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Disorders and Treatment of Nasal Obstruction

Peter C. Revenaugh, MD | Associate Professor
Section Head- Facial Plastic and Reconstructive Surgery
Co-Director- Facial Plastic and Reconstructive Surgery Fellowship
Department of Otorhinolaryngology– Head and Neck Surgery
Rush University Medical Center
Chicago, IL, USA

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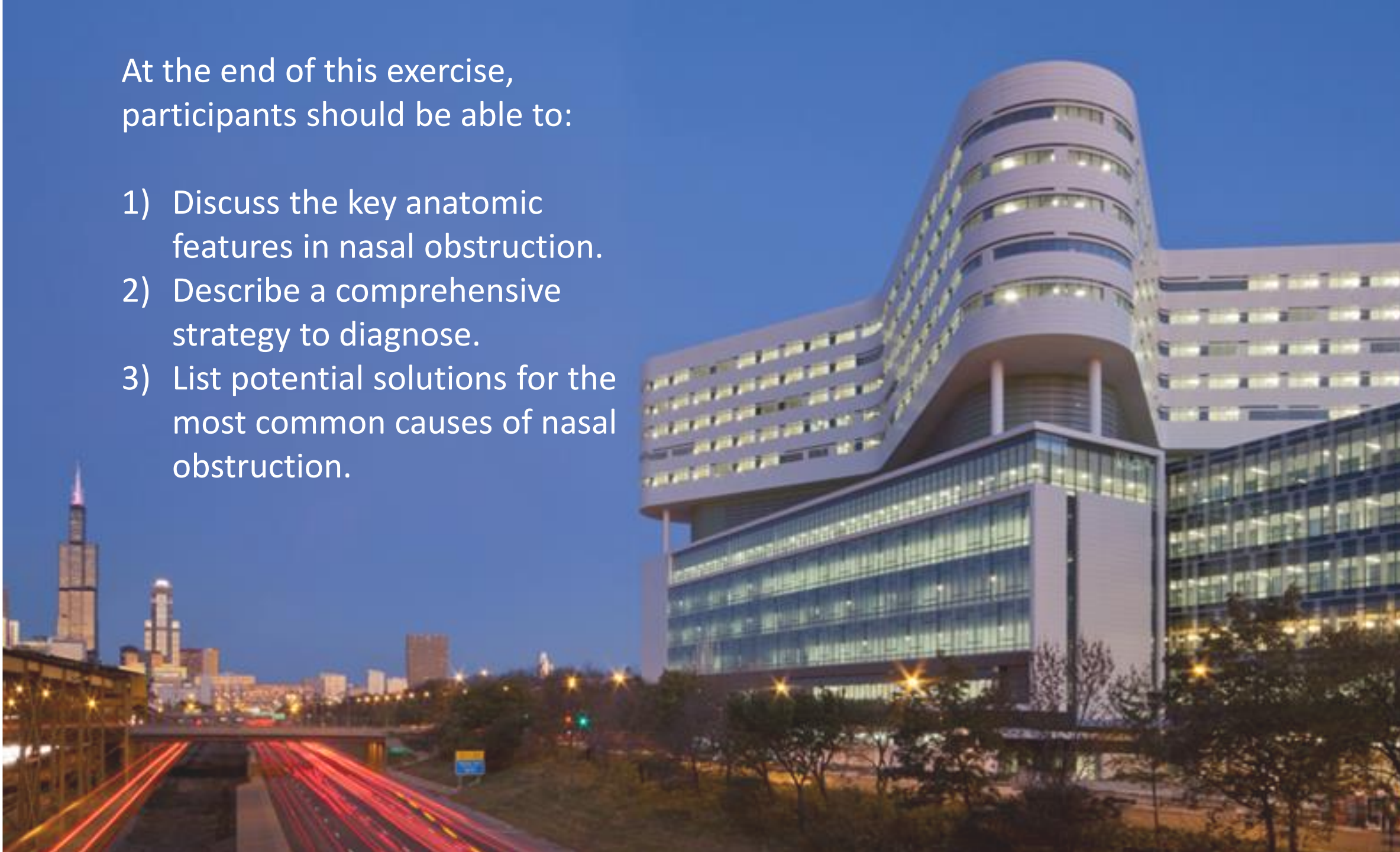
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Disclosures:
None



At the end of this exercise,
participants should be able to:

- 1) Discuss the key anatomic features in nasal obstruction.
- 2) Describe a comprehensive strategy to diagnose.
- 3) List potential solutions for the most common causes of nasal obstruction.



Nasal Airway Obstruction

sensation of insufficient airflow or difficulty breathing through the nose

Preferred breathing route during sleep

Negatively affects productivity and Quality of Life

600,000 operation annually

Septoplasty is 3rd most common operation performed by Otolaryngologist

No universally accepted diagnostic tool to determine severity or etiology, guide treatment or measure outcomes.

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No universally accepted diagnostic tool to determine severity or etiology, guide treatment or measure outcomes.

Nasal airway obstruction is multifactorial



Inflammatory

Structural

Research

JAMA Facial Plastic Surgery | Original Investigation

Repair of the Lateral Nasal Wall in Nasal Airway Obstruction A Systematic Review and Meta-analysis

Cherian K. Kandathil, MD; Emily A. Spataro, MD; Katri Laimi, MD, PhD; Sami P. Moubayed, MD; Sam P. Most, MD; Mikhail Saltychev, MD, PhD

 [Supplemental content](#)

IMPORTANCE While functional rhinoplasty has been broadly studied, to our knowledge no systematic review and meta-analysis of lateral wall repair has been done previously.

OBJECTIVE To evaluate the effectiveness of repair of the lateral nasal wall in adult patients with nasal airway obstruction.

DATA SOURCES Medline, Embase, Cinahl, Central, Scopus, and Web of Science databases and reference lists were searched for clinical and observational studies.

STUDY SELECTION The selection criteria were defined according to the PICO (population, intervention, comparison, and outcome) framework. The relevant studies were selected by 2 independent reviewers based on the studies' abstracts and full texts.

DATA EXTRACTION AND SYNTHESIS Data were extracted using standardized lists chosen by the authors according to Cochrane Collaboration guidelines. The effect sizes were first calculated for each study and then pooled together using random effects synthesis. Heterogeneity was assessed using the I^2 statistic, and publication bias was evaluated by the Egger test.

M

- 1) Observation is the basis of surgical diagnosis.
- 2) Diagnose before you treat.

-Sir Harold Gillies

Patient Reported Outcome Measures (PROM)

Nasal Outcome Symptoms Evaluation Scale (NOSE)

Over the past one month, how much of a problem were the following conditions for you?

	Not a problem	Very mild problem	Moderate problem	Fairly bad problem	Severe problem
Nasal congestion or stuffiness	0	1	2	3	4
Nasal blockage or obstruction	0	1	2	3	4
Trouble breathing through my nose	0	1	2	3	4
Trouble sleeping	0	1	2	3	4
Unable to get enough air through my nose during exercise or exertion	0	1	2	3	4

NOSE score (multiply your total score x5)

Nasal obstruction severity classification: mild (5-25) | moderate (30-50) | severe (55-75) | extreme (80-100)

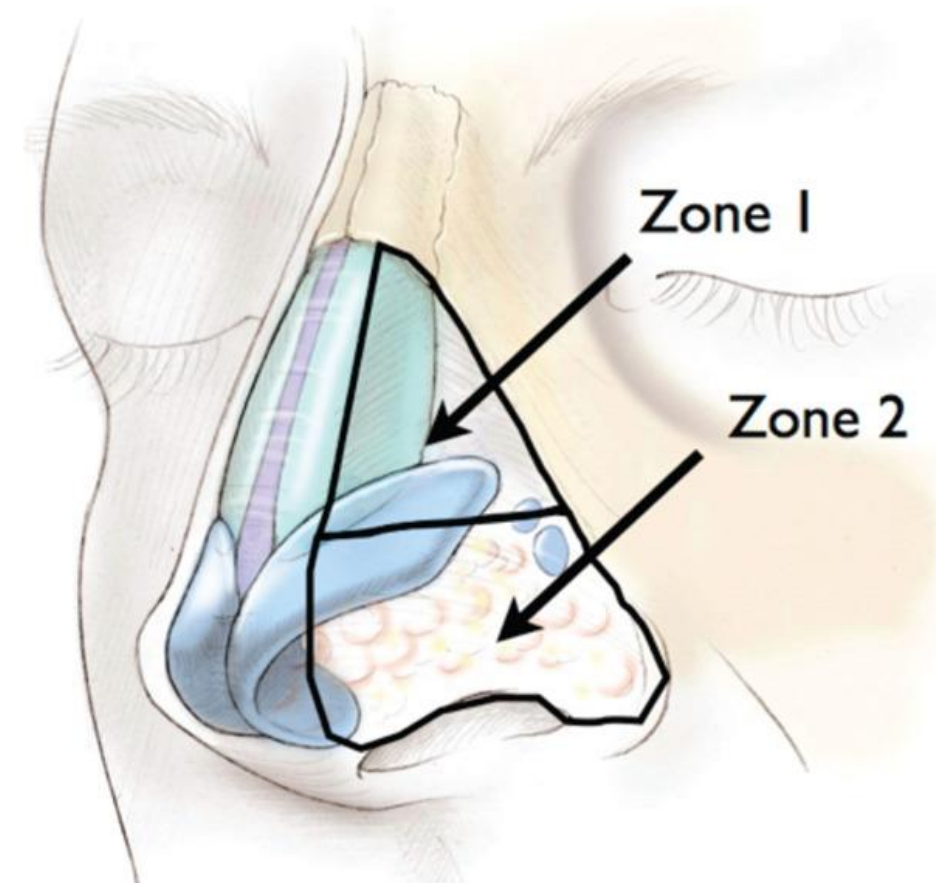
Standard Cosmesis and Health Nasal Outcomes Survey (SCNOS)

Over the past month, how much of a problem was the following:

