



Dr. Tapas Nuwal is a board-certified family medicine physician. He studied engineering at Cornell University and the University of Houston before earning his medical degree at St. George's University. He completed residency at UT Health San Antonio, where he received multiple awards for teaching and excellence in care.

He provides full-spectrum primary care for patients of all ages, with a focus on obesity and mental health. His approach centers on communication and making sure patients feel heard and included in their care.

Outside of medicine, he enjoys time with his family and is especially proud to be a new father to a baby girl—the first in his family in over 50 years, born in his 40th bday!

The Obesity Epidemic: Diagnosis, Drivers, and Treatment

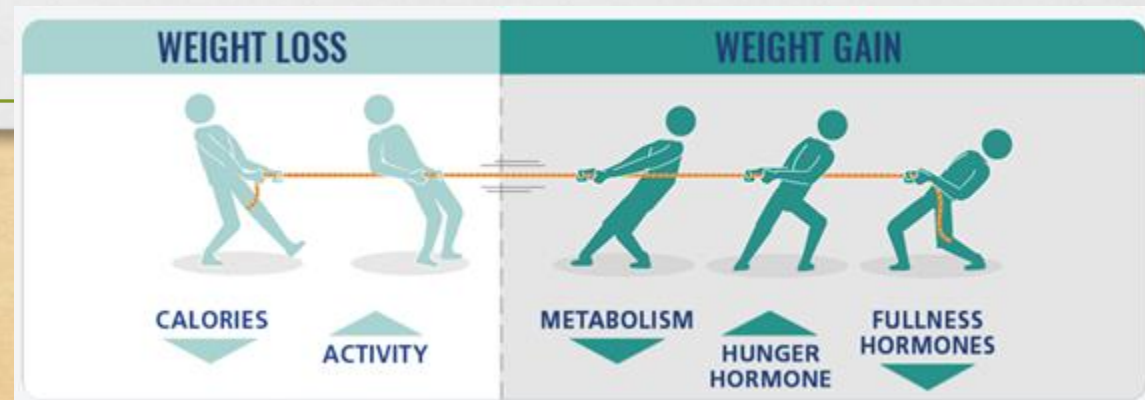
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Tapas Nuwal, MD

Family Medicine Primary Care

Memorial Hermann Medical Group



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- No financial or conflict of interests to report related to this presentation.

Objectives

- Analyze obesity pathophysiology, classification, and epidemiology using evidence-based criteria to inform clinical decision-making
- List comprehensive assessments to evaluate obesity-related comorbidities and psychosocial impacts using validated screening tools
- Evaluate and implement evidence-based obesity management strategies while considering patient preferences and safety profiles

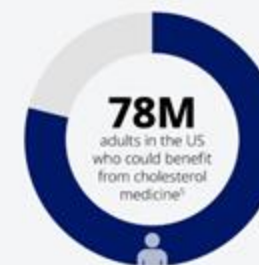
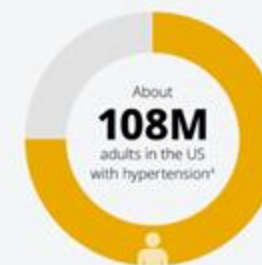
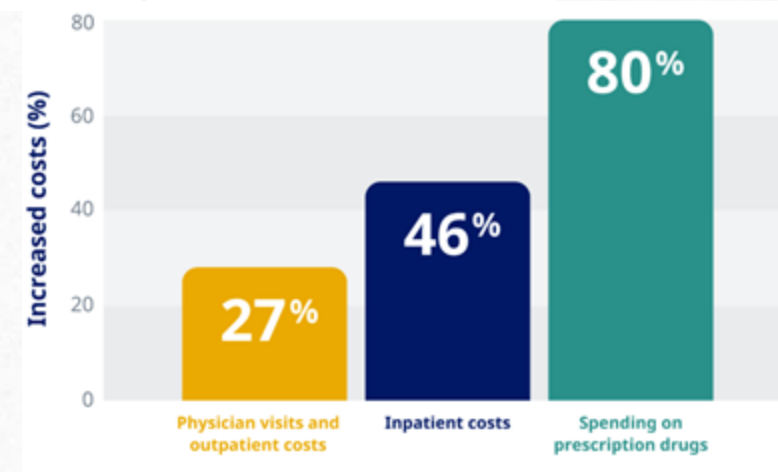
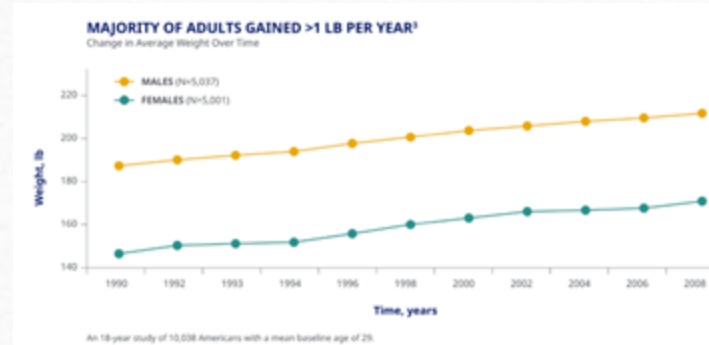
Obesity Definition

Body Mass Index (BMI) is a person's weight in kilograms (or pounds) divided by the square of height in meters (or feet)

- If your BMI is less than 18.5, it falls within the underweight range
- If your BMI is 18.5 to <25, it falls within the healthy weight range
- If your BMI is 25.0 to <30, it falls within the overweight range
- If your BMI is 30.0 or higher, it falls within the obesity range
 - Class I, II, and III

Disease Progression

- Obesity is a chronic and progressive disease, but is often not treated the same as other conditions in this category
- With increased medical spending, obesity can become an economic burden on both public and private payers
- Millions of adults have health challenges; Obesity is one of the most prevalent



Do You Know the Costs of Obesity?

- Obesity is the _ largest global social burden
- Obesity is responsible for around _ percent of global deaths
- In 2016, obesity and overweight accounted for _ percent of overall direct and indirect costs associated with chronic disease in the US
- For patients with a BMI ≥ 40 kg/m², a weight loss of 5% could reduce their medical costs by \$_ each year
- In their lifetime, a 20-year-old patient with obesity will incur a societal cost of approximately _ more than a normal-weight peer

Do You Know the Costs of Obesity?

- Obesity is the 3rd largest global social burden (after smoking and armed violence)
- Obesity is responsible for around 5% percent of global deaths (30% of world's population is overweight or obese)
- In 2016, obesity and overweight accounted for 47% percent of overall direct and indirect costs associated with chronic disease in the US (9% of the US GDP)
- For patients with a BMI ≥ 40 kg/m², a weight loss of 5% could reduce their medical costs by \$2,137 each year
- In their lifetime, a 20-year-old patient with obesity will incur a societal cost of approximately \$28,020 more than a normal-weight peer

