



Obstructive sleep apnoea

This information sheet from Great Ormond Street Hospital (GOSH) explains the causes, symptoms and treatment of obstructive sleep apnoea (OSA) and where to get help.

What is obstructive sleep apnoea?

Obstructive sleep apnoea is a condition that affects the airway and how we breathe. It is called OSA because:

Obstructive = there is obstruction of the airway in the nose, throat or upper airway.

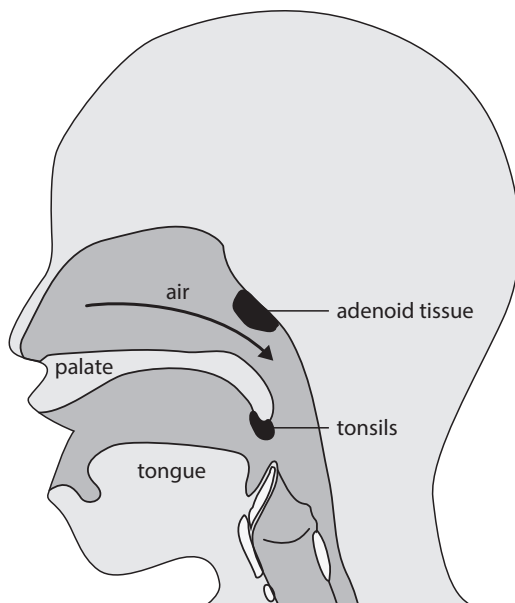
Sleep = it happens when your child is asleep.

Apnoea = this is a Greek word that means 'suspension of breathing' – there is not enough air entering the lungs.

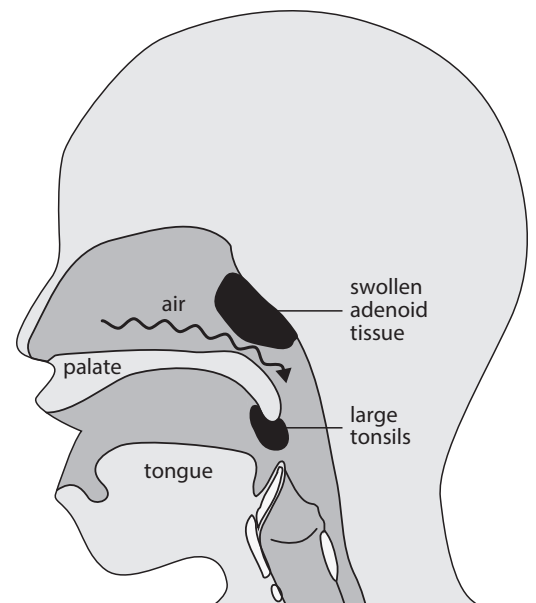
During breathing, air passes through the nose, where it is filtered, warmed and moistened. It then travels down the upper airway to the lungs. The oxygen contained in the air passes into the bloodstream via the lungs and transported to where it is required in the body. While asleep, muscles in the body

naturally relax, including those in the throat. The relaxed muscles cause narrowing, which can reduce the airflow and make breathing difficult for some people, particularly those who have large tonsils or adenoids. This can cause snoring and irregular breathing.

When breathing is interrupted or reduced, there may be a fall in the level of oxygen in the body and this may lead to bigger efforts to breathe. Sensors in the brain will tell the body to restart or increase breathing and the person wakes up briefly. Breathing often restarts with a gasp or snort and this returns the airway and breathing to normal, allowing the person to return to sleep. When the problem is severe, this can happen many times each night and disturbs the quality of sleep. Generally the person recalls very few, if any, of these events in the morning.



Normal anatomy:
Open airways allow air to flow easily



Common cause of sleep apnoea:
Large tonsils and adenoids make airflow difficult



What causes obstructive sleep apnoea?

OSA can occur for many reasons, both in adults and in children. In children, the most common cause is enlarged tonsils and/or adenoids, which can partially block the airway.

OSA is reported in between one and three per cent of children – however it is diagnosed much more commonly (up to 25 per cent) in children with specific conditions, for example obesity, sickle cell disease, Down syndrome and others.

What are the signs and symptoms of obstructive sleep apnoea?

The first symptom most parents notice is snoring. Snoring is the sound made by the airway vibrating as it reopens after a partial collapse. Parents may also notice their child is sleeping in an unusual body position that may help them to breathe more easily. Recurrent breathing problems may also cause frequent, brief arousals throughout the night and this can make the child sleepy during the day. Younger children who suffer from sleep deprivation may actually be hyperactive or aggressive, whereas older children may feel tired. A child with sleep apnoea may have difficulty concentrating or behave differently. They may awake from sleep feeling tired and unhappy, with a headache, or may refuse breakfast. Poor growth and weight gain, poor school performance, a lack of concentration and aggressive behaviour may also be seen.

How is obstructive sleep apnoea diagnosed?

Breathing difficulties while sleeping can be caused by a variety of medical conditions, so a range of tests may be needed to confirm or rule out OSA. An overnight sleep study is the main method of investigating OSA and is best conducted by technologists/physiologists experienced in working with children. The sleep study involves a recording of various

measurements, such as breathing rate, heart rate and oxygen levels while the child sleeps. A video and sound recording will also be made. The test results are interpreted by a paediatric sleep medicine physician, who can make a diagnosis of OSA.

How is obstructive sleep apnoea treated?

The decision to start treatment is made on a case-by-case basis once OSA has been confirmed.

Surgery to remove the adenoids and/or the tonsils is the most common treatment for paediatric OSA. This procedure can usually be done at a local hospital although some children have risk factors which may mean that this procedure will need to be done in a specialist unit with intensive care facilities.

If removal of the adenoids and/or tonsils is not indicated or if surgery does not fully resolve the symptoms then Positive Airway Pressure therapy (CPAP or BiPAP) may be used. This requires the patient to wear a mask over the nose while a positive pressure is applied from a ventilator to keep the airway open while asleep.

Other treatments may include the use of a nasopharyngeal airway (NPA) which acts as a “splint” to maintain an open airway and keep the tongue from falling back. This treatment is predominantly used in children less than one year of age. Another alternative treatment is the use of nasal steroids or montelukast to clear any inflammation of the nasal passage. Orthodontic procedures may also be appropriate including mandibular advancement to move the jaw forward. Children with OSA who are overweight or obese are strongly encouraged to follow a weight management program, including nutritional advice, exercise regime, and behavioural recommendations (including adequate sleep).



What happens next?

If your child has been diagnosed with OSA and has been treated or it was decided to wait and follow progress, a follow-up sleep study will be arranged. This enables the medical professionals to assess if OSA has been successfully treated or if an alternative therapy is required. Treatment of OSA in children and young people has been shown to help with learning, behaviour and quality of life not to mention long term neurodevelopmental and cardiovascular benefits.

Further information and support

The **British Lung Foundation** supports anyone affected by a breathing disorder, including obstructive sleep apnoea. Call their helpline on 03000 030 555 from Monday to Friday from 9am to 5pm or visit their website at www.blf.org.uk

The **Association for Respiratory Technology and Physiology** has an information sheet on sleep disorders and tests at www.artp.org.uk/en/patient/sleep-disorders-tests/index.cfm

The **Sleep Apnoea Trust** offers support to anyone affected by OSA. Call their helpline on 0800 025 3500 or visit their website at www.sleep-apnoea-trust.org