, but these are areas we can all stand to make some improvements. Let’s talk about what you are doing now and how it is going.**”

## Screening

**The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians screen all patients aged 6 years and older for obesity.**

### Body mass index (BMI) calculation

BMI is calculated by measuring weight in kilograms, then dividing by height in meters squared (kg/m<sup>2</sup>). Both height and weight should be measured at the same time since both may change over time and can impact the accuracy of the BMI calculation.

Use sensitivity in weighing procedures. It is important to ask the patient for their permission to be weighed, and to use empathic, sensitive communication. Record the patient’s weight without judgement or comment. Offer patients the choice of not seeing the results if they prefer.

Example: “**Would you like to be weighed today?**” or “**Do I have permission to weigh you today?**”

BMI should be assessed at least annually for adults. For children, assess BMI at every visit in primary and consultative care.

#### Adults

CDC BMI calculator

[https://www.cdc.gov/healthyweight/assessing/bmi/adult\\_bmi/english\\_bmi\\_calculator/bmi\\_calculator.html](https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/english_bmi_calculator/bmi_calculator.html)

#### Children and adolescents

CDC BMI percentile calculator

<https://www.cdc.gov/healthyweight/bmi/calculator.html>

## Diagnosis/Evaluation

**Note:** BMI does not account for the difference between lean and fat body mass. Therefore, it is possible for a healthy, muscular individual with low body fat to be classified as overweight or obese using the BMI formula.

### Adults

<b>Table 1. Adult weight classification by BMI</b>	
<i>Note:</i> The coexistence of dyslipidemia, hypertension, coronary heart disease, diabetes, sleep apnea, and/or severe osteoporosis increases an individual's health risk above what would be predicted by BMI alone.	
Clinical classification	BMI
Underweight	Lower than 18.5
Normal weight	18.5–24.9
Overweight	25.0–29.9
Obesity	30.0 and higher

### Children and adolescents

<b>Table 2. Child and adolescent weight classification by BMI percentile <sup>1</sup></b>	
Clinical classification	BMI percentile
Healthy weight	5 <sup>th</sup> –84 <sup>th</sup> percentile
Overweight	85 <sup>th</sup> –94 <sup>th</sup> percentile
Obesity	At or above 95 <sup>th</sup> percentile
<sup>1</sup> The BMI percentile indicates the relative position of the child's BMI number among children of the same age and gender.	

Contributing causes of overweight and obesity in children and adolescents include psychosocial factors such as depression and abuse. There are no routine lab tests recommended for diagnosing obesity or for evaluating the potential causes of obesity. Most overweight and obesity is due to energy imbalance that is driven by a variety of factors—see “Obesity is not a personal choice,” p. 2. It is common for patients and their families to seek out other medical reasons that can occasionally factor in to becoming overweight. We do not recommend routinely screening for such reasons, but we do recommend a complete history, physical exam, and medication review for any overweight or obese patient, including further evaluation for contributing causes if indicated. Rare causes of weight gain include neuroendocrine disorders (e.g., hypothyroidism, Cushing's syndrome, hypogonadism, and growth hormone deficiency) and genetic disorders (e.g., Prader-Willi syndrome, Alstrom-Hallgren syndrome, and Carpenter syndrome).

# Screening for Comorbidities

## Adults

Patients with obesity are at increased risk for type 2 diabetes, depression, cardiovascular disease and hypertension. Consider screening with HbA1C and lipid panel. Specific screening recommendations for diabetes and depression can be found in the [Type 2 Diabetes Guideline](#) and the [Depression Guideline](#), respectively. Blood pressure should be checked at every clinic visit.

If adult patients are symptomatic for sleep apnea (e.g., snoring and/or witnessed apnea), assess and consider a Sleep Medicine referral if at least one of the following conditions is present:

- Unexplained, excessive daytime sleepiness, which can include falling asleep while driving; unplanned and/or uncontrolled napping; or sleepiness interfering with work or other functioning.
- Unexplained pulmonary hypertension, secondary polycythemia, or resistant hypertension.
- Cardiovascular issues (hypertension, ischemic heart disease, or cerebrovascular disease) for which OSA would be a concerning additional comorbidity.
- Patient is in a mission-critical occupation, such as bus driver, trucker, or pilot.

