Center for Better Health and Nutrition Family Information Booklet

Cincinnati Children's
changing the outcome together

Growing Through Knowing

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Welcome

Welcome to the Center for Better Health and Nutrition (CBHN). Our mission is to address the health needs of children and teenagers who have an elevated weight and are at increased risk for metabolic issues like diabetes and heart disease. We are a comprehensive, family-based treatment program, and we serve youth ages 2 to 18.

CBHN strives to help each patient achieve their optimum health. Together, a team of experts focuses on the medical, nutritional, exercise, sleep, psychological, and social needs of each patient. The medical provider looks for any underlying cause of obesity as well as medical complications that result from obesity. One way we do this is through lab work. Occasionally, it is necessary that your child starts medicine or sees a subspecialist to further manage significant medical complications of obesity. These complications are discussed in depth later in this booklet.

A Registered Dietitian will work with each patient and family to provide individual nutritional counseling. Our philosophy is to establish a healthy way of eating that is good for the entire family. This is done in a step-by-step manner to create healthy eating habits in a supportive environment. In addition, we offer hands-on, group educational sessions including cooking classes.

Exercise is an important part of living a healthy lifestyle. Our Exercise Physiologists evaluate and guide patients in creating an exercise plan. They also lead our program participants in group exercise classes in the evening at our Winslow location.

What You Can Do

Starting on the path to living a healthy lifestyle can sometimes be scary or overwhelming for a child or teenager. Change often causes fear and anxiety. You can help make this a fun and exciting adventure rather than a punishment or something to dread. Here are some tips for you:

- Stay positive.
- Encourage your child.
- Praise your child when they try a new fruit or vegetable, makes a healthy choice, or joins in active play.
- Do not dwell on perceived failure. If a child makes an unhealthy choice, focus on moving forward and making a better choice next time.
- Lead by example. It is easier for everyone to make healthy choices when we are surrounded by friends and family who are also making choices to promote health.
- Have a healthy rhythm to your day including getting enough sleep at night, having regular mealtimes, and having time to be physically active.

The nutrition and exercise advice from the Center for Better Health and Nutrition is great for the entire family. Ideally, the entire family will go on this journey together. If everyone in the family is trying to be their healthiest, your child will not feel alone.

- Eliminate unhealthy snacks and sugar-containing drinks in your home.
- Enjoy healthy meals at home together at the table.
- Support your child by eating healthy and exercising together.

All these things will give your child the best chance of success!

What We Will Do

We know that talking about weight and the medical problems that come with having an elevated weight can be hard. We will always treat you and your child with respect and dignity. We want you to feel like our partner in your child's health journey. Here is what you can expect when you come to the Center for Better Health and Nutrition.

Labs (Blood Work)

Labs are used as a screening tool for uncovering some of the medical conditions we will talk about in this booklet. Even though your child or teen may not have any symptoms, there may still be a hidden medical condition. Finding and treating any problems early may prevent long-term complications of obesity in the future.

Your child cannot eat or drink anything, except water, for 12 hours before having lab work done. Your healthcare provider will let you know if this will not be needed for your child's blood work.

The lab work will tell us if your child has any of the following problems:

- diabetes, prediabetes, insulin resistance
- metabolic dysfunction-associated liver disease
- cholesterol problems
- thyroid disorders
- low vitamin D levels

We may also test for other problems, but these are the most common issues seen in children who have an elevated weight. Here is a list of some of the lab tests and what they tell us.

Name of Blood Test	What it Tells Us	Acceptable Level
Blood sugar (fasting glucose)	Used as a screening for diabetes	Less than 100 mg/dL
Fasting Insulin	Tells us if the insulin level in the blood is high (this could be a sign that your body is working hard to control your blood sugar)	Varies with age, but in general, should be less than 17 mcIU/mL for a person who has been through puberty and less than 13 mcIU/ml before puberty
Hemoglobin A1C	Tells us what your average blood sugar has been over the past 3 months	Less than 5.7%
TSH (thyroid stimulating hormone)	Used as a screening for thyroid problems	Between 0.4 – 4.0 mIU/mL
ALT (Alanine Aminotransferase)	A liver enzyme that helps your liver function properly. High levels in the blood can be a sign of damage to the liver cells, including metabolic dysfunction-associated steatotic liver disease.	ALT–less than 30 units/L in children 1 to <12 years, for adolescents 12 to 17 years, less than 22 units/L in girls and 26 units/L boys
Lipid Panel - includes • Total cholesterol • HDL (High-Density Lipoprotein) • LDL (Low-Density Lipoprotein)) • Triglycerides	All these tests will tell us about cholesterol. • **HDL** helps remove excess cholesterol from the blood stream protecting against heart disease and stroke. • **LDL** – having too much LDL can cause it to stick to your blood vessels leading to blockage of the arteries. • **Triglycerides** – type of fat that is carried in your blood. High levels increase the risk of heart disease and stroke.	• **Total cholesterol** – less than 170 mg/dl • **HDL** – greater than 45 mg/dl. • **LDL** – less than 110 mg/dl • **Triglycerides** – less than 75 mg/dl before the age of 10 years old and less than 90 for children 10 to 19 years

Note: Once your child has been examined by the health care team, other lab tests may be needed.