	No problem					Extreme problem
1. Having a blocked or obstructed nose	0	1	2	3	4	5
2. Getting air through my nose during exercise	0	1	2	3	4	5
3. Having a congested nose	0	1	2	3	4	5
4. Breathing through my nose during sleep	0	1	2	3	4	5
5. Decreased mood and self-esteem due to my nose	0	1	2	3	4	5
6. The shape of my nasal tip	0	1	2	3	4	5
7. The straightness of my nose	0	1	2	3	4	5
8. The shape of my nose from the side	0	1	2	3	4	5
9. How well my nose suits my face	0	1	2	3	4	5
10. The overall symmetry of my nose	0	1	2	3	4	5

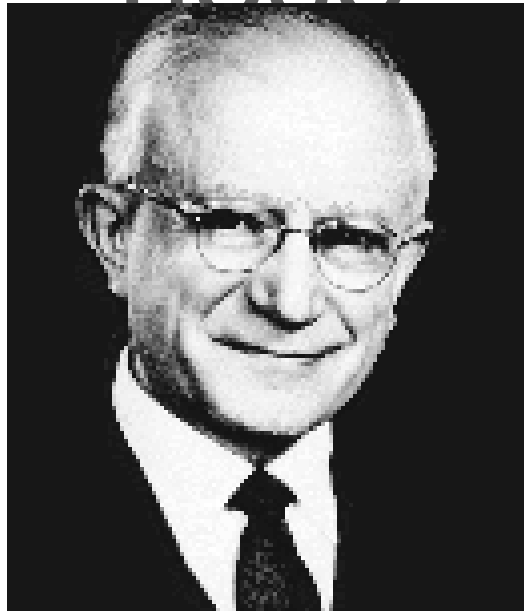
Physician Derived Measurements

Degree of septal deviation
Degree of turbinate obstruction
Cottle and Modified Cottle



“Where goes the
septum, so goes the
nose”

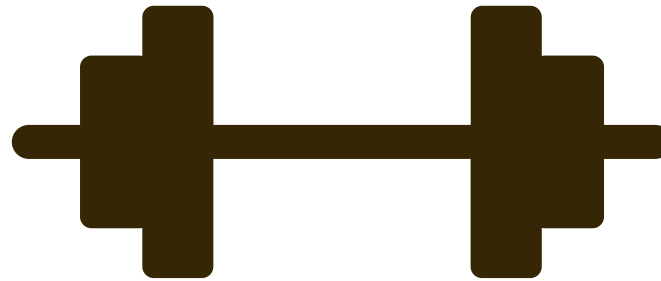
Maurice Cottle



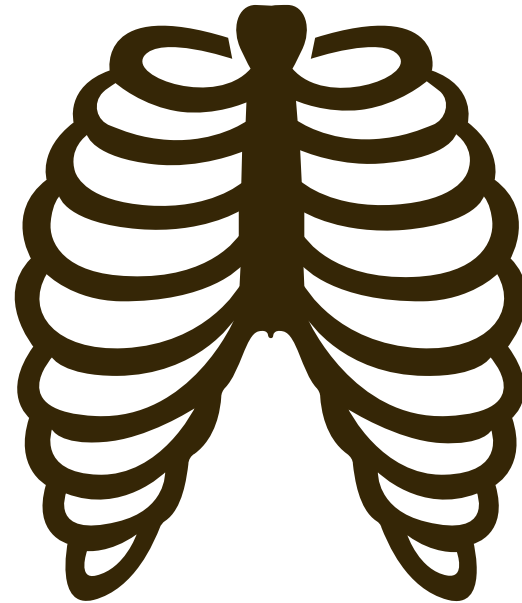
Challenges with septum

- Twisting of the lower third
 - Baseline asymmetry of the nasal cartilages
- Loss of major tip support mechanism
- Columellar and nostril irregularities
- Considerable memory
- Loss of valve support

Don't underestimate cartilage memory or strength.



Do discuss alternate source of cartilage.



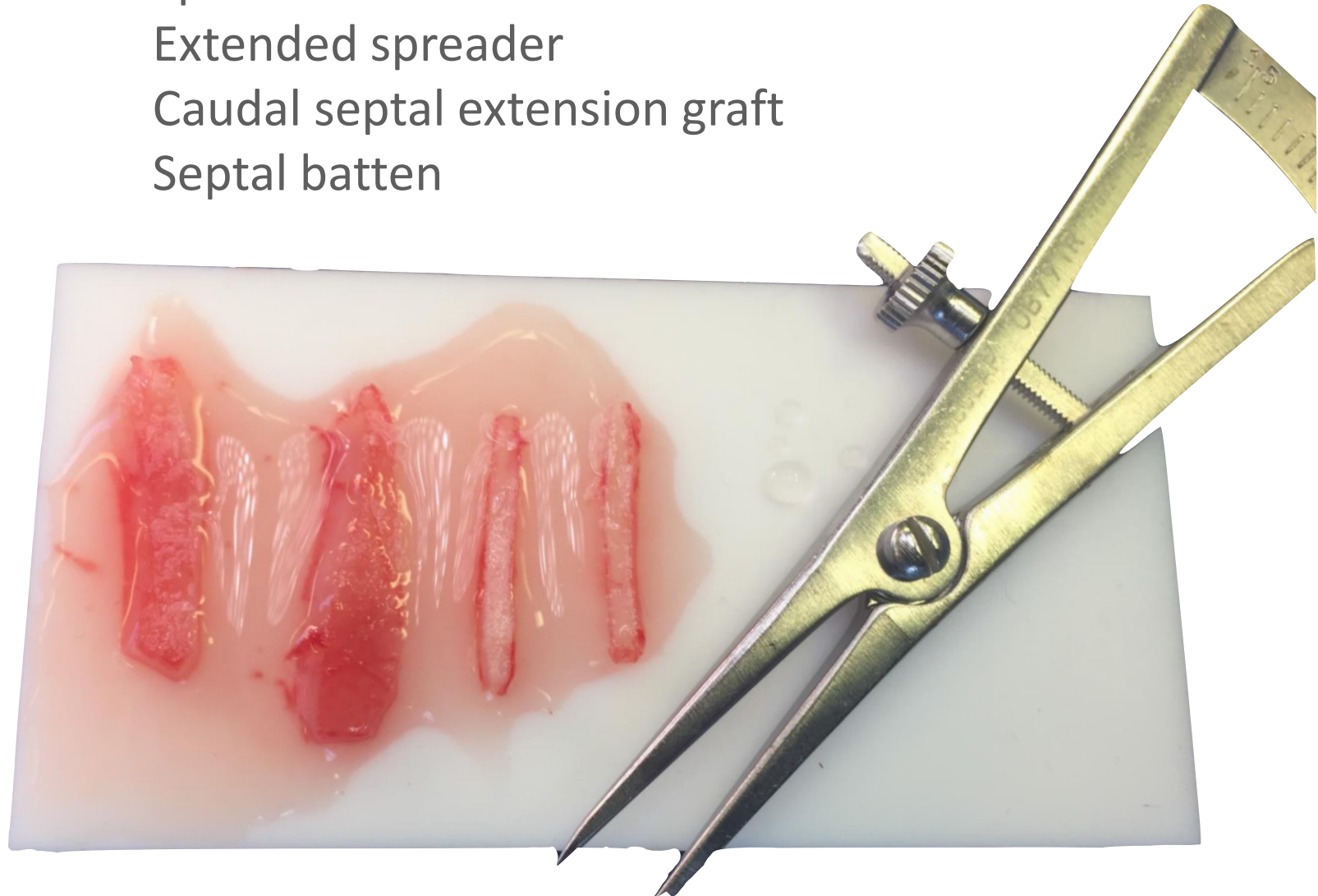
Grafts

Spreader

Extended spreader

Caudal septal extension graft

Septal batten



Anatomy

Osseous attachments:
cranially @ osseous septum
inferiorly @ maxillary crest

Firm attachments at nasal spine

Dorsally, connected to paired upper lateral cartilages
forms internal nasal valve.