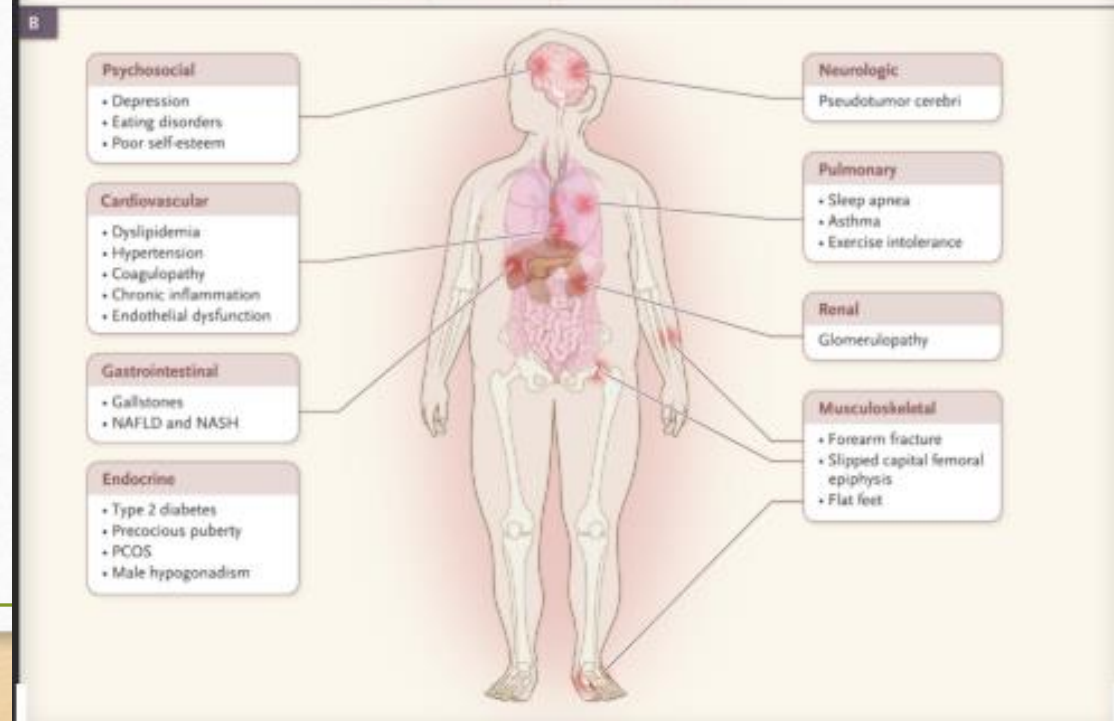
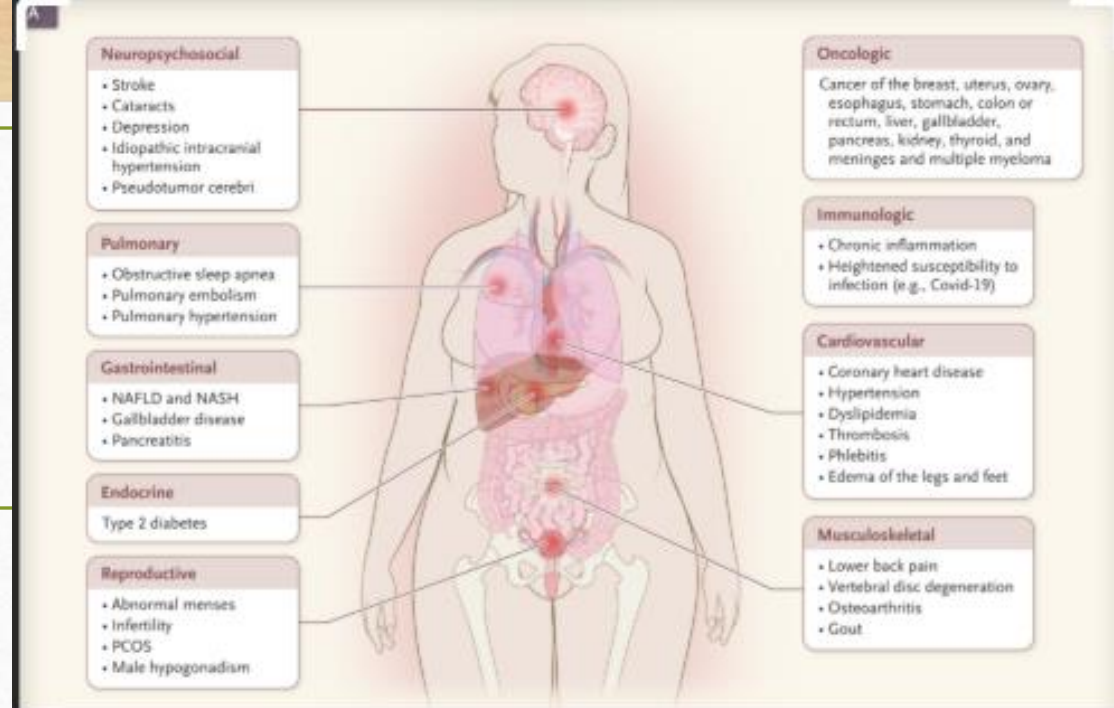
Impact on Health

- Obesity is associated with at least 60 comorbidities, some of which can be improved through weight loss of just 5%-15%
 - Depression (PHQ)
 - Obstructive Sleep Apnea (Sleep study, PSG)
 - Gastro Esophageal Reflux Disease (PPI)
 - Cardiovascular Disease (Hypertension, Dyslipidemia, Type 2 Diabetes, Prediabetes)
 - Asthma/Reactive Airway Disease (PFTs)
 - Nonalcoholic Fatty Liver Disease (waist circumference is a risk factor; women > 35 inches; men > 40 inches) – now called MASLD (Metabolic dysfunction Associated Steatotic Liver Disease)

Impact on Health

- Urinary Stress Incontinence (Stress, Urge, Overflow)
- Poly Cystic Ovarian Syndrome (2/3: Hyperandrogenism, Ovulatory dysfunction, PCOM)
- Male Hypogonadism (weight loss can improve serum testosterone/estrogen balance))
- Female Infertility (weight loss improves ovulatory cycle)
- Osteoarthritis (clinical, imaging)
- Metabolic Syndrome (concurrent presence of at least 3 of 5 specific conditions: elevated waist circumference, TG \geq 150, HDL $<$ 40M or $<$ 50W, BP \geq 130/85, and FPG \geq 100-110)
- Cancers (greater than or equal to 13 different cancers)

Impact on Health

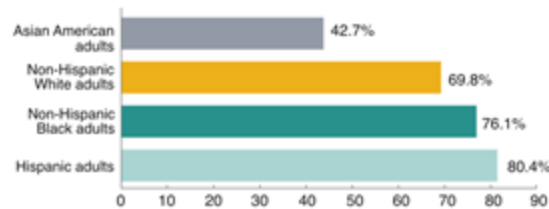


Factors of Obesity

- Behaviors developing obesity influenced by societal and environmental factors **beyond an individual's control**; availability of healthy food at reasonable prices may influence food purchasing behaviors
- Availability of recreational spaces > physical activity; pleasure derived from food palatability > overconsumption > energy imbalance weight gain
- Industrialization, cultural influences, socioeconomic (**high socioeconomic status is negatively correlated with obesity in developed countries**, but positively correlated in developing countries), societal changes
- 40% to 70% of interindividual differences in BMI are explained by **genetic factors**

Impact of Culture

Hispanic and African American/Black Adults Have the Highest Rates of Overweight or Obesity.¹⁻³



Age-adjusted percentage of persons 20 years of age and older who had overweight or obesity, 2013-2016 (Body Mass Index [BMI] of 25 or greater).¹⁻³

4 Out of 5 African American/Black Women and Hispanic Men Have Overweight or Obesity^{1,3*†}



*Age-adjusted percentage of persons 20 years of age and older who had overweight or obesity, 2013-2016 (Body Mass Index [BMI] of 25 or greater).¹⁻³

†Age-adjusted percentage of persons 20 years of age and older who had obesity, 2013-2016 (Body Mass Index [BMI] of 30 or greater).¹

- Cultural factors, traditions, views about **body image**; nuances can help create a plan that fits lifestyle
- Expectation of **eating everything on one's plate**, ethnicity/race can have a role in body image, **medical mistrust**, high stress, conditioned to eat more meats and fats versus fruits and vegetables, belief in fate and control over things/health

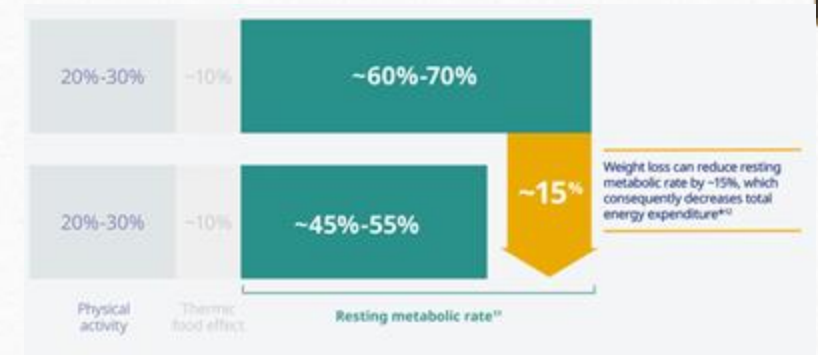
Metabolic Adaptation / Physiology of Weight Loss