Diagnostic Tests

Name of Test	Purpose of Test	What's Involved
Body Composition	This gives us helpful information regarding what makes up your child's body. It tells us how much water, lean muscle mass, and percent body fat your child's body has.	Stand barefoot on a special scale and grip handles. **If the patient is pregnant or has an implanted electrical device, the test cannot be done.** This test takes less than 3 minutes.
Blood Pressure	It helps evaluate your heart and blood vessel health.	While seated and relaxed, a cuff is placed around the upper arm and slowly inflated then deflated.

We will send you a MyChart message or try to call you and share the results of these tests and lab work within 2 weeks. If you have not heard from us, please call our office at (513) 636-4305. Please do not assume that your child's tests are okay because you have not heard from us. We may not have the right phone number or address for your family. Please make sure to update your child's information at our office.

Specialty Referrals

Based on the findings from your child's exam, we may need to do more tests or have your child see a specialist. We may ask you to see one or more of these specialists.

- **The Sleep Center** – For loud snoring, sleep apnea, or trouble sleeping.
- **Endocrine** – For diabetes, thyroid disorders, growth issues, polycystic ovarian syndrome, or menstrual problems.
- **Gynecology** – For menstrual problems or polycystic ovarian syndrome.
- **Gastroenterology** – For metabolic dysfunction-associated steatotic liver disease, belly pain, constipation, or severe GERD (gastro esophageal reflux disease).
- **Cardiology** (including Lipid Clinic & Hypertension Clinic) – For high blood pressure, very abnormal cholesterol levels, enlarged heart, fainting during exercise, or any other heart issues.
- **Ear, Nose, and Throat** – For enlarged tonsils, snoring, repeated throat, or sinus infections.
- **Orthopedic** – For scoliosis, back, hip, knee, or other joint pain, bowing of the lower legs.
- **Psychology and/or Psychiatry** – For emotional issues related to excess weight, poor body image, patterns of eating that can be harmful to health, teasing, bullying, depression, anxiety, teen issues, family disruption or stress, or trouble with school.
- **Adolescent Medicine /Teen Health** – For irregular periods, birth control, general teen health.
    - **Eating Disorder Clinic** (part of Adolescent Medicine) – for patterns of eating that can cause harm to your child's or teen's health.
- **OT (Occupational Therapy**) – For trouble swallowing, trouble tolerating certain textures of food, or food aversions or avoidances.
- **PT (Physical Therapy) -** for problems with balance, muscle weakness, back, foot, or ankle pain, custom shoe orthotics.
- **Surgical Weight Loss Program for Teens** – To see if surgical weight loss is an option for your child.

What are “BMI” and “BMI percentile” and are they important?

First, let us explain BMI – “**Body Mass Index**.”

Body Mass Index is simply a number that looks at your weight in relation to your height. To get a person’s body mass index, you need to know their height and weight. BMI is a screening tool that lets us see who may be at risk of having health problems due to their weight. The **BMI number is just one part of the story**. A healthy BMI number changes with age. In children and teens, the BMI number is plotted on a chart that looks at a child’s age and gender and gives us a number as a percent. This BMI percentage is used in children and teens rather than the simple BMI number.

BMI or BMI percentage is only a screening tool. It is not a perfect measure. For example, a very muscular athlete may have a *high* BMI simply because they have more muscle. This is not a problem for that athlete’s health. Having a lot of muscle is very helpful for your health. Some people have a lower-than-expected amount of muscle. In this case, BMI may underrepresent the person’s risk of metabolic disease. The specialized body composition testing we do helps us determine the amount of muscle and body fat in an individual. This gives us better insights into your child’s health.

Why does this matter?

A large amount of research has been done on obesity in children. If a child weighs more than is healthy for his or her height, and that extra weight is body fat rather than muscle, the child’s overall health and well-being can be affected now and in the future.

How does obesity affect puberty?

- Children with obesity tend to be taller than their classmates when they are young.
- They are also more likely to begin puberty at an early age. Since children stop growing as they go through puberty, children with increased weight often stop growing earlier.

Medical providers get concerned when puberty starts too early. This can be a warning sign that an endocrine disorder exists. We will check your child’s stage of puberty during their exam. Your child might need further testing if puberty begins before 6 or 7 years old in girls and before 9 years old in boys.

Medical Problems Related to Increased Weight

When a child, teen or adult has an elevated weight, they have a higher risk of having other medical issues. You may not be able to "see" some of the problems, like high blood pressure, metabolic dysfunction-associated steatotic liver disease, and high cholesterol. Other problems are very visible, such as Blount's disease, where the lower part of the leg bows out. People also may experience feelings of sadness, anger, depression, poor self-esteem, isolation, or anxiety.

We have listed some of the common problems that are seen in children with elevated weight. They are not listed in any type of order. They all can impact your child's health.

Disclaimer: This information is a **brief** overview. It is not intended to diagnose your child. Some of these conditions may apply to your child now; some may not. Some children and teens may be **at risk of developing** these conditions in the future. We urge you to speak with your healthcare provider(s) for more detailed information regarding your child's specific medical history and risk.

Endocrine Disorders

Insulin Resistance and Pre-diabetes

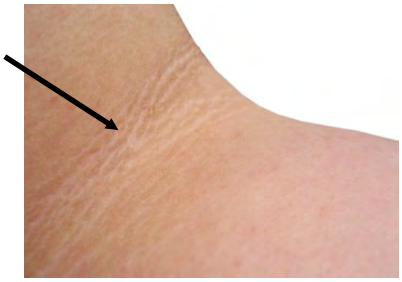
What is insulin resistance?

