



Do you Snore loudly during sleep?



Do you have excessive daytime sleepiness?



Do you feel tired during the day?



Are you overweight?



Do you have poor or restless sleep?

If you have any of the above conditions, then you could be at risk of sleep apnea.

Talk to your doctor today.

Issued in public interest by

PHILIPS

Are you a patient with diabetes and...



Snore loudly during sleep?

OR

Have excessive **daytime sleepiness?**

OR

Feel tired during the day?

OR

Overweight?

OR

Have **poor or restless sleep?**

IF SO, you may be suffering from sleep apnea.

Left untreated; it can lead to uncontrolled sugar, insulin resistance; and also result in serious consequences like driving accident and even heart failure

Obstructive Sleep Apnea or sleep apnea is a common breathing disorder during sleep when the soft tissues at the back of the throat collapse, leading to pauses in breathing. The collapse can be partial (hypopnea) or complete (apnea). When the tissues collapse partially, the airway becomes narrow and prevents enough air from entering our lungs. This causes a vibration in the throat which causes snoring. When the tissues collapse completely and there is no airflow to the lungs for ten seconds or more, it is called as Obstructive Sleep Apnea (OSA). The person stops breathing during an apnea. The brain senses the pause in breathing and alerts the body to breathe. This causes a brief arousal from sleep and the person starts breathing again. The person who ever is unaware of such arousals. Such instances of apneas and hypopneas can occur hundreds of times a night. During all such events, the brain and the body doesn't get enough oxygen and as a result the oxygen level drops.



Normal Airway



Partially Collapsed Airway

↓
Hypopneas



Completely Collapsed Airway

↓
Apnea

Snoring is the most common symptom of sleep apnea. The other symptoms & signs are

- ▶ Excessive daytime sleepiness
- ▶ Daytime fatigue
- ▶ Overweight
- ▶ Poor sleep/restless sleep
- ▶ Morning headaches
- ▶ Poor concentration
- ▶ Depression/irritability

50% of diabetes patients suffer from obstructive sleep apnea or some form of sleep disordered breathing. But few are aware of its serious consequences

(Ref: Einhorn et al Endocr Pract 2007, International Diabetes Federation Statement 2007)

Left untreated, it can lead to serious consequences like

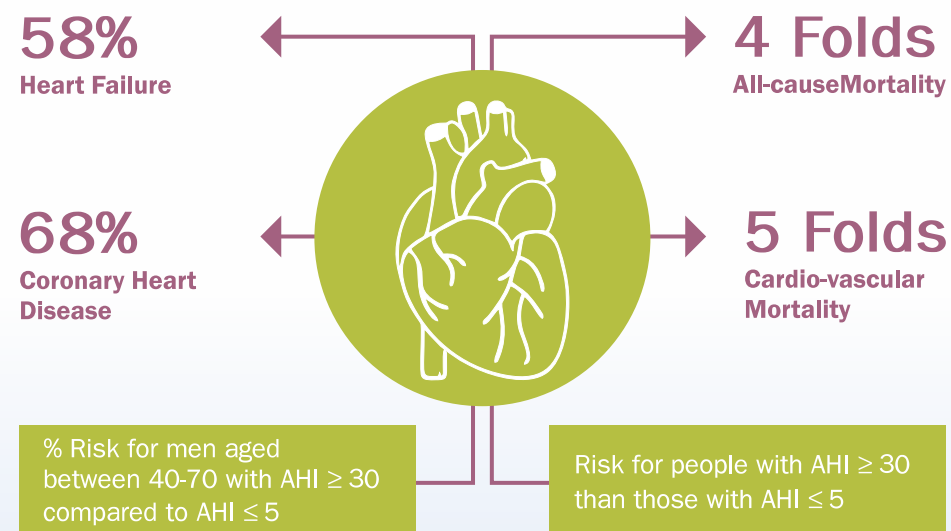
- ▶ Uncontrolled sugar
- ▶ Insulin resistance
- ▶ High blood pressure
- ▶ Road / driving accident
- ▶ Coronary Heart Disease
- ▶ Heart Failure

OSA is independently associated with insulin resistance and impaired glucose tolerance and contributes to hypertension and increases the risk of heart attacks

(Ref: International Diabetes Federation Statement 2007)

- ▶ Chronic sleep loss, behavioural or sleep disorder related, may represent a novel risk factor for weight gain, insulin resistance, and type 2 diabetes

(Ref: Karine Spiegel et al, J Appl Physiol 2005)