## Children and adolescents

Children and adolescents with overweight and obesity are at increased risk for a number of comorbid conditions. There is currently insufficient evidence to recommend for or against lab screening for diabetes, fatty liver disease, and dyslipidemia in children and adolescents with overweight and obesity.

Consensus-based screening schedules typically suggest screening for comorbidities in the presence of certain risk factors, such as BMI higher than the 95<sup>th</sup> percentile; patient history of hypertension, dyslipidemia, or smoking; acanthosis on exam; or family history of type 2 diabetes, dyslipidemia, or cardiovascular disease. However, some experts suggest that these tests should be performed only if they will alter the course of treatment.

Screen adolescents who are overweight and obese for depression by using the Patient Health Questionnaire for Adolescents (PHQ-9A), and offer appropriate mental health resources. Note that evidence suggests that patients with depression are less likely to be adherent to recommended management plans and less likely to be effective at self-management of chronic conditions. See the [Depression Guideline](#) for additional guidance. Patients with major depression can be treated in primary care or offered a referral to Mental Health and Wellness for counseling and/or antidepressant therapy.

Routine screening for sleep apnea in the absence of symptoms is not recommended for children and teens because evidence is lacking regarding whom to screen and the effectiveness of treatment.

## Interventions

**The primary goal of any intervention is behavior change that results in healthy eating and regular physical activity.**

## Consideration of comorbid eating disorders

Be aware of the possibility of comorbid eating disorders, such as binge and night eating. While there is insufficient evidence to recommend routine screening for eating disorders in patients with no signs or symptoms, if an eating disorder is suspected, consider asking the patient directly or using a primary care–appropriate questionnaire (e.g., EDS-PC, SCOFF, Screen for Disordered Eating) and, if appropriate, referring adults to Mental Health and Wellness and adolescents (<18) to the Adolescent Center (USPSTF 2022).

## Behavior change counseling and lifestyle modification

### **All patients regardless of BMI should be encouraged to eat a healthy diet and get regular exercise.**

For adult patients with a BMI  $\geq 30$  and patients with a BMI  $\geq 25$  with comorbidities such as diabetes, hypertension, or obstructive sleep apnea, we recommend a shared decision-making conversation about engaging in intensive multicomponent behavioral interventions for weight loss using one of the resources listed below, if available.

Children over the age of 6 years with a BMI  $\geq 95^{\text{th}}$  percentile may also be offered intensive multicomponent behavioral intervention, if available.

**Community Resource Specialists** are available in every primary care clinic to work with patients. These specialists provide **referrals to resources in the local community to help patients achieve sustainable lifestyle changes**. The community referrals provided vary by clinic location but may include healthy eating classes, diabetes support groups, group exercise programs such as Silver & Fit (for Medicare Advantage members), and nearby gyms.

Wellness coaching is available by phone to all Kaiser Permanente members aged 18 and older at **no cost**. Members can receive coaching for weight management, healthy eating, physical activity, and stress. The wellness coaches are Kaiser Permanente staff trained in motivational interviewing and behavioral counseling. All coaches are master's level allied clinicians who have received certification in a health and wellness coaching certification program. All the coaches have additional licenses and certifications in disciplines specific to their degrees.

**ChooseHealthy fitness discounts** are available for Kaiser Permanente members to get reduced rates on a variety of fitness, health, and wellness products through the ChooseHealthy program. This includes activity trackers (e.g., Fitbit), workout apparel, and exercise equipment.

**ClassPass** partners with 30,000 gyms and studios around the world, offering a range of classes including yoga, dance, cardio, boxing, Pilates, boot camp, and more. Kaiser Permanente members can get unlimited on-demand video workouts at no cost and reduced rates on livestream and in-person fitness classes.

