

Obesity Hypoventilation Syndrome in Children



What is obesity hypoventilation syndrome in children?

Obesity hypoventilation syndrome (OHS) is a breathing problem. It affects some children who are obese. Poor breathing causes too much carbon dioxide and too little oxygen in the blood. This is a rare but life-threatening issue. Your child will need treatment right away.

When your child breathes, fresh air (oxygen) enters tiny sacs in their lungs. Tiny blood vessels run through the walls of these air sacs. When your child breathes in, oxygen moves from inside these sacs into the blood vessels. Carbon dioxide moves the other way, from the blood to the air sacs. So when your child breathes out, that air is low in oxygen and high in carbon dioxide. This process is called gas exchange.

Correct gas exchange is very important for human life. Every cell in your child's body needs oxygen to live. Carbon dioxide is a waste product that needs to be removed from the body. Children with OHS do not breathe as often and as deeply as they need to. This stops correct gas exchange. This causes carbon dioxide to increase in the blood, and oxygen levels to drop.

OHS often occurs with obstructive sleep apnea. This is a related issue. In this condition, your child's airway collapses or gets blocked during sleep. Less commonly, a child may have OHS but not obstructive sleep apnea.

OHS only happens to people who are obese. People who are obese carry a large amount of extra fatty tissue. This is more than a person who is just overweight. OHS can happen in children and adults. It occurs in both males and females. Not everyone who is obese gets OHS, though.

What causes OHS in a child?

All children with OHS are obese. OHS is more common in children who are very obese. Experts aren't sure why some obese children develop OHS and others don't.

Several factors may cause OHS. Extra weight forces your child's respiratory system muscles to work harder than normal. In OHS, the nervous system may respond too slowly to having too much carbon dioxide and too little oxygen in the blood. Children with OHS may have changes in certain hormones. Obstructive sleep apnea may also cause the disease.

What are the symptoms of OHS in a child?

Symptoms of OHS and sleep apnea are often the same. Some of these symptoms include:

- Loud, chronic snoring
- Snoring with pauses. This is followed by choking or gasping.
- Daytime sleepiness
- Morning headaches
- Memory or concentration problems
- Irritability and depression
- Fast, shallow breathing
- Shortness of breath during activity

During an exam, your child's healthcare provider may notice that your child's heart makes abnormal sounds. Your child's healthcare provider may also say that your child has a thick neck and a small opening to their throat.

How is OHS diagnosed in a child?

Your child's healthcare provider will ask about their health history. They will also ask about your child's symptoms. The healthcare provider will give your child an exam. This exam will focus on your child's respiratory system.

Your child's healthcare provider will also figure out if your child is obese. This is calculated using your child's height, weight, age, and sex. If your child is obese, they may have OHS.

Your child's healthcare provider will do tests to make the diagnosis. These tests will also rule out other causes of your child's symptoms. These tests may include:

- Arterial blood gas test to check the levels of oxygen and carbon dioxide in your child's blood
- Thyroid tests. Thyroid problems can lead to lung disease.
- Lung function tests to look for other lung issues
- Chest X-ray to check for lung or heart disease
- Sleep study to look for sleep apnea
- Electrocardiogram to check your child's heart rhythm

How is OHS treated in a child?

If your child is diagnosed with this condition, they will need treatment right away. Your child may need the following treatment:

- A machine that gives positive airway pressure (CPAP or BiPap). This will help keep your child's airways open.
- Support from a breathing machine (ventilator). This is for severe OHS that needs to be treated in a hospital.
- Losing weight through lifestyle changes. These include diet and exercise.
- Treatment for conditions that can make OHS worse. These can include under active thyroid gland (hypothyroidism.)
- Respiratory-stimulating medicines. These are only used in rare cases.
- Treatment of complications of OHS

Almost all children will need to use positive airway pressure right after their diagnosis. Lifestyle changes for weight loss are also a must. OHS will go away once your child reaches a healthy weight. Even losing a modest amount of weight may decrease the severity of your child's condition.