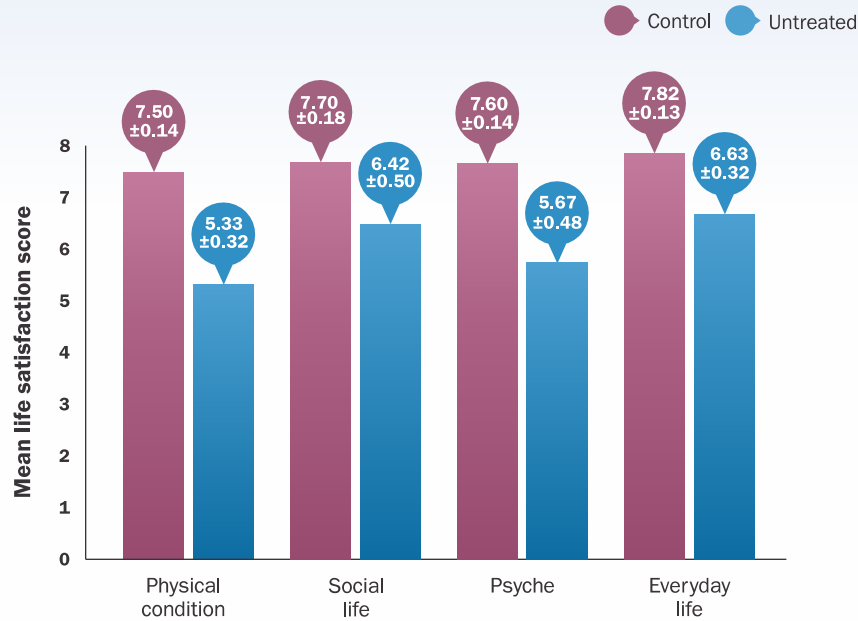


(Ref: Daniel J Gottlieb et al, Circulation 2010)

(Ref: Indian OSA guidelines, Indian Journal of Medical Research 2014)

▶ Untreated sleep apnea significantly impacts Quality of Life parameters

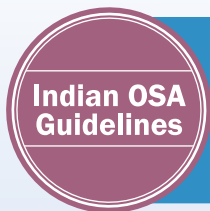
(Ref: J Bolitschek et al, Eur Respir J 1998)



International Diabetes Federation recommends that all type-2 diabetics should be evaluated to determine if OSA is present and that CPAP is the gold standard therapy
(Ref: International Diabetes Federation Statement 2007)

Benefits of CPAP therapy

- ▶ Significant reduction in after-meal blood glucose level
- ▶ Reduction in HbA_{1c} level
- ▶ Improvement in insulin sensitivity within 48 hours
- ▶ Lowering of blood pressure and reduction in cardio vascular risk
- ▶ Improvement in Quality of Life parameters

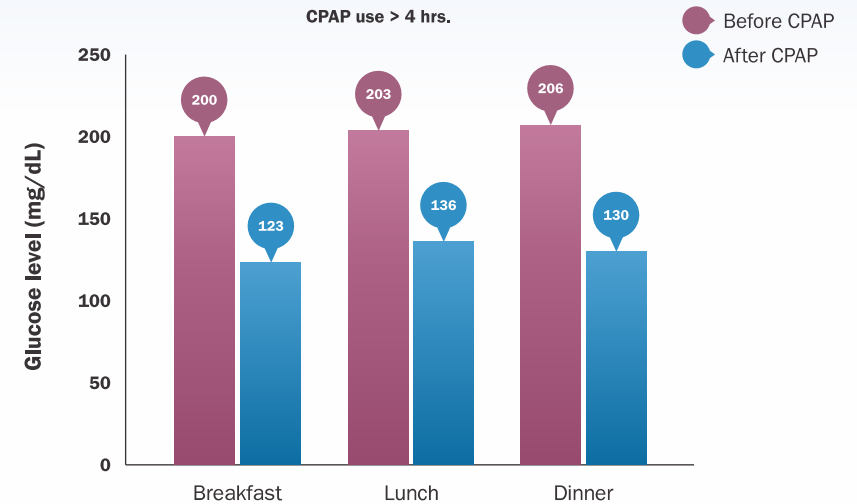


Effective CPAP therapy leads to improvement in Quality of Life, sleep architecture, neuro-cognitive performance and has positive effects on cardiovascular outcomes and overall mortality

Reduces Blood Glucose Level

Significant reduction in after-meal blood glucose level after CPAP treatment

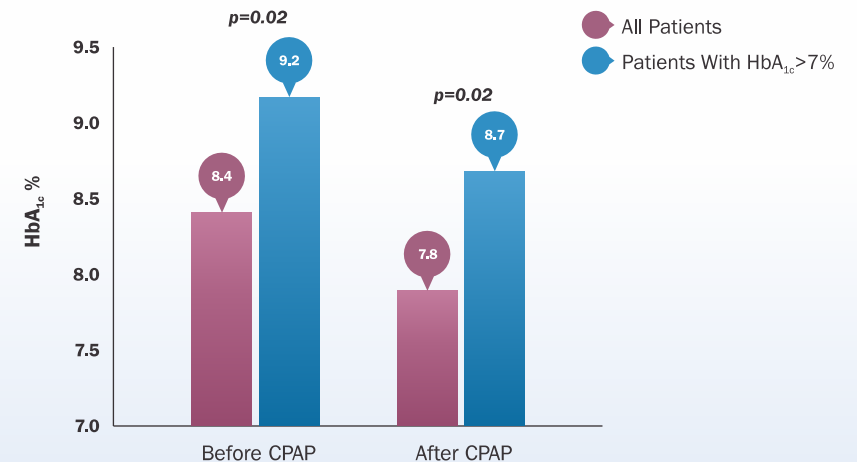
(Ref: Babu Ambika R et al, Arch Intern Med 2005)



