

# Better Sleep in 2022

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**Sleep-Doctor.com**

# Disclosures

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**Nyxoah**

**Magnap**

**Berendo Scientific**

# Overview

**Why We Sleep**

**Sleep Disturbances**

**Insomnia**

**Snoring and Sleep Apnea**

# Why We Sleep

**Nobody knows exactly why**

**Recovery of body/brain from awake activities**

**Irresistible biological drive/function**

**At least 7 hours per 24-hour period (health)**

**--American Academy of Sleep Medicine**

# **Sleep Disturbances**

**Extremely common**

**Insomnia**

**Snoring, Obstructive Sleep Apnea**

**COVID-19 Pandemic (Jahrami JCSM 2021)**

**Sleep problems: 75% (COVID-19 infection), 36%  
(health care workers), 32% (general population)**

# Insomnia

**Difficulty falling asleep or staying asleep**

**Chronic >1 month**

**Many causes, including biology**

**Normal aging: lighter sleep, increased arousals**

# **Insomnia: What To Do**

**Sleep hygiene: important but often not enough**

**Exercise regularly but not within 3 hours of bed**

**No bath/shower within 2 hours of bed**

**No devices, reading, or watching TV in bed**

**No electronic devices in bedroom**

**No caffeine after early afternoon**

# Insomnia: What To Do

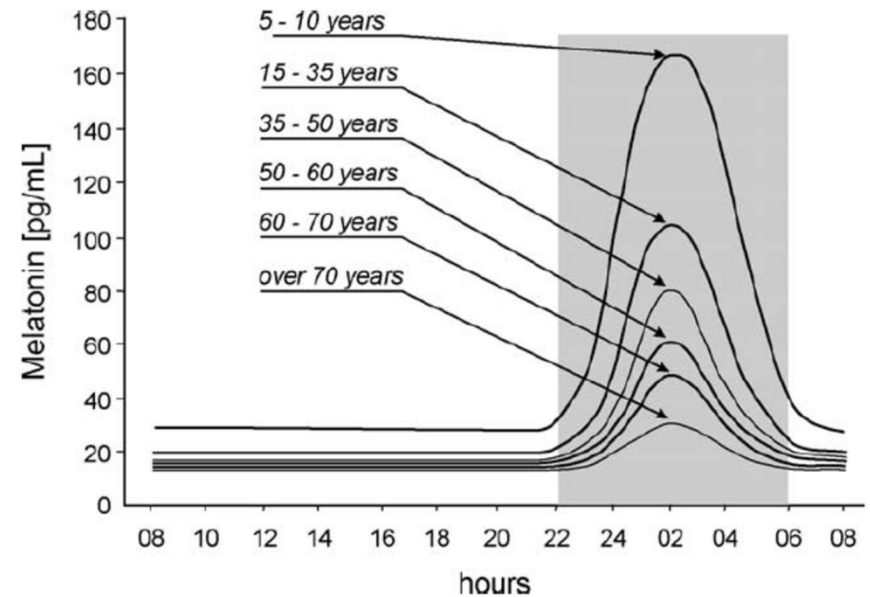
**No late alcohol, Benadryl (OTC sleep)**

**Melatonin (safe, not FDA-approved)  
9-10 mg either 2 hours before or at  
bedtime x 2 weeks**

**Stop if not effective**

**Consider taper if effective**

**Cognitive behavioral therapy for insomnia**





# Snoring

Noise during sleep, usually from vibration

May want to measure loudness, severity

Smartphone apps: SnoreLab

Behavioral: sleep disruption (of others)

Except...

# Obstructive Sleep Apnea

**Blockage in breathing during sleep**

**Behavioral: sleepiness, fatigue, memory loss**

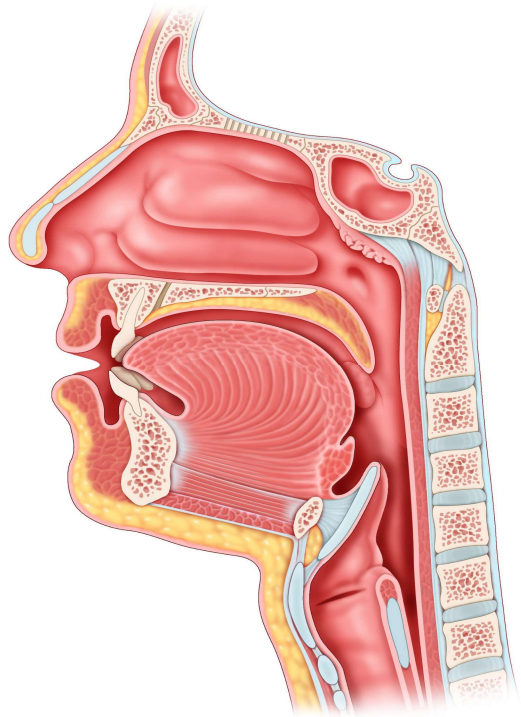
**Health-related: cardiovascular (high blood pressure, heart attack, stroke, death), other**

