

# Il ruolo del naso nei disturbi respiratori del sonno.

## Note relative alla scelta della palatoplastica mediante DISE

A. Barbieri – V. Roustan

S.C. Otorinolaringoiatria ASL 4 Liguria





“Dottore ho il naso  
così tappato che  
di notte vado in  
apnea...se non  
metto le gocce  
tutte le sere  
soffoco...la prego  
mi operi, mi tolga i  
turbinali”



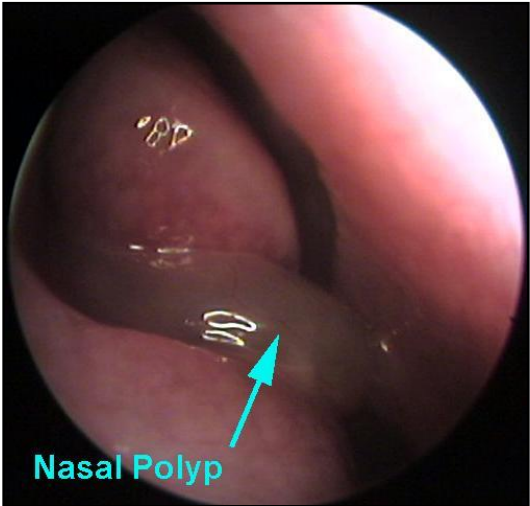
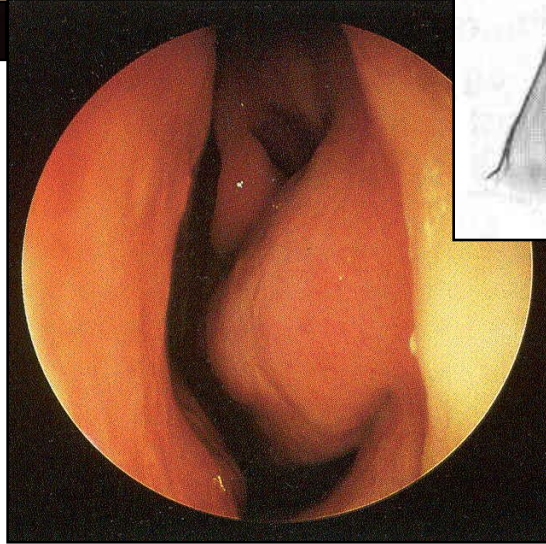
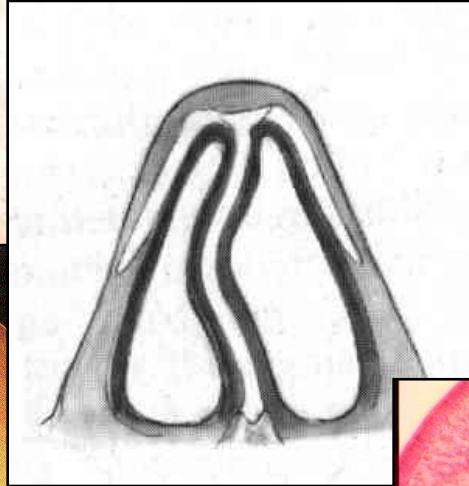
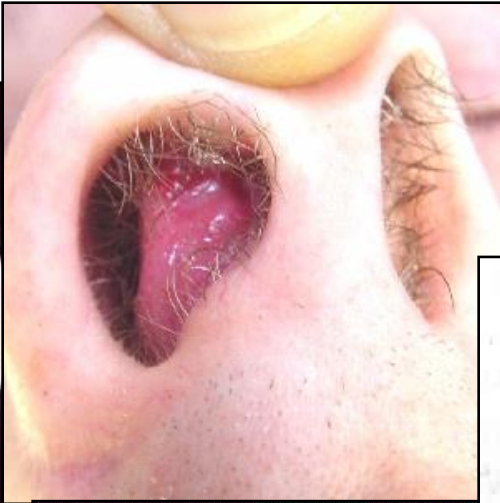
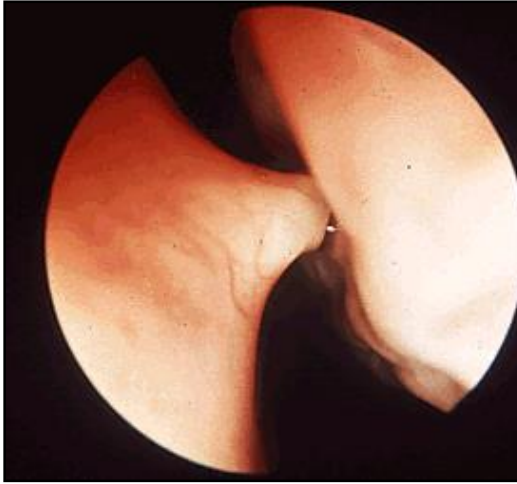
# QUADRI PATOLOGICI NASO-SINUSALI