Connected to lower lateral crura by intercrural ligament



Four R's of
Caudal Septal
Deflection

Relocation
Resection
Reinforcement
Replacement



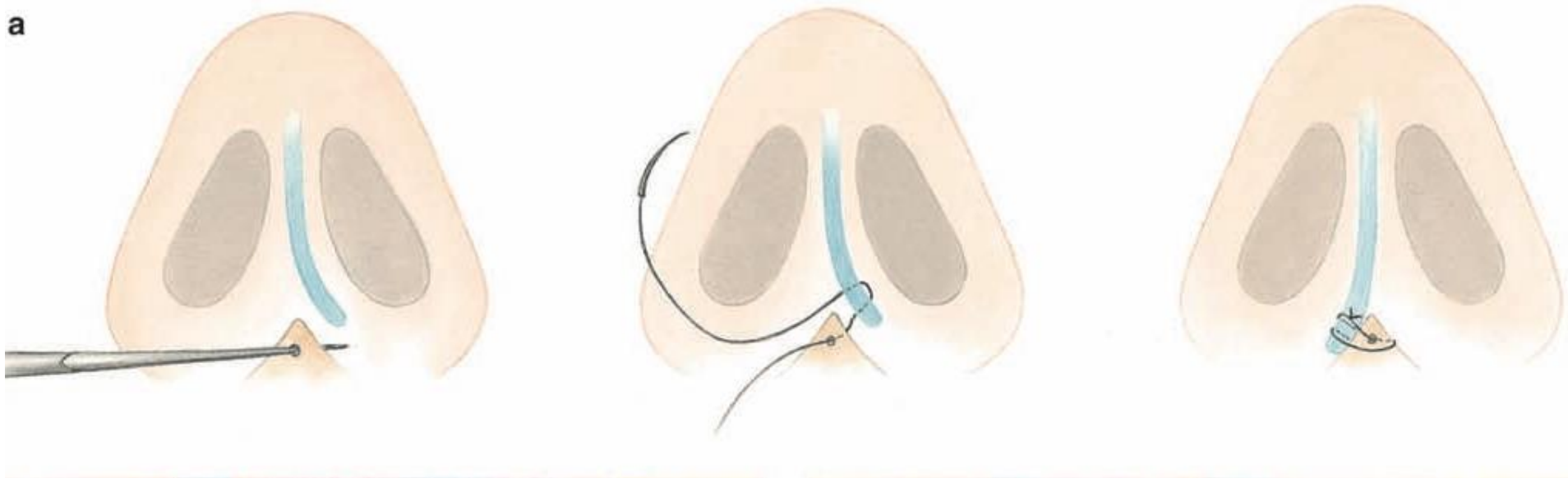
Four R's of
Caudal Septal
Deflection

Relocation



Relocation

a





Four R's of
Caudal Septal
Deflection

Resection

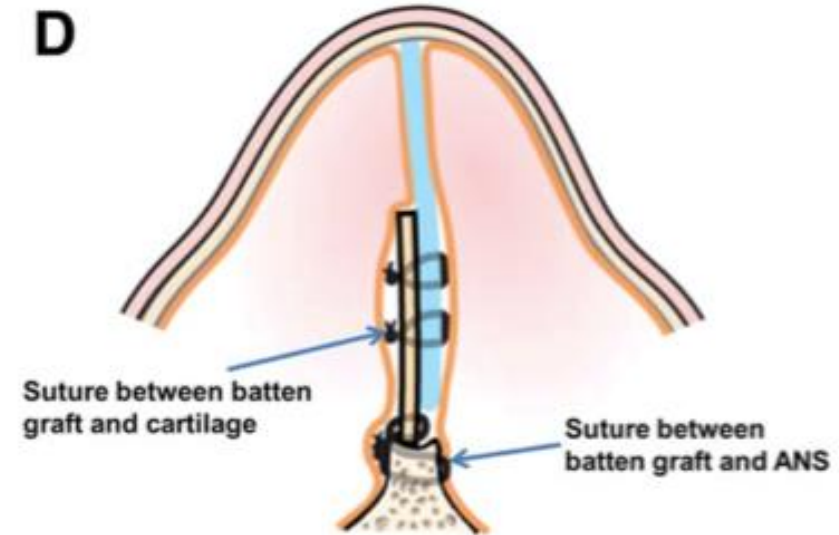
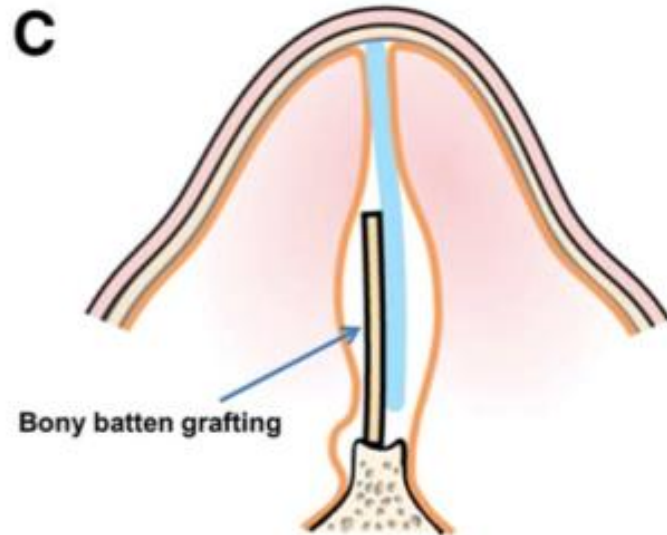
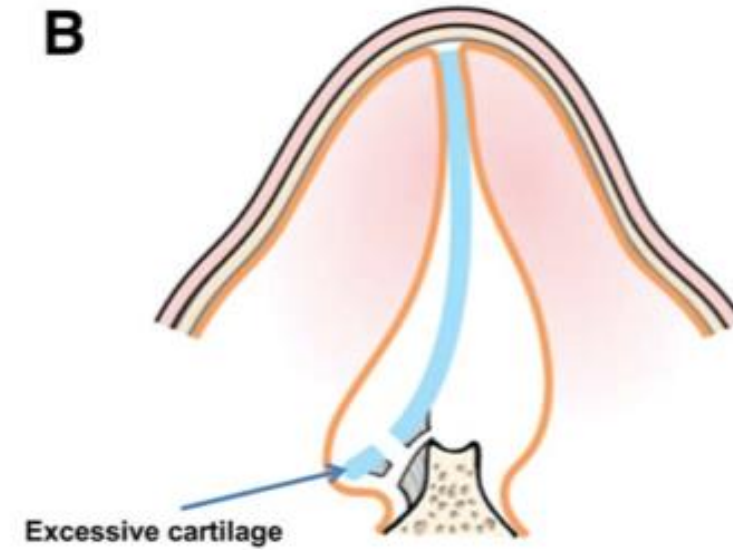
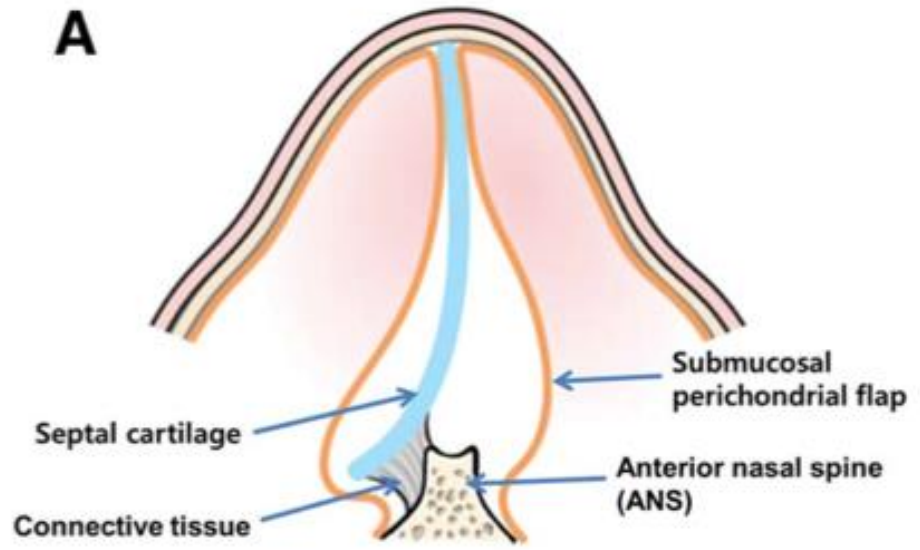


Resection

Caudal septum excess can be treated in a number of ways.

Remember that the caudal septum is contributing to tip support mechanisms and can alter tip projection and rotation.

- Can removed excess along maxillary crest
- Re-secure to nasal spine
- Add reinforcement if needed





