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Retrospective survey of long-term results and patient satisfaction with uvulopalatopharyngoplasty for snoring

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Abstract

The aim of this study was to retrospectively survey patients who had undergone the uvulopalatopharyngoplasty (UPPP) operation over a two-year period, assessing loudness of snoring, sleep quality and patient satisfaction. A total of 271 patients were sent questionnaires to assess snoring and sleeping habits, with additional questions about pain and satisfaction with surgery. Those who did not reply were contacted by telephone. Seventy-four per cent of the target population were surveyed. Taking an improvement in snoring level of 50 per cent or greater, immediately post-operatively the overall success rate was 76 per cent; however, after two years the success rate fell to 45 per cent. Variables such as alcohol consumption and smoking were not found to influence results. On a post-operative pain scale of 1–10 the average was 7.5 and on a satisfaction scale of 1–10 the average satisfaction with surgery was five, 61 per cent of patients stating that they would not have this operation again. This study shows that the UPPP operation is successful in only 45 per cent of patients after long-term follow-up, that the majority of patients experience severe pain and that the overall satisfaction with surgery is low.

Key words: Snoring; Uvula, Surgery; Palate, Soft, Surgery; Pain; Post-operative Period; Patient Satisfaction

Introduction

The uvulopalatopharyngoplasty (UPPP) operation for snoring was popularized by Fujita[1] in the 1970s having refined the technique originally described by Ikematsu. This operation was introduced as a viable alternative to tracheostomy in patients with severe sleep apnoea and after Fujita's description of his technique, and case histories of 12 patients the operation was enthusiastically taken up by many otolaryngologists and was to become increasingly well known by patients. Many papers have been published assessing the technique and giving very encouraging results, but few of these include large numbers of patients and most follow the patients for only six months to one year. There are some other studies showing long-term results of UPPP for snoring,[2–4] these show continued success for the operation with success rates between 73 per cent and 90 per cent.[2–4] An initial pilot study of 10 patients in our department seemed to show much poorer results and it was decided to identify and approach all the patients having had this operation to get a better idea of the results.

Materials and methods

The operation record was consulted and the names of all the patients having had UPPP for snoring more than two years prior to the beginning of the study in June 1998 were recorded. A total of 271 patients were sent a detailed questionnaire (Appendix) with an explanatory letter about the study and stamped addressed envelope for reply. After four months those who had not replied were contacted by telephone by the first author; no prompting was used to elicit answers to questions and patients were encouraged to be frank, regardless of their views. Two hundred questionnaires were analysed and data were obtained on severity of snoring, disturbance of the sleeping partner, quality of sleep, satisfaction with the operation, pain, complications and whether the patient would consider having the operation again. Additional lifestyle and health data were collected. Linear scales of 1–10 were used on the questionnaire as opposed to more accurate visual analogue scores as they allowed the option of telephone follow-up.

Results

Combining postal and telephone replies, the data from 74 per cent of the patients were analysed. Eighty-nine per cent were male, the majority were aged between 40 and 60 years (Figure 1). The longest follow-up time was 10 years. Most patients

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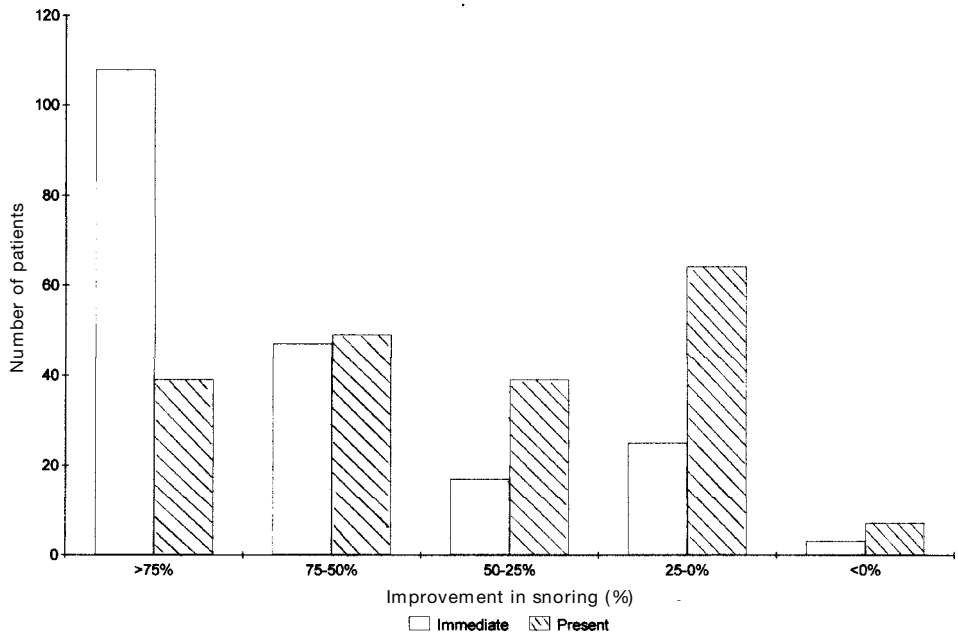