Anomalie anatomiche (setto nasale  
ipertrofia turbinati, stenosi valvola nasale)

Rinosinusite cronica con polipi  
Rinite allergica e non(NAR)  
Neoformazioni nasali(fossa  
orofaringea)

Le alterazioni reversibili(infiammatorie) alterano  
maggiormente la struttura del sonno rispetto a quelle  
irreversibili(anatomiche)



# Fisiopatologia nasale e osas

- Aumento delle pressioni faringee
- Perdita riflesso naso-ventilatorio
- Induzione del respiro orale
- Aumento dell'inflammazione
- Ridotta efficacia CPAP



ACTA OTORHINOLARYNGOLOGICA ITALICA 2019;39:250-256; doi: 10.14639/0392-100X-2173

OPEN ACCESS 

OSAHS

**Nasal pathologies in patients with obstructive sleep apnoea**

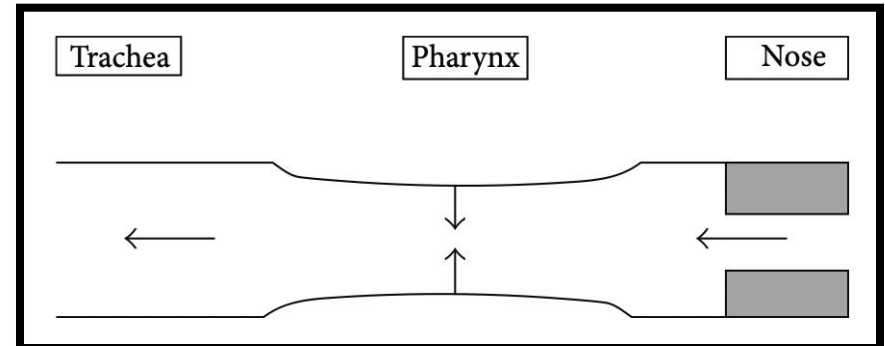
*Patologie nasali in pazienti affetti da sindrome delle apnee ostruttive del sonno*

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F. MONTEVECCHI<sup>3</sup>, C. VICINI<sup>3</sup>

# AUMENTO DELLE PRESSIONI FARINGEE

La respirazione nasale aiuta a mantenere una pressione positiva nelle vie aeree superiori, l'alterazione di tale processo segue le regole del Resistore di Starling

- L'ostruzione nasale può portare ad una pressione negativa endoluminale più elevata nella faringe durante l'inspirazione, aumentando la tendenza al collasso delle pareti e quindi  
Z all'apnea secondo l'effetto Bernoulli



# RESPIRAZIONE ORALE INSTABILE

La restrizione al passaggio dell'aria dovuta a patologia nasale costringe alla respirazione orale, tuttavia tale meccanismo risulta inefficace per perdita del moto vorticoso del flusso aereo ed aumento delle resistenze generali di quasi tre volte superiori a quello nasale

Il passaggio del flusso aereo attraverso la bocca genera instabilità della via aerea, alterazione della posizione della lingua, mandibola e del palato molle, favorendo il restringimento a livello faringeo e diminuzione del diametro retroglossico



# PERDITA RIFLESSO NASO-VENTILATORIO

L'alterato flusso aereo riduce l'attività dei recettori nasali con deattivazione del riflesso naso-ventilatorio e conseguente azione inibitoria sul tono muscolare, frequenza respiratoria e ventilazione minuta.

