

## Evaluation of the " Sleep Strip ", a Simple Device to Screen Apnea Patients in the General Population

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**Introduction:** Sleep apnea is a highly prevalent disease in western countries and it may be difficult to screen large groups of patients with polygraphy or polysomnography (PSG). Sleep apnea patients may have however severe consequences in terms of vascular diseases and automobile accidents. The sleep strip has been proposed by Lavie and col. (2000) to screen sleep apneas in the general population.

The sleep strip: The device comprises four components:

- Three thermosensors, two for sensing nasal flow and one for oral-airflow during sleep;
- A miniature processing unit to analyse the respiratory pattern of the patient;
- A 3v lithium cell, which is the power source of the SleepStrip;
- A non-volatile display for presenting the results to the patient or health-care provider.

These components are connected through electronic circuitry, which is fabricated on a film. The entire system is attached just above the upper lip.

**Method:** We evaluated the sleep strip compared to full night polysomnography in 20 patients addressed our centre for a suspicion of sleep apnea. Polysomnography was performed the first night and the sleep strip the following night. The PSG was manually analysed according to the Reschtaffen and Kales rules and the RDI was compared to the one automatically proposed by the sleep strip. A non parametric test was used to compare the results of the two explorations.

**Results:** We found no significant difference between the two methods regarding the RDI

( $p = 0.14$ )

Sensibility and specificity for a RDI > 10 were respectively 86,6% and 80%.

**Table 1**

Patients	PSG RDI	Sleep strip RDI
1	5	8
2	15	10
3	1.3	2
4	1.9	2
5	45	54
6	32.7	26
7	40	52
8	14.77	12
9	33.81	18
10	38.8	38
11	15.67	14

12	63.27	82
13	62.43	72
14	35	70
15	14.32	34
16	1.63	3
17	10.11	10
18	11.21	8
19	2.7	12
20	11	8
Mean A	22.931	26.75
Standard deviation	± 19.54	± 25.76

**Discussion :** In a first group of 20 patients, the evaluation of the "sleep strip" compared to full polysomnography seems to be positive. The three patients for whom the test was not confident have respectively a PSG RDI of 11,2, 5,7, and 11 and a sleep strip RDI of 8, 12 and 8. These results are thus very close from the sleep apnea definition RDI index of 10. The sleep strip has to be understood as a screening test useful in large group of people to detect and prevent sleep apneas consequences.

**Ref. :** LAVIE P., HERER P., ZOMER J., HADAS N., *The Sleep Strip. An aid for sleep apnea screening of large populations.* 5 sleep Res. 2000; 9 sup 1:112.

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