FIG. 1
Percentage improvement in snoring.

had had their surgery between two and five years previously.

Immediately post-operatively, 107 (53 per cent) patients had an improvement in their snoring level of more than 75 per cent and 49 patients had improved between 50 and 75 per cent, giving an overall success rate of 76 per cent. After long-term follow-up this figure fell to 45 per cent, with 36 per cent of patients experiencing little or no improvement and a small number of patients made worse (Figure 2). Pre-operatively, most patients disturbed their partner every night or had to sleep apart on occasions. After long-term follow-up, even with the report of increasing snoring volume, most patients only disturbed their partners occasionally (Figure 3). Daytime somnolence was also a common complaint pre-operatively but post-operatively, even in the long-term, 70 per cent of patients reported relief from this symptom (Figure 4).

Immediate post-operative pain was scored on a scale of 1–10. The mean pain score was 7.6 with the majority of patients giving a score between 8 and 10.

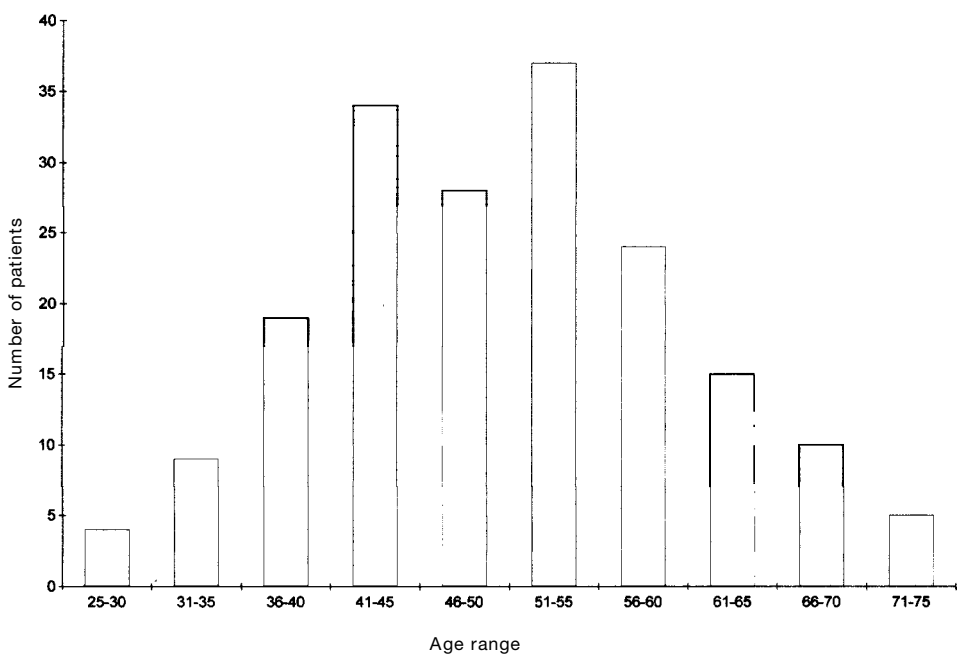

FIG. 2
Age distribution (mean 50 yrs).