Insulin resistance happens when the body's insulin is not working well.

- Insulin moves sugar, or glucose, from the blood stream into body cells. The cells use sugar for energy. This process keeps blood sugar levels in a normal range.
- When the body's insulin is not working well, the pancreas must make more insulin to keep the blood glucose in a normal range.
- Over time, the pancreas may not be able to keep up with making extra insulin. This is when diabetes may develop.

Are there any signs to watch for?

The skin around the neck, armpits, and other areas of the body may get dark and thick when someone has insulin resistance. This skin change is called acanthosis nigricans. Sometimes this is mistaken for dirt on the neck.



How do you test for insulin resistance?

You can test for insulin resistance by doing a simple blood test. We may also suggest getting a test that involves your child drinking a sweet drink and then drawing their blood over a 2-hour period.

What does this mean for my child?

Insulin resistance can occur before developing "prediabetes." It is our body's way of sending us a "red flag" warning. If you notice any dark or thick skin on your child, talk with your healthcare provider. The good news is that insulin resistance can be reversed through nutrition and exercise changes. Sometimes medication is helpful too. These changes also help decrease the risk of developing type 2 diabetes.

Type 2 Diabetes

What is Type 2 Diabetes?

Type 2 diabetes often *begins* with insulin resistance. Over time, the body requires more insulin to control blood glucose (sugar) levels. The pancreas must work harder and harder to make the extra insulin. After a while the pancreas cannot keep up with the higher demand. Once this happens, the blood sugar levels start to rise and you end up with Type 2 diabetes.

Are there any signs to watch for?

Type 2 diabetes develops slowly over time. Some people may have no symptoms at all. Others may have these symptoms:

- feeling thirsty a lot
- feeling tired
- having belly pain
- feeling sick to the stomach (nausea)
- feeling the need to urinate a lot - may get up often through the night to drink something or use the restroom
- losing weight
- blurry vision
- frequent infections
- vaginal yeast infections
- having wounds that take longer to heal

Some children may have a very high blood glucose level along with severe dehydration and coma. That is why it is important for health care providers to identify and test children or teens who are at high risk for the disease.

Things that may increase your risk of getting diabetes include:

- having an elevated weight
- having high insulin levels
- having a family member who has type 2 diabetes
- frequently eating or drinking high sugar containing food and drinks
- having limited movement throughout the day

How Do You Test for Type 2 Diabetes?

You test for type 2 diabetes the same way you test for insulin resistance – with a blood test.

What does this mean for my child?

Type 2 diabetes puts a person at high risk for complications. Diabetes affects every part of your body. It affects kidneys, nerves, feet, and eyes. Having diabetes also puts you at higher risk for heart disease.

Thyroid Disease

What is Thyroid Disease?

Families are often worried about their child's "thyroid" and think it may be the reason their child has overweight or obesity. In some children, a thyroid disorder can cause weight gain. However, the thyroid is normal in **most** children who have an elevated weight. We do a routine blood test to check the thyroid during your child's first medical appointment. If this thyroid test is abnormal, we may need to do more testing.

The thyroid gland is in the front of the neck just below the voice box (larynx). It is a small, "butterfly" shaped gland that has 2 lobes which are wrapped around each side of the windpipe. The gland makes hormones that affect every organ, tissue, and cell in the body. These hormones control our heart rate, body weight, body temperature, energy level, and menstrual regularity.

Are there any signs to watch for?

Hyperthyroidism makes the reactions inside our body go faster. Some of the symptoms of hyperthyroidism are:

- losing weight without trying
- fast or irregular heartbeat
- nervousness
- moodiness
- increased sweating
- warm body temperature
- loose bowels
- decreased menstrual flow

Hypothyroidism causes the body to function at a lower or slower rate. Some of the symptoms of hypothyroidism are:

- low energy
- trouble in school
- weight gain
- dry skin, hair, and nails
- constipation
- depression
- memory problems
- menstrual abnormalities
- cold intolerance

How do you test for thyroid disease?

TSH (Thyroid Stimulating Hormone) is the initial lab test used to screen for thyroid disorders. This test will tell us if there is too much thyroid hormone being made (**hyper**thyroidism) or not enough of the hormone being made (**hypo**thyroidism).

Polycystic Ovary Syndrome (PCOS)

What is Polycystic Ovary Syndrome (also called PCOS)?

Females normally produce some male hormones known as “androgens”. In PCOS, females make too much of these male hormones. Females with PCOS typically make too much insulin too. (See section on insulin resistance.)

Girls with PCOS may also develop many small cysts on their ovaries. We do not know why some females get PCOS. It is known that having an elevated weight can contribute to this condition.

Are there any signs to watch for?

PCOS is often discovered when a female has problems with her menstrual cycle. PCOS may cause a female to have:

- no menstrual periods
- irregular periods
- acne
- thinning hair or balding
- infertility issues
- excess hair growth on her upper lip, chin, “sideburn” area, lower abdomen and/or back

How Do You Test for PCOS?

PCOS can be diagnosed by doing blood work and/or an ultrasound of the ovaries. This test is painless.

What does this mean for my child?

Proper nutrition, weight management and/or weight loss, and exercise can help manage PCOS symptoms. There are certain medicines that may help your child’s specific condition and may include hormones such as birth control or medicine to lower the insulin level.