Tale fenomeno induce slatentizzazione di una apnea subclinica così come aumento della durata episodi di apnea

N. J. Douglas, D. P. White, J. V. Weil, and C. W. Zwillich, "Effect of breathing route on ventilation and ventilatory drive," *Respiration Physiology*, vol. 51, no. 2, pp. 209–218, 1983

# AUMENTO INFIAMMAZIONE

L'infiammazione della mucosa nasale può estendersi alle vie aeree superiori, contribuendo al loro restringimento con aumento delle resistenze nasali e alla maggiore probabilità di collasso

Il 94% dei pz con AR o NAR riferisce ostruzione respiratoria notturna anche se non mostrano indici AHI alterati rispetto alla media

Si ipotizza inoltre che i mediatori infiammazione possano interferire sulla regolazione del sonno



Systematic Review/Meta-analysis

**Impact of Treatment for Nasal Cavity Disorders on Sleep Quality: Systematic Review and Meta-analysis**

Jacob Fried, MD<sup>1</sup>, Erick Yuen<sup>1</sup>, Kathy Zhang<sup>1</sup>, Andraia Li<sup>1</sup>, Nicholas R. Rowan, MD<sup>2</sup>, Rodney J. Schlosser, MD<sup>1</sup>, Shaun A. Nguyen, MD<sup>1</sup>, and David A. Gudis, MD<sup>3</sup>

AMERICAN ACADEMY OF  
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SAGE

2018 Systematic Review and Meta-Analysis

**Medicine**

OPEN

**Association of allergic rhinitis with obstructive sleep apnea**  
A meta-analysis

Yuan Cao, MD<sup>a</sup>, Shuang Wu, MMF<sup>b</sup>, Liyu Zhang, MMF<sup>b</sup>, Ying Yang, PhD<sup>c</sup>, Sancheng Cao, BS<sup>b</sup>, Qiao Li, PhD<sup>b,c,\*</sup>

# RIDOTTA EFFICACIA CPAP

Nei pazienti OSA intrattamento con CPAP, una significativa ostruzione nasale può rendere la terapia meno confortevole ed efficace, portando ad una minore aderenza al trattamento

La correzione chirurgica si traduce in riduzione delle pressioni di titolazione con aumento dell'aderenza alla terapia



Migueis DP, Thuler LC, Lemes LN, Moreira CS, Joffily L, Araujo-Melo MH. Systematic review: the influence of nasal obstruction on sleep apnea. *Braz J Otorhinolaryngol.* 2016 Mar-Apr;82(2):223-31. doi: 10.1016/j.bjorl.2015.05.018. Epub 2016 Jan 7. PMID: 26830959



## Consensus Statements among European Sleep Surgery Experts on Snoring and Obstructive Sleep Apnea: Part 2 Decision-Making in Surgical Management and Peri-Operative Considerations

Ewa Olszewska <sup>1</sup>, Andrea De Vito <sup>2</sup>, Carlos O'Connor-Reina <sup>3</sup>, Clemens Heiser <sup>4 5</sup>, Peter Baptista <sup>6</sup>, Bhik Kotecha <sup>7 8</sup>, Olivier Vanderveken <sup>4 9</sup>, Claudio Vicini <sup>10</sup>

Affiliations + expand

PMID: 38610848 PMCID: PMC11012596 DOI: 10.3390/jcm13072083



16. In patients with non-compliance, the following causes of non-compliance should be investigated and addressed: a. mask size/shape and mask fitting on the face; b. PAP settings; c. nasal obstruction, and if present, the cause of the nasal obstruction. ■ 100

17. In patients for whom nasal obstruction is the suspected cause of non-compliance with PAP, medical and/or surgical management of nasal obstruction should be priorities for helping PAP compliance (in patients motivated for PAP treatment) prior to the sleep surgery. ■ 100



# IMPATTO CHIRURGIA NASALE

La chirurgia nasale è in grado di impattare sui parametri soggettivi di qualità del sonno e sonnolenza, oltre che di russamento e resistenze nasali, ma non di un miglioramento statisticamente significativo dell'AHJ

> J Clin Med. 2024 Sep 13;13(18):5438. doi: 10.3390/jcm13185438.