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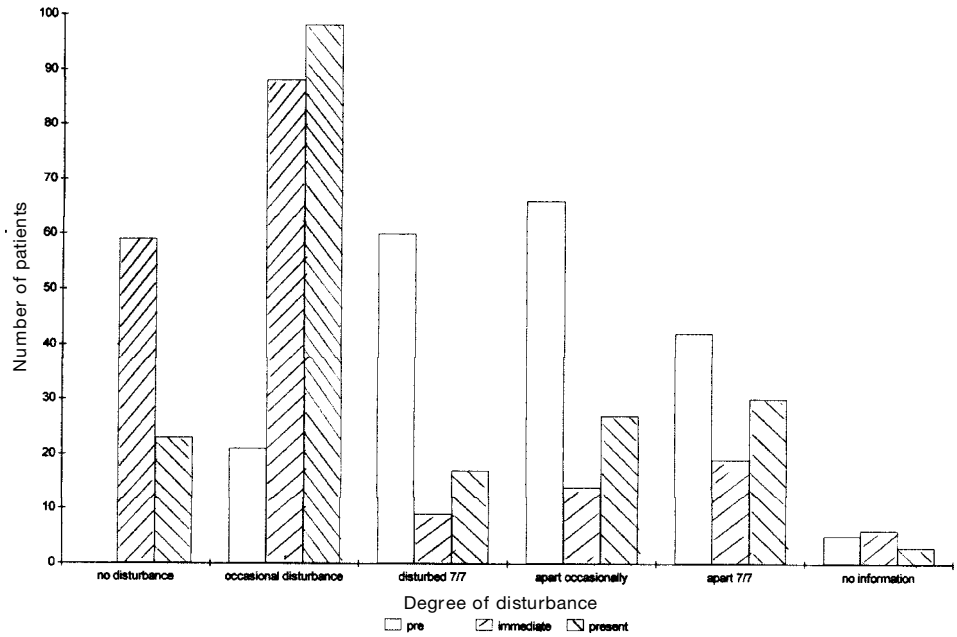

FIG. 3
Disturbance of sleeping partner.

Long-term complications were assessed with an open question, 'Do you have any lasting problems relating to your surgery?' thirty-eight per cent of patients reported complications. Thirty patients reported a sensation of choking and 27 gave varying descriptions of an unpleasant sensation in the throat, six patients reported voice change and five nasal regurgitation.

Satisfaction was also assessed using a 1–10 scale. The most frequent score was 1; the mean score was 5.2 (Figure 5). If average satisfaction is plotted against time it appears that satisfaction declines with time (Figure 6). Sixty-one per cent of the patients stated that they would not have the operation again but not all of these patients had a poor result with respect to their snoring.

We tried to find factors influencing outcome. Each factor was compared to the snoring outcome for each patient. The correlation coefficient for each factor is quoted (Table I). There is no strong correlation between any of the factors listed and long-term outcome. However, if the body mass index (BMI) is

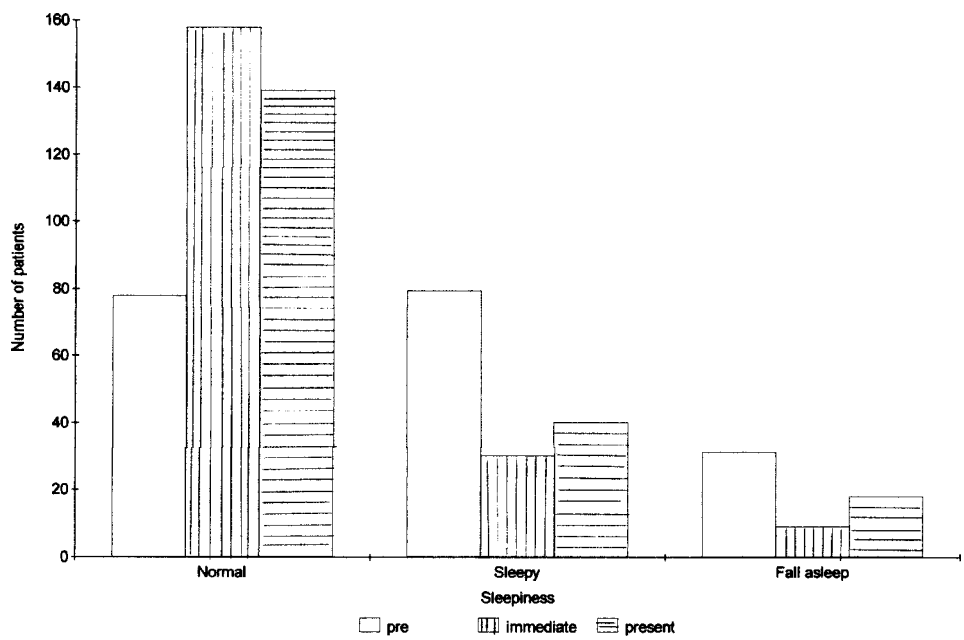

FIG. 4
Daytime somnolence.