- Weight loss due to calorie restriction may cause the body to react by slowing metabolism and altering appetite-regulating hormones in a process called metabolic adaptation, making long-term weight management difficult
- After weight loss via reduced-calorie intake, metabolic adaptation may result in increased signals for energy intake (increase in the hunger hormone (ghrelin) and decrease in satiety hormones (GLP-1, PYY, CCK, amylin))



Metabolic Adaptation / Physiology of Weight Loss

- Brain plays a critical role in appetite regulation
- After weight loss, metabolic adaptation leads to decreases in resting metabolic rate and lower energy expenditure; majority of energy expenditure comes from resting metabolic rate
- Even more important to exercise after weight loss achieved to minimize or delay relapse.



Pathophysiology of Weight Loss

- Complex interactions among genetic, neuroendocrine, metabolic, behavioral, and environmental factors
- Dysregulation of the hypothalamic centers that control hunger and satiety
- Peripheral signals from adipose tissue (leptin), the GI tract (ghrelin, peptide YY, GLP-1), and the pancreas (insulin, amylin) impaired to CNS to modulate appetite and energy expenditure, often leading to increased hunger, reduced satiety, and altered reward pathways that promote overeating
- Excess adipose tissue acts as an endocrine organ secreting adipokines and proinflammatory cytokines, promoting chronic low-grade inflammation, contributing to insulin resistance, dyslipidemia, and increased risk for comorbidities

Metabolic Adaptation / Relapse and Regain

- 90% of people with obesity are unable to keep weight off long term; a timely and effective weight-management plan can prevent obesity from recurring
- Long-term weight loss defined as losing at least 10% of initial body weight and maintaining the loss for at least 1 year



MDCALC Tool

MD+
CALC

Search "QT interval" or "QT" or "EKG"

10 tools found for Prognosis + Obesity

Obesity Surgery Mortality Risk Score (OS-MRS)
Predicts mortality risk in patients undergoing gastric bypass surgery.

The Sick, Control, One, Fat, Food (SCOFF) Questionnaire
Screens for eating disorders.

Preoperative Mortality Predictor (PMP) Score
Predicts risk of perioperative mortality in general surgery patients.

International Diabetes Federation-Diabetes and Ramadan Alliance (IDF-DAR) Fasting Risk Assessment
Stratifies fasting risk during Ramadan in diabetic patients.

Diabetes Distress Scale (DDS17)
Evaluates diabetes-related emotional distress.

Canadian Diabetes Risk Assessment Questionnaire (CANRISK)
Screens for undiagnosed type 2 diabetes mellitus and prediabetes.

Body Roundness Index (BRI) NEW
Estimates % body fat and % visceral adipose tissue (VAT).

Metabolic Score for Insulin Resistance (METS-IR)
Predicts risk of type 2 diabetes in previously undiagnosed patients.

Adverse Childhood Experiences (ACE) Score
Screens for adverse childhood experiences.

Edmonton Obesity Staging System (EOSS)
Stratifies the presence and severity of obesity-related health impairments.

Calc Function

DIAGNOSIS

RULE OUT

PROGNOSIS

FORMULA

TREATMENT

ALGORITHM

Condition
Obesity

Specialty
Select...

Chief Complaint
Select...

Organ System
Select...

MD+
CALC

Search "QT interval" or "QT" or "EKG"

2 tools found for Diagnosis + Obesity

STOP-BANG Score for Obstructive Sleep Apnea
Screens for obstructive sleep apnea.

BARD Score for NAFLD Fibrosis
Predicts risk of advanced fibrosis in NAFLD patients.

Calc Function

DIAGNOSIS

RULE OUT

PROGNOSIS

FORMULA

TREATMENT

ALGORITHM

Condition
Obesity

MD+
CALC

Search "QT interval" or "QT" or "EKG"

1 tools found for Rule Out + Obesity

Fibrotic NASH Index (FNI)
Screens for fibrotic NASH in individuals at high risk for NAFLD.

Calc Function

DIAGNOSIS

RULE OUT

PROGNOSIS

FORMULA

TREATMENT

ALGORITHM

Condition
Obesity

MD+
CALC

Search "QT interval" or "QT" or "EKG"

7 tools found for Formula + Obesity

Basal Energy Expenditure
Calculates daily energy expenditure.

Ideal Body Weight and Adjusted Body Weight
Calculates ideal body weight (Devine formula) and adjusted body weight.

BMI Calculator (Body Mass Index and BSA)
Calculates body mass index and body surface area.

C-Peptide to Glucose Ratio
Assesses beta cell secretory function in patients with diabetes/prediabetes.

Glucose Infusion Rate (GIR)
Quantifies the rate at which glucose is administered intravenously.

Relative Fat Mass (RFM)
Estimates whole body fat percentage among adults.

Body Roundness Index (BRI) NEW
Estimates % body fat and % visceral adipose tissue (VAT).

Calc Function

DIAGNOSIS

RULE OUT

PROGNOSIS

FORMULA

TREATMENT

ALGORITHM

Condition
Obesity

Specialty
Select...

Chief Complaint
Select...

Organ System
Select...

Evaluating Treatment Option

- Successfully treating obesity requires a comprehensive long-term plan to help break the cycle of weight loss and regain



There are two main types of pharmacological treatments:



Short-term treatments

- These medications are prescription treatments that are usually taken for up to 12 weeks⁴



Long-term treatments

- These medications are FDA approved for chronic management of obesity to help patients maintain a healthier weight as an adjunct to diet and exercise^{1,2}
- Pharmacological management may help with a patient's ability to maintain lifestyle changes that lead to a healthier weight^{1,2}



Decreased macronutrient absorption

Some pharmacotherapies decrease the ability of the gastrointestinal system to absorb energy from digested food^{2,5}



Reduced appetite

Most pharmacotherapies decrease food consumption behaviors, effectively decreasing energy intake^{2,5}



Increased satiety

Some pharmacotherapies increase the satiety experienced after consuming food, which can reduce food intake^{2,5}

How Much Weight Do I Need to Lose?

Losing a few pounds can make a difference in your health

Losing just 3% to 5% of your weight (ie, if you weigh 200 pounds, losing 6 to 10 pounds) can lower:

- blood sugar
- risk for developing diabetes
- triglycerides, a type of fat in the blood

Losing a little more weight is even better

Losing 5% to 10% of your weight (10 to 20 pounds if you weigh 200 pounds) can:

- lower your blood pressure
- improve your cholesterol
- reduce need to take medicine for blood pressure, diabetes, and lipids
- lower triglycerides and blood sugar even more

Losing weight can also help with problems like:

- sleep apnea
- liver damage
- osteoarthritis (wear and tear on knees and other joints)

Losing weight helps you feel better

- gives you more energy
- makes it easier for you to move around
- improves your quality of life
- helps keep you from having weight-related health problems in the future

Best ways of losing weight and keeping it off

- Small changes in your eating can make a big difference
 - Eat smaller portions
 - Remember, protein helps fill you up
 - Limit sugary drinks like soda, juice, and special coffee drinks—they are full of calories
 - Minimize snacking

- Be active—aim for 30 to 40 minutes of activity most days of the week
 - Do things you enjoy and ask a friend to join you
 - Walk more, dance more, take the stairs, and play with your children or grandchildren—all activity counts
 - Join an exercise class
- Weigh regularly
- Get a good night's sleep; when people are tired, they often crave fatty or sweet food (most adults need 7 to 9 hours of sleep a night)

What about medications to lose weight?

