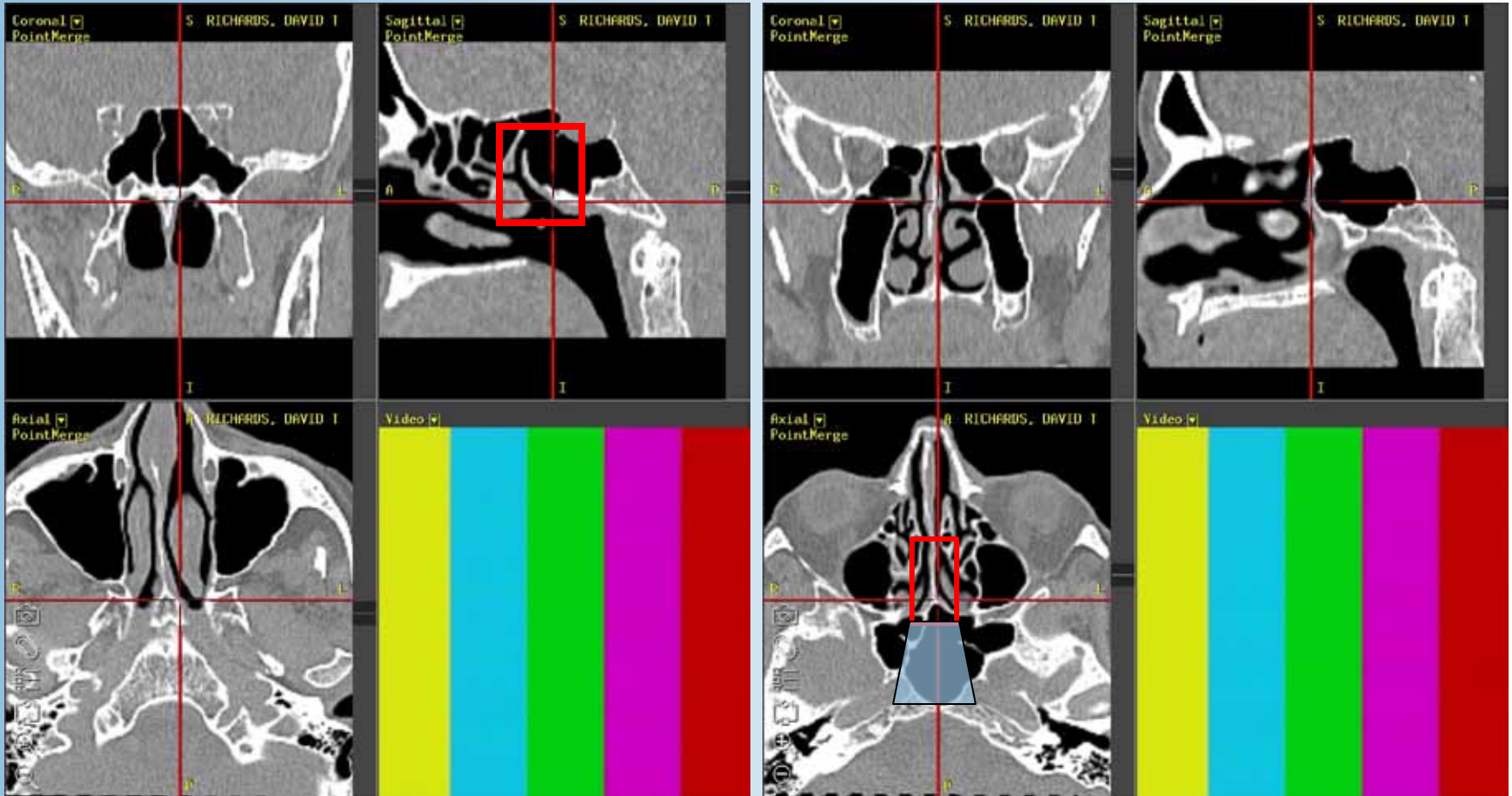
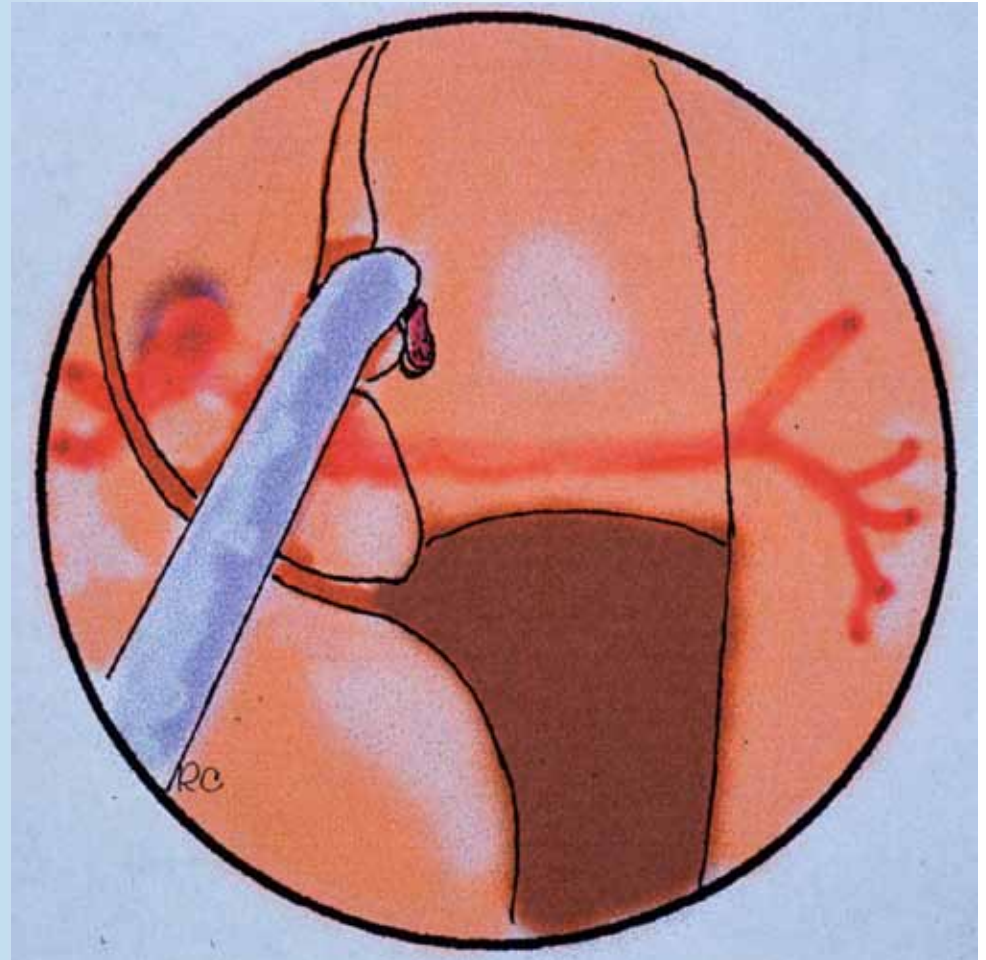


