

Rhinoplasty and its effects on the perception of beauty

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SUMMARY

Introduction: Experts on nasal cosmetics and nasal surgery agree that aesthetic rhinoplasty leads to overall facial beautification and the perception of youth in patients. This “assumed truth” has never been proven in the international literature.

Aim: To examine increases in facial attractiveness ratings after rhinoplasty surgery.

Methods: We conducted a study series by choosing 30 female patients on whom we had operated and 25 evaluators in a single blind trial. The evaluators graded the patients’ attractiveness before and after surgery.

Results: Beauty indices were significantly improved after the operation.

Conclusion: According to the third-party evaluation, the patients appeared prettier after undergoing aesthetic rhinoplasty.

Keywords: rhinoplasty, beauty, perception.

INTRODUCTION

Rhinoplasty is an existing surgical practice intended to return nasal harmony to a patient. Surgeons assume that patients will look prettier and younger after the operation. This statement may appear obvious, but the international literature contains no statistical study that proves this.

The aim of our work was to prove that impartial evaluators’ perception of the beauty and youth of patients aged 25–50 years would increase after the patients had undergone primary rhinoplasty. Our results are statistically significant.

METHOD

The present study included 30 patients who had undergone primary rhinoplasty at Hospital de Clinicas and the CECHIN otolaryngology centre in Buenos Aires, Argentina, between 2009 and 2011.

We used facial photographs of the patients, including front, profile, and $\frac{3}{4}$ angles. The recruited patients had typical defects such as nose tip drop and nasal dorsum hump. All cases involved open rhinoplasties using *redistributive* and *non-resective techniques* (1).

Photographs were obtained before and after (at least 6 months) each patient’s operation. All photographs

were obtained by the same person with the same camera in identical light conditions, the same setting, and from the same perspective and distance.

The photographs were loaded onto Microsoft PowerPoint slides (2 displayed per patient, one preoperative and one postsurgical). Each slide displayed 3 photographic angles (front, profile, and $\frac{3}{4}$) (Figure 1).



Figure 1. Example of patient used in the study. Top photograph is pre-operative. Bottom photograph is post-operative. Note that the subject is pictured from the front, $\frac{3}{4}$, and profile angles.

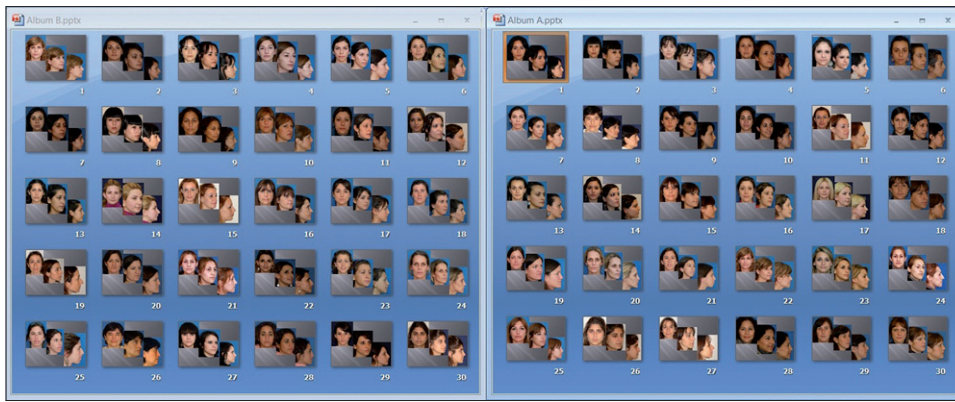


Figure 2. Distribution of patients in 2 groups of 30 slides each. Each slide in the group exhibits pre-operative and post-operative patient pictures captured from the front, ¾, and profile angles.