- Sometimes medicine can help people lose weight.
- Ask your healthcare provider if medicine is right for you.
 - Your weight should be checked after 3 months to see if you have lost at least 5% of your weight
 - If you have not lost weight, your healthcare provider may want to put you on another medicine or a different treatment plan

Bariatric surgery

- For those who need to lose more weight for their health, surgery may be helpful
- The average long-term weight loss with sleeve gastrectomy is about 24% and about 33% with gastric bypass
- Devices and endoscopic therapies, such as a stomach “balloon,” usually result in less weight loss than bariatric surgery

Do not give up!

- Most people try many times to lose weight
- Everyone loses weight at a different pace
- For most people, their weight loss slows down over time and then levels off after 6 to 12 months
- After your weight loss slows down, most people gradually regain some weight; regaining weight may be slower if you take weight loss medicine or you have had bariatric surgery
- If you are struggling, consider consulting with an obesity medicine specialist

Strategies Proven to Help Eat Healthier and Exercise More

PLANNING AHEAD

Planning ahead and setting goals are key.

"SMART" goals are:

S: Specific

- If you **plan** to exercise, think carefully about what you plan to do, when, how much, and how often. [I will walk 3 blocks after work Monday, Wednesday, and Friday this week.]

M: Measurable

- Write down how far or how long you walk each day. Some people like to use a pedometer (such as **Fitbit**) and write down how many steps they take each day.
- One way you can pay attention to what you eat is to track calories by writing down your food intake. Free apps for your phone or computer, such as MyFitnessPal or Lose It!, can help you do this.
- Another important measure to **track** is your weight. Experts recommend weighing at least once a week, around the same time of day, wearing the same amount of clothing. But remember, weight changes slowly; keeping track is to help you see how you are doing and to let you know if you may need to adjust your plan.

A: Achievable

- Set realistic and reasonable goals. For example, if your goal is to walk, start with 10 to 20 minutes a day, 4 days a week.
- When making a plan, consider your schedule, weather, etc.
- Achievable goals also include taking a dance class twice a week, switching from sugary sodas to flavored water or Crystal Light, or packing a healthy lunch 3 days a week.

R: Relevant

- Set a goal that you are ready to work on. Think of what will motivate you to **stick to your plan**, such as building up your endurance to be able to walk with your child or to restart playing a fun sport.

T: Time-bound

- Set goals that you can **realistically complete in a specific amount of time**. [I will lose 2 to 4 pounds a month for 3 months or until I lose the weight I want to lose.]

PROBLEM SOLVING

Losing weight and keeping it off call for problem solving and support.

One of the best ways to work through challenges is to ask friends, family, a dietitian, or other healthcare provider to help you solve problems that come up.

- Many benefit from **building a team of people** who are also attempting to lose weight. Support can also come from group programs such as **Weight Watchers**.
- Several **apps** offer opportunities to connect with a weight loss community (such as **SparkPeople** or **MyNetDiary**).

STAYING MOTIVATED

Even with the best made plans and a strong support team, it can be hard to stay motivated.

- Remind yourself of your goals, write them down, and put them where you will see them every day. Think about why you want to lose weight, like having more energy, feeling less pain in your knees and back, or being able to play on the floor with your children or grandchildren.
- **Praise yourself and reward yourself** for sticking with your plan. Be kind to yourself. **Don't beat yourself up** for slipping.
- Remember, it **takes time** and a long-term **commitment** to lose weight and make lasting health changes.

Dietary Supplements for Weight Loss

With little oversight over dietary supplements or evidence that they work, it is important not to believe the advertising claims.

Dietary supplements promise incredible weight loss, but medical studies show most do not work, and some may be harmful. Despite this medical evidence, Americans spend over \$2 billion a year on weight loss supplements.

Problems with Dietary Supplements

Unlike FDA-approved medications, dietary supplements do not have to be proven to be effective or safe before being advertised or sold. They are not rigorously regulated by the FDA or state boards of pharmacy.

- Some people believe products are safe if they are advertised as "natural" and do not require prescriptions.
- There is little evidence that any herbal or over-the-counter weight loss aid helps with significant weight loss.
- Although advertisers claim that studies support their products, the studies are almost always unscientific and poorly done. They do not prove the product is effective or safe.

What are the Risks of Taking Dietary Supplements?

Some dietary supplements may cause heart problems, liver or kidney problems, or even death. The FDA warns against several products that contain toxins or banned drugs. An example of lack of safety is HCG shots which are advertised as "natural." They are sold inappropriately as part of miracle weight loss diets.

- HCG is a hormone produced during pregnancy.
- The FDA approved the shots to treat some cases of infertility. However, it required a label stating HCG has not been proven to help with weight loss.
- Still, HCG shots are used with extreme calorie limits of 500 calories a day. Studies have shown this does not work for weight loss and is likely unsafe.



Safe Over-the-Counter Dietary Supplements

There are two over-the-counter options for losing weight that have been proven effective with scientific studies.

The first is Alli®: It is not a dietary supplement. Alli is an over-the-counter version of orlistat (a prescription medication approved by the FDA in 1999).

- Several studies show that orlistat can help people lose a reasonable amount of weight and keep it off long term.
- One study showed that orlistat (at the full prescription dose, which is twice the dose of over-the-counter Alli) led to 10% body weight loss over 1 year when used with a behavioral weight loss program.
- The people in this study maintained their weight loss after 4 years. They were also 45% less likely to develop diabetes than people who did not take it.

The second is fiber supplements.

- Fiber supplements help make you feel full and slow digestion.
- The most commonly used fiber supplement is psyllium. It leads to small weight losses and may also lower cholesterol.
- At recommended levels, the risk of side effects is low.
- Or increase fiber in your diet and get the same benefits.



Tell your healthcare providers about all the supplements you are taking.

Ask your healthcare provider or pharmacist if a medicine or supplement is safe for you to take and if it will help you lose weight.

Body Weight and Cancer Risk

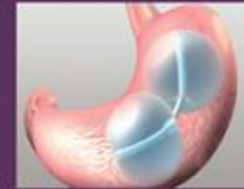
Although overall cancer rates in the US are decreasing, cancers that are linked to overweight are on the rise, including:

- **Breast cancer**
 - **Colon cancer**
 - **Endometrium and uterus cancer**
 - **Esophageal cancer**
 - **Gallbladder cancer**
 - **Kidney cancer**
 - **Pancreatic cancer**
 - **Prostate cancer**
 - **Thyroid cancer**
 - **Head and neck cancers**
- Overweight can increase the risk for cancer in many ways. For example:
 - As we gain weight, fat cells grow. They may not receive enough oxygen to function well. These oxygen-starved cells make chemicals that cause inflammation. This increases the growth of other cells and may lead to cancer.
 - Gaining weight may cause estrogen and other hormones to be increased. This can make cancers develop and grow faster.
 - If you already have cancer, carrying extra weight can make it more likely for the cancer to metastasize, or spread, to other parts of the body.
 - What we eat is also important. Research has shown that eating whole grains, fruits, and vegetables can reduce your risk of certain cancers. Mediterranean-style dietary patterns and the DASH diet also reduce the risk of some types of cancer. If it's hard to eat healthy or lose weight, healthcare professionals can help you.
 - Consider working with a dietitian to help make lasting changes in what you eat.
 - Find a health coach or trainer to help you make a plan to be more active by doing activities that work for you.
 - Ask your healthcare provider if weight loss is important. In some cases, medications may help you manage your weight. People who are extremely overweight may consider bariatric surgery.
 - The good news is that even small amounts of weight loss can reduce your risk of cancer and other diseases. If you have had cancer, weight loss may reduce the risk of cancer returning.

Medical Devices for Obesity Treatment



1. Adjustable Gastric Band



2. Gastric Balloon



3. Vagus Nerve Stimulator



4. Gastric Emptying System

Eating healthy and exercising are important for managing weight. Medications approved by the FDA also can help you stick to your diet plan. However, if you are struggling with losing weight or keeping the weight off, and if your health is at risk, you may be curious about the new FDA-approved medical devices.