# **Endoscopic Pituitary Surgery and the Sense of Smell**

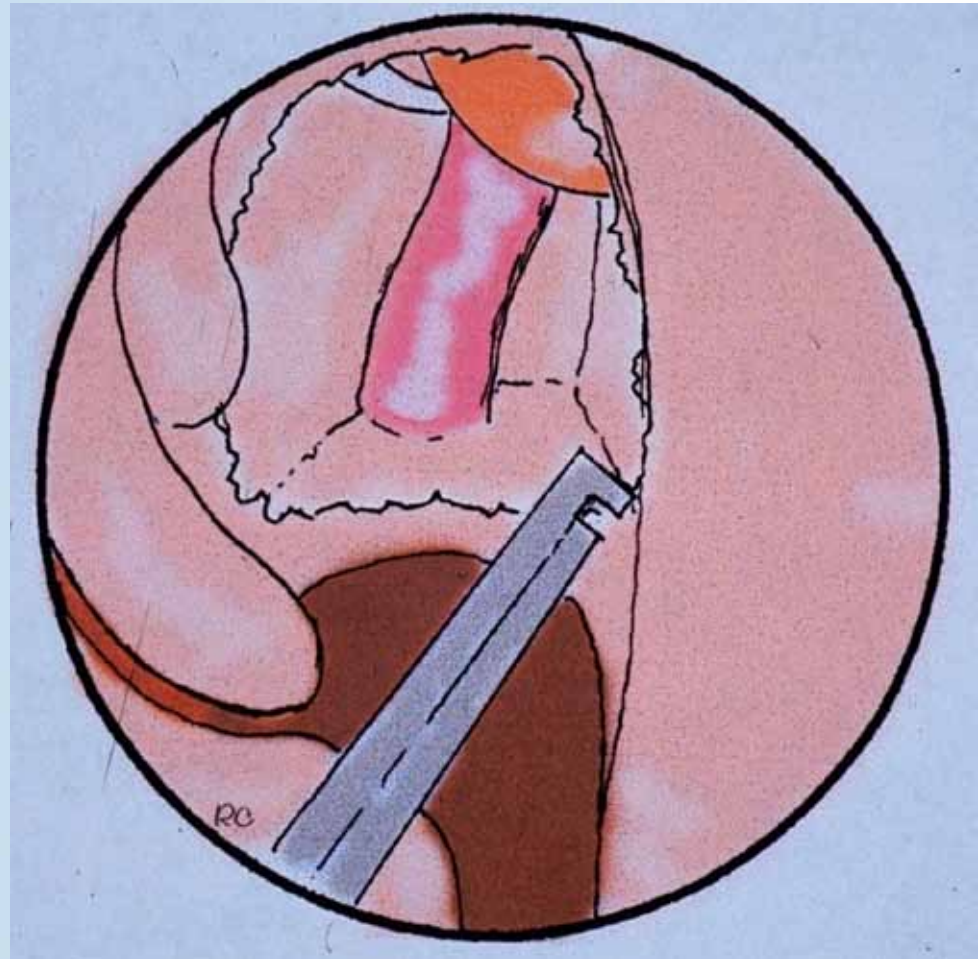
**Lee A. Zimmer, MD, PhD, FACS**  
**University of Cincinnati**  
**Department of Otolaryngology-Head and  
Neck Surgery**