**Websites for positive weight-related conversations** with sample motivational interviewing scripts:

- Fostering Positive Weight-Related Conversations from the Holland Bloorview Kids Rehabilitation Hospital:  
<http://research.hollandbloorview.ca/Assets/Research/Documents/Research%20Centres%20and%20Labs/ProFILE%20Lab/KTCasebook-2017-12-11.pdf>
- Weight Bias & Stigma for Healthcare Providers from the UConn Rudd Center for Food Policy & Health: <https://uconnruddcenter.org/research/weight-bias-stigma/healthcare-providers/>

**Websites on nutrition and physical activity** include:

- Dietary Guidelines for Americans 2020–2025 (for adults): [https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary\\_Guidelines\\_for\\_Americans-2020-2025.pdf](https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf)
- USDA MyPlate (for adults): <https://www.myplate.gov>
- USDA MyPlate for Kids: <https://www.myplate.gov/life-stages/kids>

## Diets and commercial weight-loss programs

Successful weight management depends less on the diet or weight-loss program chosen than on the consistency and continuity of healthy nutritional choices throughout the patient's life. While most people can lose weight in the short term, almost all dieters regain all the weight they lost within five years, and many (between one-third to two-thirds) dieters regain more weight than was lost on their diets (Mann 2007). Repeated cycles of weight loss and regain, are called weight cycling or "yo-yo dieting". Although there is insufficient data to draw firm conclusions about the benefits and harms of weight cycling, low-quality data suggests that weight cycling is associated with weight gain and depressive symptoms.

Commercial diet or weight-loss programs have varying levels of evidence on their effectiveness in the short-term (see Table 3), but there is lack of evidence of long-term effectiveness for any diet . Be aware that some patients' diet-program choices may have adverse physiologic effects on blood glucose, blood pressure, and/or lipids. It is important for patients to avoid any programs that promise a "quick fix" or make unrealistic claims.

When choosing a weight-loss program—regardless of the type (in-person, web-based, or phone-based)—patients should make sure that it:

- Focuses on long-term lifestyle change.
- Addresses both healthy eating and exercise.
- Sets realistic short-term goals (i.e., loss of 5–10% current total body weight).
- Promotes gradual weight loss. For adults, this means 0.5–2.0 lb per week. For children and teens, see note below.
- Has a program to maintain goal weight once reached.
- Includes behavior modification (e.g., meal planning, food diary).

**Note:** For children and teens, there is no specific goal for rate of weight loss. Instead, depending on the patient's age, pubertal status, and BMI percentile, the treatment goal may be to stabilize weight as the child grows while ensuring that linear growth is maintained. Any rapid intentional weight loss in adolescents, regardless of starting weight, should prompt a thorough investigation of how the weight loss is being accomplished.



<b>Table 3. Comparison of common diets and weight-loss programs</b>		
<b>Note:</b> Patients can lose weight on any of these diets or programs in the short term, but long-term results are uncertain.		
<b>Diet</b>	<b>Level of evidence</b>	<b>Comments</b>
Mediterranean diet	Moderate to low	<ul style="list-style-type: none"> <li>• Comparable weight loss to low-fat diet</li> <li>• Moderate evidence of decreased cardiovascular risk</li> </ul>
Low-carbohydrate diet (< 130 g/day)	Moderate to low	<ul style="list-style-type: none"> <li>• Reduced more weight than control at less than 12 months</li> <li>• No difference in weight loss than control beyond 12 months</li> <li>• Reduced more fat mass than control over 12 months and beyond</li> <li>• LDL level may be increased</li> </ul>
Very low-carb diet (< 30 g/day), e.g. Keto diet	Low	<ul style="list-style-type: none"> <li>• More effective than control in reducing weight and fat mass over 12 months</li> </ul>
Low-fat diet	Low	<ul style="list-style-type: none"> <li>• Comparable weight reduction to low-carb diets at 12 months</li> </ul>
Vegan diet	Low	<ul style="list-style-type: none"> <li>• Slightly more weight loss than non-vegan diets</li> <li>• May decrease LDL, cholesterol, and glucose levels</li> </ul>
Low glycemic index, e.g., South Beach Diet	Low	<ul style="list-style-type: none"> <li>• Does not provide higher weight loss than high glycemic diets</li> </ul>
Very low-energy diet (< 800 kcal/day)	Low	<ul style="list-style-type: none"> <li>• Effective for short-term weight loss at 6 months</li> <li>• Outcome improved when combined with behavioral program</li> </ul>
Intermittent fasting	Low	<ul style="list-style-type: none"> <li>• Low-quality evidence suggests that intermittent fasting may reduce weight and some cardiometabolic factors, but the evidence is insufficient to assess its benefit beyond 12 months.</li> </ul>
<b>Program</b>	<b>Level of evidence</b>	<b>Comments</b>
WW <sup>1</sup>	High	<ul style="list-style-type: none"> <li>• 64% of participants achieved 5% weight loss at 1 year</li> </ul>
Omada (diabetes prevention) <sup>1</sup>	High	<ul style="list-style-type: none"> <li>• 34–35% of participants achieved 5% weight loss at 1 year</li> </ul>
Noom <sup>1</sup>	Moderate	<ul style="list-style-type: none"> <li>• 64% of participants achieved 5% weight loss at 1 year</li> </ul>
<sup>1</sup> Data obtained from 2021. Kaiser Permanente Care Management Institute. Digital Therapeutics for Weight Management Final Report.		

