Can Sex Improve Nasal Function?—An Exploration of the Link Between Sex and Nasal Function

Olcay Cem Bulut, MD1,2, Dare Oladokun, MBChB3, Burkard M. Lippert, MD1, and Ralph Hohenberger, MD2

Abstract

Objectives: This study was conducted to examine the impact of sexual activity on nasal breathing and compare such effect to that of a nasal decongestant. Methods: We evaluated nasal breathing at 5 different times: (1) before sexual activity (baseline), (2) immediately after sexual activity, (3) 30 minutes, (4) 1 hour (5), and 3 hours after sexual climax. Same measurements were taken on the second day following application of nasal decongestant spray. For evaluation of nasal breathing, we used a visual analogue scale (VAS). Additionally, we used a portable rhinometric device to measure resistance and nasal flow. Results: Nasal breathing improved significantly after sexual intercourse with climax to the same degree as after application of nasal decongestant for up to 60 minutes, as measured subjectively with the VAS (sex/C0 3.6, P < .001; spray/C0 3.2, P < .001). This was confirmed in the objective rhinometric data as mean nasal flow (mL/s) increased while resistance decreased immediately (flow sex +214, P < .001; flow spray +235, P < .001), 30 (flow sex +249, P < .001; flow spray +287, P < .001), and 60 minutes (flow sex +180, P < .001; flow spray +287, P < .001) post-intervention. Nasal breathing was back to the baseline level after 3 hours following sexual intercourse, while it continued to be improved for longer after application of nasal decongestant. Only participants having nasal obstruction (Nasal Obstruction Symptom Evaluation score >30) showed nasal function improvement after sex. Conclusions: Sexual intercourse with climax can improve nasal breathing to the same degree as application of nasal decongestant for up to 60 minutes in patients having nasal obstruction.

Introduction

A physiological connection between the nose and the genitals has long been proposed.1,2 Wilhelm Fliess (1858-1928), an otolaryngologist practicing in Berlin, was Sigmund Freud’s (1856-1939) closest friend and confidant.3,4 The theory of “reflex nasal neurosis” was published by Fliess in 1897 postulating a physiological connection between the nose and the genitals.3,4 Specific “genital spots,” according to Fliess, located on the inferior nasal turbinates played an important role in the “naso-genital” relation. Freud and Fliess elaborated on this theory in letters over the next years.5 Sigmund Freud, who underwent inferior turbinate surgery twice by Fliess, even referred publicist Emma Eckstein for surgery, whom he diagnosed with “nasal reflex neurosis.” The surgery ended in a disaster, resulting in recurrent nasal bleeding and a disfigured nose.1,4 Bizarre theories of Fliess of neurosis never held any scientific validity.1,4 Reports of the naso-genital relationship has since diminished in the medical literature.

Parasympathetic and sympathetic nerves innervate the vasculature and glands of the nasal mucosa with opposing actions. Parasympathetic nerves and their neurotransmitters cause mucus secretion and/or vasodilatation. On the contrary, sympathetic nerves and sympathetic neurotransmitters have little effect on mucus secretion but constrict the blood vessels of the nasal mucosa. The opposing actions of these systems most likely determine the effect of nasal patency.6,7 It is known that physical exercise as well as hormonal changes can have an effect on nasal airway resistance in short

1 Department of Otorhinolaryngology, SLK Kliniken Am Gesundbrunnen, Heilbronn, Germany
2 Department of Otorhinolaryngology, University Hospital Heidelberg, Im Neuenheimer Feld, Heidelberg, Germany
3 Department of Otolaryngology, York District Hospital, York, UK

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Corresponding Author:
Olcay Cem Bulut, MD, Department of Otorhinolaryngology, SLK Kliniken Am Gesundbrunnen, 20-26, 74078 Heilbronn, Germany.
Email: ocbulut@hotmail.com
and in long term. However, there are no studies investigating the effect of sexual activity on nasal breathing. This study was conducted to examine the impact of sexual activity on nasal breathing and compare the effect to nasal decongestant. Is “love” all you need to improve nasal breathing?