Four R's of
Caudal Septal
Deflection

Reinforcement

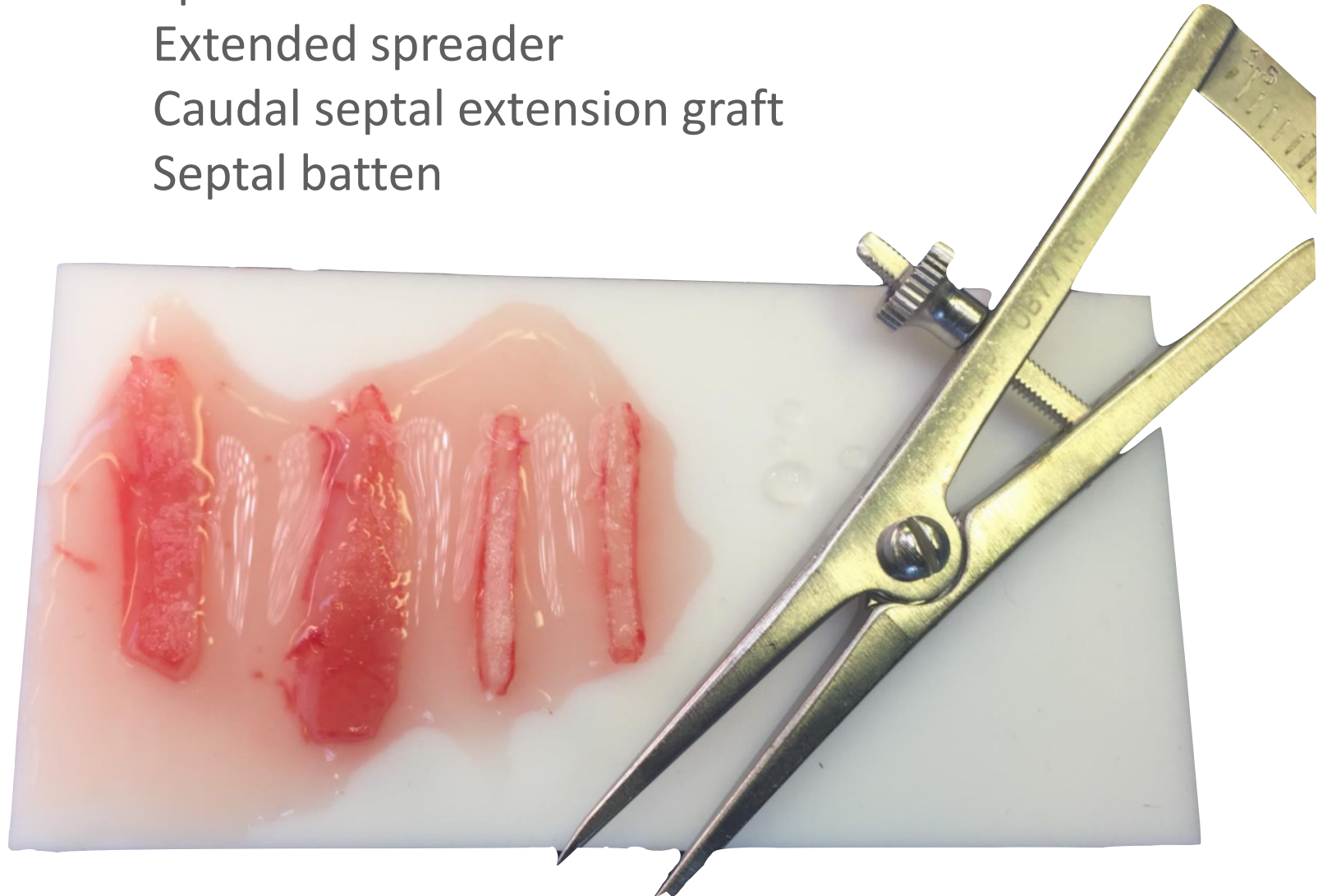
Grafts

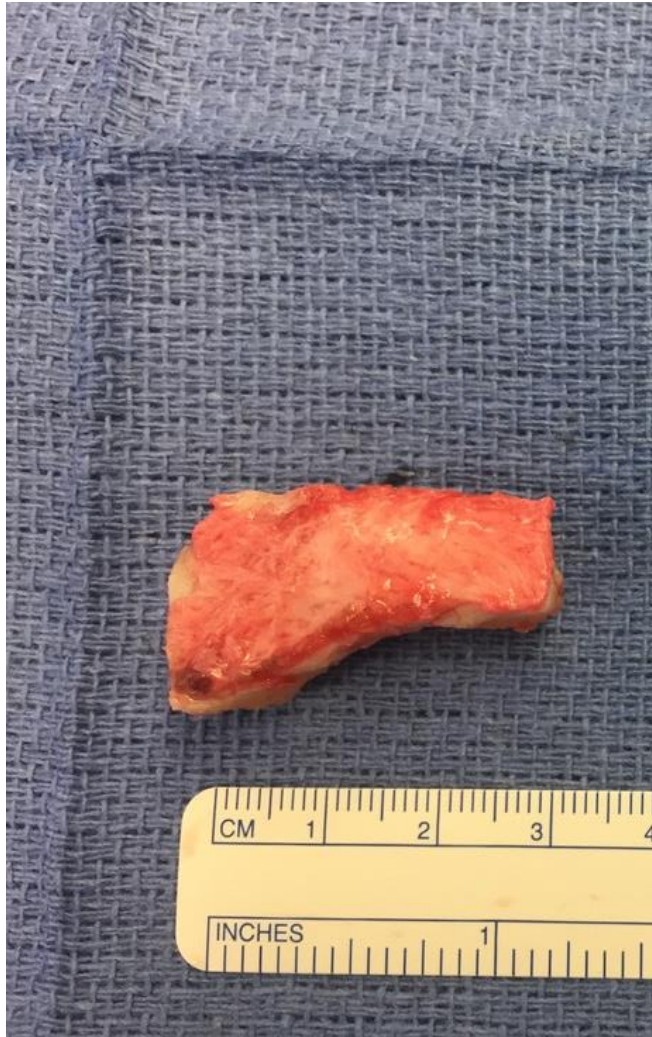
Spreader

Extended spreader

Caudal septal extension graft

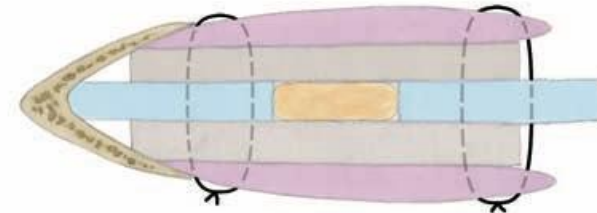
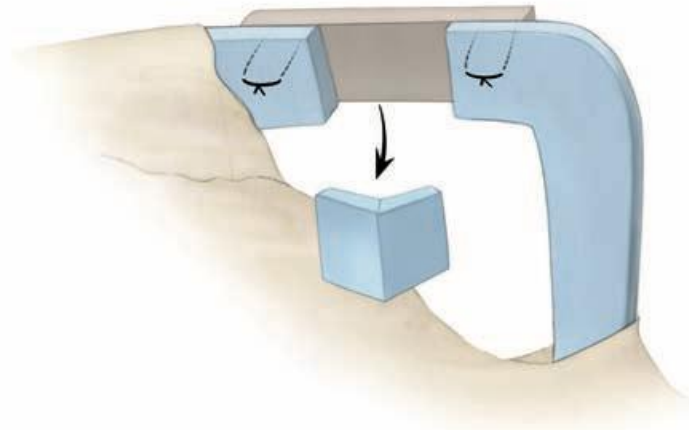
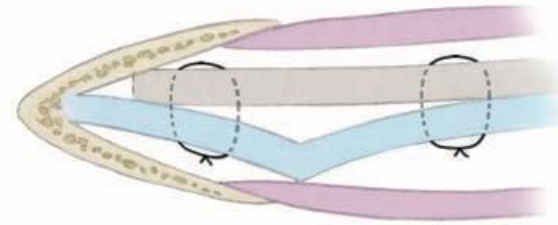
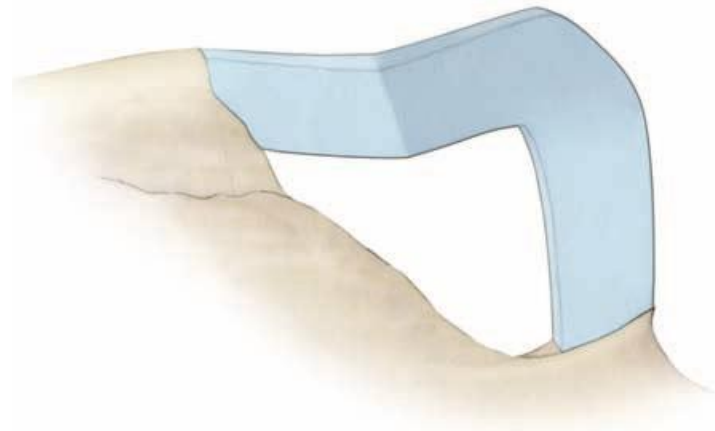
Septal batten