## Consensus Statements among European Sleep Surgery Experts on Snoring and Obstructive Sleep Apnea: Part 3 Palatal Surgery, Outcomes and Follow-Up, Complications, and Post-Operative Management

Ewa Olszewska <sup>1</sup>, Andrea De Vito <sup>2</sup>, Clemens Heiser <sup>3 4</sup>, Olivier Vanderveken <sup>3 5</sup>, Carlos O'Connor-Reina <sup>6</sup>, Peter Baptista <sup>7</sup>, Bhik Kotecha <sup>8 9</sup>, Claudio Vicini <sup>10</sup>



### 4.5. Single-Level vs. Multi-Level Surgery

All sleep surgery experts in the panel agreed that DISE is essential in performing multi-level surgery. The target sites for multi-level surgery were considered as the nose and base of tongue (87.5%). However, the nose alone (87.5%), the epiglottis alone (100%), and the base of the tongue alone (87.5%) were not considered common target sites for multi-level surgery. The panelists were all in agreement that in the presence of isolated obstruction and vibration, single-level palatoplasty was sufficient. Still, in the presence of multiple sites of obstruction and vibration, in addition to palatoplasty, other sites would need to be concurrently targeted.

# CONCLUSIONI

- La conoscenza dei meccanismi di fisiopatologia nasale è indispensabile nel percorso diagnostico terapeutico OSAS.
- Il ruolo del naso appare CONCAUSALE
- In caso di trattamento ventilatorio va posta particolare attenzione alla compliance alla CPAP che può essere influenzata dalle alterazioni a livello nasale
- La risoluzione medica o chirurgica dell'ostruzione nasale è supplementare in una chirurgia multilivello, complementare per l'uso della CPAP.
- In letteratura l'impatto della respirazione nasale sull'architettura e sulla qualità del sonno nell'OSAS non è conclusivo e rimane un'area di ricerca attiva



# Il ruolo del naso nei disturbi respiratori del sonno.

## Note relative alla scelta della palatoplastica mediante DISE

V. Roustan - A. Barbieri

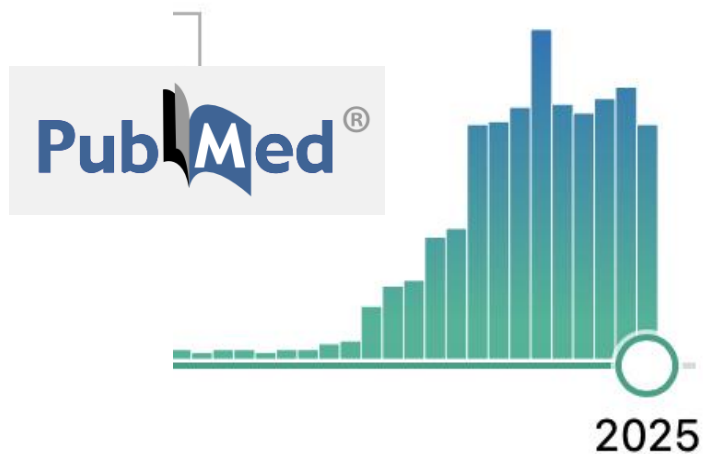
S.C. Otorinolaringoiatria ASL 4 Liguria





Drug-induced sleep endoscopy

(D.I.S.E.)