## Bariatric surgery

### Children and adolescents

The evidence supports bariatric surgery as a treatment option for patients as young as 10 years old with severe obesity but is only recommended in high quality pediatric focused multidisciplinary centers which can support wrap around care for youth. Because KPWA does not currently meet this standard for pediatrics, the minimum age recommended for bariatric surgery performed at KPWA is 18 years.

### Adults

Two shared decision-making “option grids” are available to support conversations with patients who are considering bariatric surgery to help with weight loss:

- [Weight-Loss Surgery: Should I Have It?](#)
- [Weight-Loss Surgery Options](#)

Comorbidities and risk factors can be improved with surgery, including impaired fasting glucose, type 2 diabetes, dyslipidemia, hypertension, coronary heart disease, obstructive sleep apnea, osteoarthritis, and degenerative joint disease (NIH 1998, WHO 2000).

Roux-en-Y gastric bypass and vertical sleeve gastrectomy are the most commonly performed types of bariatric surgery at KPWA.

Bariatric surgery may be an option for patients aged  $\geq 18$  years who have a **BMI of 40.0 or higher**, or who have a **BMI of 35.0–39.9 with one or more of the following comorbidities which have not responded to medical management:**

- Hypertension (consistent BP of  $\geq 140/90$  with repeated measurements and uncontrolled after trial of at least two different anti-hypertensive medications)
- Type 2 diabetes mellitus (for 1 year or longer and on one or more diabetes medications)
- Coronary artery disease
- Obstructive sleep apnea (sleep apnea requiring treatment with CPAP, or inability to use CPAP with an AHI  $> 15$  on sleep study, or inability to use CPAP with an AHI  $> 5$  and documentation of excessive daytime sleepiness, impaired cognition, mood disorders or insomnia, hypertension, ischemic heart disease, or history of stroke)

For information about patient eligibility, see [Clinical Review Criteria: Bariatric Surgery](#) and [Referral Checklist](#).

Bariatric surgery candidates are required to complete a medical and psychological assessment (based on protocol and their particular health history), attend a mandatory bariatric education class, and meet individually with one of the bariatric surgeons.

The bariatric team expects to follow patients for 5 years after surgery. Labs (e.g., complete blood count, vitamin B12) are done at bariatric follow-ups at 6 months, at 1 year, and yearly thereafter.

After 5 years, patients are referred to their primary care physicians for yearly bariatric labs and follow-ups, to include:

- |             |                         |               |
|-------------|-------------------------|---------------|
| • CBC       | • Vitamin B1 (thiamine) | • Folate      |
| • CMP       | • Vitamin B12           | • Prealbumin  |
| • Magnesium | • Vitamin D             | • Lipid panel |
| • TSH       | • Iron/TIBC             | • Zinc        |
| • PTH       | • Ferritin              | • Copper      |
| • HbA1c     |                         |               |

All labs are to be done with the patient in a fasting state.

Patients are expected to continue seeing their primary care physicians for management of comorbidities and routine non-bariatric care.

## Pharmacotherapy

**Note:** There is potential for high out-of-pocket costs with weight-loss medications; members should check with Member Services to be certain about their coverage.

### Children and adolescents

Pharmacotherapy is **not recommended** for children and adolescents for the treatment of obesity.