Group A			Group B			Group A			Group B		
Order #	Patient #	Condition	Order #	Patient #	Condition	Order #	Age	Beauty	Order #	Age	Beauty
1	3	pre	1	25	post	1	23	7	1	50	6
2	10	post	2	4	pre	2	52	6	2	24	4
3	20	post	3	3	post	3	24	8	3	25	7
4	6	pre	4	15	pre	4	30	5	4	21	3
5	23	pre	5	24	pre	5	30	4	5	26	8
6	14	pre	6	6	post	6	35	5	6	32	7
7	24	post	7	14	post	7	28	5	7	36	6
8	30	pre	8	10	pre	8	45	2	8	24	4
9	1	post	9	8	pre	9	22	9	9	26	2
10	9	post	10	26	pre	10	23	7	10	50	3
11	27	pre	11	17	pre	11	24	5	11	30	9
12	11	pre	12	18	post	12	23	6	12	26	8
13	4	post	13	11	post	13	28	7	13	24	9
14	18	pre	14	13	pre	14	24	6	14	27	4
15	21	pre	15	27	post	15	41	5	15	38	7
16	17	post	16	21	post	16	32	5	16	50	5
17	13	post	17	20	pre	17	60	8	17	25	7
18	5	pre	18	2	post	18	22	7	18	26	9
19	19	post	19	28	pre	19	28	7	19	42	3
20	12	pre	20	19	pre	20	36	7	20	22	2
21	22	post	21	29	post	21	30	6	21	15	6
22	25	pre	22	7	pre	22	45	4	22	33	2
23	7	post	23	5	post	23	30	9	23	28	4
24	29	pre	24	12	post	24	16	6	24	38	7
25	15	post	25	22	pre	25	25	8	25	30	7
26	16	pre	26	30	post	26	21	7	26	50	6
27	28	post	27	23	post	27	39	3	27	22	7
28	8	post	28	9	pre	28	38	6	28	29	3
29	2	pre	29	1	pre	29	30	6	29	22	6
30	26	post	30	16	post	30	50	6	30	26	4

Figure 3. A table (left) displaying the random patient distribution in 2 groups in pre-operative or post-operative order. A scan of the survey conducted by an evaluator (right).

Groups of 30 slides were assembled, with each pair of photographs randomly distributed into pre-operative (A) and post-operative (B) groups (see Figure 2), thus ensuring no photograph was exhibited twice in the same group.

The slides were displayed using Microsoft Excel's randomization system (Figure 3, left).

We recruited 25 medical students to perform the evaluations, but did not divulge the reason for the evaluation. They were asked to participate voluntarily, and received no monetary compensation. The students were shown consecutive pictures from groups A and B (Figure 4). After

viewing each slide for 10 seconds, the students scored each photograph for (1) facial attractiveness according to a visual analogue scale (1–10; 1 = very ugly, 10 = very beautiful). Age also was ranked, with the evaluators asked to note the suspected age of the person in each photograph. Students were told that they would view repeat pictures but that the repetition would be random. Viewing more than 60 slides, we assumed it would be highly unlikely that the evaluators would remember the scores they had given to specific subjects previously. The students were not informed that the nose of the patients in the photographs had been altered surgically, nor was any other information provided. The data were recorded on tables designed especially for this study (see Fig. 3, right).



Figure 4. Photograph of evaluation period; note slide projection and evaluator note taking.

The aim of this study was to evaluate data and verify significant differences between scores before and after the surgery.

In the present study, we posed the following hypotheses: (1) rhinoplasty has positive effects on beauty; the post-rhinoplasty beauty index is higher than the pre-rhinoplasty index, and (2) rhinoplasty significantly decreases perceived age.

RESULTS

All included parameters were inserted into an Excel table: one table per presentation. Following the introduction of each set of patient and variable data, we compiled a database with SPSS (Statistical Package for the Social Sciences, version 2.0). Tables 1 and 2 list the averaged results, including pre-operative and post-operative standard deviation and error.

The average pre-operative beauty ranking on a visual analog scale of 1–10 was 5.38, whereas the post-operative beauty ranking was 5.79. The average age guessed for individuals in pre-rhinoplasty photographs was 30–31 years, whereas the average post-rhinoplasty age guessed was 24–30 years. $P = 0.001$ was established for improved facial beauty and $P = 0.830$ for the appreciation of age.