**National Institutes of Health**

- **OSA affects 18-20 million American adults**

**Many not diagnosed**

# OSA Risk Factors



**Male, Postmenopausal Female**

**Age—children, older adults**

**Weight gain**

**Structural abnormalities**

**Large tonsils or adenoids**

**Large tongue**

**Jaw structure**

**Disruptive snoring**

**Sleepiness**

# Sleep Studies

**Necessary for OSA diagnosis**

**In-laboratory polysomnogram**

**Home sleep apnea test**

**Insurance companies prefer  
home tests**



# Snoring and OSA Treatment

## Conservative

Weight loss

Sleep on side or stomach

Avoid alcohol and sedatives

## CPAP

## Surgery

## Oral appliances



# Common Role of Surgery

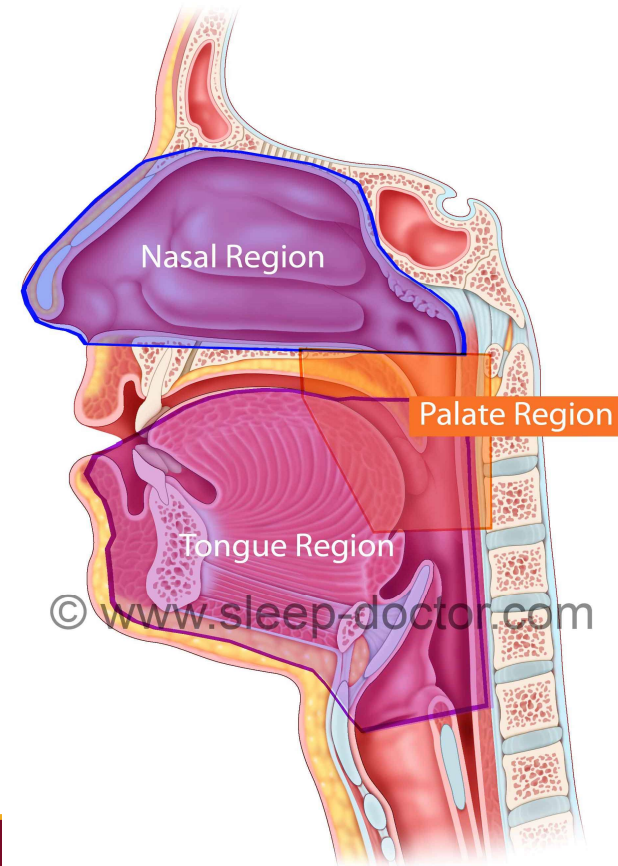
**Snoring not responsive to conservative treatment**