Reinforcement



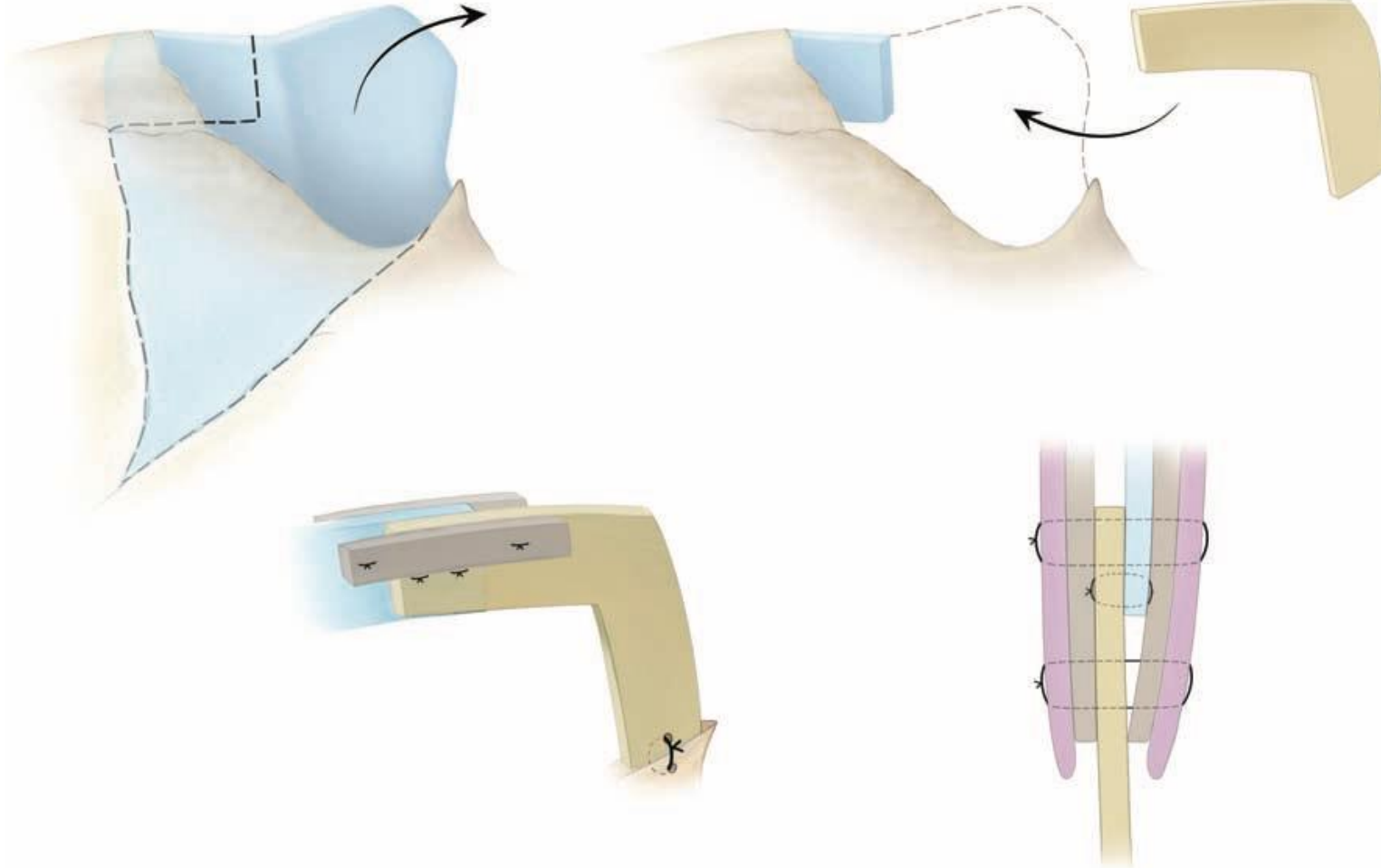


Four R's of
Caudal Septal
Deflection

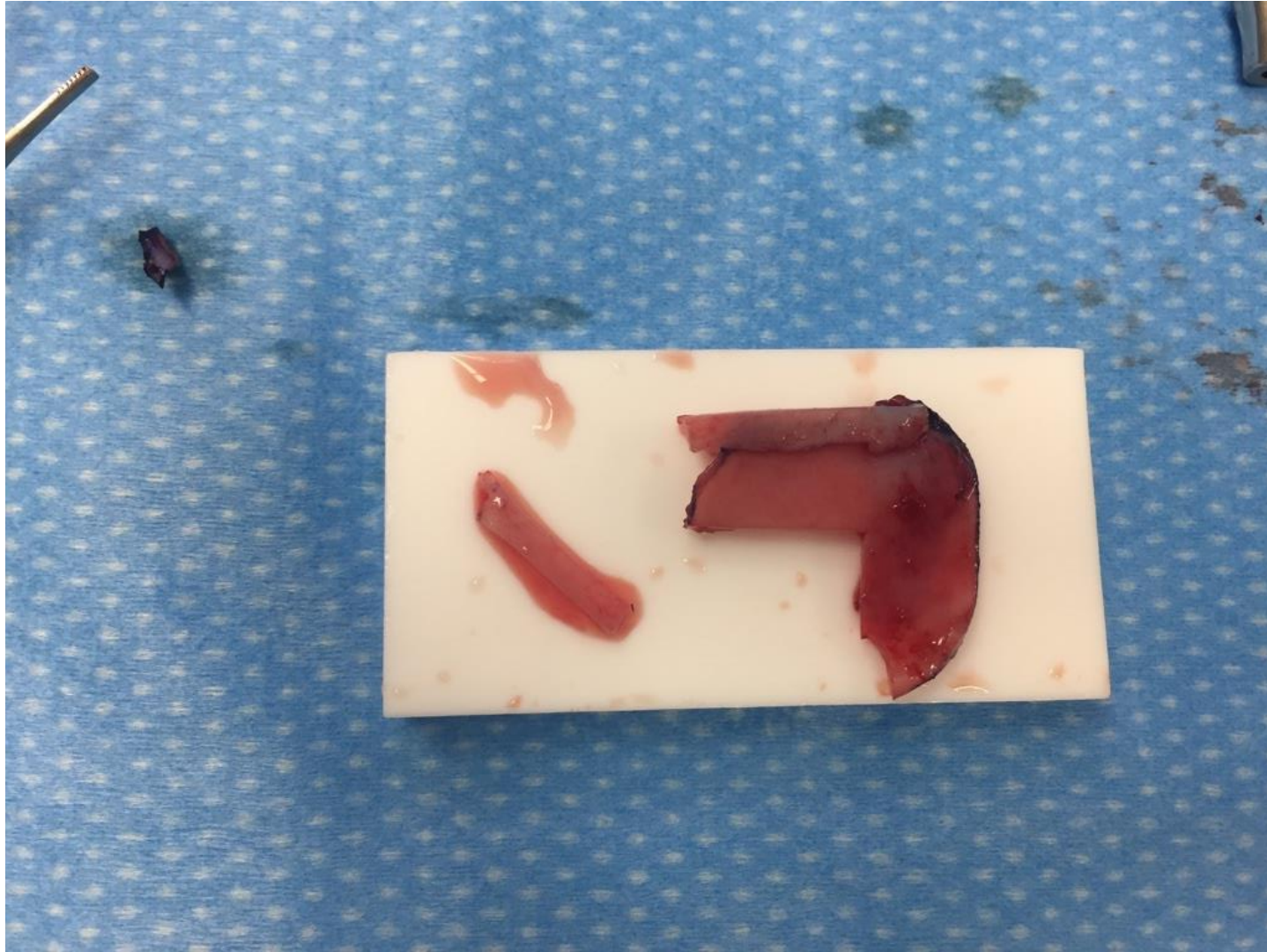
Replacement

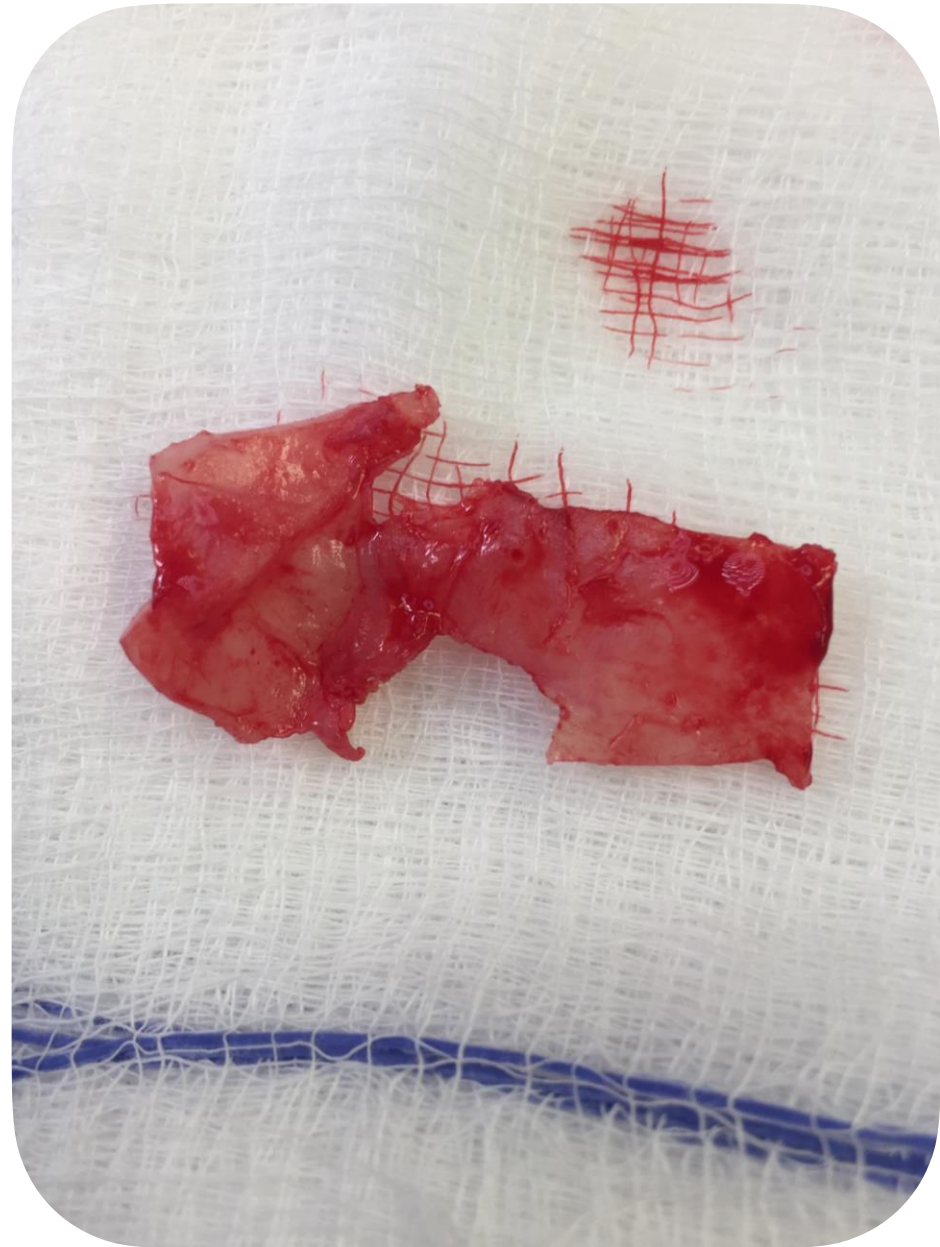
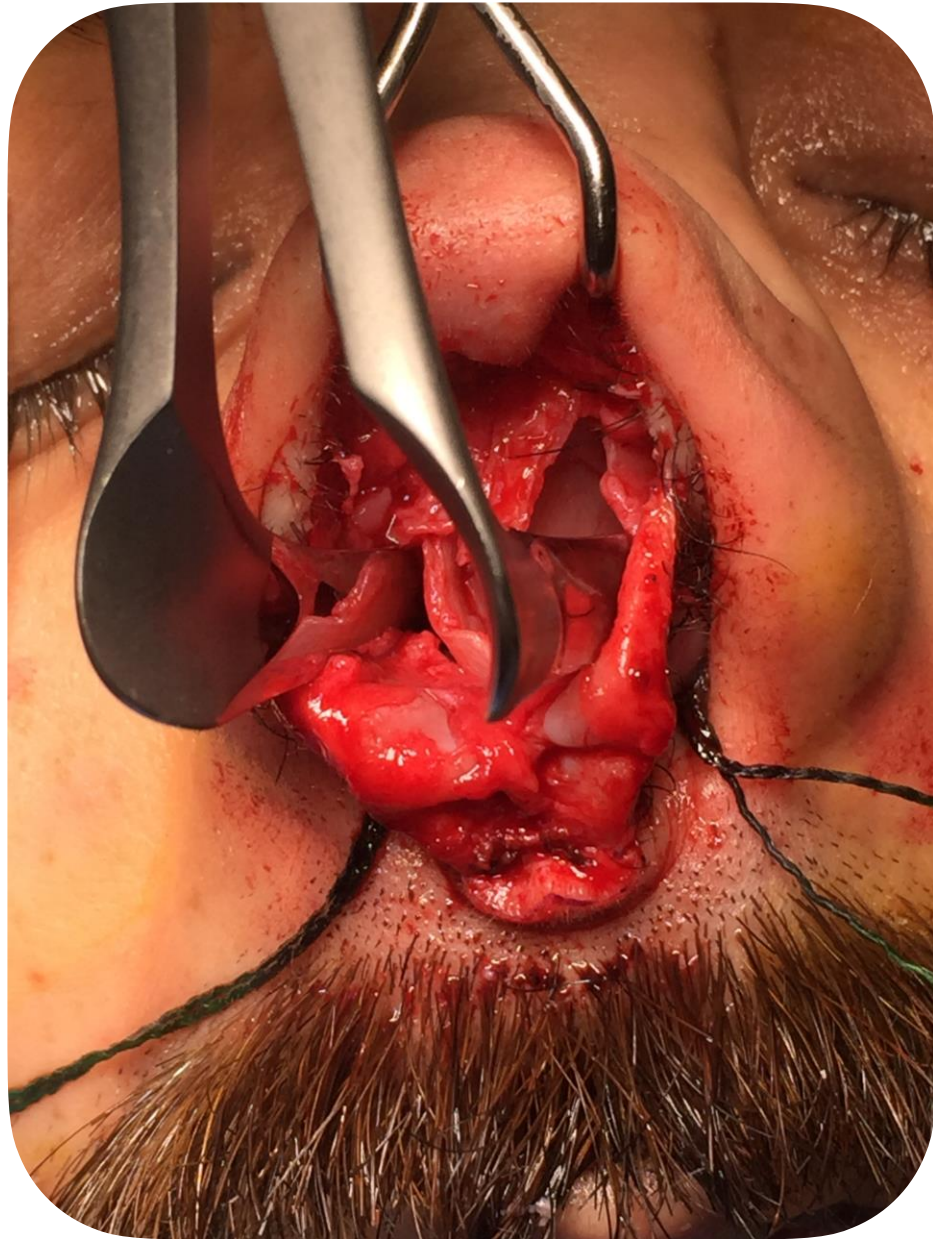