### Adults

In patients who have a history of being unable to successfully lose weight and maintain body weight loss and have a BMI  $\geq 30$  or a BMI  $\geq 27$  with an obesity-associated comorbidity (such as diabetes, hypertension, or sleep apnea), consider initiating pharmacotherapy as an adjunct to lifestyle modification using a shared decision-making approach. The SDM discussion should focus on the benefits and harms of medication, including the following:

- Pharmacotherapy has efficacy in the short term in combination with lifestyle changes.
- Most patients taking weight-loss medications experience some side effects.
- Very few studies of obesity medications have demonstrated sustained weight maintenance after discontinuation of the drug.
- No long-term studies are available (study periods range from 28 weeks to 2 years).
- Effects on cardiovascular morbidity and mortality have not been established.
- All obesity medications are contraindicated in pregnancy.
- There is potential for high out-of-pocket costs.

**Table 4. Obesity medication comparison**For more detail and dosing information, see the [Kaiser Permanente National Guideline](#).

<b>Medication</b>	<b>Effectiveness</b>	<b>Side effects/harms/precautions</b>
All are non-formulary.	When used in combination with lifestyle changes, behavioral interventions and physical activity.	All are contraindicated in pregnancy.
<b>Semaglutide</b> <a href="#">Lexicomp drug information</a>	<b>Best evidence of effectiveness compared to other weight-loss medications</b> <ul style="list-style-type: none"> <li>• Average weight loss at 68 weeks = 9–17%</li> <li>• ≥ 5% weight loss maintained = 67–87%</li> <li>• ≥ 10% weight loss maintained = 46–75%</li> <li>• Improved cholesterol, triglycerides, BP, glycemic control</li> </ul>	<ul style="list-style-type: none"> <li>• Most costly</li> <li>• Nausea, diarrhea, vomiting, constipation abdominal pain most predominant adverse effects</li> <li>• When medication is discontinued, weight was regained</li> <li>• Effects on cardiovascular morbidity and mortality have not been established.</li> <li>• No long-term studies beyond 68 weeks.</li> </ul>
Liraglutide	<ul style="list-style-type: none"> <li>• Average weight loss at 1 year = 11.7 lb.</li> <li>• ≥ 5% weight loss maintained = 36%</li> <li>• ≥ 10% weight loss maintained = 23%</li> <li>• Reduction in metabolic syndrome, type 2 diabetes.</li> </ul>	<ul style="list-style-type: none"> <li>• Nausea, vomiting, diarrhea, constipation.</li> <li>• Serious adverse events include cholelithiasis and acute pancreatitis.</li> <li>• Effects on cardiovascular morbidity and mortality for weight loss have not been established. However, limited CV data does exist for use in diabetes.</li> <li>• No long-term studies beyond 1 year are available for weight-loss outcomes.</li> </ul>
Naltrexone/bupropion	<ul style="list-style-type: none"> <li>• Average weight loss at 1 year = 10.8 lb.</li> <li>• ≥ 5% weight loss maintained = 35%</li> <li>• ≥ 10% weight loss maintained = 20%</li> <li>• Improved glycemic control, health-related quality of life.</li> </ul>	<ul style="list-style-type: none"> <li>• Nausea, headache, constipation.</li> <li>• Contraindicated for patients with uncontrolled hypertension, seizure disorders, chronic opioid use, MAOI use within 14 days.</li> <li>• Effects on cardiovascular morbidity and mortality have not been established.</li> <li>• No long-term studies beyond 1 year.</li> </ul>
Orlistat	<ul style="list-style-type: none"> <li>• Average weight loss at 1 year = 5.7 lb.</li> <li>• ≥ 5% weight loss maintained = 21%</li> <li>• ≥ 10% weight loss maintained = 12%</li> <li>• Improved glycemic control, cholesterol, BP.</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated diarrhea, flatulence, oil spotting, bloating/abdominal pain/dyspepsia.</li> <li>• GI side effects in 16–30% patients.</li> <li>• Contraindicated in patients with cholestasis, chronic malabsorption syndrome.</li> <li>• No long-term studies available beyond 36 months.</li> </ul>
Phentermine	<ul style="list-style-type: none"> <li>• Average weight loss at 2–7 months ranged from 2.4 to 19.4 lb.</li> </ul>	<ul style="list-style-type: none"> <li>• No long-term data from randomized studies on safety or efficacy.</li> <li>• Insomnia, irritability, agitation, anxiety, dry mouth.</li> <li>• Contraindicated in patients with history of CVD, MAOI use, hyperthyroidism, glaucoma, agitated states, history of drug abuse.</li> <li>• No long-term randomized studies beyond 28 weeks.</li> </ul>
Phentermine/topiramate ER	<ul style="list-style-type: none"> <li>• Average weight loss at 1 year = 19.4 lb.</li> <li>• ≥ 5% weight loss maintained = 41–49%</li> <li>• ≥ 10% weight loss maintained = 30–41%</li> <li>• Improved glycemic control, cholesterol, BP, sleep apnea, incidence of type 2 diabetes.</li> </ul>	<ul style="list-style-type: none"> <li>• Dry mouth, dysgeusia, paresthesia, insomnia, constipation.</li> <li>• Effects on cardiovascular morbidity and mortality have not been established.</li> <li>• Contraindicated in patients with glaucoma, hyperthyroidism, MAOI use.</li> <li>• No long-term studies beyond 2 years.</li> </ul>