What are the benefits of medical devices?

- They are inserted by a **trained physician** (usually a surgeon or gastroenterologist).
- They can be **removed**.
- They have fewer side effects than bariatric surgery.
- They often **cost less than bariatric surgery** (but usually are not covered by insurance).

These new devices are not a replacement for behavioral counseling, medications, or surgery, but they may be a valuable treatment tool for some people when used in tandem with other treatment approaches.

The FDA-approved devices are:

- 1 **Adjustable gastric bands** (LAP-BAND or REALIZE) are inflatable tubes inserted surgically at the top of the stomach to squeeze it, make it smaller, and limit the amount of food you can eat at one time.
 - They can be **inflated or deflated by a physician** to adjust to your stomach size.
 - Unlike the other devices listed below, the gastric band can be **used long term**.
- 2 **Gastric balloons** are also inserted in the stomach to **help you eat less and still feel full**, thus potentially jump-starting weight loss. The balloons are **removed after 6 months**.
 - Two of the available devices (Orbera and ReShape) are inserted through the mouth using a flexible tube (endoscope). Once in place, the balloon is filled with salt water (saline) to fill part of your stomach and help you feel full.
 - Another type of balloon (Obalon) is simply swallowed and then filled with gas.

3 **ReShape vBloc vagus nerve stimulator** blocks hunger nerve signals between your stomach and brain during meals and other times when you tend to eat. It is a surgically implanted electrical pulse generator that slows food emptying from your stomach, **making you feel fuller longer** and reducing the amount of food you want to eat.

4 **AspireAssist gastric emptying system** **reduces the amount of food that your body absorbs**.

- The device has a tube that connects the inside of your stomach to the outside of your belly. The tube is connected to a small handheld device that sucks out part of your meal.
- About 20 minutes after you eat, you connect the device to the tube, and about one-third of the food you have eaten is sucked into the device. Then you dump the contents into the toilet.

Are these devices right for you?

- They were designed for people who are **at least 18 years old**, have a **lot of weight to lose**, and have **not been able to lose weight and keep it off**.
- Balloons are for patients who are more than 35 pounds overweight (body mass index [BMI] greater than 30).
- Gastric bands, ReShape vBloc nerve stimulator, and AspireAssist are for patients who are more than 75 pounds overweight (BMI of 35 or more) and have weight-related health problems like high blood pressure, diabetes, or high cholesterol.
- **Most insurance companies do not yet cover these devices.** They tend to be expensive, costing around \$10,000. So while they are valuable for many patients, they are currently not frequently used.
- Because many of these devices are **removed after a few months**, they **must be followed with other forms of obesity treatment, like counseling and medications**.

Is Weight Loss Surgery Right For You?

When enough weight is not lost through diet, exercise, or medication, bariatric surgery may be an option.

- Weight loss surgery makes your stomach smaller and changes hormones that make you feel hungry.
- Most people who have bariatric surgery will feel full soon after beginning to eat a meal and will eat less, leading to weight loss.
- You must follow eating recommendations before and after the surgery. If you don't make changes in your eating and activity, you could regain weight.

How much weight can I lose?

Bariatric surgery is very effective in helping people lose up to 20% to 30% of their weight. For example, if you weigh 300 pounds, this would mean losing 60 to 90 pounds. Losing this much weight will improve control of type 2 diabetes, lower blood pressure, decrease joint pain, and improve quality of life and life expectancy.

What are the different kinds of weight loss surgery?

The type of surgery a patient has is based on their level of obesity, surgeon's recommendation, and patient preference. It is also based on whether you have health conditions like diabetes, heart disease, or acid reflux. All types are performed laparoscopically without a large incision. This reduces the recovery time after surgery.

If you decide to have surgery, you need to understand the risks, benefits, and side effects of each type and make a decision that is right for you.

Gastric Bypass (20%-30% weight loss): This surgery divides the stomach into two parts. The smaller portion is 1 ounce in size and it is connected to the small intestine 2 feet below the stomach. A larger portion is reconnected further down. Dumping syndrome (when food, especially sugar, moves from your stomach into your small bowel too fast) is a rare complication of gastric bypass and may occur with diets high in simple carbohydrates.

Gastric Sleeve (20%-25% weight loss): This surgery removes 75%-85% of the stomach. The new small stomach looks like a narrow shirt sleeve. There is no bypass and digestion occurs normally.

Gastric Banding (10%-15% weight loss): An adjustable band placed around the upper stomach creates a small stomach pouch. The pressure on the band can be adjusted by a port placed under the skin. This procedure is rarely performed because of modest initial weight loss and weight regain.

Duodenal Switch (30%-40% weight loss): A large portion of the stomach is removed, and the upper portion of the intestine is bypassed. The bypassed portion of the intestine is reconnected below. This surgery is rarely performed because of the severity of complications.

Does insurance pay for this surgery?

- Many insurance plans do pay for bariatric surgery. To be eligible, you must have a body mass index (or BMI) more than 40. BMI can be calculated from your height and weight using online calculators.
- If you have medical problems such as high blood pressure, diabetes, fatty liver disease, arthritis, or sleep apnea, you may be eligible with a BMI more than 35.

What about adolescents?

Teens who have finished growing may be candidates for surgery. They need to be treated in health centers that specialize in younger patients.

What do you need to do before having this surgery?

- A waiting period may be required so that you can first try to lose weight under medical supervision. Check with your insurance provider about the time period.
- You must learn to change the way you eat so that you don't get nutrition problems after surgery. This is because there is a risk of not absorbing vitamins or protein after surgery.
- You must also have a psychological evaluation by a mental health specialist. They will look for risk of substance abuse, depression, suicide, and problems following instructions. These problems may increase after surgery and lead to surgery failure and complications.

For more information, visit this link at the National Institutes of Health:

<https://www.niddk.nih.gov/health-information/weight-management/bariatric-surgery>

Can My Medicines Affect My Weight?

- Different medications are appropriate for different people

Before starting a new medication or changing your dosage, find out whether it can lead to weight gain.

- Some drugs cause weight gain in some people and weight loss in others.
- Some drugs lead to weight loss at first and then cause weight gain over time.
- Often, a medicine's effect on weight depends on a person's medical and family history (including insulin resistance and type 2 diabetes) as well as dietary and exercise patterns.
- If you are taking a drug that causes weight gain, talk to your healthcare provider.
 - Ask about alternative drugs that are less likely to cause weight gain.
 - Talk to your provider about taking the lowest dose for the shortest amount of time.
 - Find out about dietary, physical activity, and lifestyle changes that may help to offset the weight gain.

Here are some examples of medicines that can affect weight:

Diabetes medicines

- Insulin and sulfonylurea drugs (like Glucotrol [glipizide] and DiaBeta, Micronase, and Glucovance [glyburide]) frequently cause weight gain.
- Other diabetes medicines are less likely to cause weight gain and may even help with weight loss including:
 - Fortamet, Glucophage, Glumetza (metformin)
 - Saxenda, Victoza (liraglutide)
 - Trulicity (dulaglutide)
 - Invokana, Invokamet (canagliflozin)
 - Jardiance, Synjardy (empagliflozin)
 - Farxiga, Xigduo XR (dapagliflozin)
 - Symlin Pen (pramlintide)

Blood pressure medicines

- Some beta-blockers (such as Tenormin [atenolol], Lopressor and Toprol [metoprolol], and Inderal and InnoPran [propranolol]) can slow metabolism and make it hard to lose weight. You may benefit from switching to a beta-blocker that has less risk for weight gain (such as Coreg [carvedilol] or Bystolic [nebivolol]).
- Other blood pressure medications won't likely cause weight gain. These include:
 - ACE inhibitors (such as Vasotec [enalapril] or Prenilil and Zestril [lisinopril])
 - Angiotensin receptor blockers (such as Cozaar [losartan] or Avapro [irbesartan])
 - Calcium channel blockers (such as Cardizem, Dilt-CD, and Tiazac [diltiazem] or Adalat CC and Procardia XL [nifedipine])

Medications for depression and other mental health conditions

- Among antidepressant medications, Paxil (paroxetine) and many others can cause weight gain. Prozac, Sarafem, and Selfemra (fluoxetine) and Zoloft (sertraline) may have less effect on weight.
- Wellbutrin (bupropion), also known as Aplenzin, Forfivo, and Zyban, is the only antidepressant that has been linked to weight loss.
- Antipsychotic medications (such as Zyprexa [olanzapine]) and medications for bipolar disorder (such as Lithobid [lithium]) frequently cause weight gain.