As with most other weight related problems, PCOS can raise your risk of developing diabetes, heart disease, and/or high blood pressure.

Note: Not all menstrual abnormalities are due to PCOS. There are many other reasons your child has abnormal periods, and you are strongly encouraged to speak to your healthcare provider about your child’s specific concerns.

Cushing Syndrome

What is Cushing Syndrome?

Cushing Syndrome is a rare condition where there are increased levels of the hormone, cortisol. This hormone level may be high due to certain medicines your child is taking and/or problems with the pituitary gland.

Are there any signs to watch for?

Some of the physical changes you may see with Cushing Syndrome include:

- short height
- increased fat accumulation on the face and in the stomach area but not as much on arms and legs
- a round, full face
- fatty hump on the back of the neck, between the shoulder

Cardiovascular Disorders

Hypertension (High Blood Pressure)

What is hypertension?

Hypertension is when blood pressure (BP) is higher than normal based on a person's age, gender, and height. Even very young babies and children can have high blood pressure.

Blood pressure (BP) tells us how hard the heart is working to push blood through the blood vessels.

- When your heart beats, it pushes blood out of the heart and into your blood vessels. Your blood pressure is highest during this time. This is called systolic pressure.
- When your heart is at rest, your blood pressure falls. This is called diastolic pressure.
- When you are given your blood pressure reading, the top number is the systolic pressure (heart pushing blood out to your body) and the bottom number is the diastolic pressure (heart at rest).
- An example of a blood pressure reading may be "120 over 80". It is written as:

  120 (systolic pressure)
  80 (diastolic pressure)

Types of High Blood Pressure

- When high blood pressure is caused by other conditions or diseases, such as heart or kidney disease, pregnancy, or medications, this is called secondary hypertension. If the other condition or disease is successfully treated, blood pressure usually returns to normal.
- **Primary, or "essential", hypertension** occurs when you cannot pinpoint one condition that is causing the high blood pressure. Most people with high blood pressure of this type are often not aware they have it. Primary hypertension happens gradually over time and, at first, causes no symptoms. It is only after an organ in the body is irritated or damaged, that the consequences of high blood pressure are recognized. Everybody is affected by prolonged exposure to high blood pressure, and it is a major risk factor for heart disease and stroke in adulthood.

What Causes High Blood Pressure?

Known risk factors for developing high blood pressure include:

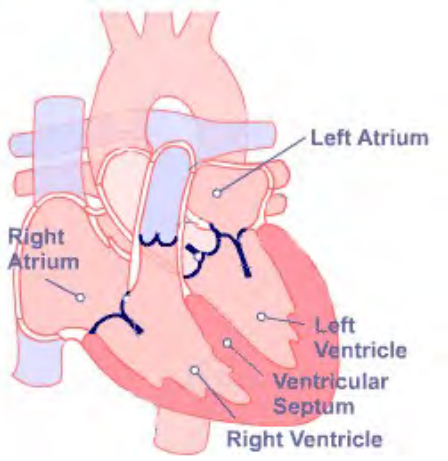
- family history of high blood pressure or heart disease
- obesity
- smoking
- poor dietary habits
- diabetes
- high cholesterol
- physical inactivity

A single, elevated blood pressure reading in the doctor's office does not mean your child has high blood pressure. The increase may be due to being nervous when the blood pressure is taken. This is commonly referred to as “White Coat” high blood pressure. If this is thought to be the case, it will be discussed and evaluated further at your appointment.

Left Ventricular Hypertrophy (LVD)

What is Left Ventricular Hypertrophy?

In someone who has an elevated weight and has high blood pressure, the lower left chamber of the heart must work harder to do its job resulting in a “thickened” heart muscle. The thickened muscle makes the heart chamber (the space for blood) *smaller*.



How Do You Test for LVH?

If there is a concern that your child has LVH, an **Echocardiogram** (heart ultrasound) may be recommended.

What Does That Mean for My Child?

Children may need a referral to a Cardiologist if they have LVH, obesity, elevated blood pressure, and/or a strong family history of early cardiovascular events, such as heart attacks or strokes occurring in a family member during their 50’s or younger.

Dyslipidemia

High Total Cholesterol or High LDL (Low Density Lipoprotein)

Our bodies need and make a certain amount of cholesterol to function correctly. Cholesterol is a soft, waxy-like substance found in all parts of our body. “Dyslipidemia” refers to abnormal blood levels of cholesterol and/or fats (lipids) in your blood.

High cholesterol levels may lead to atherosclerosis (waxy plaque build-up in our arteries) and cardiovascular disease (CVD). High cholesterol is a major cause of heart attacks and/or strokes.

There are several reasons why your cholesterol levels may be high:

- Excess weight
- Physical inactivity
- Smoking or being exposed to secondhand smoke
- Eating a diet high in saturated fat
- Family history of cholesterol problems

A child can begin having high cholesterol levels in the first few years of life. Increasing fruits and vegetables, increasing fiber, decreasing foods high in saturated fat and increasing exercise can help with this. To look at each specific component of your child’s “cholesterol panel”, also known as the “lipid profile”, please refer to the “Lab” section.

High Triglycerides

Our bodies store excess energy in the form of fat called triglycerides. Triglycerides are stored in fat cells then released for energy between meals. High triglycerides increase risk of heart attack, stroke, and pancreatitis. Limiting sugar and refined carbohydrates and increasing exercise can help with this.