**Adults with OSA unable to tolerate CPAP (30%)**

# OSA Surgical Procedures and Outcomes

**Surgery = Anatomy**

**Effective surgery directed at site(s) of obstruction**



# OSA Surgical Treatment Options

## **Uvulopalatopharyngoplasty**

**Expansion sphincter  
pharyngoplasty**

**Uvulopalatal flap**

**Transpalatal advancement  
pharyngoplasty**

**Z-Palatoplasty**

**Lateral pharyngoplasty**

**Relocation pharyngoplasty**

**Barbed reposition  
pharyngoplasty**

**Genioglossus advancement**

**Mortised genioplasty**

**Tongue radiofrequency**

**Midline glossectomy**

**Hyoid suspension**

**Tongue suspension/stabilization**

**Partial epiglottectomy**

**Hypoglossal nerve stimulation**

**Upper Airway Stimulation  
(Inspire)**

**Maxillomandibular advancement**

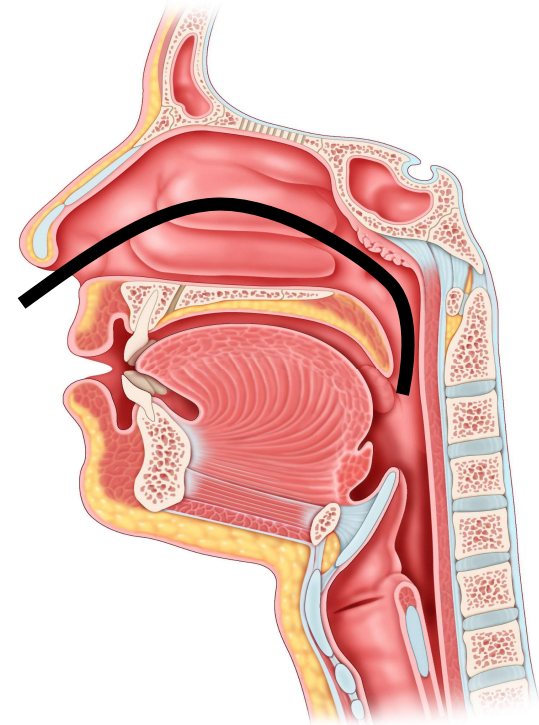


# Drug-Induced Sleep Endoscopy

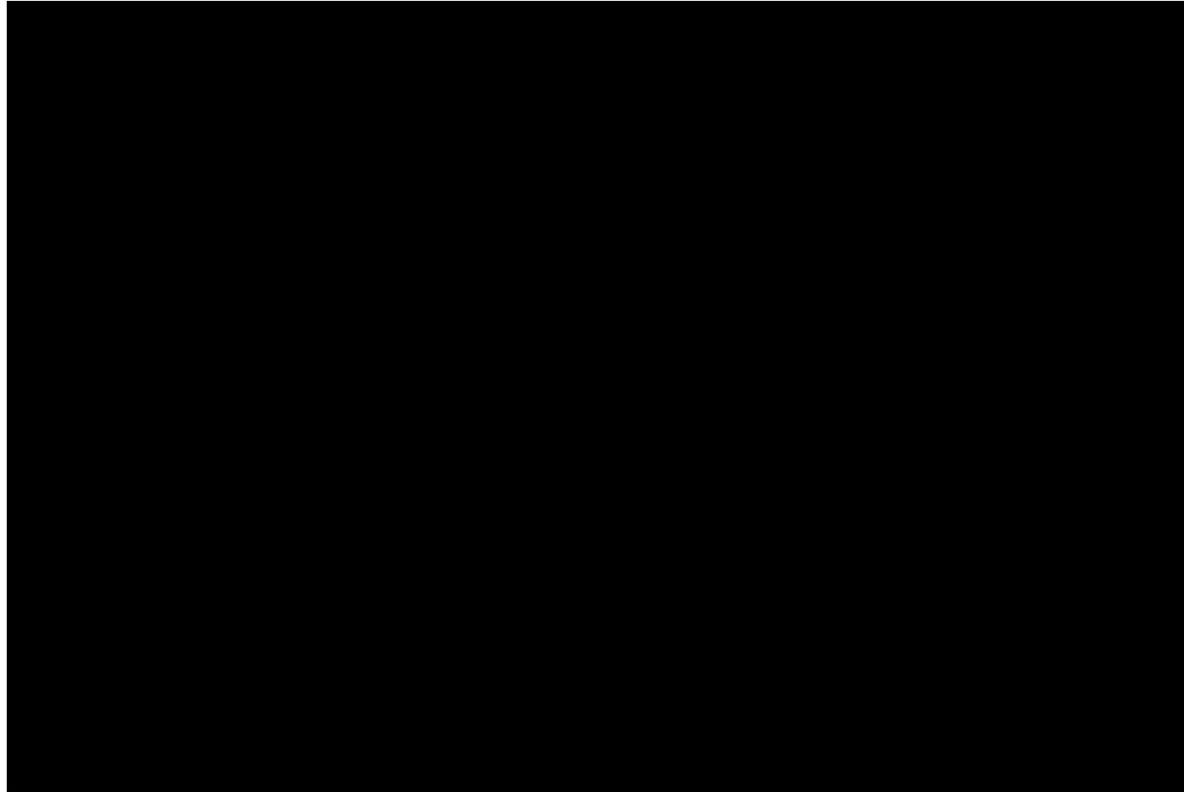
**“Nap” in the operating room**

**Use flexible telescope to see  
anatomic cause of OSA**

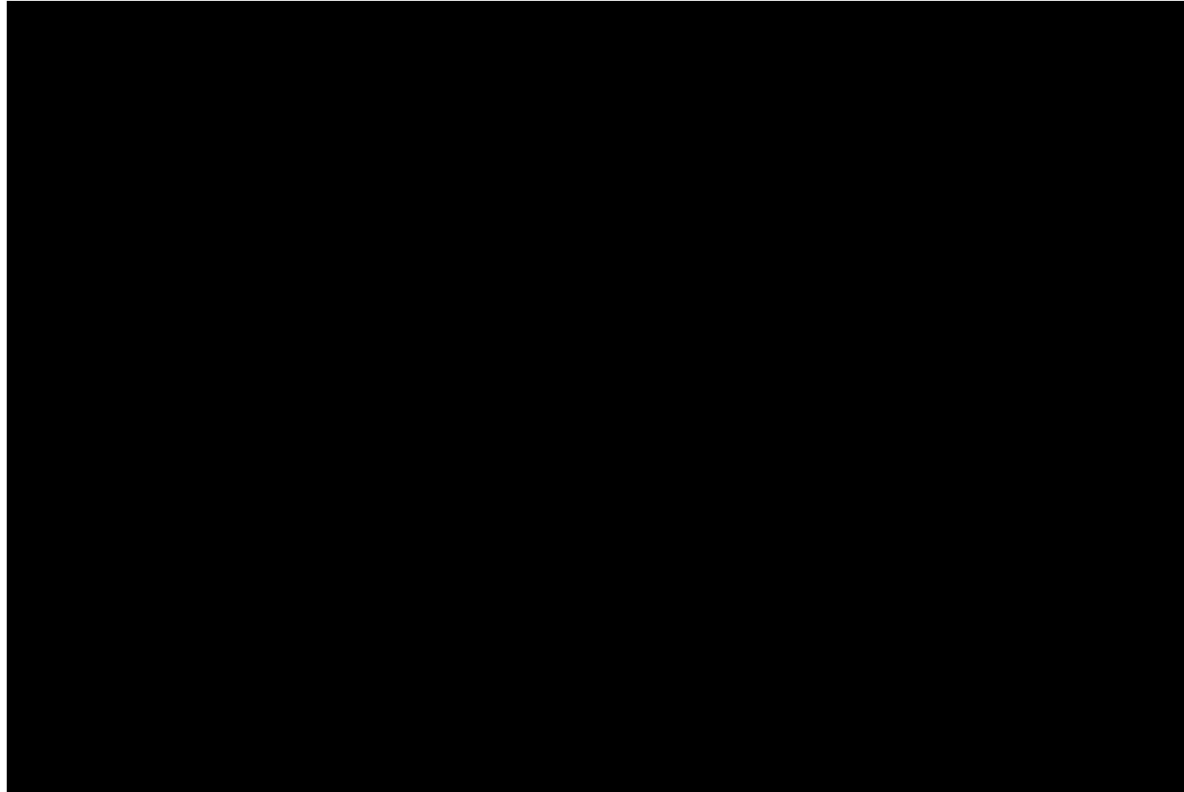
**VOTE Classification (Kezirian  
Hohenhorst de Vries Eur Arch  
ORL 2011)**



