



## **CENTRAL SLEEP APNOEA EXPLAINED - SIMPLY**

Most patients with sleep apnoea will have Obstructive Sleep Apnoea (OSA). The soft tissue behind the tongue collapses during sleep, narrowing your airway and breathing stops temporarily. The falling blood oxygen level alerts the brain, which sends a signal to make you breathe—which you do with a great gasp, and possibly a loud snore. When diagnosed and treated with the Gold Standard CPAP therapy, snoring stops, the paused breathing episodes stop and you benefit from deep sleep and feel much better. The incidence of OSA in the UK is around one in twenty of the adult population.

Central Sleep Apnoea (CSA) differs from OSA in that while your breathing stops and eventually restarts, the brain signalling you to breathe again due to low oxygen levels should occur—BUT DOES NOT. With CSA the signal from the brain to breathe is either not sent or not received. The incidence of CSA is far lower than OSA and is thought to be around one in two thousand of the adult population.

In very, very simple terms, OSA is a mechanical blockage treated by increasing air pressure to overcome the blockage while CSA is an electrical fault, where the connection between the brain and the breathing muscles is faulty, possibly in the brainstem.

Inevitably, as always with electrical problems the solutions can be more complex than treating the mechanical problems of OSA.

CSA is generally associated with other serious medical conditions, such as: congestive heart failure; stroke; heart attack; shallow, weak breathing (Cheyne-Stokes Breathing [CSB]); Parkinson's disease, and others.

ADDITIONALLY, as with most matters electrical, there can be several types of CSA (as defined by the Mayo Clinic in the USA), as follows:

1. Primary CSA, the patient has no known related diseases and the cause is unknown.
2. CSB CSA, which can be associated with heart failure, stroke, or possible kidney failure.

3. Non-CSB CSA associated with other medical conditions, including heart and kidney problems.
4. High-altitude CSA, which can appear during sleep at altitudes above 15,000 feet, and induces a form of rapid cycle CSB
5. CSA induced by the use of certain mainly strong pain killing drugs, typically opiates.

FINALLY, just as perhaps we were going too far into the dreadful modern trend of the tick box culture, there is mixed or complex sleep apnoea, a combination of both, usually detected when the OSA has been diagnosed and treated by CPAP and then the CSA emerges.

So how are CSA patients treated?

The first stage is to manage the underlying medical conditions using modern pharmaceuticals.

The next stage can involve supplying oxygen and regulating the air pressure during sleep which is the same effective treatment for many people with OSA.

CPAP can be a solution or a development of CPAP called Bi-Level Positive Air Pressure (BPAP). BPAP treatment adjusts air pressure to a higher level when you breathe in and a lower level when you breathe out. There is another machine called the Adaptive Servo Ventilation (ASV) – which uses positive airway. There is another machine called the Adaptive Servo Ventilation (ASV) – which uses positive airway pressure ventilation support that is adjusted as the machine detects the apnoeas during sleep – a reactive based system.

Conclusion.

We hope that we have shed some light on this very rare, but nonetheless significant form of sleep apnoea. There is still a lot to be learned about CSA, its causes and its treatment. However, based on the rapid progress in the UK of OSA diagnosis and treatment, there will undoubtedly be an ever increasing emphasis on all sleep related disorders as society further develops its understanding of the vital role that good sleep plays in the everyday life of the population.

The Sleep Apnoea Trust is mainly managed by unpaid volunteers

**Disclaimer:** *The information in this publication is given for general information purposes only. It is in no way intended to replace the professional medical care, advice, diagnosis or treatment of a doctor. If you are worried about any aspect of your health, you should consult a doctor in person.*