Low HDL (High Density Lipoprotein)

HDL helps to remove excess cholesterol from the bloodstream and carries it to the liver for disposal. If your child’s HDL is too low, there is less cleanup in the arteries, increasing the risk of heart attack or stroke. Increasing exercise and swapping saturated fats for healthy unsaturated fats (olive oil, avocado, nuts) can help.

Gastroenterology Disorders

Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)

The liver is the second largest organ in your body and is located under your rib cage on the right side. It weighs about three pounds and is shaped like a football that is flat on one side.

The liver has many jobs:

- turns what you eat and drink into energy and nutrients so your body can use it
- gets rid of harmful substances from your blood

What is Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)?

MASLD is where your body stores fat in the liver cells. It is beyond the normal amount of fat we have in our liver. It is often linked with:

- obesity
- high triglycerides
- high cholesterol
- diabetes
- also seen with rapid weight loss, malnutrition, and poor eating habits

Metabolic Dysfunction-Associated Steatotic Liver Disease may not cause problems right away. But over time, excess fat can lead to swelling in the liver, which causes permanent damage. The more severe form of MASLD is called metabolic dysfunction-associated steatohepatitis (MASH).

Once the liver is inflamed, it may become hardened and scarred over time. This serious condition is called cirrhosis. A healthy liver will have the texture of a soft, flexible, “Nerf”-type football. An “unhealthy” liver will have the tight texture of a fully inflated leather football. Once the liver becomes ‘hard’, it does not work well at all. In fact, this condition may lead to liver failure or liver cancer. MASH is also one of the leading causes of liver transplants.

Are there any signs to watch for?

Since there are no symptoms when metabolic dysfunction-associated steatotic liver disease first develops, you may not even know you have it. It is often first suspected on blood tests or your child’s liver may feel enlarged during a routine checkup. When symptoms do occur, they may include:

- Fatigue
- Weight loss

- Nausea
- Spider-like blood vessels
- Itching
- Fluid buildup and swelling of the legs (edema) and abdomen (Ascites)
- Weakness
- Loss of appetite
- Belly pain
- Yellowing of the skin and eyes (jaundice)
- Mental confusion

Do You Test for MASLD?

If your child has elevated liver enzymes or symptoms on exam, he or she may need more lab work to rule out other causes of liver disease. Imaging studies may also be ordered.

However, a liver biopsy is the only sure way to diagnose metabolic dysfunction-associat liver disease.

What does this mean for my child?

There is no “magic pill”, quick fix, or procedure to get rid of MASLD. Instead, the best way *to reverse the course* of this disease is to **treat it early** through proper nutrition, weight management, and plenty of exercise.

Gallstones

The gallbladder is a sac–like, muscular structure on the underside of the liver on the right side of the belly. The gallbladder stores bile that is produced in the liver. Bile is a substance secreted into the intestines to help digest fats.

Sometimes, hard pebble-like deposits form in the gallbladders. These deposits are called gallstones. They can be very small or as large as a golf ball.

Are there any signs to watch for?

Sometimes gallstones do not cause symptoms. If you do have symptoms, you may:

- have attacks of pain (sharp, dull, or cramping) that come and go and occur in the upper middle or upper right abdomen.
    - The severity of the pain can range from “mild” to “unbearable”
    - This pain may spread to your back or upper shoulder area
    - This pain usually gets worse after meals, especially meals high in grease and fat
- get a feeling of fullness in your belly
- have stools that are “clay” or tan colored
- have nausea or vomiting

In extreme cases, you could experience fever or yellowing of the eyes (jaundice).

Conditions that may make you more likely to develop gallstones include:

- Obesity
- Elevated triglycerides
- Female gender
- Rapid weight loss (such as with malnutrition or obesity surgery)
- Crohn’s disease
- Pregnancy
- Birth control or hormone therapy

GERD (Gastroesophageal Reflux Disease) ("heartburn")

What is GERD?

When you eat, food travels from your mouth, through a tube (called the esophagus) and into the stomach. Normally after eating, a valve at the lower end of this 'tube' closes to keep acid *in* the stomach and *out* of the throat. If that valve does not close properly, you will get heartburn, also called GERD. The pain you feel with heartburn is from the contents in the stomach flowing back up into the tube. This "reflux" can lead to erosion of the esophagus and pain. In some rare cases, it can be a factor in esophageal cancer.

What Signs Should I Watch For?

Heartburn is common in adults, but children and teens get it too. Children sometimes have trouble describing the sensation but may complain of these symptoms shortly after eating:

- belly pain or upset stomach
- chest discomfort
- heartburn
- coughing or wheezing
- nausea
- chronic sore throats
- trouble swallowing

What does this mean for my child?

GERD can range from mild to serious. If left untreated, it may cause inflammation of the lining of the esophagus, which can result in ulcers and scarring.

Pulmonary Disorders

Obstructive Sleep Apnea (OSA)

Did you find it odd that we ask if your child snores? Snoring can be more serious than some people think. Snoring may be due to "big tonsils" or sinus congestion, but snoring can also be a sign of Obstructive Sleep Apnea (OSA). OSA is a serious condition. OSA happens when the muscles in your throat relax after you fall asleep. The soft tissue in the back of the throat collapses and blocks the airway. You may have even seen your child "gasping" or choking while they sleep or pausing in their breathing cycle. This leads to low oxygen levels in the blood. Children with OSA may sleep in unusual positions, use pillows to prop themselves up, sleep sitting up, wake frequently, and/or sleep with the neck overextended. You may also notice your child is a "mouth breather".