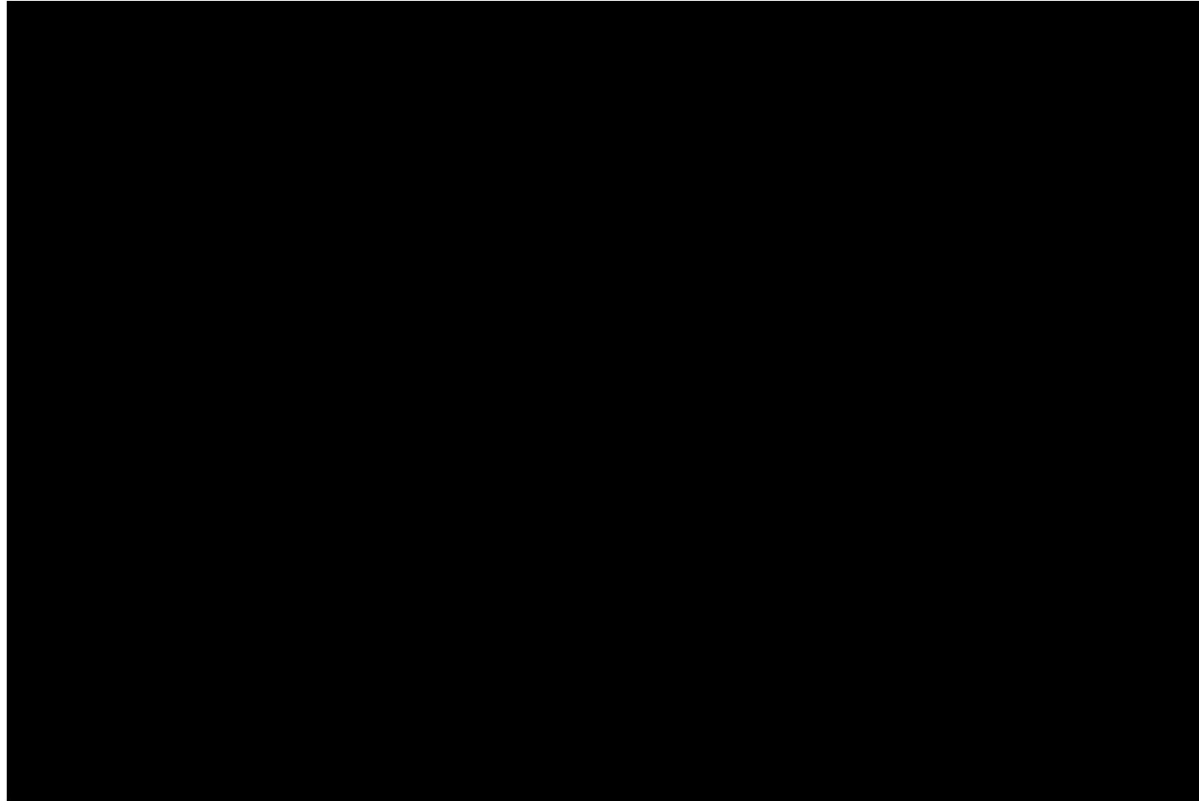
# Velum (Palate)