- § Lateralize middle turbinate
- § Lateralize superior turbinate
- § ID ostium
- § Enlarge



- § Lateralize middle turbinate
- § Lateralize superior turbinate
- § ID ostium
- § Enlarge

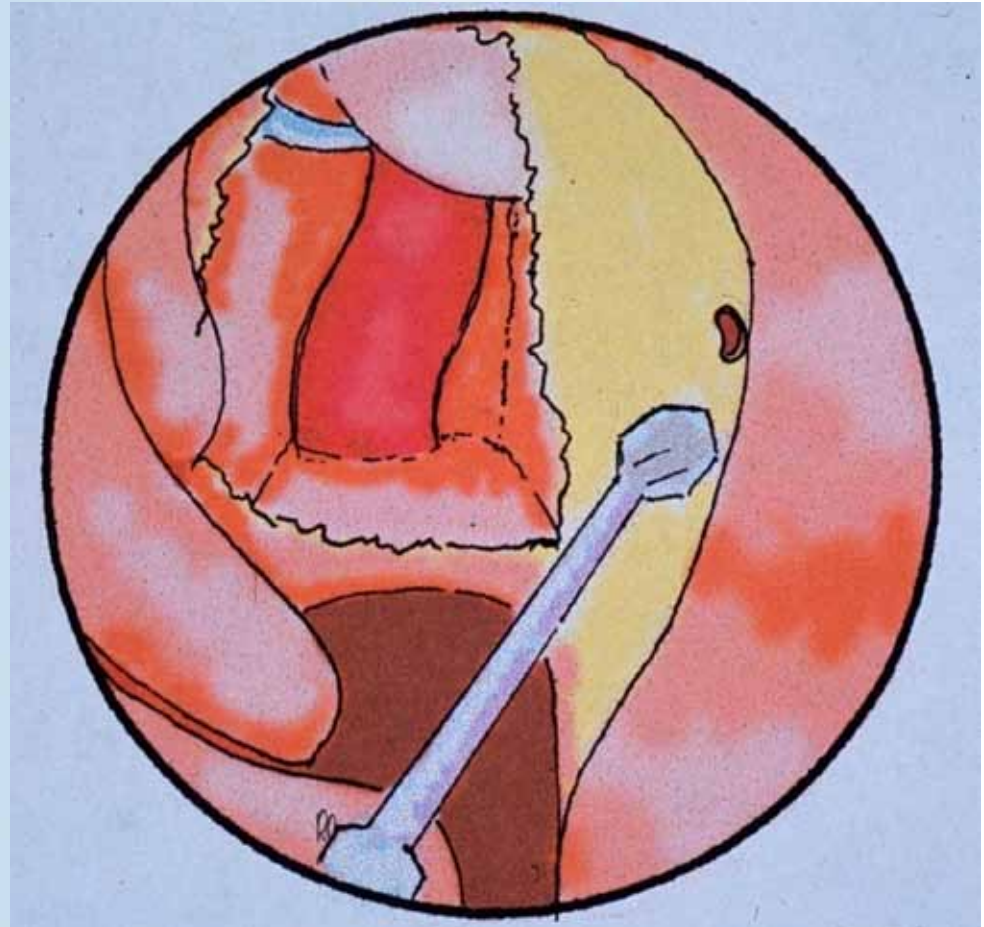


§ **Transfixion of the septum**

§ **Submucosal dissection**

§ **Remove rostrum**

§ **Remove intersinus septum**

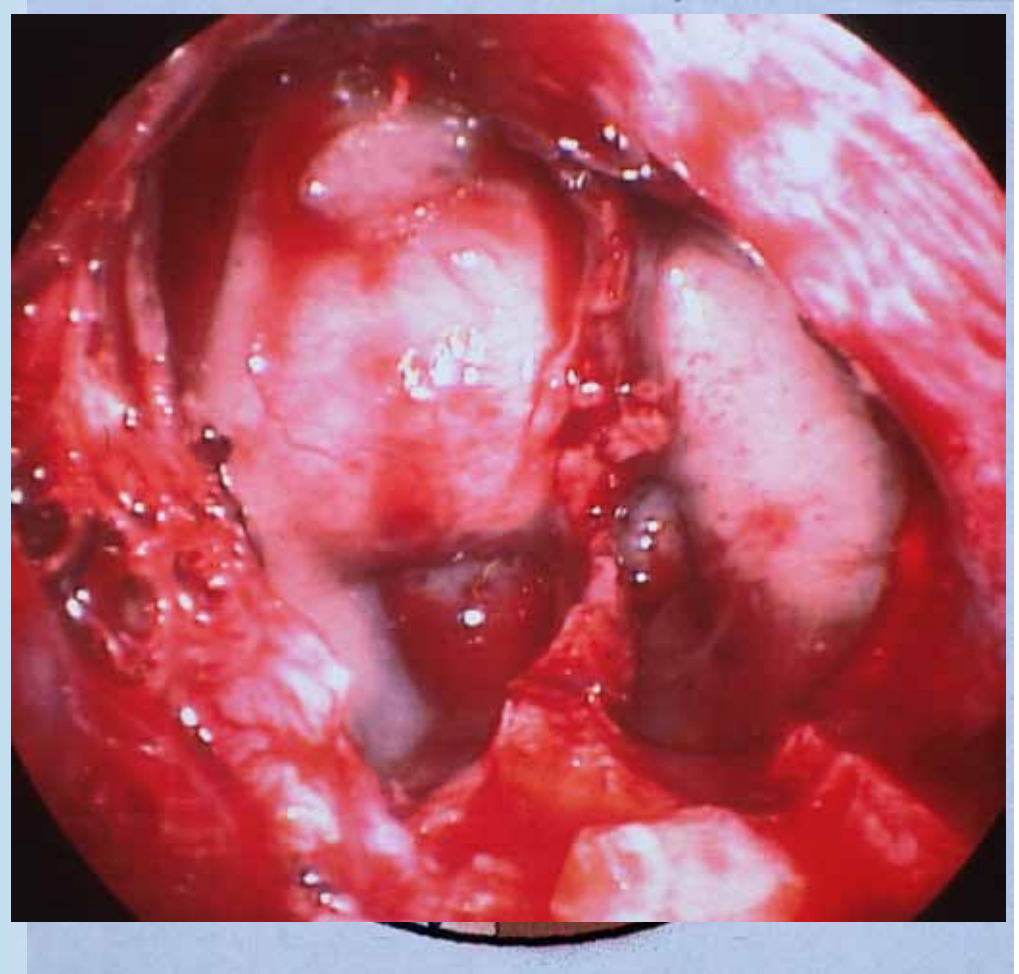


§ **Transfixion of the septum**