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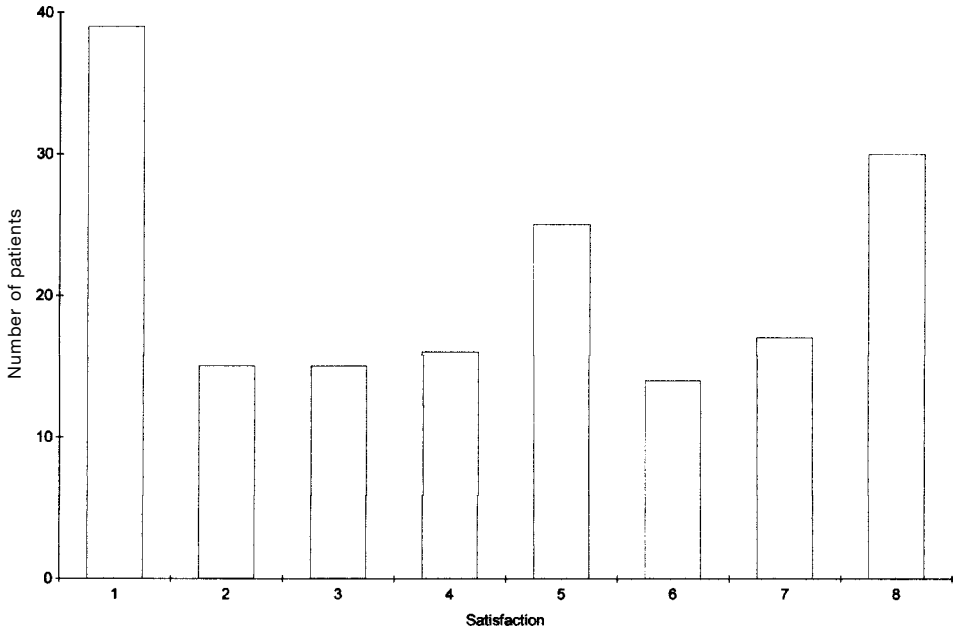

FIG. 5
Long-term satisfaction (mean 5.2).

averaged for each group of patients, there is a small overall increase in the less successful groups (Figure 7).

Discussion

There is no consensus in the literature of how to measure outcome for snoring surgery. In our study, patients with the help of their bed partner graded their snoring on a linear scale from 1 to 10. No objective measure of snoring was used for a number of reasons. The first being that to assess this number of patients using polysomnography would have been prohibitive in both cost and time. The second is that it has been shown that there is a poor correlation between objective recordings of sound level indices pre- and post-operatively with subjective measurements.[5] It is usually the patient's or their partner's perception of the snoring that motivates the patient

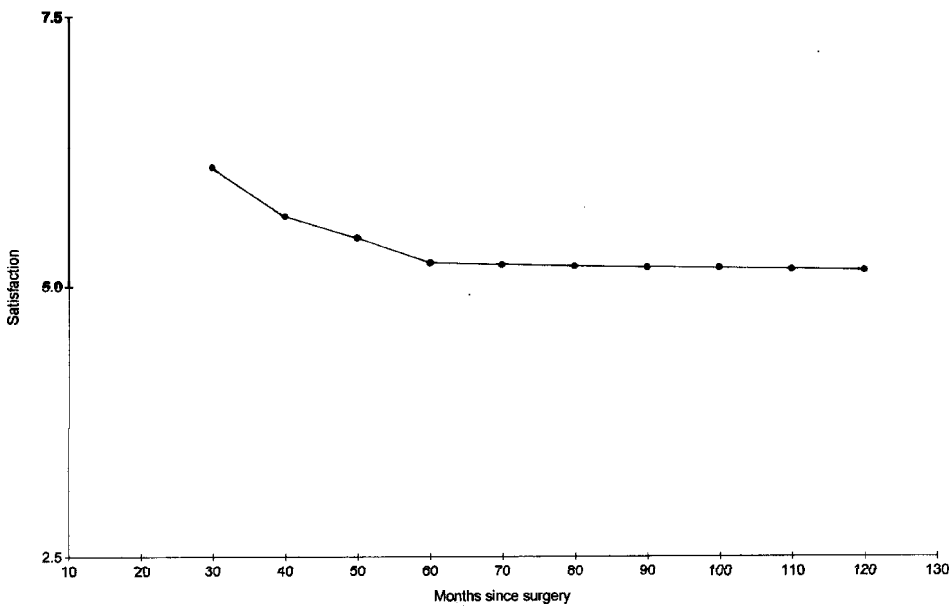

FIG. 6
Long-term satisfaction.

