

Anti-snoring pillow: prototype test in the sleep laboratory Lindenbrunn, Copenbrügge

The prototype of a pneumatic and inter active working anti snoring pillow has been tested in a user study in 2001 under controlled conditions in the sleep laboratory of the hospital Lindenbrunn, 31861 Copenbrügge, Germany. Here, under the direction of Prof. Dr. Hofferberth, the significantly positive effects of inter-active anti-snoring pillow on the duration and intensity of snoring could be proven clearly. The test was conducted with 10 subjects who suffered primary, simple snoring. Four of the participants had also a SAS (sleep apnea syndrome). Each subject slept one night on a traditional pillow, the second night with use of anti snoring pillow. The duration of snoring and its intensity and other physiological data for comparison were recorded in two nights. The individual results of the respective users are shown in the attached table.

Especially the loud snoring is associated with an increased predisposition to heart disease and strokes. These are results of a study at the Semmelweis University in Budapest. The team led by Dr. Marta Novak has investigated more than 12,000 participants and published the results in the journal "Sleep". According this study loud snorers have an increased risk of a heart attack by 34% and 67% higher risk of having a stroke. Many people are at risk, as approximately one in two men and one in four women over the age of 18 snore regularly.

The results of Lindenbrunn demonstrate that by the use of the anti-snoring pillow all the participants reduces the absolute snore time significantly and also the proportion of the loud snoring was significantly reduced. In some subjects (no. 2, 4, 8, 9), the time of quiet snoring has been increasing, a detailed examination of the data shows, however, that the absolute time of this increase is in the range of minutes. The heart rate in the most volunteers fell at night with pillow. The increase in SAS patients is attributable to the absence of CPAP mask at night with pillows.

These results clearly demonstrate that the use of interactive anti-snoring pillow reduces not only the snoring time, but especially the harmful loud snoring may be reduced significantly. The improvements are differently pronounced by each user, there is however no doubt about the effectiveness of interactive anti-snoring pillow.

patient	parameter	without pillow		with pillow		advantages		heart rate Ø	
		Absolut	Relativ	Absolut	Relativ	Absolut	Relativ	without pillow	with pillow
1	Sleeping time	04:00:20		04:00:00				58 bpm	49 bpm
	Total snoring time	02:05:27	100%	00:32:11	26%	01:33:16	-74%		
	Normal snoring	01:36:58	100%	00:14:45	15%	01:22:13	-85%		
	Loud snoring	00:28:29	100%	00:17:26	61%	00:11:03	-39%		
2	Sleeping time	02:49:00		02:49:00				76 bpm	71 bpm
	Total snoring time	02:41:11	100%	00:45:04	28%	01:56:07	-72%		
	Normal snoring	00:03:38	100%	00:20:12	558%	+00:16:34	+458%		
	Loud snoring	02:37:33	100%	00:24:52	16%	02:12:41	-84%		
3	Sleeping time	04:00:10		04:00:10				62 bpm	60 bpm
	Total snoring time	00:47:28	100%	00:16:14	34%	00:31:14	-66%		
	Normal snoring	00:37:55	100%	00:13:06	35%	00:24:49	-66%		
	Loud snoring	00:09:33	100%	00:03:08	33%	00:06:25	-67%		
4 (SAS)	Sleeping time	04:00:10		04:00:10				68 bpm	72 bpm
	Total snoring time	03:57:43	100%	02:23:43	61%	01:34:00	-40%		
	Normal snoring	00:08:19	100%	01:03:17	770%	+00:54:58	+670%		
	Loud snoring	03:49:24	100%	01:20:26	35%	02:28:58	-65%		
5 (SAS)	Sleeping time	04:00:10		04:04:00				56 bpm	69 bpm
	Total snoring time	00:56:33	100%	00:38:05	67%	00:18:28	-33%		
	Normal snoring	00:36:05	100%	00:32:53	91%	00:03:12	-9%		
	Loud snoring	00:20:28	100%	00:05:12	25%	00:15:16	-75%		
6	Sleeping time	04:00:00		04:00:00				60 bpm	62 bpm
	Total snoring time	02:21:41	100%	01:00:31	43%	01:21:10	-57%		
	Normal snoring	00:58:05	100%	00:41:26	71%	00:16:39	-29%		
	Loud snoring	01:23:36	100%	00:19:05	23%	01:04:31	-77%		
7	Sleeping time	04:00:00		04:00:00				61 bpm	54 bpm
	Total snoring time	01:26:14	100%	00:19:06	22%	01:07:08	-78%		
	Normal snoring	00:36:44	100%	00:10:25	28%	00:26:19	-72%		
	Loud snoring	00:49:30	100%	00:08:41	18%	00:40:49	-82%		
8	Sleeping time	04:00:10		04:00:10				72 bpm	68 bpm
	Total snoring time	01:59:39	100%	00:31:11	26%	01:28:28	-74%		
	Normal snoring	00:12:38	100%	00:19:34	156%	00:06:56	+56%		
	Loud snoring	01:47:01	100%	00:11:37	11%	01:35:24	-89%		
9 (SAS)	Sleeping time	04:00:20		04:00:00				51 bpm	83 bpm
	Total snoring time	02:08:47	100%	01:44:58	82%	00:23:49	-19%		
	Normal snoring	00:58:14	100%	01:11:37	123%	00:13:22	+23%		
	Loud snoring	01:10:33	100%	00:33:21	47%	00:37:12	-53%		