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## Obesity hypoventilation syndrome (OHS)

Obesity hypoventilation syndrome (OHS) is a condition in some obese people in which poor breathing leads to lower oxygen and higher carbon dioxide levels in the blood.

### Causes

The exact cause of OHS is not known. Researchers believe OHS results from a defect in the brain's control over breathing. Excess weight against the chest wall also makes it harder for the muscles to draw in a deep breath and to breathe quickly enough. As a result, the blood contains too much carbon dioxide and not enough oxygen.

### Symptoms

The main symptoms of OHS are due to lack of sleep and include:

- Poor sleep quality
- Sleep apnea
- Daytime sleepiness
- Depression
- Headaches
- Tiredness

Symptoms of low blood oxygen level (chronic hypoxia) can also occur. Symptoms include shortness of breath or feeling tired after very little effort.

### Exams and Tests

People with OHS are usually very overweight. A physical exam may reveal:

- Bluish color in the lips, fingers, toes, or skin (cyanosis)
- Reddish skin
- Signs of right-sided heart failure (cor pulmonale), such as swollen legs or feet, shortness of breath, or feeling tired after little effort
- Signs of excessive sleepiness

Tests used to help diagnose and confirm OHS include:

- Arterial blood gas
- Chest x-ray or CT scan to rule out other possible causes
- Lung function tests (pulmonary function tests)
- Sleep study (polysomnography)
- Echocardiogram (ultrasound of the heart)

Health care providers can tell OHS from obstructive sleep apnea because a person with OHS has a high carbon dioxide level in their blood when awake.

## Treatment

Treatment involves breathing assistance using special machines (mechanical ventilation). Options include:

- Noninvasive mechanical ventilation such as continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) through a mask that fits tightly over the nose or nose and mouth (mainly for sleep)
- Oxygen therapy
- Breathing help through an opening in the neck (tracheostomy) for severe cases

Treatment is started in the hospital or as an outpatient.

Other treatments are aimed at weight loss, which can reverse OHS.

## Outlook (Prognosis)

Untreated, OHS can lead to serious heart and blood vessel problems, severe disability, or death.

## Possible Complications

OHS complications related to a lack of sleep may include:

- Depression, agitation, irritability
- Increased risk of accidents or mistakes at work
- Problems with intimacy and sex

OHS can also cause heart problems, such as:

- High blood pressure (hypertension)
- Right-sided heart failure (cor pulmonale)
- High blood pressure in the lungs (pulmonary hypertension)

## When to Contact a Medical Professional

Call your provider if you are very tired during the day or have any other symptoms that suggest OHS.

## Prevention

Maintain a healthy weight and avoid obesity. Use your CPAP or BiPAP treatment as your provider prescribed.

## Alternative Names

Pickwickian syndrome

## References

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