**Material and Methods**

The study received ethical approval from the institutional review board of the University of Heidelberg (Ethics committee of the Medical Faculty of Heidelberg, reference number S-385/2020). All participants signed an informed consent.

Eighteen couples (each 1 male and 1 female) enrolled in this study resulting in 36 participants. The study was conducted in 2020. All participants were health care workers and/or partners of health care workers. For evaluation of subjective nasal breathing a visual analogue scale (VAS) from 0 (no impairment) to 10 (no nasal breathing possible) was applied. For objective data, nasal resistance and flow were measured with a portable rhinometric device (Rhinomanometer 300, ATMOS Medizintechnik). The measurements were obtained at the participants’ home by themselves. The VAS and the usage of the rhinometric device were explained in detail to the participants.

Assessments of nasal function were performed at 5 specific points namely (1) before sexual activity (baseline), (2) immediately after orgasm, (3) 30 minutes, (4) 1, and (5) 3 hours after sexual climax. “Immediately” was defined as within 1 minute after sexual climax. Climax in female and male is the “sudden discharge of accumulated sexual excitement during the sexual response cycle, resulting in rhythmic muscular contractions in the pelvic region characterized by sexual pleasure.” The data were only obtained if both individuals experienced sexual orgasm. Same data were collected for the study participants on the following day after application of nasal decongestant (0.1% xylometazoline; 1 application per side).

Nasal Obstruction Symptom Evaluation (NOSE) questionnaires were used to assess preexisting impairments of nasal function (range 0-100, lower scores indicate better nasal breathing). The NOSE questionnaire is a validated and reliable questionnaire developed by Stewart et al, consisting of 5 questions assessing nasal obstruction within the past month. Lipan et al showed that a NOSE score of 30 best differentiates between patients with or without nasal obstruction with higher scores indicating worse obstruction. All participants also underwent prior anterior rhinoscopy by an otolaryngologist. Participants with acute or chronic rhinitis/rhinosinusitis were excluded. None of the participants had undergone prior nasal surgery or showed signs of nasal polyps.

Statistical analysis was performed with an anonymized data set using the statistical software SPSS version 23.0.00 (IBM). The difference between mean scores before and after intervention and between the 2 interventions (“sex” and “spray”) were analyzed by a t test for dependent samples or in case of less than 16 data sets with Wilcoxon test. A difference was considered statistically significant with $P \leq 0.05$.

**Results**

Complete data of the VAS and the NOSE score were retrieved for all 36 participants, while rhinometric data were available for 16 participants (8 couples). Average age at the time of study conduction was 32.9 (SD ± 3.9; range 26-42) years, and average NOSE score was 47.4 (SD ± 20.8; range 15-90). All participants claimed to have achieved sexual climax.

**Nasal Function Pre- and Post-Intervention**

Participants showed an improved nasal breathing after sexual intercourse and after nasal spray application: mean rhinometric flow increased while resistance and VAS decreased immediately, 30 minutes, and 60 minutes post-intervention. Nasal breathing was back to the baseline level 3 hours after sexual intercourse, whereas it remained significantly improved 3 hours after application of nasal decongestant spray (Figure 1, Table 1).

**Comparison at Each Time Point**

Visual analogue scale scores were similar for both interventions before, immediately, 30, and 60 minutes after intervention as measured with the VAS. However, mean postcoital VAS scores were significantly higher compared to post-decongestant values at 3 hours post-intervention ($P < .001$; Figure 2).

In the rhinometric data, there were no significant differences before and immediately after both interventions (Table 2). After 30 minutes, mean flow and resistance showed its peak indicating the least nasal obstruction. In the sex group, this effect decreased after 60 minutes and was back to the baseline 3 hours postcoital. In the spray group, nasal breathing remained improved after 3 hours.