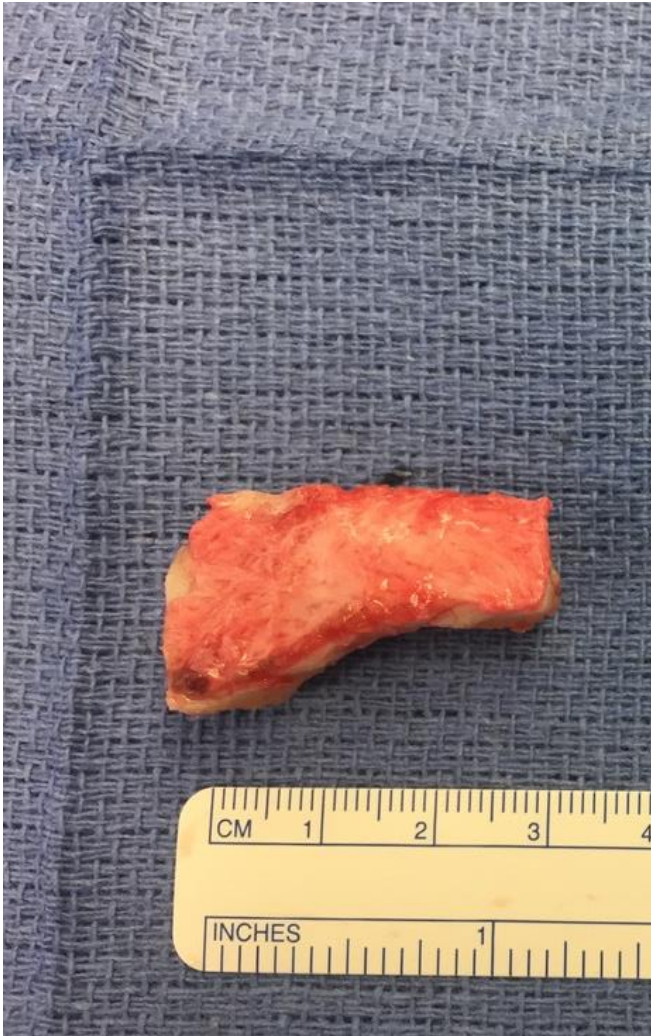
Replacement











Beware:
Warping
Firmness/thickness
Harvest risk

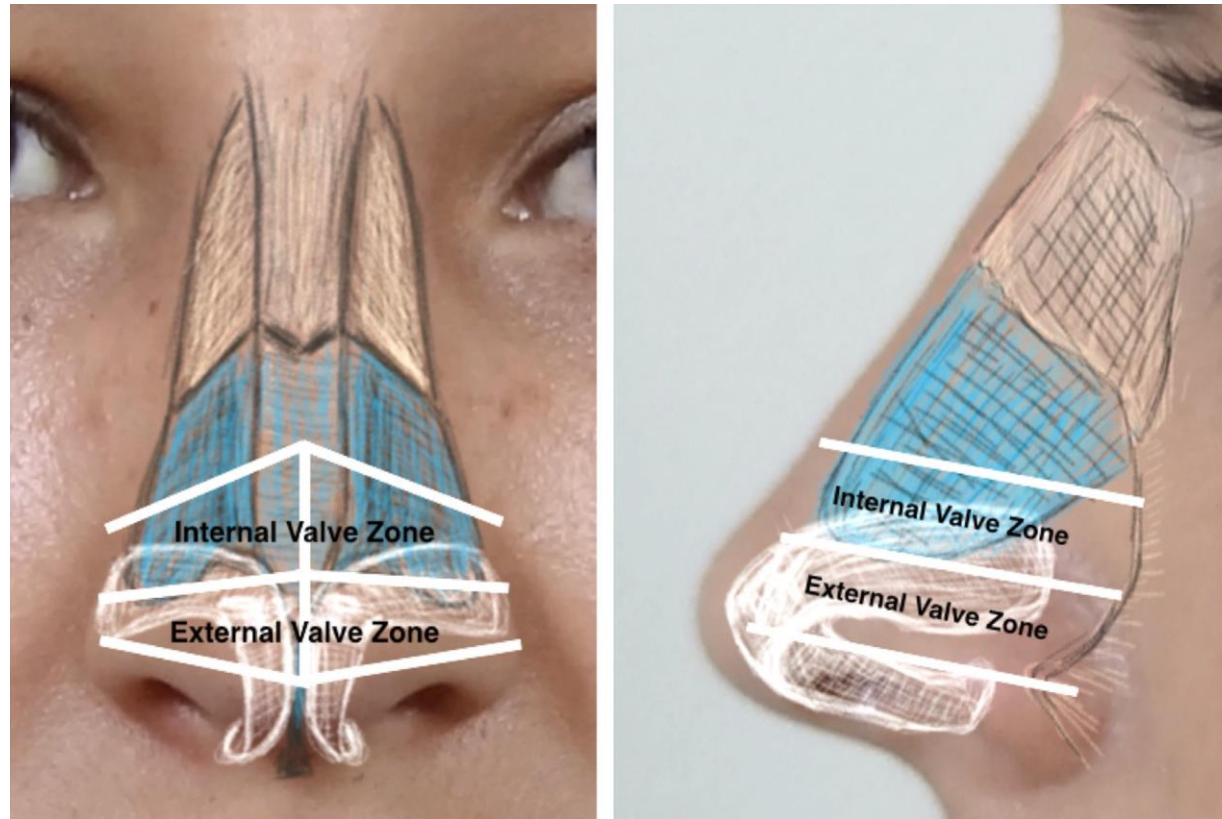


Four R's of Caudal Septal Deflection

Relocation
Resection
Reinforcement
Replacement

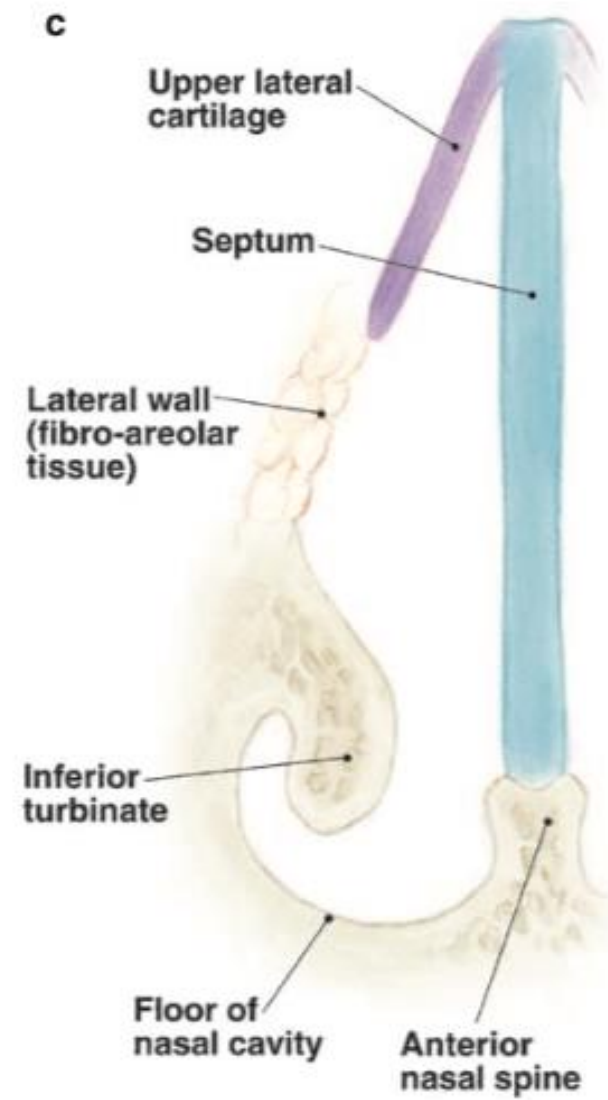
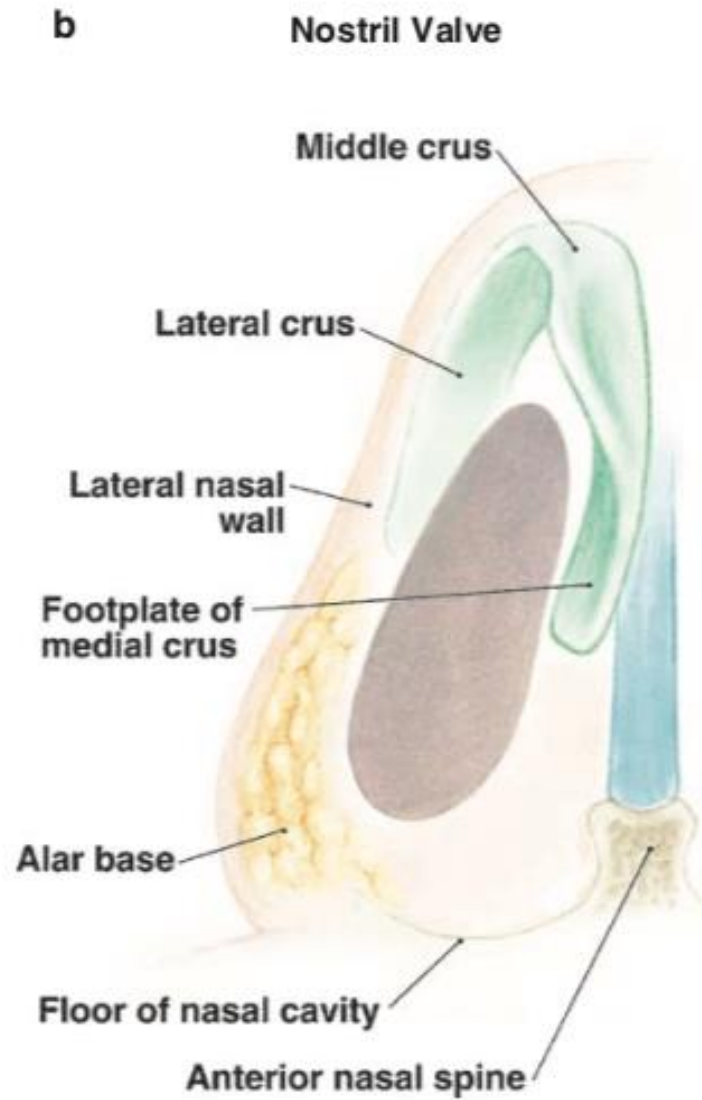
Focus on all asymmetries.
Don't underestimate cartilage memory or strength.
Do discuss alternate source of cartilage.