# Evidence Summary

The Weight Management Guideline was developed using an evidence-based process, including systematic literature search, critical appraisal, and evidence synthesis.

As part of our improvement process, the Kaiser Permanente Washington guideline team is working towards developing new clinical guidelines and updating the current guidelines every 2–3 years. To achieve this goal, we are adapting evidence-based recommendations from high-quality national and international external guidelines, if available and appropriate. The external guidelines should meet several quality standards to be considered for adaptation. They must: be developed by a multidisciplinary team with no or minimal conflicts of interest; be evidence-based; address a population that is reasonably similar to our population; and be transparent about the frequency of updates and the date the current version was completed.

In addition to identifying the recently published guidelines that meet the above standards, a literature search was conducted to identify studies relevant to the key questions that are not addressed by the external guidelines.

## External guidelines meeting KPWA criteria for adaptation/adoption

- 2021 Kaiser Permanente National. Management of Overweight and Obesity in Adults Guideline
- 2020 American Diabetes Association (ADA). Section 8: Obesity Management for the Treatment of Type 2 Diabetes: standards of Medical Care in Diabetes
- 2020 U.S. Department of Veteran Affairs, Department of Defense. VA/DoD Clinical Practice Guideline for the Management of Adult Overweight and Obesity
- 2019 American Academy of Pediatrics (AAP). Pediatric Metabolic and Bariatric Surgery: Evidence, Barriers, and Best Practices (Armstrong 2019)
- 2018 American Society for Metabolic & Bariatric Surgery (ASMBS). Pediatric Metabolic and Bariatric Surgery Guidelines (Pratt 2018)
- 2018 U.S. Preventive Services Task Force. Weight Loss to Prevent Obesity-Related Morbidity and Mortality in Adults: Behavioral Interventions
- 2017 U.S. Preventive Services Task Force. Screening for Obesity in Children and Adolescents: Recommendation Statement
- 2016 American Academy of Clinical Endocrinologists (AACE) (Garvey 2016)

## Key questions addressed in the KPWA evidence review

1. **What is the clinical effectiveness of the most common bariatric surgeries (laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass) in children with obesity on:**
  - Weight loss (1 year)
  - Weight loss maintenance (3 years, 5 years); and
  - Comorbidities, including CV risk factors?

The 2018 American Society for Metabolic and Bariatric Surgery (ASMBS), 2019 American Academy of Pediatrics (AAP), and American Diabetes Association (ADA) 2020 recommend bariatric surgery for severe obesity. Low-quality evidence (Alqahtani 2021, Chalklin 2021, Ruiz-Cota 2019) does not challenge the recommendations of the above guidelines.

**2. What are the short-term (30-day, 90-day, 1-year) and long-term ( $\geq 5$ -year) adverse effects of the most common bariatric procedures in children?**

- Death
- Reoperation

The 2018 American Society for Metabolic and Bariatric Surgery (ASMBS), 2019 American Academy of Pediatrics (AAP), and ADA 2020 recommend bariatric surgery for severe obesity. Low-quality evidence (Alqahtani 2021, Chalklin 2021, Ruiz-Cota 2019) does not challenge the recommendations of the above guidelines.