# Consensus Statements among European Sleep Surgery Experts on Snoring and Obstructive Sleep Apnea: Part 1 Definitions and Diagnosis

Ewa Olszewska <sup>1</sup>, Andrea De Vito <sup>2</sup>, Peter Baptista <sup>3</sup>, Clemens Heiser <sup>4 5</sup>, Carlos O'Connor-Reina <sup>6</sup>, Bhik Kotecha <sup>7 8</sup>, Olivier Vanderveken <sup>4 9</sup>, Claudio Vicini <sup>10</sup>

Affiliations + expand

PMID: 38256636 PMID: [PMC10816926](#) DOI: [10.3390/jcm13020502](#)

## Abstract

Seeking consensus on definitions and diagnosis of snoring and obstructive sleep apnea (OSA) among sleep surgeons is important, particularly in this relatively new field with variability in knowledge and practices. A set of statements was developed based on the literature and circulated among eight panel members of European experts, utilizing the Delphi method. Responses in agreement and disagreement on each statement and the comments were used to assess the level of consensus and develop a revised version. The new version with the level of consensus and anonymized comments was sent to each panel member as the second round. This was repeated a total of five rounds. The total number of statements included in the initial set was 112. In the first

D.  
I.  
S.  
E.

## Part 1

23 Drug-induced sleep endoscopy (DISE) for diagnosing the presence of OSA is	
a. Useful	87.5
b. Not necessary	100
c. Not essential	75
d. Not sufficient	100
24. Drug-induced sleep endoscopy (DISE) for assessing the site (s) of obstruction in OSA is	
a. Useful	87.5
b. Not essential	87.5



## Part 2

4. DISE is essential prior to starting of sleep surgery on the palate.	87.5
5. DISE is not essential prior to sleep surgery in all cases.	100
6. DISE is essential in deciding the type of surgery.	75
7. Follow-up DISE is not essential in all patients THAT UNDERGO palate surgery.	100
15. DISE is essential in multi-level surgery	100

## Part 3

15. Even not considered failed palatal surgery, if there is still OSA:	
a. CPAP needs to be tried again, and wait for CPAP failure, prior to any consideration of surgical treatment	50
b. DISE needs to be repeated prior to any surgical treatment	87.5
c. surgical treatment criteria and options MAY BE DIFFERENT FROM the initial surgery, THEY MAY BE MODIFIED based on the site and severity”	100
d. If the site of obstruction is still the palate, a repeat palatal surgery (with an alternative surgical method) MAY be performed	100

# D.I.S.E.

## European position paper on drug-induced sedation endoscopy (DISE)

Andrea De Vito · Marina Carrasco Llatas · Agnoletti Vanni · Marcello Bosi · Alberto Braghiroli · Aldo Campanini · Nico de Vries · Evert Hamans · Winfried Hohenhorst · Bhik T. Kotecha · Joachim Maurer · Filippo Montevocchi · Ottavio Piccin · Giovanni Sorrenti · Olivier M. Vanderveken · Claudio Vicini

Received: 12 January 2014 / Revised: 4 April 2014 / Accepted: 22 April 2014  
© Springer-Verlag Berlin Heidelberg 2014

### Abstract

**Background** Although drug-induced sedation endoscopy (DISE) represents the most widespread diagnostic tool for upper airway endoscopic evaluation of snoring and obstructive

indications for DISE, and how to report DISE findings, present position paper reports on a consensus as proposed by a group of European experts in the field of DISE after a session during a recent dedicated meeting.



### European position paper on **drug-induced** sleep **endoscopy**: 2017 Update.

De Vito A, Carrasco Llatas M, Ravesloot MJ, Kotecha B, De Vries N, Hamans E, Maurer J, Bosi M, Blumen M, Heiser C, Herzog M, Montevocchi F, Corso RM, Braghiroli A, Gobbi R, Vroegop A, Vonk PE, Hohenhorst W, Piccin O, Sorrenti G, Vanderveken OM, Vicini C.