OSA is linked to high blood pressure, poor school performance, irritability, behavior problems, restless sleep, daytime tiredness, headaches, bedwetting, poor growth, and delays in development.

If we feel your child may have OSA or is at risk for this condition, we will provide contact information for The Sleep Center, a pulmonary specialist, or an ENT doctor.
This may include a visit to the office followed by a separate overnight sleep test. Your child would need to spend the night in the hospital for the sleep study. This test includes keeping a close watch on your child's breathing cycle and oxygen levels using non-invasive monitors and "sticky" pads placed on your child's chest and head. No needles are involved.

Your child may be seen by an ENT doctor if the tonsils are too large and may be the cause of your child's snoring.

Obesity Hypoventilation Syndrome

Obesity Hypoventilation Syndrome is a rare condition. Children with this syndrome do not breathe deeply enough while they are awake. This causes low oxygen levels and high carbon dioxide levels. Children are much more likely to have hypoventilation during sleep with or without obstruction. These conditions can damage the heart. If you have concerns about your child's sleep, call your healthcare provider.

Asthma

Asthma is not caused by increased weight, but increased weight can worsen asthma.

Neurologic Disorders

Idiopathic Intracranial Hypertension (pseudotumor cerebri)

Children with idiopathic intracranial hypertension (pseudotumor cerebri) have increased pressure around the brain without a tumor or other reason for the increased pressure.

One-half of children with this condition have an elevated weight. Typically, children with this condition complain of:

- headaches
- nausea or upset stomach
- vomiting
- pain behind the eyes
- vision problems

If your child has these symptoms, call your healthcare provider

Orthopedic Disorders

When a child or teen has an elevated weight, his or her bones and muscles are put under increased stress. This can lead to short- and long-term musculoskeletal problems.

Blount disease (tibia vara)

Blount Disease is visible bowing of the legs. This tends to occur in children after the age of 8 years. At first, this disorder is painless. Over time, this disease may make it very hard to get around, and your child may need treatment by an orthopedic surgeon.

Slipped capital femoral epiphysis (SCFE)

This is a disorder of the hip and typically occurs in school age children and teenagers. Children may have hip or knee pain while walking and have decreased range of motion in the hip. This condition is diagnosed by X-ray and children are referred to an orthopedic surgeon.

Joint Pain and Broken Bones

Children with elevated weight also have an increased rate of broken bones and musculoskeletal pain. Although children who have elevated weight typically have strong bones, when they fall, they land with more force. This can lead to broken bones from an injury that would not typically lead to a break. The increased force can also cause joint and muscle pain. Knee pain is reported most frequently. If your child is having joint pain, please see your child's medical provider for evaluation. Staying active, losing excess body fat and building muscle are the best treatments for this joint and muscle pain.

Skin Disorders

Intertrigo

This is inflammation in the skin folds. Fungus, yeast or bacteria can cause this. It typically is seen in warm, moist areas such as underneath the breasts, the underside of the belly, in the arm pits or in the genital area. The area will look red and raw and may ooze, burn, or itch. This condition is treated with medicine and by keeping the area as dry as possible.

Furuncles

Furuncles are deep infections of a hair follicle that can extend beyond the skin into deeper tissue. These infections may improve with a warm compress and cleaning, but often a child will need antibiotics. In some cases, an incision might be needed to clean out the infection.

Hidradenitis suppurativa

This is inflammation in the sweat glands. Swollen tender nodules and cysts develop in the underarm and groin area. Flare ups can be triggered by perspiration, hormone changes, heat, and humidity. Infection can develop in these areas.

Acanthosis nigricans

This condition is the darkening and thickening of skin around the neck, groin, and armpit area. It is seen with insulin resistance.

Mental Health Concerns

It is hard enough being a kid and being a kid who is struggling with weight can be even harder. Although not everyone deals with the same issues, there are some common emotional, psychological, and social themes that kids and teens who have an elevated weight typically report.

Quality of Life

Kids and teens who have an elevated weight sometimes report not being able to keep up in gym class or do activities that peers are doing, including going to amusement parks or playing sports.
They may feel sad or worried about things like going to school. They may have negative body image or low self-esteem. They may be bullied, or they may isolate themselves, avoiding activities like swimming or parties where they feel self-conscious.

Mental Health

All children can suffer from depression, anxiety, and poor self-esteem. Addressing these problems is critical in helping your child be his/her healthiest.

Bullying

Children who have an elevated weight are more likely to be the victim of bullying. Bullying can be verbal (e.g., name calling, teasing), physical (e.g., pushing, shoving), and/or relational (e.g., spreading rumors, being left out).

Kids and teens dealing with any of the above issues may benefit from talking with a psychologist or other mental health provider (counselor, therapist). Psychologists can help kids and teens with these and other issues by listening and helping them to process and change thoughts, behaviors, and interactions.

Healthy Habits

Consistently living a healthy lifestyle often comes down to creating healthy habits. When making healthy choices is your everyday routine, you will have less stress with each decision you face. However, trying to form many new habits at the same time can be overwhelming. Picking one goal and working on it until it becomes routine is an easier path to success.