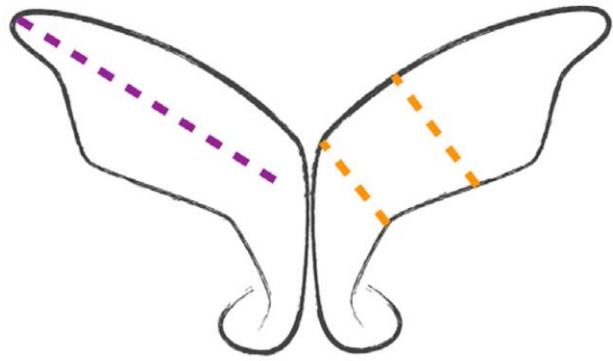
5. One size does not fit all for valves.



Insufficiency can affect either area or both.

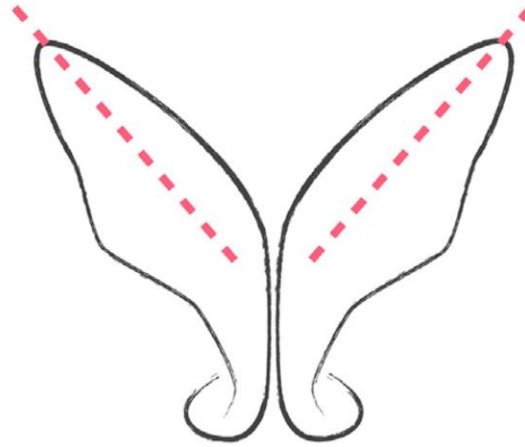
Can be static, dynamic, or both.





--- SHORT AXIS/DOME ANGLE
--- LONG AXIS

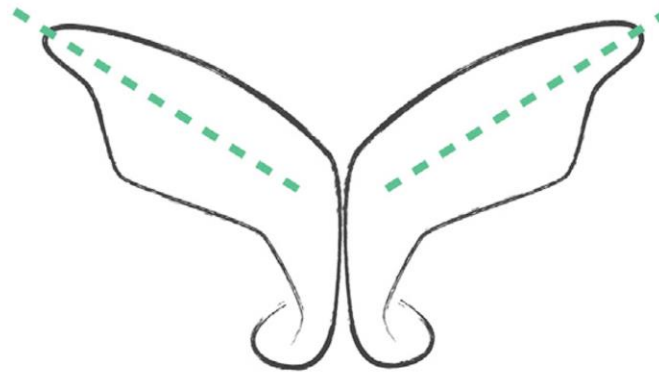
G. HANCOCK



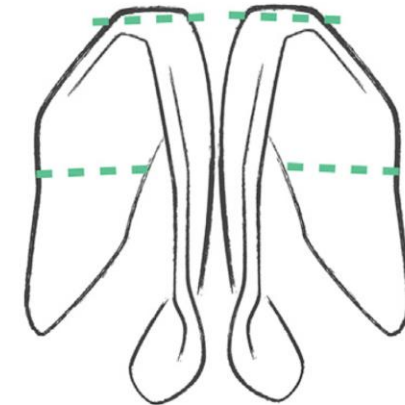
CEPHALIC MALPOSITIONING



SAGITTAL MALPOSITIONING



IDEAL



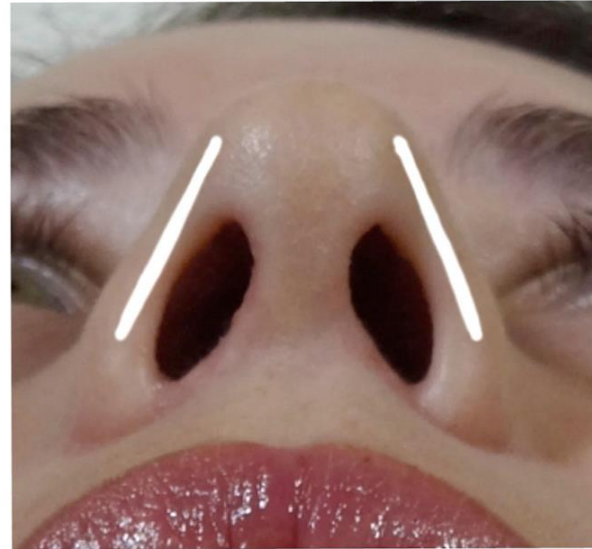
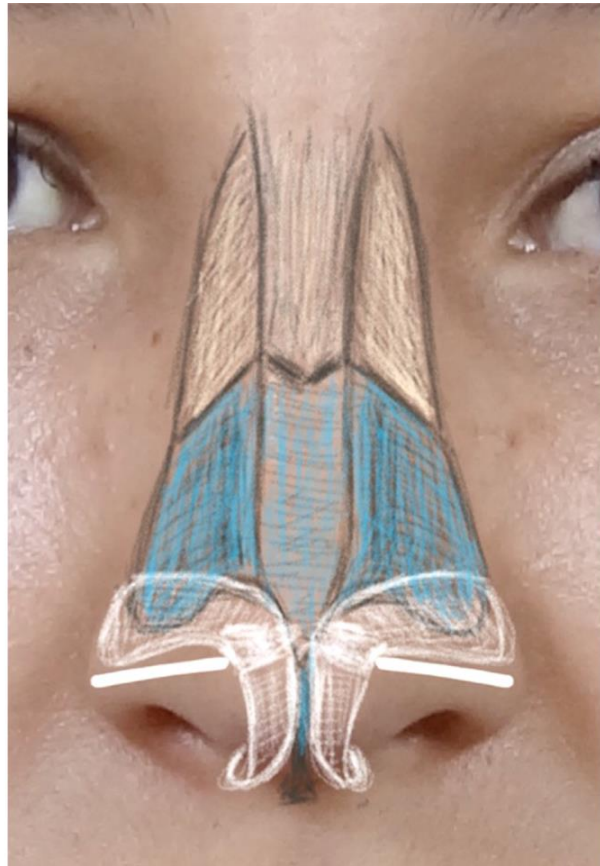
IDEAL



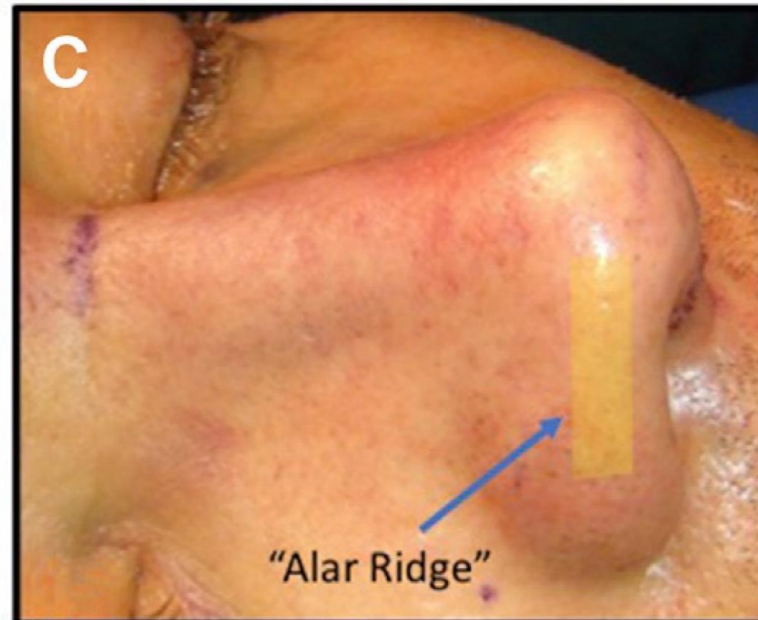
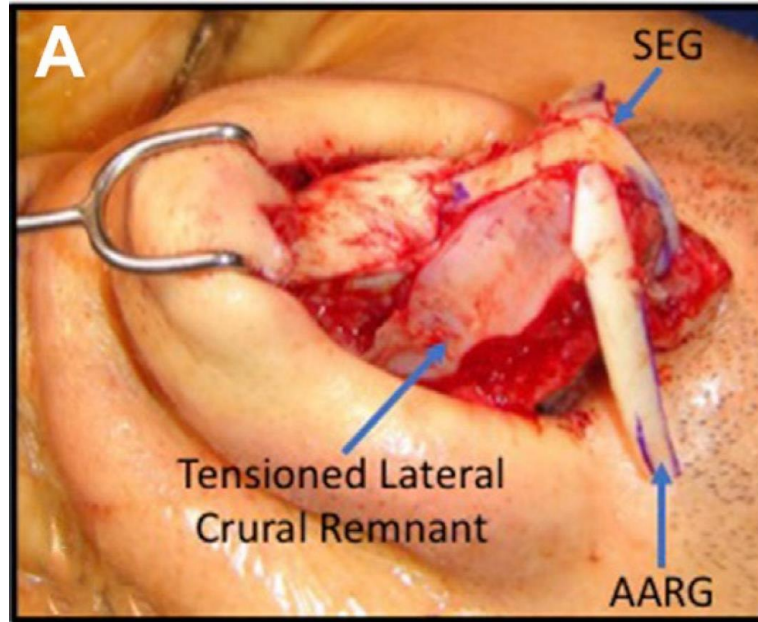
Use tried and true methods that work for you.