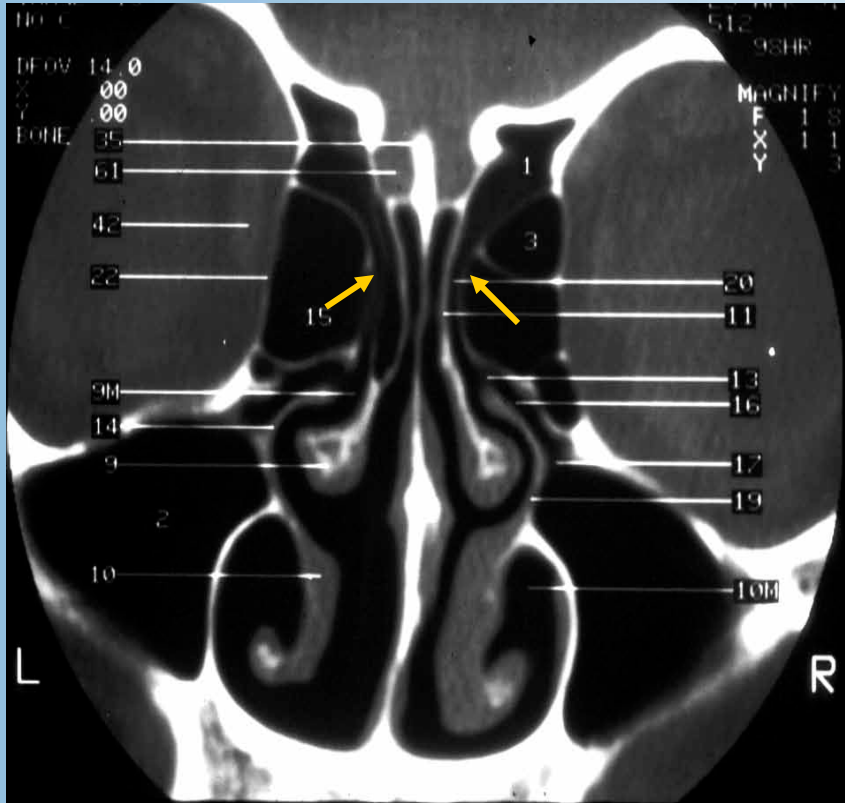
§ **Submucosal dissection**

§ **Remove rostrum**

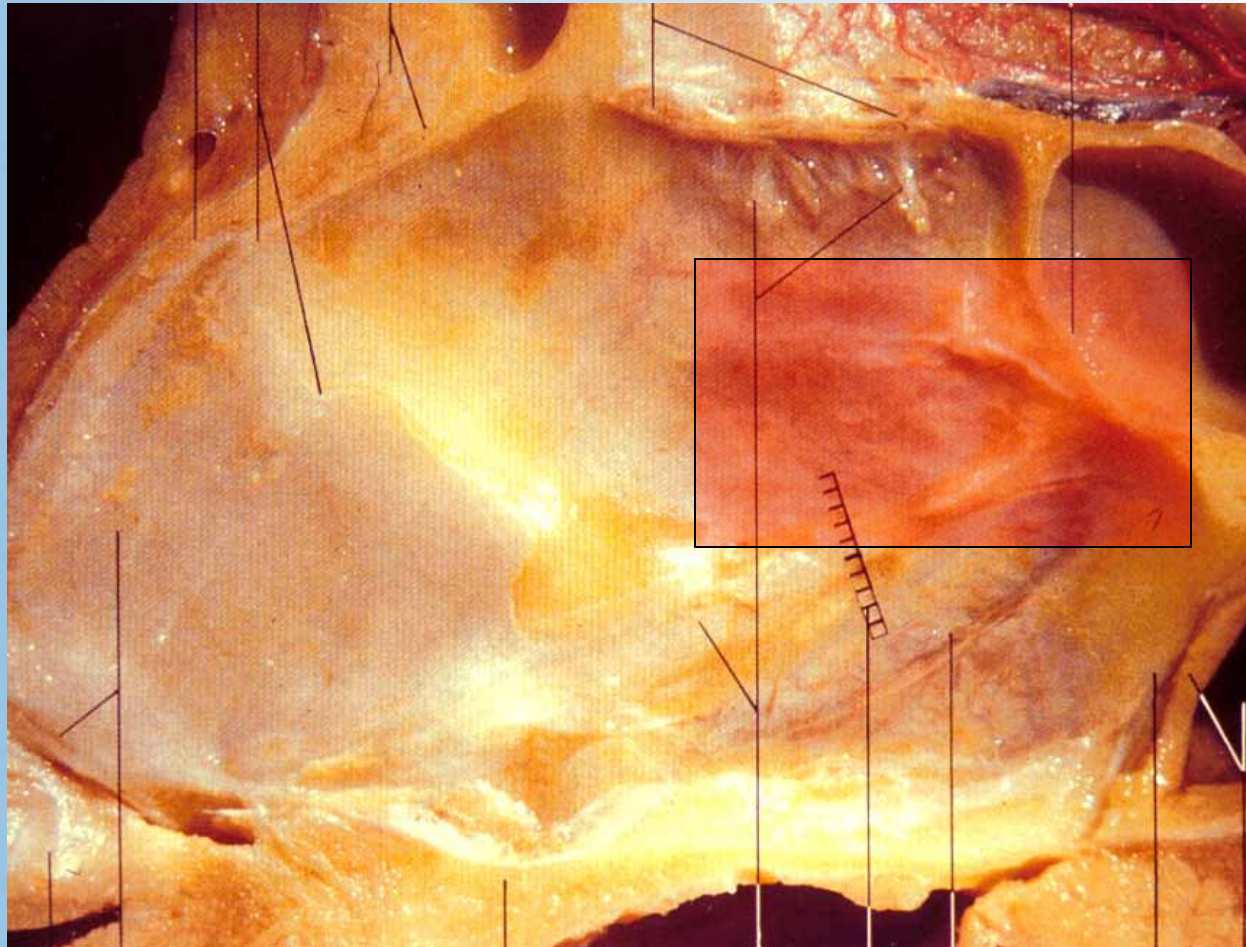
§ **Remove intersinus septum**



# Anatomy: Cribriform Plate



# Anatomy: Cribriform Plate



# Previous Studies

## § Dusick et al., 2006

- survey results from 259 patients
  - Endonasal Transsphenoidal Surgery
  - decreased sense of smell
    - § none 77.2%
    - § mild 12.4%
    - § moderate 8%
    - § severe 2.4%
  - Self reporting

# Prospective Study

- § Evaluate the effects of the endoscopic, transnasal, transsphenoidal removal of pituitary tumors on olfaction
- § Prospective, case control study
- § UPSIT = University of Pennsylvania Smell Identification Test
  - 40 ODORANTS
    - EACH ODORANT HAS 4 POSSIBLE ANSWERS
    - 40/40 = PERFECT SCORE
    - 0/40 = MALINGERING