Start your day with a healthy breakfast

Eating breakfast will help control your hunger later in the day and make it easier for you to make good eating decisions. Starting the day off right can make a difference all day long. Breakfast eaters tend to gain less weight, eat more fiber, and eat less fat. Consider a breakfast that contains a whole grain, low-fat protein, and a fruit or vegetable. See your Healthy Eating Plan for easy and healthy breakfast ideas.

Set regular times for meals and healthy snacks

Eating three evenly spaced meals and 1 to 2 planned snacks will help your child be successful. Eating on a schedule will help their body get used to eating the right amount of food for their age and activity level.

Eat fruits and vegetables

Fruits and vegetables give your body a lot of nutrition and help decrease our hunger. These powerhouse foods help give growing bodies what they need. Start by including fruits and vegetables with each meal and snack. The “My Plate” reminds us that fruits and vegetables should cover half of our plate. Aim for at least 5 servings of fruits or vegetables a day. Here are some ideas for those who are not already eating a lot of fruits and vegetables:

- Try to eat fruits and vegetables with all the colors of the rainbow over the course of a day or week. Using a sticker chart can make this fun.
- Play a game at the grocery store. Allow your child to choose a new fruit or vegetable for your family to try.
- Use a sticker chart to keep track of the servings of fruits and vegetables eaten during the day.
- Blend fruits (and even vegetables like raw spinach) in a blender for delicious and healthy smoothies.

Keep frozen fruit and vegetables in your freezer for produce all year long with little waste. Use frozen fruit for fruit smoothies or thaw it for quick, easy snacks.

Drink water, low fat milk, and/or sugar-free drinks.

This helps manage appetite, keeps your child hydrated, and limits nutritionally empty calories.

Exercise for at least one hour a day

Organized sports teams and group exercise classes are a fun way to do this. Make exercise part of your everyday routine. Walk to do your errands and take the stairs instead of the elevator. Park in the parking spot farthest away. We spend too much time sitting. When it is time to play and relax, get up and move! Instead of watching TV together, go to the park or on a walk. Play ball together. Go for a swim. When the weather is bad, try to find ways to keep moving inside. Have competitions to see who can do the most jumping jacks in a row or hula-hoop the longest. Have a dance party. Move some furniture and jump rope. Try an active video game in which you are standing and moving. If you are out of fun ideas to move, clean the house. Just keep moving

For every 30 minutes in front of a screen, do 10-15 minutes of physical activity.

Limit television, video games, and all recreational screen time to a maximum of 2 hours a day. Break up screen time by getting up and moving every hour.

Establish a regular bedtime and wake time

Getting enough sleep at night is important for heart disease and diabetes prevention. It also helps with appetite control. It is easier to make healthy choices like eating well and exercising when we are well rested. Children need more sleep than adults. Toddlers need 12 to 14 hours of sleep at night. 3- to 6-year-olds need 10 to 12 hours of sleep a night. 7- to 12-year-olds need about 10 hours of sleep per night. 12- to 18-year-olds need 8 to 10 hours of sleep a night. Quick tips to help you sleep better include going to bed and waking at the same time each day, being exposed to brighter natural light during the day and dimming lights in the evening. Stop using screens 1 hour before bed. Avoid caffeine. Try to do relaxing activities before bed such as reading a paper book, listening to calm music, drawing, coloring, or trying deep breathing techniques.

"5-2-1-0" – An easy way to remember the key elements of daily, healthy habits:

5 – Eat 5 or more servings of fruits and vegetables every day

2 – 2 hours or less of recreational screen time

1 – 1 hour of moderate to vigorous physical activity

0 – 0 sugary drinks (juice, soda, sports drinks) and have more water and/or fat free/skim or 1% milk

Food List

Use this list as a guide to make healthier choices.

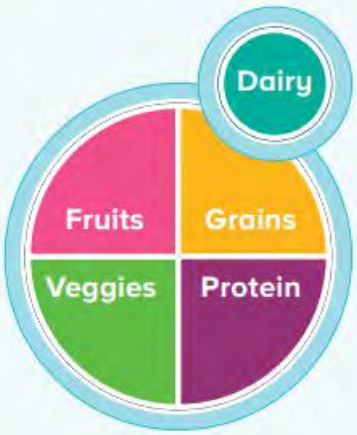
Use the "Choose More Often" list to ***include:***	Use the "Choose Less Often" list to ***limit:***
• Lean protein • Fruits • Vegetables • Whole grains • Low-fat dairy	• Processed foods like chips, cookies, snack cakes, sugary cereal, ramen noodles, white bread and crackers, frozen snack foods • Foods and drinks with added sugar, juice • Unhealthy fats

Portions

Use these methods to choose the right portions for age:

- Plate method
- Hand method
- Measuring tools such as cups and spoons
- Smaller plates and bowls

Plate Method Guide



Hand Method Portion Size Quick Guide

fingertip

1 teaspoon (tsp)

butter, margarine, mayonnaise, oils

thumb

1–2 tablespoons (tbsp)

peanut butter, hard cheese, salad dressing, sour cream, cream cheese

handful

1–2 ounces (oz)

nuts, pretzels, crackers

palm

3–4 ounces (oz)

meat, fish, poultry, pasta, potatoes, cooked vegetables

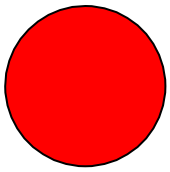
fist

1 cup

fresh fruit, raw vegetables, salads, cereal, soup

Quick Reference for Low Glycemic Eating

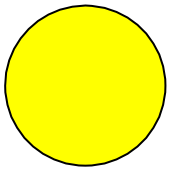
Foods low on the glycemic index (GI) are digested more slowly, helping kids feel fuller longer and promoting a healthier weight.