Steroids and certain contraceptive medications may cause significant weight gain. Talk to your provider about alternatives.

Not all brand names for these medications are listed here. You can search for the generic name on websites such as <https://medlineplus.gov/druginformation.html> to find other brand names you may be using.

What do Older People Need to Know About Being Overweight?

A healthy weight is still important for adults 65 and older

Gaining weight is common as we age. Our metabolism changes and we need to eat less. We also lose height and muscle mass. More than 1 in 3 people over 65 have obesity, which can lead to sickness, physical disability, and early death.

Ask your healthcare provider what you can do to stay as healthy as possible.

- Your healthcare provider can tell you whether you need to lose weight, change some eating habits, or be more active.
- Your waist may be measured to determine whether you are overweight. In some people, this is more accurate than determining your body mass index (BMI) as you get older.
- It helps to talk with your provider about what foods, exercises, and medications are safe for people over 65, as well as who buys your food and where you get it from.
- Your provider may suggest certain foods and exercises that are helpful. They can also tell you if any of your medicines may cause weight gain.

How can older adults lose weight safely?

- Tell your healthcare provider you want to lose weight and ask for help.
- Make an eating, exercise, and medication plan that works for you—one that you are willing to do every day.
- Safe diets include DASH and the Mediterranean diets. Look for them on the Internet or at the library.
- A dietitian can help you with what you need to eat, how much, and how often. You also may need to eat more protein.

- You may need to take vitamin D and calcium pills. Ask your pharmacist for recommendations.
- Resistance exercises and strength training help keep bones and muscles strong while someone loses weight.
- Consider seeing a physical therapist. They can help you with an exercise plan you like.

What's the benefit of making changes in eating and exercise for older adults?

- Making small changes in eating and exercise can help you have more energy and increased strength.
- These changes could also help you stay healthier, improve your ability to move, and live longer.

Are there other ways to lose weight for people over 65?

- Weight loss medicines approved by the FDA have not been extensively studied in older adults, so they cannot be universally recommended. Use particular caution for those medicines that can increase blood pressure and pulse.
- Bariatric surgery can still be an option. Talk with your healthcare provider before you consider this surgery.



Talk with your healthcare provider about maintaining a healthy weight.

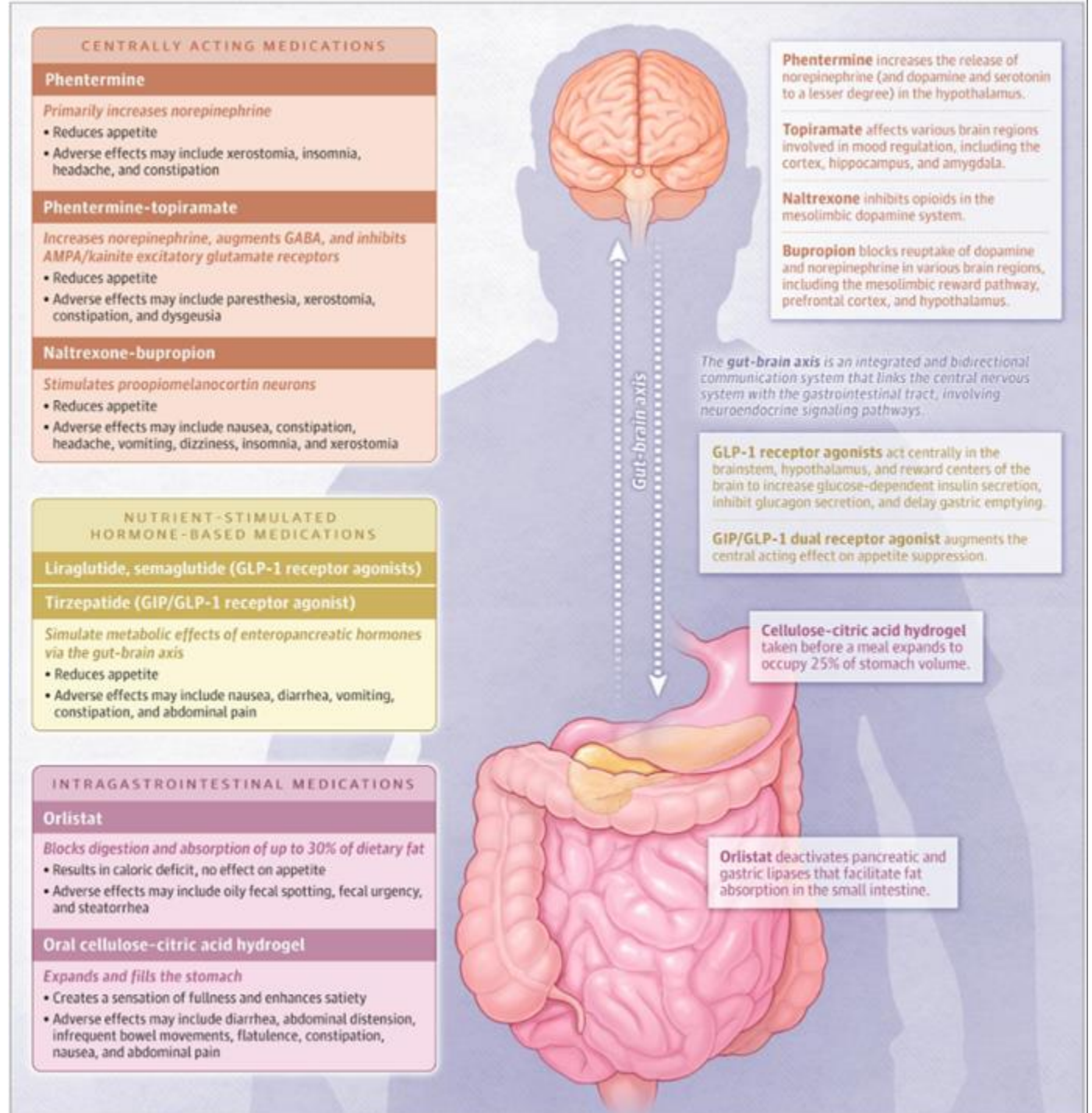
Medications for Weight Loss

- Medications for weight loss are categorized by mechanism and duration of use as adjunct to lifestyle modification for adults with BMI ≥ 30 kg/m², or ≥ 27 kg/m² with comorbidities
- FDA-approved medications for chronic (long-term) weight management:
 - Gastrointestinal lipase inhibitor: Orlistat
 - Centrally acting agents: Phentermine/topiramate ER, naltrexone/bupropion ER
 - Nutrient-stimulated hormone-based agents: Liraglutide, semaglutide, tirzepatide
- Short-term agents (≤ 12 weeks): Phentermine, diethylpropion, phendimetrazine, benzphetamine
- GLP-1 agonists and tirzepatide are preferred in patients with type 2 diabetes
- Contraindications: Pregnancy, breastfeeding, history of medullary thyroid cancer or MEN2 (GLP-1/tirzepatide), uncontrolled hypertension or seizure disorder (naltrexone/bupropion), chronic opioid use (naltrexone/bupropion), glaucoma (phentermine/topiramate), fat malabsorption (orlistat)

Medications for Weight Loss

- Major side effects:
 - Orlistat: GI symptoms (oily stools, fecal urgency), fat-soluble vitamin deficiency
 - Phentermine/topiramate: Insomnia, paresthesia, mood changes, cognitive impairment, increased BP
 - Naltrexone/bupropion: Nausea, headache, insomnia, increased BP, seizure risk
 - Liraglutide/semaglutide/tirzepatide: Nausea, vomiting, diarrhea, pancreatitis, gallbladder disease, MCT - “PGMART”
- risk of
- Start with lifestyle modification
- If inadequate, select agent based on comorbidities, contraindications, and patient preference
 - GLP-1 agonists/tirzepatide for diabetes “OM for DM; other ones for obesity”
 - Orlistat for GI safety
 - Phentermine/topiramate for ADHD/ADD, migraines
 - Naltrexone/bupropion for mood disorders

Medications for Weight Loss



Help Your Child Have a Healthy Weight

Think 5-2-1-0

5 fruits and vegetables every day.