DISCUSSION

Facial beauty perception has been studied broadly over the past decades (2). Studies on facial proportionality indicate its influence on the perception of beauty (3).

Certain studies have evaluated beauty after treatments such as nasal reconstruction (4) and orthodontics (5). Fan et al. studied physical attractiveness in women

Table 1. Survey results (average).

Patient	Pre-operative		Post-operative	
	Age	Beauty	Age	Beauty
1	23,48	6,44	21,6	8,04
2	27,44	5,08	26,84	6,04
3	30,16	5,8	32,32	5,6
4	26,96	4,92	27,4	4,36
5	26,68	6,12	26,12	6,56
6	30,72	5,76	29,76	6,24
7	28,96	6,56	28,52	5,92
8	37,24	4,2	38,36	5,8
9	25,68	6,8	27,24	5,2
10	27,64	4,8	27,8	5,64
11	24,36	5,72	24	6,24
12	36,96	5,16	35,24	5,32
13	30,04	4,44	34,08	5,56
14	28,08	4,8	29,56	5,72
15	28,56	6,36	28,2	5,6
16	25,84	5,08	25,4	5,72
17	30,96	5,72	30,2	6,08
18	25,84	5,12	25,32	5,64
19	27,56	5,16	27,96	5,28
20	23,44	7,08	26,16	8,16
21	39,88	5,88	39,92	6,16
22	28,88	5,08	28,44	5,36
23	27,76	4,2	25	5,64
24	26,04	5,84	26,44	6,04
25	41,36	5,64	39	5,96
26	38,12	4,4	38,8	5,2
27	29,88	4,8	30,6	5,8
28	36,88	5,2	36,96	5,72
29	27,6	4,4	26,56	4,52
30	46,36	4,72	43,4	4,72

Table 2. Survey results (averages, and standard deviation and error).

Variable	Group	Average	Standard Deviation	Standard error
Beauty	Pre	5,38	1,585	0,058
	Post	5,79	1,607	0,059
Age	Pre	30,31	6,615	0,242
	Post	30,24	6,364	0,232

based on the body mass index; slim women were deemed more attractive (6). Most studies have used a visual analog scale from 1–10 (1 = not pretty; 10 = very pretty) (7–9).

Several studies also have evaluated patient satisfaction and self-perception of beauty, but these types of efforts do not match the assessment of an external observer. Prior studies have not evaluated primary rhinoplasty outcomes in terms of beauty, nor has perceived age been evaluated. After undergoing rhinoplasty, most patients appear much younger.

Our team studied the effects imparted by rhinoplasty on the perception of facial beauty (i.e., that patients' faces would appear more attractive after the operation). We wish to highlight that the surgery is performed only on the nose; however, the face as a whole ultimately looks more attractive.

Certain studies have shown that a person focuses on the eyes, mouth, and ears when meeting someone for the first time; in the presence of an aesthetic facial defect, the individual focuses on the defect or asymmetry. We understand that a natural outcome of rhinoplasty is that a patient is viewed as being prettier overall based on holistic perception of the face, and not only from having a prettier nose.

Regarding age, we were amazed to discover a lack of significant differences regarding perceived patient age pre-rhinoplasty and post-rhinoplasty. We believe inherent rejuvenation occurs due to rhinoplasty, but this was not reflected in this study. For future studies, we believe that 3 variables should be corrected to prove the influence of rhinoplasty on the perception of age: (1) use an older group of patients for whom rhinoplasty would create a greater difference in the perception of age, (2) photograph post-operative patients within 2–6 years after surgery, and 3) enroll patients with nasal tip drop because the rejuvenation effect is far greater than in cases corrected by descendant rotation. We will make these adjustments in future studies.

CONCLUSION

This study proved that patients who have undergone rhinoplasty appear more beautiful.

We conclude that rhinoplasty influences facial beauty positively and in a statistically significant manner. With regard to age, we observed a rejuvenation effect.

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