Red Foods: (High GI)

Eat no more than 7 servings per week

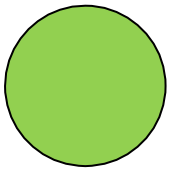
Examples: White flour bread, rice, crackers or any other cereal or grain that is not 100% whole grain; fatty meats; full fat dairy; fatty, sugary snacks; potato products



Yellow Foods:

Eat no more than 2 servings per day

Examples: White flour pasta; low fat sausage, turkey bacon; regular dairy; pizza; dried fruit



Green Foods: (Low GI)

Eat often

Examples: 100% whole grains; lean meats and other proteins; fruits and veggies; lean dairy; nuts; low fat cheese; healthy oils.

For each meal, choose:

- At least 1 serving of “green” whole grains
- At least 1 serving of fruit or vegetable
- At least 1 serving of protein

Physical Activity

Tips to Make Exercise Fun!

- Make it social - Invite a friend, parent, or family member to exercise with you.
- Listen to some music.
  - Turn up the volume and listen to your favorite music while exercising.
  - Music can make time go a lot *faster*!
  - But safety is first; be careful when using headphones outside.
- Do something new and exciting.
  - Do something that you have never tried.
  - Have you ever tried rollerblading, kickboxing, dance, gymnastics, jump roping, swimming, yoga, or karate?
- Make it challenging.
  - Set some goals and reward yourself for your exercise behavior. (Choose a reward that is not food)
  - Work hard to get that non-food reward.
  - Exercise is not always easy, work toward getting a “Sweaty Head”.
- Add some variety to your regular exercise. Spice up your exercise by doing something different each time.
  - Try home exercise videos, doing jumping jacks in the middle of your daily walk, and doing different types of exercises every week. (Keep mixing up your routines)
- Do something you enjoy!
  - If you do not like to play basketball, then do not do it. *Find something else you like.*
  - Exercise should be fun! Make sure it is something that you enjoy.
  - If it is something that you like, odds are you will do it.

How to Get 60 Minutes of Physical Activity Each Day

If you only have:	Try doing this:
5 minutes	• Get the mail • Take out the trash • Jump rope or hula-hoop

10 minutes	• Take a walk
	• Toss a football, Frisbee or baseball
	• Help around the house
	  o Bring in the groceries
	  o Sweep
	  o Do the dishes
	• Practice your best dance moves

15 minutes	• Walk the dog • Do a quick strength routine • Wash the car • Practice your jump shot, fast pitch, goal scoring
20 minutes	• Ride your bike or rollerblade (remember to wear your helmet/safety equipment!) • Play outside with a friend or visit a neighbor • Exercise during every TV commercial when you watch your favorite show or with each opportunity to pause in your video game
30 minutes	• Do strength training • Go swimming • Rake the leaves, shovel the snow • Go to the park • Practice your sport (basketball, baseball, football, soccer) • Take a walk/walk the dog

Choosing the right equipment

Stability Balls

- When sitting on the ball, with feet hip-width apart and toes pointed forward, the knees should form a 90° angle.
- General recommendations based on height:
  - 4'11" or under – 45 cm ball
  - 5'0" to 5'7" – 55 cm ball
  - 5'8" to 6'2" – 65 cm ball
  - 6'3" to 6'9" – 75 cm ball

Resistance Bands

- Most resistance bands are color-coded according to amount of resistance.
- Bands usually come in very light, light, medium, heavy, and very heavy.
- You should have at least 3 different bands, since different exercises and different muscle groups will require different levels of resistance.
- There are many different types of bands. Just start by buying a basic long tube with handles.

Dumbbells

- Start out with just several pairs of dumbbells.
- Choose weights that you can lift using proper form.
- The proper weight should tire the muscles out after 8-12 repetitions.
- For younger children, start with dumbbells around 3-5 lbs.
- Teenagers can start with dumbbells around 8-12 lbs. or higher, depending on strength and activity they are doing.

Physical Activity Guidelines: (Children ages 5-11)

Minimum

- Do at least 60 minutes of age-appropriate physical activity every day, or most days of the week.

Ideal

- Do more than 60 minutes, and up to several hours per day, or age and developmentally appropriate activity.
- Some periods lasting 10-15 min. or more should include Moderate to Vigorous activity with brief periods of rest and recovery.

Physical Activity Guidelines: (Adolescents ages 12-19)

- Daily physical activity as part of play, games, sport, work, transportation, recreation, physical education, or planned exercise, with the family, in school, or through the community for 30-60 minutes/ day.
- Part of this activity should be vigorous in nature at least 3 times per week for at least 20 minutes in duration.

Extended periods of inactivity are inappropriate for children and adolescents!

If, at any time, you have concerns, comments, or questions about your child's medical condition or the Center for Better Health and Nutrition, please call our staff.

It is our hope and goal to help your child achieve and maintain an optimal weight and good health through proper nutrition and physical activity. We value your efforts as you support and encourage your child every step of the way.

Eat Well, Be Active!

Center for Better Health and Nutrition 513-636-4305