Reduces HbA_{1c} Level

Reduction in mean HbA_{1c} levels before and after CPAP treatment in all patients and in patients with a baseline HbA_{1c} > 7%

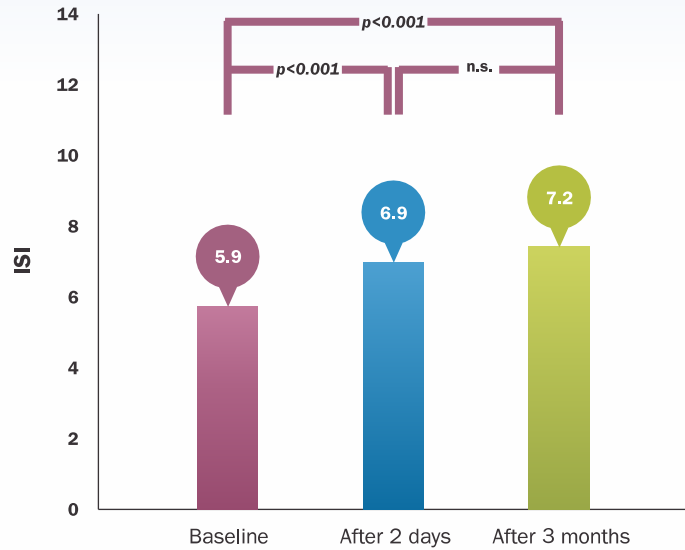
(Ref: Babu Ambika R et al, Arch Intern Med 2005)



Improves Insulin Sensitivity

Significant improvements have been demonstrated in Insulin Sensitivity Index (ISI) after CPAP therapy

(Ref: Harsch Igor A et al, Am J Respir Crit Care Med 2004)

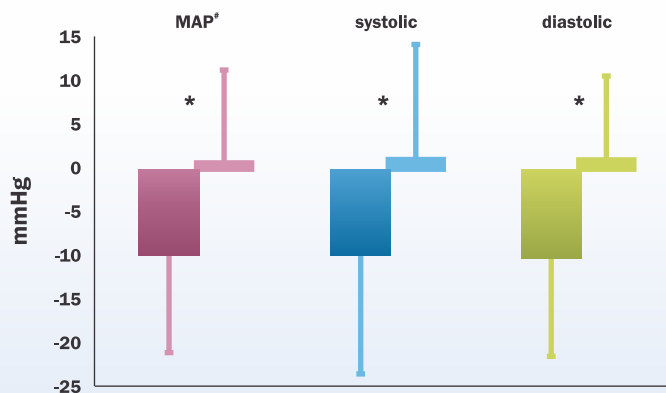


Lowers Blood Pressure

► Effective CPAP treatment in patients with moderate and severe OSA leads to a substantial reduction in both day and night arterial blood pressure

► Drop in mean blood pressure by 10 mm Hg

(Ref: Becker HF et al, Circulation 2003)

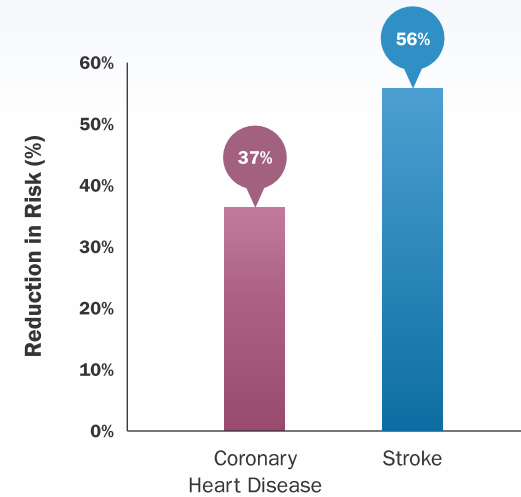


*Mean Arterial Pressure

Reduces the Risk of Stroke

Reduces the risk of coronary heart disease by 37% and of stroke by 56%

(Ref: Becker HF et al, Circulation 2003)



Significant Improvement in Quality of Life Parameters

CPAP improves Quality of Life parameters - physical condition, social life, psyche, everyday life

(Ref: J Bolitschek et al, Eur Respir J 1998)