**3. What is the effectiveness and safety of intermittent fasting in adults who are overweight or obese?**

A systematic review with meta-analysis (Yang 2021) of 46 randomized controlled trials (RCTs) ( $n = 2681$  patients) was reviewed. Patients were randomized to intermittent fasting ( $n = 1,423$ ) or non-restricted diet ( $n = 1,258$ ). Population consisted of adults with overweight and obesity who were followed for 7 days to 12 months. The findings demonstrated that intermittent fasting may reduce weight, BMI, fat mass, waist circumference, and other cardiometabolic risk factors, including fasting blood glucose, fasting insulin, insulin resistance, systolic and diastolic blood pressure, total cholesterol, and triglycerides. However, it had no effect on HbA1c, HDL-C, and LDL-C. No safety issues were reported. Although the methodology of the review is valid, the strength of the body of evidence is low. Long-term ( $> 12$  months) RCTs are warranted to evaluate whether these benefits can be sustained.

**4. What are the clinical effectiveness and adverse effects of pharmacologic treatment (orlistat, naltrexone/bupropion, phentermine/topiramate extended release, liraglutide, semaglutide) in adults who are overweight or obese in:**

- Reducing weight (1 year)
- Weight maintenance (3 years, 5 years)
- Obesity-related morbidity

***Semaglutide 2.4 mg***

Only studies assessing high-dose semaglutide 2.4 mg as weight-loss medication were included. The four major RCTs were reviewed (Davies 2021, Rubino 2021, Wadden 2021, Wilding 2021). The population consisted of adults, mostly white female, 18 years or older with obesity or overweight ( $\geq 27$  kg/m<sup>2</sup>) and at least one comorbidity. During the four trials, 2.4 mg of semaglutide was administered subcutaneously once a week. The duration of treatment was 68 weeks. Semaglutide was compared to placebo. Lifestyle interventions were provided to all participants. Demographics and baseline characteristics were comparable between groups. The findings indicated that semaglutide significantly caused more weight reduction than placebo. In addition, the proportion of patients with  $\geq 5\%$ ,  $10\%$ ,  $15\%$  body weight-loss was higher with semaglutide than placebo. Discontinuation of semaglutide was analyzed in the STEP 4 trial (Rubino 2021) and results suggested that patients who started placebo 20 weeks after semaglutide treatment gained weight (6 kg).

The safety profile of 2.4 mg semaglutide is favorable, with GI disorders being the most predominant adverse events. Hypoglycemia and discontinuation due to GI symptoms were relatively low. The strength of evidence is moderate.

***Orlistat, naltrexone/bupropion, phentermine/topiramate, liraglutide***

A systematic review with network meta-analysis (Shi 2021) with valid methodology suggests that all reviewed drugs except levocarnitine reduced body weight. Phentermine-topiramate and GLP-1 receptor agonists, in addition to lifestyle intervention, are the most effective drugs in reducing body weight in the short term. For phentermine-topiramate, OR = 7.97 (9.28 to 6.66); for GLP-1 receptor agonists, OR = 5.76 (6.30 to 5.21). Phentermine/topiramate (2.40 [1.69 to 3.42]), GLP-1 receptor agonists (2.17 [1.71 to 2.77]), naltrexone/bupropion (2.69 [2.11 to 3.43]), and orlistat (1.72 [1.44 to 2.05]) led to discontinuation due to increased risk of adverse events. Semaglutide is more effective than liraglutide and exenatide. No evidence of weight regain was reported, but more studies are needed. Length of follow-up ranged from 24 to 54 weeks and baseline BMI was 35. The certainty of evidence for weight reduction is moderate to high.

Several other reviews suggest that the weight-lowering medications are effective in the short term. Adverse events were similar to those identified in the review of 2018.

In summary, this evidence does not challenge the KPWA review performed in 2018. Long-term studies are still warranted.

## 5. What are the benefits and harms of weight cycling (aka yo-yo dieting)?

- Death
- Reoperation

### ***Mortality***

Only one low-quality study (Oh 2019) was identified. The findings suggest that body weight fluctuation was associated with mortality (HR 1.46 [1.32–1.62; P = 0.001] [independent of sex, obesity, smoking status]). More studies are needed. The evidence is insufficient in quantity to make a firm conclusion.