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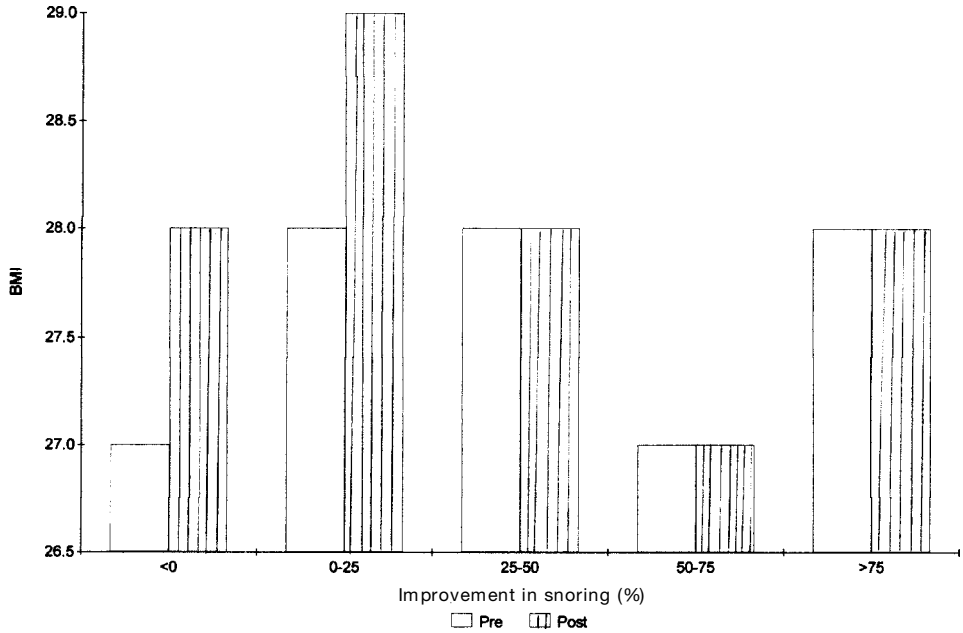

FIG. 7
Change in body mass index.

to seek treatment, so we feel that the subjective measure of outcome has the most relevance. The reduction in snoring level at which other authors consider their surgery successful is variable. We have taken a long-term improvement in snoring levels of greater than 50 per cent to indicate a successful outcome, this gives an overall success rate of 45 per cent, which would appear to be at odds with other long-term studies.[2–4] The reason for this is that these papers have categorized their patients differently; they have taken any improvement in snoring as a successful outcome, if our figures are assessed using similar headings the difference is not marked (Tables II and III).

It is interesting that, in spite of the sound level of the snoring increasing with increasing time from surgery, the annoyance to the partner does not return to the pre-operative level. It has been suggested that the annoyance of snoring is not purely related to time and sound level but other characteristics such as frequency.[6] It is possible that the surgery changes the frequency of the snore, thereby making it less annoying.

Another factor that appears to be more successfully treated by this operation is daytime somnolence. Daytime sleepiness is a common finding among snorers even in the absence of sleep apnoea. This is probably due to an increase in micro arousals in conjunction with the increased effort of breathing as a result of increased airway resistance.[7] Post-operatively, 70 per cent of our patients reported no daytime sleepiness. It could be argued that this merely represents the treatment of obstructive sleep apnoea (OSA) in a proportion of patients. However, this is unlikely as UPPP is thought to be successful in treating OSA in only 41 per cent of cases.[8] We were able to obtain sleep study data on 50 (25 per cent) of our patients. Of those patients, only five (2.5 per cent) had an apnoea/hypopnoea index greater than 15. As sleep studies have been performed in this department on the most symptomatic patients it is unlikely that of the patients who did not undergo sleep studies that the proportion of patients with significant OSA is likely to be higher than 2.5 per cent.