In order to evaluate any influence from preexisting nasal function impairment, separate analyses were done for NOSE...
scores below and above 30 according to Lipan et al. A NOSE score of 30 best differentiates between patients with or without nasal obstruction with higher scores indicating worse obstruction. Nine participants had NOSE scores below 30. They showed significantly lower mean VAS scores (3.0) in the baseline measure than the 27 persons above 30 (7.74; P < .001), indicating less nasal obstruction.

Improvements were more tempered in the group with a NOSE score below 30 (no nasal obstruction). In this group, the VAS improved slightly for both interventions immediately and 30 minutes post-intervention (from 3 to 2.7 to 2.3 for sex and 3.6 to 3.2 to 3.4 for spray). The VAS rose 1 and 3 hours after intervention (3.2 and 3.7 for both groups) indicating more nasal obstruction as shown in Figure 3. However, all improvements were not statistically significant (P > .05).

Patients with a NOSE score over 30 (nasal obstruction) showed significant improvement in the spray group (all VAS post-intervention measurements were significantly improved compared to VAS baseline P < .05). In the sex group, all measurements improved significantly compared to VAS baseline (P < .001) except after 3 (P = .35) hours. Rhinometric data showed similar results (improvement at time points immediately, 30, 60 minutes after sex and spray [P = .003], and no improvement in either group after 3 hours, P = .29 and .78 for resistance and flow).

| Table 1. Mean Difference to Baseline Data at the 4 Time Points for Interventions “Spray” and “Sex.”a |
|---|---|---|---|---|---|---|---|---|---|
| n | Baseline | SD | Climax | P | 30 minutes | P | 60 minutes | P | 3 hours | P |
| Spray | 16 | Flow | 504 | 112.9 | +235 | <.001 | +287 | <.001 | +287 | <.001 | +271 | <.001 |
| | 16 | Res | 0.4 | 0.1 | −0.19 | <.001 | −0.19 | <.001 | −0.19 | <.001 | −0.19 | <.001 |
| | 36 | VAS | 6.6 | 2.1 | −3.5 | <.001 | −3.8 | <.001 | −3.2 | <.001 | −1.6 | <.001 |
| Sex | 16 | Flow | 480 | 125.8 | +214 | <.001 | +249 | <.001 | +180 | <.001 | −40 | .06 |
| | 16 | Res | 0.4 | 0.06 | −0.16 | <.001 | −0.17 | <.001 | −0.15 | <.001 | −0.02 | .2 |
| | 36 | VAS | 6.6 | 2.3 | −3.6 | <.001 | −3.8 | <.001 | −3.2 | <.001 | 0.0 | 1.00 |

Abbreviation: flow, nasal flow in mL/s; Res, nasal resistance in sPa/mL; VAS, visual analogue scale.

*a Bold values denote statistical significance (P < .05).
Discussion

We report improved nasal breathing after sexual intercourse for up to 60 minutes and to the same extent as application of nasal decongestant as measured with subjective VAS. This was confirmed by objective rhinometric data as mean nasal flow increased while resistance decreased immediately, 30 minutes, and 60 minutes post-intervention. Three hours after sexual intercourse, nasal breathing was back to the baseline level while it remained improved for longer after nasal decongestant. The effect was significant in patients with some preexisting nasal obstruction (NOSE score >30).

Although Sigmund Freud and Wilhelm Fliess already described a physiological connection between the nose and the genital area a long time ago,1-3,5 this is the first exploratory study investigating sexual activity with climax and its impact on nasal breathing and patency. The strength of this study is the use of both subjective (VAS) and objective (rhinometric) measurements at different time points. Comparison to nasal decongestants were also very informative.

