

## Sleep Apnoea

If you wake up feeling as if you have not had a rest, you have a headache, your heart is pounding and you are short of breath, you may be experiencing sleep apnoea. This is when the body stops breathing causing oxygen levels to fall in the blood. This can be detected at a sleep disorder clinic by using a pulse oximeter. If you suspect you may be experiencing sleep apnoea, arrange, if you can, for someone to observe you sleeping. In sleep apnoea there will be times when you cease to breathe for short periods.

Sleep apnoea may develop in those whose respiratory muscles were affected by the polio virus – especially those who had upper spinal, (bulbar) polio. These muscles may become progressively weaker and need some help. This help can be given in the form of a non-invasive respiratory machine with a mask for your face and nose to assist breathing at night.

Most people using one of these respiratory machines immediately feel much better with improved sleep and a better quality of life. A foam wedge or other special pillows will raise your upper trunk in bed to improve respiration at night.

## Who could have Sleep Apnoea?

All polio survivors are at risk of having sleep apnoea, the risk is higher if there was paralytic polio with respiratory or bulbar problems (weakness) during the acute polio illness.

New breathing problems were reported by 42% of patients with Post Polio syndrome; and 88% of these who needed assistance during the acute phase needed assistance again 3 to 59 years later.

If at the time of your polio no bulbar damage was seen /documented / remembered that does not mean that you did not have some weakness in this area, you can have had up to 44% nerve damage without any clinical weakness being observed.

Deep stages of sleep worsens respiratory muscle weakness and results in a cascade of events that increase progression of respiratory failure and daytime disability.

The very slow progression of motor neuron impairment in PPS may result in early symptoms being overlooked both by the individual and the physician.

### Seek advice from Sleep Clinic.

Contact your GP for referral to a sleep clinic.

**The Lane Fox Unit in London's St Thomas Hospital** has a clinic which specialises in this disorder.

**The Royal Infirmary in Glasgow** will test you for sleep apnoea if you contact their Sleep Apnoea department and also at **Edinburgh Royal Infirmary**.



Scottish Post Polio Network

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## Sleep Apnoea

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## What is Sleep Apnoea?

Defined as the lack of breathing through the nose and mouth for at least ten seconds, sleep apnoea can be obstructive or central or mixed. **Obstructive sleep apnoea (OSA)** occurs when tissues in the throat collapse and block airflow in and out of the lungs during sleep, although efforts to breathe continue. Central apnoea occurs when the brain fails to send appropriate signals to the body to initiate breathing. There is neither airflow nor chest wall movement. Central sleep apnoea is uncommon, and when present, is often associated with severe heart failure or the result of a stroke.

In sleep apnoea, breathing ceases, oxygen in the blood decreases, arousal occurs, sleep ends and breathing resumes. The individual then drifts back to sleep and another apnoea occurs with this cycle continuing throughout the night, resulting in hundreds of arousals from sleep. (People without neuromuscular disorders experience up to five apnoea per hour of sleep.) The person arises in the morning unrefreshed, fatigued and is sleepy during the day.

### Symptoms

Associated findings of OSA include loud snoring, obesity, positive family history of apnoea and snoring, daytime sleepiness and when very severe, right-sided heart failure (see Cor Pulmonale), and hypoventilation (see Underventilation). OSA at first occurs when individuals sleep on their backs, but eventually apnoeic episodes are present with any sleep position. A number of factors make snoring and apnoea worse, such as nasal obstruction.

Smoking causes the lining of the upper airway to swell, alcohol and sedative drugs cause the muscles in the back of the upper airway to relax, and excessive weight decreases the size of the upper airway.

### Polio Survivors and Sleep Apnoea

Many polio survivors have abnormal breathing during sleep, including both OSA and hypoventilation. OSA is probably more severe in polio survivors than in people without other medical problems. OSA also was found to be more common in obese survivors with normal lung function, whereas hypoventilation was found to be more common in those survivors with scoliosis, restrictive lung function, and a history of diffuse neurological problems during the acute phase of polio (Hsu & Staats, 1998).

### How sleep apnoea is diagnosed

Sleep apnoea is diagnosed by polysomnography in an overnight sleep study, generally performed in a sleep laboratory by experienced technicians. The test monitors sleep stages, eye movements, snoring, airflow at the nose and mouth, heartbeat, chest wall breathing motion, and oxygen saturation. Oxygen saturation can be monitored easily in the home by nocturnal oximetry and serves as an adequate screen for severe OSA.

### How sleep apnoea is treated

Medical treatment of OSA includes weight loss if obese, relief of nasal obstruction if present,

avoidance of alcohol and sedative drugs, and sleep positioning on one's stomach or side instead of back. If apnoea is more severe (15 to 20 apnoeas per hour of sleep or more), nocturnal non-invasive ventilation, such as nasal continuous positive airway pressure (CPAP) or bi-level pressure support, is often prescribed (see Ventilators). The upper airway in OSA is most vulnerable to closure during REM sleep (Ellis et al., 1987), and CPAP gently "splints" the airway open and stabilizes it. Obstructed breathing during sleep is relieved as long as nocturnal ventilation is used. Compliance with nasal masks has proven to be a problem in some people, particularly those with claustrophobia and those with OSA which is not very severe. These individuals do not have severe symptoms (sleepiness and fatigue), and they may not be convinced that nocturnal ventilation helps them (Hsu & Staats, 1998). Upper airway surgery to remove excessive tissue in the tonsils and soft palate areas, known as uvulopalatopharyngoplasty, is more effective to eliminate snoring than to cure apnoea, but it is inadvisable in polio survivors who depend upon frog breathing (Alba, 1985).

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