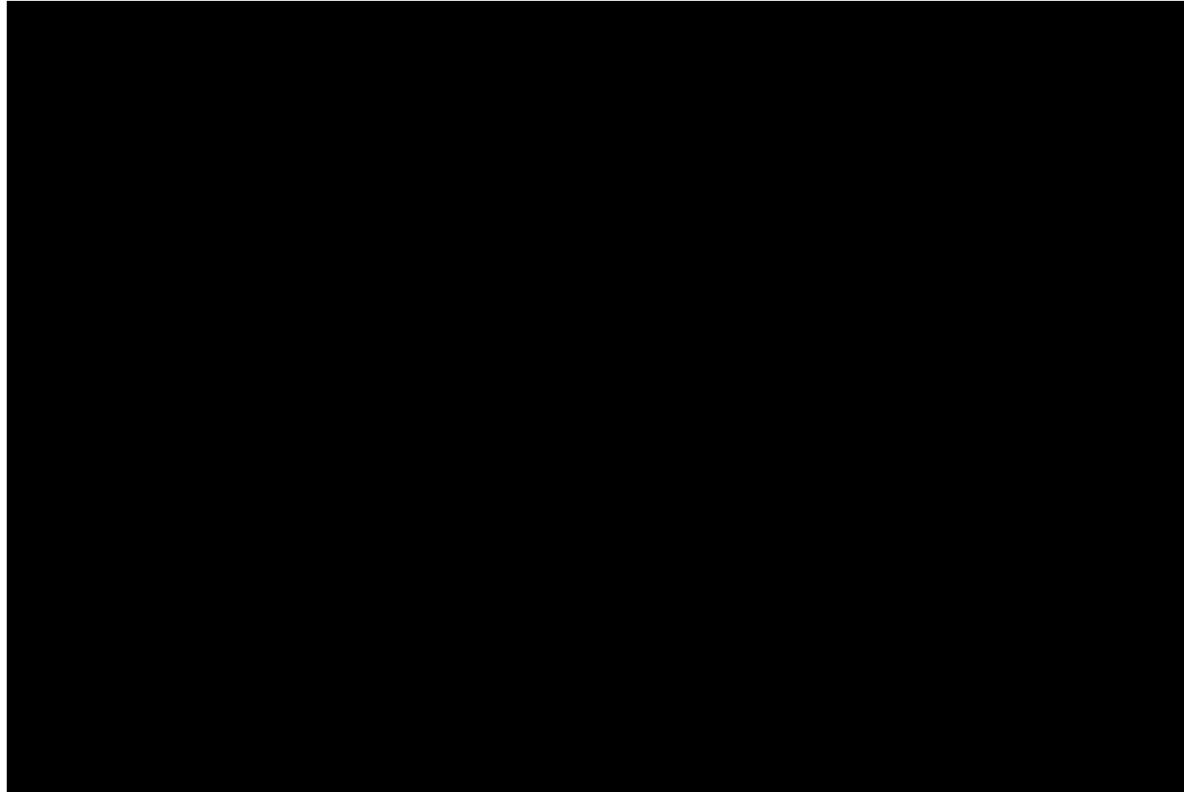
# Oropharyngeal Lateral Walls



# Tongue



# Epiglottitis



## Green Laryngoscope 2018

**Are DISE findings associated with surgical outcomes?**

**--other studies small, 1-2 centers**

**Multicenter study of DISE**

**14 centers, n = 275**

**Blinded review of DISE videos x 4 sleep surgeons**

**Any O: decreased response (OR 0.51; 95% CI 0.27, 0.93)**

**Complete T: decreased response (OR 0.52; CI 0.28, 0.98)**

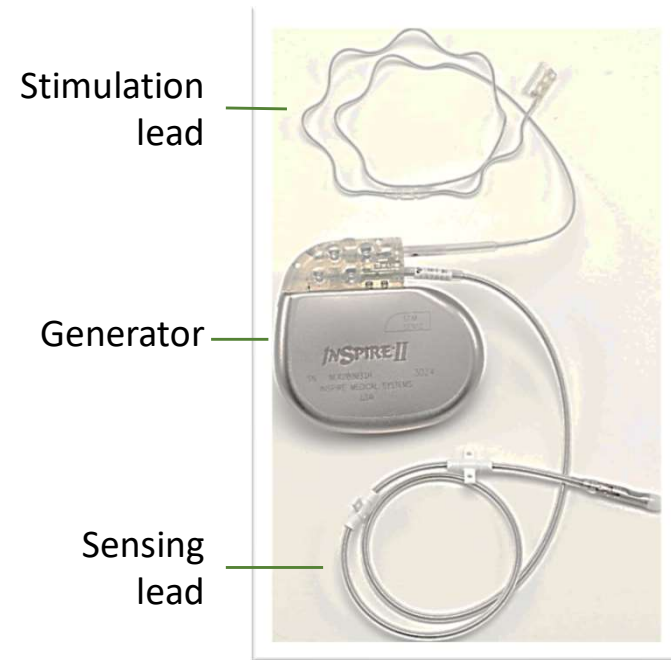
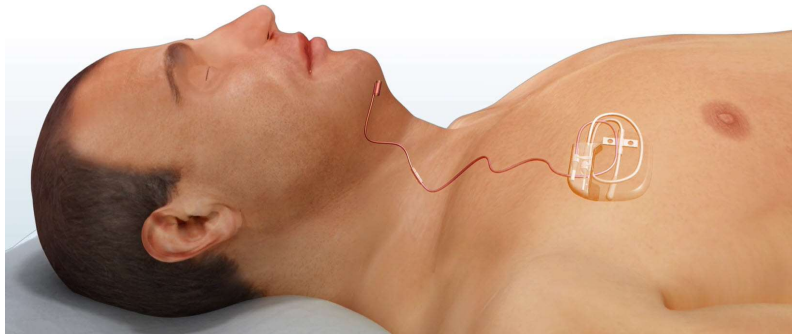
**Complete T: untreated = poorer outcomes**

**Complete T: tongue resection likely better**

**V, CCC not associated with outcomes; ?E (sample size)**



# Inspire Medical Systems Upper Airway Stimulation



# Huyett Laryngoscope 2021

**Are DISE findings associated with Upper Airway Stimulation outcomes?**

**DISE is required before UAS implantation**

**Only use is to screen out those with complete concentric collapse (30%)**

**Approximately 70% efficacy**

**What if we could identify those with 90% response and those with 50% response?**





# Huyett Laryngoscope 2021

**73% response rate on titration study (n = 343, 10 centers)**

**Velum: V2 (76%) vs V1/V0 (70%); p = 0.22**

**Oropharynx: O2 (58%) vs O1/O0 (74%); p = 0.042**

**Tongue: T2 (78%) vs T1/T0 (68%); p = 0.043**

**Epiglottis: E2/E1 (67%) vs E0 (74%); p=0.37**

**Primary: V (73%) O (62%) T (79%) E (33%); p = 0.007**



# Conclusions

**Sleep disturbances are common**

**More common during COVID-19 pandemic**

**Insomnia: sleep hygiene, melatonin, CBT**

**Snoring/OSA: conservative, CPAP, surgery, and oral appliances**

**Improving ability to predict surgical outcomes**

**No cookie-cutter approaches**