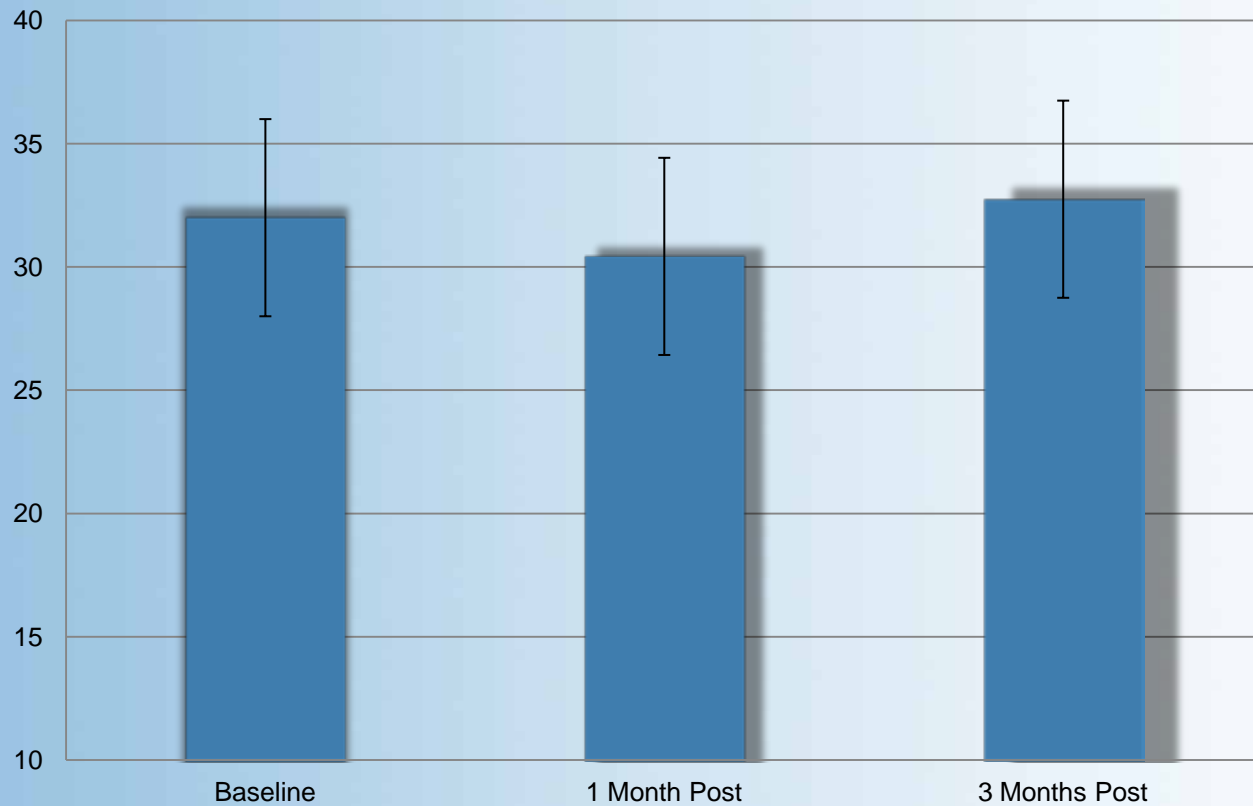
# Prospective Study

## § 56 patients enrolled

- 25 MEN AND 31 WOMEN
- Age range 19-76
- 3 excluded for anosmia
- 8 failed to complete study
- 32 completed study
- 13 in mid study
  - 25% change in olfaction assumed significant
  - 10% change in olfaction may be detectable by patient