One of the best ways to help your child lose weight is to make lifestyle changes as a family. It's important to set a good example. You can:

- Serve more nutritious foods. These include fruits, vegetables, whole grains, and lean sources of protein.
- Limit foods and drinks high in sugar and fat.
- Encourage your child to be active each day. Children ages 6 to 17 years should do 60 minutes (1 hour) or more of moderate-to-vigorous physical activity daily. Talk with your child's healthcare provider before beginning an exercise program. Exercise with your child to give support.
- Limit screen time and sedentary activities.
- Make sure your child gets enough sleep.
- Ask your child's healthcare provider about weight-loss surgery or medicine. These may be an option for your child.

Ask your child's healthcare provider about enrolling in an **Intensive Health Behavior and Lifestyle Treatment (IHBLT)** program. This may also be called intensive behavioral intervention or family healthy weight programs. IHBLT is a safe and effective treatment for childhood obesity. It's a family-centered program that focuses on nutrition, physical activity, and behavior change strategies that are individualized for your family. If there are no IHBLT programs nearby, you can work together with your child's healthcare provider to address different lifestyle and behavior topics.

Ask your child's healthcare provider how to help your child lose weight. The [Obesity Action Coalition](#) is a helpful resource. It may also be helpful to work with one or more specialists. These may include a nutritionist, a physical trainer, or a psychologist.

What are possible complications of OHS in a child?

If it's not treated, OHS can cause serious problems in children. These can include:

- Swelling in your child's legs
- Higher pressure in the vessels carrying blood from the heart to the lungs (pulmonary hypertension)
- Right-sided heart failure
- Secondary erythrocytosis. This happens when your child's body makes too many red blood cells.
- Chest pain
- Sudden death

Your child's healthcare providers will work closely with you and your child to help prevent these problems. Your child may need treatment for these issues. Follow the care plan your child's healthcare provider prescribes. This can help lower your child's risks.

What can I do to prevent OHS in my child?

Your child can prevent OHS by maintaining a healthy weight. Staying active, getting enough sleep, making healthy food choices, and eating sensible portions can help your child stay in a healthy weight range. Your whole family should follow this approach. This will help support your child and keep your family healthy.

How can I help my child live with OHS?

Teens with OHS should specifically stay away from alcohol. Alcohol can make their condition worse.

Children with OHS should stay away from certain other medicines. These include benzodiazepines, opiates, and barbiturates. Tell all of your child's healthcare providers that they have OHS.

When should I call my child's healthcare provider?

Call 911 right away if your child has:

- Breathing problems
- Loss of consciousness

Key points about obesity hypoventilation syndrome in children

- OHS is a breathing problem that affects some children who are obese. It's a life-threatening condition.
- OHS may cause loud snoring, trouble concentrating, and shortness of breath during activity.
- Your child will likely need positive airway pressure to treat OHS. They will also need to lose weight. Your child may need other treatments as well.
- OHS will go away once your child reaches a healthy weight.
- OHS can cause serious problems. Work with your child's healthcare provider to lower your child's risks.

Next steps

Tips to help you get the most from a visit to your child's healthcare provider:

- Know the reason for the visit and what you want to happen.
- Before your visit, write down questions you want answered.
- At the visit, write down the name of a new diagnosis and any new medicines, treatments, or tests. Also write down any new directions your provider gives you for your child.
- Know why a new medicine or treatment is prescribed and how it will help your child. Also know what the side effects are.
- Ask if your child's condition can be treated in other ways.
- Know why a test or procedure is recommended and what the results could mean.
- Know what to expect if your child does not take the medicine or have the test or procedure.
- If your child has a follow-up appointment, write down the date, time, and purpose for that visit.
- Know how you can contact your child's healthcare provider after office hours. This is important if your child becomes ill and you have questions or need advice.

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