A great time to get children to eat vegetables or fruits is when they are **hungry and waiting for dinner**. This will also help them eat less at mealtime. Other suggestions:

- Breakfast - fruit with cereal, add veggies to eggs (spinach, broccoli)
- Snack - raw celery, carrots, cucumbers
- Lunch - veggies in a sandwich, whole fruit or raw veggies
- Dinner - 2 servings of vegetables
- It can take up to 15 tries for a child to like a new food. Keep trying!

Limit screen time to 2 hours

The time sitting and not moving can lead to weight gain and be bad for your child's heart.

- Children should **not spend more than 2 hours per day in front of a screen** (TV, video games, computer, tablet, phone)
- Children under 2 should not be placed in front of screens

1 hour of exercise daily

Children should be active and do things that raise their heart rate for **an hour every day**. Exercise can be broken into 10-minute bursts.

Make it fun! Find a variety of things that your child likes to do.

- Balls of all sizes are wonderful
- Jump rope, ride a bike, or try jumping jacks or hopscotch
- Go for a brisk walk
- On a rainy day, blow up a balloon and keep it off the floor
- Pretend to be zoo animals and imitate their movements
- Put on some fun music and have them march up and down stairs while you are making dinner

0 (zero) sugar-sweetened drinks

- Give your child **water and 1% or fat-free milk**
- **Stay away from drinks with added sugar** like soda, lemonade, iced tea, fruit punch, or fruit drinks; the best way to avoid sugar-sweetened beverages is to not have them in the house
- Make sure juice drinks are **100% juice and limit to 1/2 a glass each day**.
- Flavor your child's water by adding fruit such as **lemon, lime, strawberry, watermelon, orange, or tangerine**

More good ideas for your family

Eat meals together — make it a habit

- Model healthy eating.
- Take your time and talk to each other. Encourage your child to take **10-15 minutes to finish a meal**.
- When you eat together, **turn the TV off, and don't bring phones to the table**.

Watch portion sizes

- Portion out the servings of food on everyone's plate before sitting down. You will eat less than when you put bowls of food on the table.
- Think of a healthy plate—1/2 of the plate with vegetables, 1/4 with meat/protein, 1/4 with whole-grain starch (e.g., brown rice, corn, quinoa).
- Use child-sized plates for your children and plates that are no more than 9 inches for yourself and preadolescents.



Get your children involved in preparing meals

- Children ages 3 and up can help with washing vegetables or tearing leaves of lettuce. Have them help with putting food on plates.
- Children ages 7 and up can begin learning to cut and peel foods.
- Children ages 10 and up can learn to prepare simple meals.
- Kids will want to eat things that they helped to prepare.

Limit eating outside the home (fast food or restaurant) to once a week

- Prepare meals ahead of time in the portion sizes needed for you and your child.
- Use a slow cooker to have meals ready when you get home.
- Cook for more than 1 day at a time. Freeze the extra so you can keep some leftovers for another day.



Talk with your healthcare provider about a healthy weight for your child.

Packing a Healthy Lunch for Your Kids

Tip #1 Ask your kids to help

- Give your kids **healthy food choices** from each food group, and ask them to decide what to pack. Here are some examples:
 - **Fruits:** fresh, frozen, dried, or baked (such as apple chips)
 - **Vegetables:** fresh, frozen, or baked
 - **Lean protein:** chicken, turkey, tuna, hard-boiled eggs, beans, nuts, or low-sugar nut butters
 - **Low-fat dairy:** milk, cheese, or yogurt
 - **Whole grains:** pita, sandwich bread, low-carb tortillas, or wheat pasta
- Let them be creative! **Jazz up sandwiches with veggies.** Pack a variety of fruit.

Mix and Match Ideas

BREAD	FILLINGS	VEGGIES	FRUITS
Whole wheat pita	Turkey slices	Baby carrots	Banana
Tortilla (low-carb)	Mozzarella cheese	Sugar snap peas	Apple
½ Wheat bagel	Peanut butter	Cucumber coins	Raisins/dried fruit
½ Whole wheat bun	Cream cheese	Broccoli florets	Clementine
Rye bread	Hummus	Salad	Melon cubes

Tip #2 Plan ahead

- Take your **children grocery shopping.**
- Pack lunch with your kids the night before. Find foods (like baby carrots and dinner leftovers) that are quick to pack.
- Use MyPlate <https://www.choosemyplate.gov/> as a guide.
- **Go slowly when making changes.** Begin by adding 1 vegetable to lunch. Next month, add 1 fruit.



Tip #3 Ask your child to pick a healthy treat for the end of the meal

- Pack a **treat with less than 100 calories** and no more than **12 grams of sugar.** Too much sugar can make us hungry, tired, and grumpy a few hours later.
- To improve **"brainpower,"** look for treats that are healthy, such as:
 - **Fresh fruit salad** or **dried fruit** (apricots/raisins)
 - **Squeezable yogurt**
 - **Low-fat chocolate pudding**
 - **Nuts** (no salt or sugar added) or trail mix: cashews, walnuts, peanuts, almonds
 - **Yogurt-covered raisins**

- Wheat pretzels or multigrain tortilla chips with salsa
- High-protein bar

Tip #4 Make drinking water fun

- Let your kids take their **favorite water bottle to school** and encourage them to drink water **throughout the school day.**
- If the "flavor" of water is too bland for them, add a **few pieces of frozen fruit** to sweeten it up and keep it cooler.
- **Avoid packing sugary drinks** like juice, sweetened tea, energy drinks, sports drinks, and soda.

Tip #5 Keep it Cool

- Let your child **choose a fun lunch box** and reusable containers.
- Use **ice packs** or add a **frozen bottle of water** to protect against food spoiling.

Weight During Pregnancy

Too much weight gain during pregnancy may cause:

- Gestational diabetes (high blood sugar)
- High blood pressure and preeclampsia
- Large babies
- Cesarean delivery
- Not returning to prepregnancy weight after delivery
- Becoming overweight after pregnancy
- Risk of baby becoming overweight as a child

How much weight should I gain?

The amount of weight you need to gain is based on your body mass index (BMI) before pregnancy. BMI is calculated using your height in kilograms and your weight in meters ($BMI = kg \div (m \times m)$). You can find BMI calculators online.

BMI Before Pregnancy	Total Weight Gain in 1st Trimester	Per Week Weight Gain in 2nd and 3rd Trimesters	Weight Gain Goal for Entire Pregnancy
Underweight (BMI less than 18.5)	2.2-6.6 lb	1.0-1.3 lb	→ 28-40 lb
Healthy weight (BMI 18.5-24.9)	2.2-6.6 lb	0.8-1.0 lb	→ 25-35 lb
Overweight (BMI 25-29.9)	2.2-6.6 lb	0.5-0.7 lb	→ 15-25 lb
Obesity (BMI more than 30)	0.5-4.4 lb	0.4-0.6 lb	→ 11-20 lb

Source: Institute of Medicine. *Weight Gain During Pregnancy: Reexamining the Guidelines*. Washington, DC: National Academies Press; 2009.