This study however has major limitations. We were not able to collect rhinometric data in all participants. This could be due to the participants’ inability to focus on the device before and immediately after intercourse. The participants were all health care professionals indicating that our study group does not represent an equally distributed population. Our relatively high mean NOSE score and average VAS at baseline suggest that we selected participants complaining of nasal obstruction. This may be the reason why they agreed to conduct in our study causing a selection bias in our study population. The collection of data by the participants may not be reliable. As the rhinometric measurements were obtained at the participants’ home by themselves, the compliance with the guidelines cannot be guaranteed. Acoustic rhinometric evaluation would have been ideal, but a portable version was unavailable. Also, the results of this study, though interesting, may not be generalizable.

Stimuli leading to changes in nasal breathing include physical exercise, temperature, alterations of body position, and hormonal changes—neurologic syndromes and dentistry also have an effect on nasal reflexes.1,9-12,16 An increase in nasal patency with exercise is well known and described in the literature.10,17-19 Hanci et al described a decrease in nasal resistance after exercise in swimmers, runners, and handball players.20 To our knowledge, sexual activity and its effect on nasal breathing has never been investigated. Studies investigating nasal function and exercise have mainly assessed isometric exercises.21,22 Wilde et al reported that isotonic exercise causes a drop in nasal resistance and may have a nasal decongestant effect.22 Depending on the sexual exercise, one may experience isotonic or isometric contractions. Investigating different intercourse positions and its effect on nasal patency would certainly be an interesting future study.

Several studies have focused on the duration of exercises’ effects on nasal breathing.23-25 These report a decrease in nasal resistance up to 30 minutes after exercise. Strohl et al showed that nasal resistance returned to baseline after 30 minutes and was lowest when measured between the first and the fifth minute.25 Our study showed improvements for up to 60 minutes, although diminishing slowly after 30 minutes. Sympathetic reflexes are active in the nasal mucosa, and α-adrenergic agonists decrease mucosal thickness and increase nasal patency.1 Sexual intercourse is not normal physical exercise. Sexual arousal plus the climax at the end trigger not just sympathetic reflexes but also parasympathetic ones. The interaction is not fully understood but maybe the reason for prolonged nasal patency. A study to further investigate this point would be a masturbation control group and a sexual intercourse without orgasm group. All of our participants reported sexual climax. Whether multiple female orgasms would further increase nasal patency or if the maximal improvement occurs after a single orgasm is an interesting question for future exploration.

Studies suggest that nasal airflow resistance decreases with intensity but not duration of exercise.10 We did not investigate the duration of sexual intercourse in our cohort; however, extrapolating the results of previous exercise studies, one might
suggest that sexual intercourse duration is not as important as actually just “doing it.”

Other interesting studies have reported links between specific physical activities and nasal function. Hasegawa et al reported that breath holding for 30 seconds decreased nasal resistance. Performing 5 minutes of axillary pressure (crutch reflex) leads to contralateral increase in nasal vasoconstriction. Jang et al showed that in nasal septal deviation, the mucosal response is more prominent in the concave nasal cavity. Incorporating these findings could potentially synergistically improve nasal function even more.

If further studies prove that masturbation alone has similar positive effect, there might be a potential natural substitution for nasal decongestant application in some cases. Headaches secondary to sinus problems might benefit from such “natural means.” Freud and Fliess “naso-genital” reflexes may not be due to genital spots located on the nasal turbinate. However, this study does suggest a physiological link between sexual activity and nasal function. Such link warrants further exploration if only for the interesting findings it is bound to produce.

Conclusion

Sexual intercourse with climax improves nasal breathing to the same degree as application of nasal decongestant for up to 60 minutes as measured with subjective VAS. This was confirmed by objective rhinometric data mean as nasal flow increased while resistance decreased immediately, 30 minutes, and 60 minutes post-intervention. Three hours after sexual intercourse, nasal breathing was back to the baseline level in the “sex group,” whereas after application of nasal decongestant spray, nasal breathing was still significantly improved. Only participants having nasal obstruction (NOSE score >30) showed improvement after sex.

Declaration of Conflicting Interests

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ORCID iD

Olcay Cem Bulut https://orcid.org/0000-0002-6999-2074

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