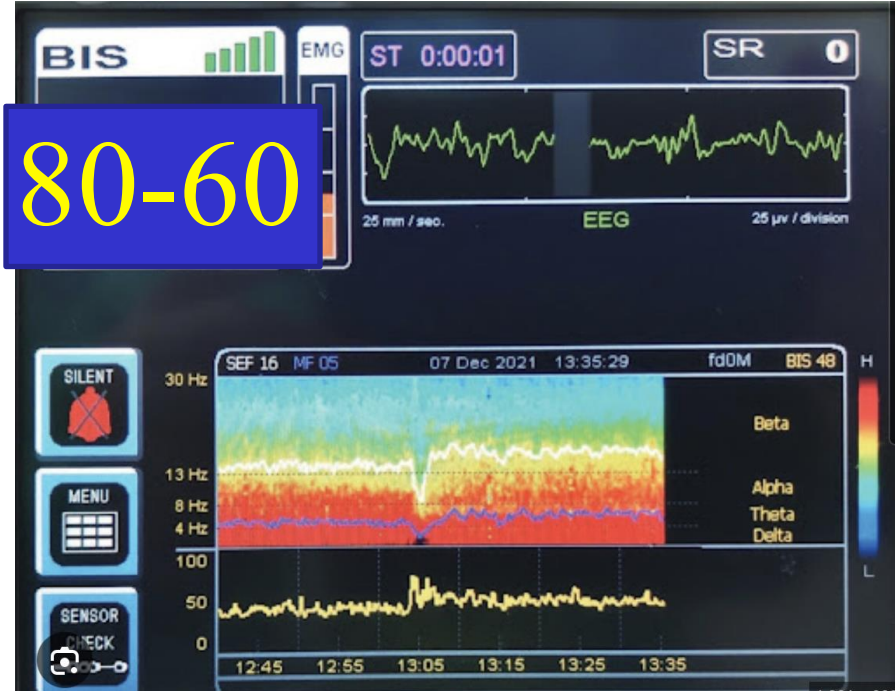
Clin Otolaryngol. 2018 Dec;43(6):1541-1552. doi: 10.1111/coa.13213. Epub 2018 Sep 30. PMID: 30133943 Review.

**BACKGROUND:** The first edition of the European position paper (EPP) on **drug-induced** sleep **endoscopy** (DISE) was published in 2014 with the aim to standardise the procedure, to provide an in-depth insight into the main aspects of this technique and to have a bas ...

D.I.S.E.

**WHERE**

# Cosa utilizzare



Bispectral index (BIS) Monitoring



Vado un attimo fuori di testa,  
vi serve qualcosa??

cit.



# D.I.S.E.



Midazolam  
a basso  
dosaggio  
1-3 mg



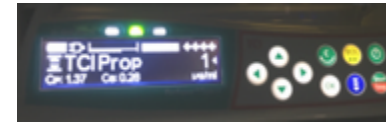
Propofol TCI  
c.p. (Schneider)  
1.1-1.6 µg/ml



## VANTAGGI

Basso dosaggio BDZ > buon  
rilassamento  
muscolare

Facile settaggio profondità in TCI  
Recupero rapido  
Sicurezza



REVIEW ARTICLE

Drug-induced sleep endoscopy in the identification of obstruction sites in patients with obstructive sleep apnea: a systematic review<sup>1,2,3,4</sup>



Alonço da Cunha Viana Jr.<sup>1,2,3,4</sup>, Luiz Claudio Santos Thuler<sup>1,2,3,4</sup>,  
Maria Helena de Araujo-Welo<sup>1,2</sup>

*Le sleep endoscopy come criterio di valutazione pre-chirurgica nei pazienti affetti da turbe del sonno.  
M.Barbieri - C.Arcieri et al.*

# V.O.T.E. classification

**V.** velum  
**O.** oropharinx  
**T.** tongue  
**E.** epiglottis



Eur Arch Otorhinolaryngol 2011  
Drug-induced sleep endoscopy:  
the VOTE classification  
[Eric J. Kezirian](#)<sup>1</sup>  
[Winfried Hohenhorst](#)<sup>2</sup>  
[Nico de Vries](#)<sup>3</sup>

# Il palato



**N**. nose   **O**. oropharynx   **H**. hypopharynx   **L**. larynx

Eur Arch Otorhinolaryngol 2012  
The nose oropharynx hypopharynx and larynx (NOHL)  
classification: a new system of diagnostic  
standardized examination for OSAHS patients  
[Claudio Vicini](#)<sup>1</sup>, [Andrea De Vito](#), [Marco Benazzo](#),

# Il palato



# Il palato



**GRAZIE PER L'ATTENZIONE!!!!!!!!!!!!**