### ***Diabetes mellitus***

A systematic review and meta-analysis of cohort studies (Zou 2021) conducted in China (N=14 studies involving 253,766 participants, age range 20–75 years, median follow-up 2.5–32 years) demonstrated that weight cycling was associated with high risk of diabetes (RR 1.23 [95% CI, 1.07–1.41]; P = 0.003); I<sup>2</sup> = 73.9%, P < 0.001 (heterogeneity among studies).

However, in patients with obesity (BMI ≥ 30), the association between weight cycling and the risk of developing diabetes was not observed (P = 0.08). The evidence is of low quality.

### ***Cardiometabolic risks***

A systematic review and meta-analysis of cross-sectional studies and longitudinal studies (Mackie 2017) showed an association between weight cycling and increased body weight, central adiposity, percent fat, and subsequently increased risk of future obesity (11/19 [58%] studies suggested). This suggests that weight cycling is problematic to patients attempting to lose weight. However, the strength of evidence is very low. Therefore, the evidence is insufficient in quality to make a firm conclusion on the effect of weight cycling and metabolic risk factors.

### ***Weight change and depressive symptoms***

A cohort study (Madigan 2018) of 10,428 participants with mean age 49.5 years and BMI of 26.3 (median follow-up 12 years) found that weight cycling is associated with weight gain in overweight and healthy weight women, but not in women with obesity. In addition, the authors found that weight cycling was associated with depressive symptoms (frequent weight cycling and low-frequency weight cycling resulted in depressive symptoms compared to non-weight cycling [OR of Center for Epidemiologic Studies Depression Scale score 1.5 versus 1.7 versus 1.0]). In summary, the evidence on weight change and depressive symptoms is limited or insufficient.

## 6. Should we screen for eating disorders before initiating any weight-loss treatment (e.g., medications, diets)? If yes, what are the tools?

### ***Screening for eating disorders prior to initiating weight-loss treatment***

The 2016 AACE guideline should be adopted: “Patients with overweight or obesity who are being considered for weight-loss therapy should be screened for binge eating disorder and night eating syndrome.”

### ***Screening tools to assess eating disorder risk in patients seeking obesity treatment***

The Risk factors for Binge Eating Disorder in Overweight (REO) questionnaire (Wever 2018) and The Adolescent Binge Eating Scale (Chamay-Weber 2017) were identified. However, more studies are warranted to make a firm conclusion. In addition, Jebeile and colleagues indicated that “screening questionnaires to assess eating disorder risk in adolescents seeking obesity treatment are not currently available” (Jebeile 2021).

### ***Screening tools for eating disorders***

There is a range of screening tools for eating disorders. Two validated screening tools with 5 questions or fewer include:

- The Sick, Control, One, Fat and Food (SCOFF)
- The Eating Disorder Screen for Primary Care (ESP)

Other screening tools (with at least 10 questions) include:

- Eating Disorders Screening Tool (National Eating Disorder Association): 20 questions
- Eating Attitudes Test (EAT-26): 26 questions
- Patient Health Questionnaire (PHQ): 3-page questionnaire
- Adolescent Binge Eating Questionnaire (ADO-BED): 10 questions
- The Eating Disorder Examination (EDE)/Eating Disorder Examination Questionnaire (EDE-Q).

The most studied screening tool, according to the USPSTF 2021, is the SCOFF.

**7. Should weight be measured at every primary care visit? What is the optimal frequency for calculating BMI in the clinical setting?**

The following guidelines should be adopted:

- VADoD 2020: “Screening at least annually provides an opportunity for patients and providers not only to identify overweight and obesity, but also to engage in productive discussions about the benefits of maintaining a healthy weight.”
- ADA 2020:
  - “Measure height and weight and calculate BMI at annual visits or more frequently.” (Consensus)
  - “Based on clinical considerations, such as the presence of comorbid heart failure or significant unexplained weight gain or loss, weight may need to be monitored and evaluated more frequently.” (Based on well-conducted cohort studies)

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# Guideline Development Process and Team

## Development process

The Weight Management Guideline was developed using an evidence-based process, including systematic literature search, critical appraisal, and evidence synthesis.

This edition of the guideline was approved for publication by the Guideline Oversight Group in April 2022.

## Team

The Weight Management Guideline development team included representatives from the following specialties: adolescent medicine, bariatric surgery program, family medicine, pediatrics, pharmacy, primary care, and residency.

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