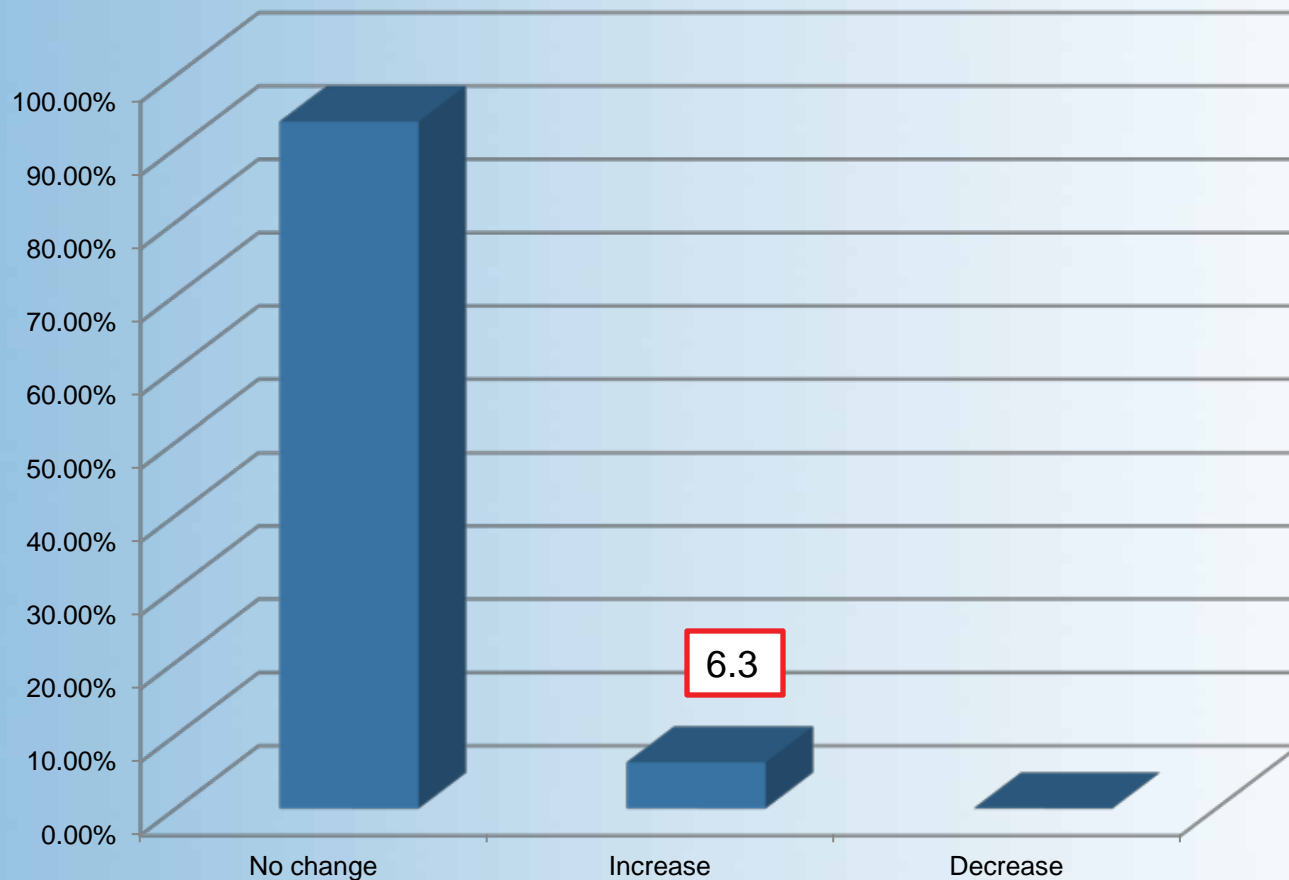
# Results

## UPSIT Results



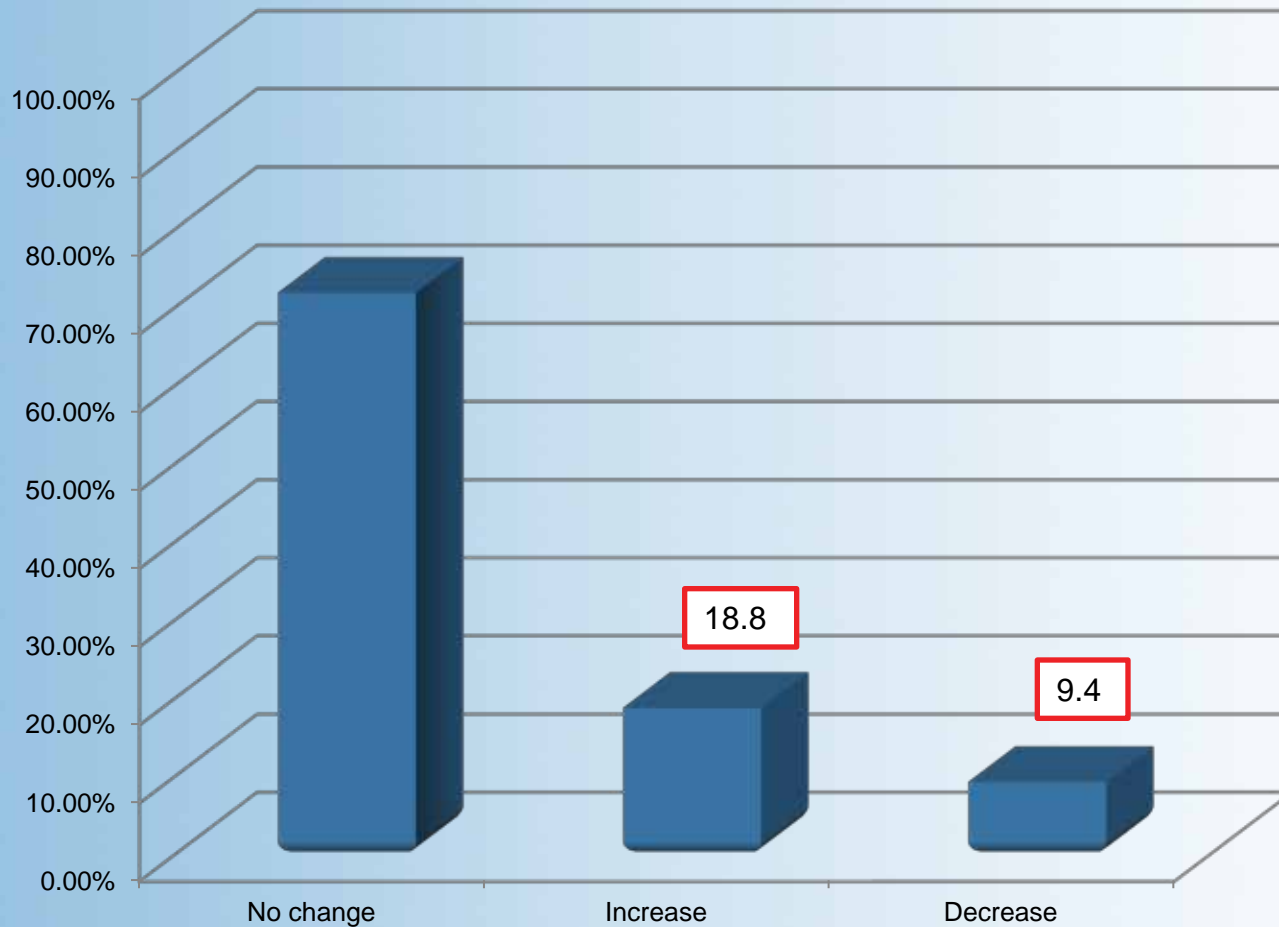
# Results

## Patients with a 25% Change in UPSIT Score



# Results

## Patients with a 10% Change in UPSIT Score



# Conclusions

- § **Endoscopic pituitary surgery has no significant impact on the sense of smell**
- § **1 month following surgery, transient decreases are found**
  - Edema or crusting blocking airflow to olfactory nerves
  - Transient trauma to olfactory nerves
- § **3 months after surgery, olfaction recovers to baseline**
- § **A small proportion of patients may have improved olfaction**
  - Greater airflow over olfactory nerves