These recommendations are based on having 1 baby, not twins or triplets, etc. Be sure to ask your healthcare provider how much weight they suggest you gain.

What's a healthy plan for weight gain?

- Eat nutritious foods like fruits and vegetables, low-fat dairy products, lean proteins, and whole grains.
- Aim for just 300 calories more per day in the second or third trimesters — you do not need to “eat for two.”
- Limit high-calorie, high-fat, and high-sugar foods, such as fast foods and sugar-sweetened beverages.

How does exercise help me during pregnancy?

- Can relieve symptoms like backaches, constipation, bloating, and swelling.
- Can make delivery of your baby easier.
- Follow the advice of your healthcare provider about exercise during pregnancy. Unless you are told not to exercise:
 - Make a plan for when you are going to exercise.
 - Do things you enjoy.
 - Start slowly. Work up to 30 minutes a day, 5 days a week.
 - Test to see if you are exercising at a healthy level by talking while exercising. If your voice begins to slow or you become out of breath, you may be exercising too hard.
- Aerobic exercise (exercise that focuses on your heart and lungs) is a great option. Some examples are:
 - Brisk walking. Three 10-minute walks throughout the day is one way to walk for 30 minutes.
 - Swimming or water aerobics.
 - Riding a stationary bike.

Also important for a healthy pregnancy:

- Not drinking alcohol, smoking, or taking drugs.
- Taking prenatal vitamins every day.
- Going to all pre- and postnatal visits.
- Managing stress and mood. Make a plan for what to do when you feel stressed out.

Weight Management: 10 Keys to Success

Here are helpful ways to lose weight discovered through decades of research, including the National Weight Control Registry's report of more than 10,000 successful people who have lost and kept off 30 or more pounds (often much more).

1. Find an eating plan that works for you.

Low-carbohydrate, low-fat, Mediterranean, or other diet patterns work well for many people. No one diet is best for everyone. It may be helpful to work with a dietitian or another healthcare provider or to follow a weight loss plan with a friend.

2. Limit some foods.

Regardless of which eating plan you follow, some foods may make it harder to lose weight. Start by limiting sugary drinks (like soda and juice), fast food, junk food, and sweets. It's OK to have these once in a while, but it will be easier to lose weight if you limit how often you have these foods.

3. Think of using convenient "meals."

People who use foods like protein bars or shakes, prepared meals, and even frozen meals often lose more weight. These foods make it easier for many people to stick to a diet plan.

4. Write down what you eat.

This can help you pay more attention to what you are eating and help you make healthy choices. Some studies show that people who do this lose up to 10 times more weight compared to those who don't.

5. Commit to an exercise plan that you enjoy.

The goal is to move more; whether you set aside a time every day to exercise or aim for a few minutes here and there, every little bit helps. If you have not been active, start slowly and aim for 10 minutes a day. Pick something you enjoy, such as walking outdoors, sports, dancing, or a group exercise class. Ideally, build up to 20 to 30 minutes several days a week. It helps some people to find a personal trainer or exercise group.

6. Weigh yourself regularly.

Weighing once weekly works well for most people. If your weight isn't going in the right direction, it's better to catch it early so that you can rethink your strategy or reach out for help. Try not to judge yourself based on the number; instead, think of the number on the scale as useful information that can help guide you.

7. Ask for support and guidance.

Support helps us to stick with our plan when it gets tough. Doctors, nurses, dietitians, counselors, and other healthcare professionals can be great sources of guidance and support. Group support can also help. This can include weight loss programs, the YMCA, or even online support. Don't be tempted to cancel an appointment if you're struggling—this is the best time to reach out for help.

8. Reduce stress and get a good night's sleep.

Stress and too little sleep can make you hungry and cause you to gain weight. In some cases, meeting with a sleep specialist or a counselor can help you learn to manage stress and/or improve sleep.

9. Ask your healthcare provider if medicine you are taking causes weight gain.

If your medications are making it harder for you to lose weight, ask about switching to another medication. If there are no better options, talk to your healthcare provider about taking that medication at a lower dose and/or for a shorter amount of time.

10. Consider weight medications and bariatric surgery.

If your weight is causing health problems or you have already tried many times to lose weight, talk to your healthcare provider about medications for weight loss or bariatric surgery.

Working With Your HealthCare Provider to Manage Weight

- Lose weight and KEEP IT OFF
- Some questions to get started

Your primary care provider (PCP) can help you lose weight and keep it off. Here are some questions to get the conversation started:

1. Is my weight a problem?

If you have a body mass index (BMI) of 25 or higher, you may be at risk for health problems. Your PCP can advise you about how much weight you need to lose to help improve your health.

2. What's the best way for me to start losing weight?

There are many ways to lose weight, and there is no one way that works for everyone. Healthy eating and physical activity are important. Your provider can help you figure out changes that work for you.

3. What eating plan should I follow?

- There are many different types of eating plans. The most important thing is finding one that you can stick to.
- It is important to let your PCP know about your experience with previous diets.
- In preparing for your visit, it is helpful to jot down diets you have tried and your experience with them.
- You might also write down everything you eat and drink for a few days.
- Your PCP can advise you if there are diets that may be better for you based on your medical problems. For example, some are better for lowering cholesterol, and others may help to lower blood pressure.
- The closer you follow the diet, the more successful you will be with weight loss.

4. Can dietary supplements help me to lose weight?

- There is little evidence that these help with weight loss.
- If you are taking supplements, bring them to your PCP visit. Your PCP can make sure you can safely take them.

5. Are there medications that can help me to lose weight?

Your PCP will determine whether medications can help you and which ones may be best for you. Your PCP may want to refer you to an Obesity Medicine specialist.

6. Are my medications causing me to gain weight?

- Gaining weight is a side effect of some medicines. Your PCP can review your medicines to see if some are causing you to gain weight.
- If there is a medicine that is making you gain weight, sometimes your PCP can change the medicine.
- If you notice weight gain after starting a medicine, tell your PCP.

7. Should I get weight loss surgery?

- Your PCP can advise you about the risks and benefits of weight loss surgery.
- Based on your weight and health problems, your PCP can tell you whether you are eligible for weight loss surgery.
- If you decide that weight loss surgery is right for you, your PCP can refer you to a bariatric surgeon.
- If you have weight loss surgery, it is important to work with your PCP after surgery because medications may need to be adjusted.

8. My PCP doesn't help me with my weight—what should I do now?

Many healthcare providers have expertise in weight management. A good place to start is by asking for a referral to a registered dietitian or Obesity Medicine specialist.

References

Academy of Nutrition and Dietetics. (2023). Position of the Academy of Nutrition and Dietetics: Interventions for the treatment of overweight and obesity in adults. *Journal of the Academy of Nutrition and Dietetics*, 123(9), 1489-1501.

American Board of Obesity Medicine. (2024). Clinical practice guidelines for obesity management. Obesity Medicine Association.

Aronne, L. J., Sattar, N., Horn, D. B., Bays, H. E., Wharton, S., Lin, W. Y., Ahmad, N. N., Zhang, S., Lind, M., Joubert, P. H., & Hemmingsson, J. U. (2024). Tirzepatide as compared with semaglutide for the treatment of obesity. *New England Journal of Medicine*. <https://doi.org/10.1056/NEJMoa2416394>

Centers for Disease Control and Prevention. (2025, March 25). Adult obesity facts. <https://www.cdc.gov/obesity/adult-obesity-facts/index.html>

Jastreboff, A. M., Aronne, L. J., Ahmad, N. N., Wharton, S., Connery, L., Alves, B., Kiyosue, A., Zhang, S., Liu, B., Bunck, M. C., & Stefanski, A. (2022). Tirzepatide once weekly for the treatment of obesity. *New England Journal of Medicine*, 387(3), 205-216. <https://doi.org/10.1056/NEJMoa2206038>

The Obesity Society. (2024). Guidelines for the management of overweight and obesity in adults. *Obesity Journal*, 32(3), 456-478.

Q&A

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