Satisfaction with the operation was assessed using a 1 to 10 scale. The average score was 5.2. Satisfaction with surgery was also found to decline with increased time after surgery, partly reflecting the tendency for snoring to return. Patients were asked if they would have this operation again; 61 per cent said that they would not. The low level of satisfaction with the operation and the reluctance to contemplate further surgery was not only related to snoring results. Many patients who had had a good reduction in their snoring levels gave a low score for satisfaction or said they would not have the operation again. This may be due to the level of pain suffered by the majority of patients, and the

TABLE I
CORRELATION COEFFICIENTS

Severity of snoring	0.1562
Patient age	0.1103
Patient gender	0.0882
Requires septoplasty	0.0814
Sleep apnoea	0.0737
Snoring position	0.0442
Sleep quality	0.0253
Body mass index	–0.0014
Daytime somnolence	–0.0260
Alcohol consumption	–0.0296
Cigarette consumption	–0.0528

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TABLE II
COMPARISON WITH OTHER STUDIES

Study (success rate)	Worse (%)	Unchanged (%)	Slight improvement (%)	Moderate improvement (%)	Marked improvement (%)	Silent (%)
McNab (77%)	3	10	10	22	41	13
Hicklin (45%)	3	16	17	20	37	7

high incidence of reported complications. The complication of a sensation of choking has not been reported elsewhere. This may be due to asking for specific expected complications such as nasal regurgitation thereby discouraging patients from volunteering their own complaints. Globus symptoms are known to occur following LAUP and the severity of the symptoms have been shown to relate to an insensate area on the palate.[9] We also found a high rate of pharyngeal symptoms, which may be due to this problem.

Conclusion

In our survey of the long-term results of the UPPP operation for snoring we found that the subjective improvement in snoring declines significantly with time. We were not able to identify any predictive factors for success. An increase in BMI was found to be associated with a poor result, as in other studies.[3] Disturbance of the sleeping partner and quality of sleep seem to be independent of the return of loud snoring. Overall the satisfaction with this operation seems to be low. If this operation is going to continue as a treatment for snoring, patients must be counselled properly and should be warned of the possibility of loud snoring remaining or returning and the likelihood of complications. As new methods become available for treating snoring,[10] which at this stage appear to be less painful and associated with fewer complications, it may be that the UPPP operation is consigned to history.

TABLE III
COMPARISON WITH OTHER STUDIES

Study (success rate)	No improvement/ worse (%)	Better (%)	Silent (%)
Friberg (87%)	13	60	27
Hegert (89.6%)	10	73	17
Hicklin (45%)	19	74	7

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Competing interests: None declared

Appendix: Questionnaire

Name:
Address:
Occupation
Height:
Age:

Before the operation

Snoring severity:

1	2	3	4	5	6	7	8	9	10

Position:

Some nights some positions	Some nights all positions	Every night some positions	Every night all positions

Loudness:

Disturb partner some nights	Disturb partner every night	Sleep in separate rooms sometimes	Sleep in separate room every night	Stop breathing intermittently

Quality of sleep:

Good nights sleep	Wake many times	Feel sleepy next day	Fall asleep in daytime

Weight: Cigarettes per day:
Average alcohol intake per day:
Colar size:
Medications:
Medical problems:

Immediately after the operation

Snoring severity:

1	2	3	4	5	6	7	8	9	10

Position

Some nights some positions	Some nights all positions	Every night some positions	Every night all positions

Loudness:

Disturb partner some nights	Disturb partner every night	Sleep in separate rooms sometimes	Sleep in separate rooms every night	Stop breathing intermittently

Quality of sleep:

Good nights sleep	Wake many times	Feel sleepy next day	Fall asleep in daytime

Weight Cigarettes per day:
Average alcohol intake per day:
Collar size:
Medications:
Medical problems:

Present day

Snoring severity:

1	2	3	4	5	6	7	8	9	10

Position:

Some nights some positions	Some nights all positions	Every night some positions	Every night all positions

Loudness:

Disturb partner some nights	Disturb partner every night	Sleep in separate rooms sometimes	Sleeps in separate rooms every night	Stop breathing intermittently

Quality of sleep

Good nights sleep	Wake many times	Feel sleepy next day	Fall asleep in daytime

Weight: Cigarettes per day:
Average alcohol intake per day:
Collar size:
Medications:
Medical problems

About the operation

Did you have a ''sleep study'' before or after your operation?
Were your tonsils removed? As part of the operation? At another time?
Mark on the scale the pain suffered immediately after:

1	2	3	4	5	6	7	8	9	10

Mark on the scale your overall satisfaction with the operation

1	2	3	4	5	6	7	8	9	10

Would you undergo this operation again?
Have you had any other operations for snoring before or since?
Have you ever used CPAP?
Do you have any lasting problems relating to the operation?

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