

# Sleep Apnea

Sleep apnea syndrome (SAS) also known as sleep apnea (SA) is a **frequent** and **serious** disease which puts patients at high risk of developing **cardiovascular diseases**. The prevalence of hypertension during SAS is about 50%. The disease occurs in 4% of men and 2% of women. SAS is more common in individuals with **central obesity**.

Some of the **risk factors** for the development of the disease include: being overweight, eating an excessive amount of food before going to bed, drinking alcohol before going to bed, smoking, using hypnotics, irregular sleep, male gender and family history.

## We divide according to the causes

1. *obstructive (OSA)* – is caused by an obstruction in the upper airways and **the respiratory effort is preserved**;
2. *central* – has a cause in the CNS and the **respiratory effort is not present**;
3. *mixed* – is given by a combination of the two previous ones.

## Symptoms

The main symptoms include:

1. excessive daytime sleepiness and fatigue,
2. frequent falling asleep during the day and reduced work performance,
3. gasping for breath, temporary respiratory arrests and repeated awakenings at night,
4. snoring,
5. absence of dreams,
6. dry mouth,
7. headache,
8. symptoms of depression.

**Headaches** are much more common in SAS than in other sleep disorders; approximately 20% of patients report them. They typically appear in **the morning after waking up**, are mild, dull, non-pulsating, diffuse and usually subside within an hour. Their intensity does not correlate with the severity of SAS. Respiratory consequences depend on the degree of hypoxemia and hypercapnia. In advanced cases, pulmonary hypertension, cor pulmonale and polycythemia occur. Cardiovascular consequences include hypertension, heart rhythm disorders, myocardial infarction and cerebrovascular disorders.

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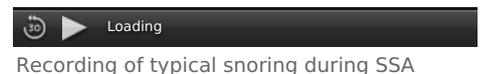
## Diagnosis

A patient with suspected sleep apnea syndrome should be sent to a sleep laboratory, where a complete **polysomnographic (PSG) examination** is performed. During this examination, the following data are monitored:

1. snoring,
2. blood oxygen saturation,
3. EKG, heart rate,
4. respiratory movements of the chest and abdomen,
5. airflow during breathing,
6. EMG - lower limb movement,
7. electrooculogram,
8. EEG,
9. blood pressure.

Simpler investigation methods, that are often used are for instance multi-channel sleep monitoring, where EEG is missing. The examination gives the **apnea-hypopnea index**, which indicates the number of apneas per hour of sleep (the norm is set at five apneas longer than 10 seconds). More severe degrees of the disease are associated with episodes of oxygen saturation drop to 80% or less. A sleep structure disorder is also typical. Apnea patients spend most of their sleep in stages one and two, with only 20% in deep sleep (stages three and four) and REM.

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## Treatment

It is necessary to **adjust the lifestyle, weight reduction** in overweight patients as well as regular physical activity.

**CPAP** (Continuous Positive Airway Pressure) is the basis of treatment. This device maintains **permanent excess pressure in the airways** during sleep through a mask that is airtight on the nose. The cooperation of the patients of this very effective treatment is only 60% due to the discomfort caused by the mask, the noise of the device, drying of the mouth and nose and skin irritation by the mask. In the case of persistent hypertension, the **beta-blocker atenolol** has the most significant effect.

Surgical treatment tries to operatively resolve local airway obstruction. Some of the used methods are: nasal surgery, radiofrequency thermotherapy, tracheotomy, uvulopalatopharyngoplasty, laser-assisted uvuloplasty.



Patient with CPAP

## Conclusion

It can be expected that the increasing awareness of doctors will also increase the number of diagnosed patients suffering from SAS. It is especially necessary to distinguish patients suffering from **primary rhonchopathy** (snoring) from apneic patients. That is why such an emphasis is placed on PSG examination of patients who complain of snoring. According to the data of various authors, among patients who come to the doctor with a single symptom - snoring, about 50% of patients have sleep apnea syndrome.

## Links

### Related articles

- ORL aspects of sleep apnea syndrome
- Sleep disorders
- Headaches

### References

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- ČEŠKA, Richard, ŠTULC, Tomáš, Vladimír TESARŘ a Milan LUKÁŠ. *Interna*. 3. edition. 2020. 964 pp. ISBN 978-80-7553-780-5.