Many different techniques to support the nasal valves in various ways.

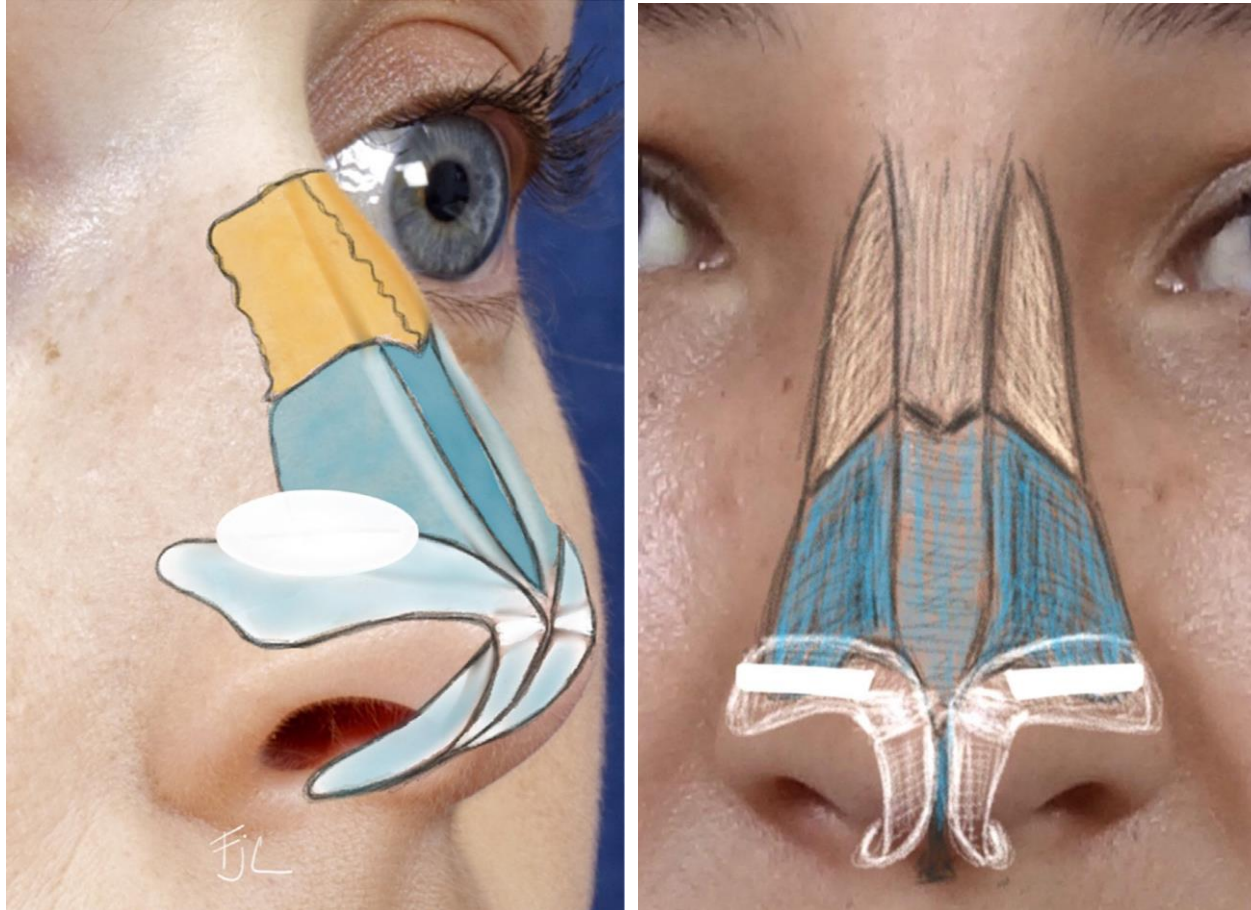
Rim grafts or articulated rim grafts



Beware:
Limited structure
Thin skin- visibility
Asymmetry
Poor diagnosis

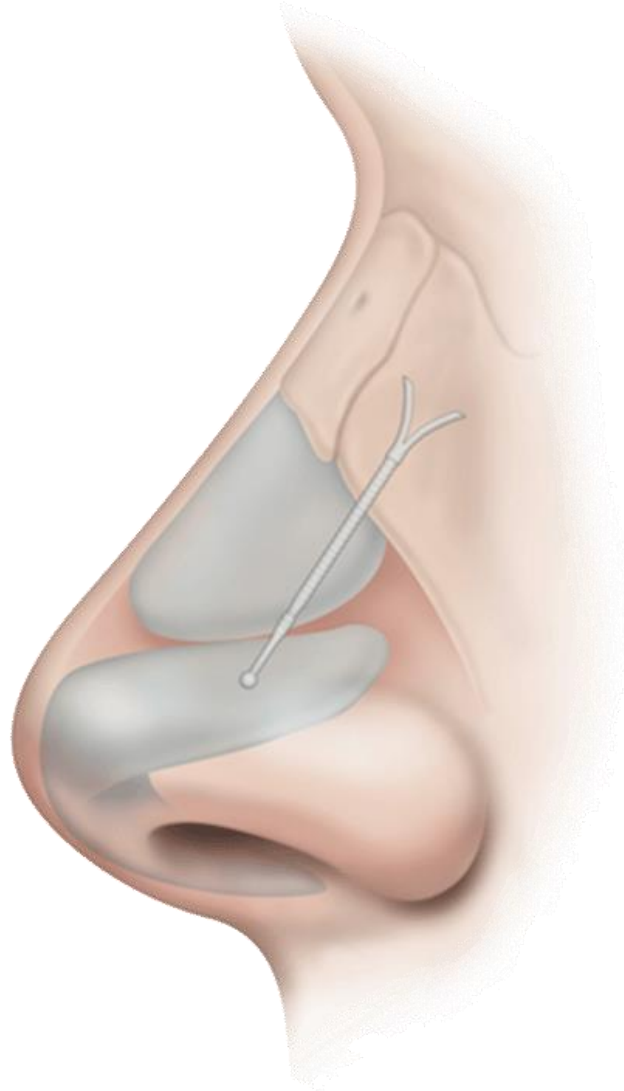


Batten, Lateral crural strut



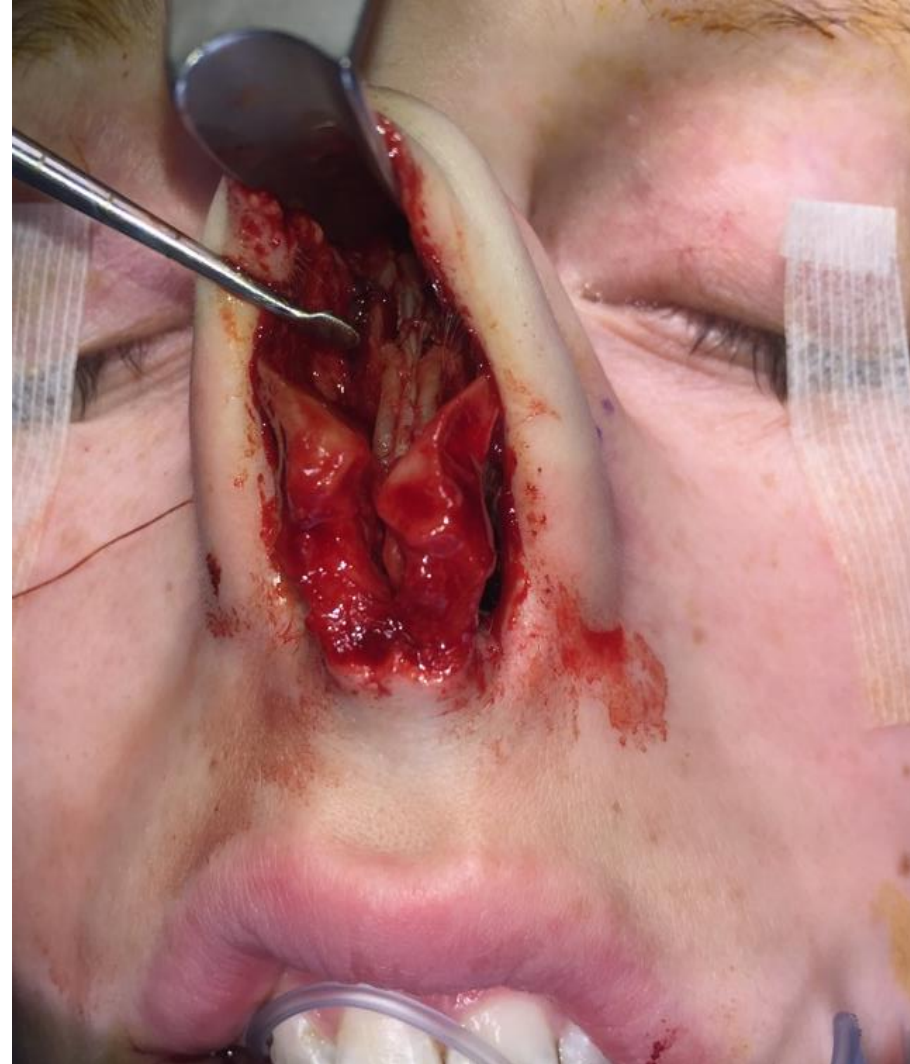
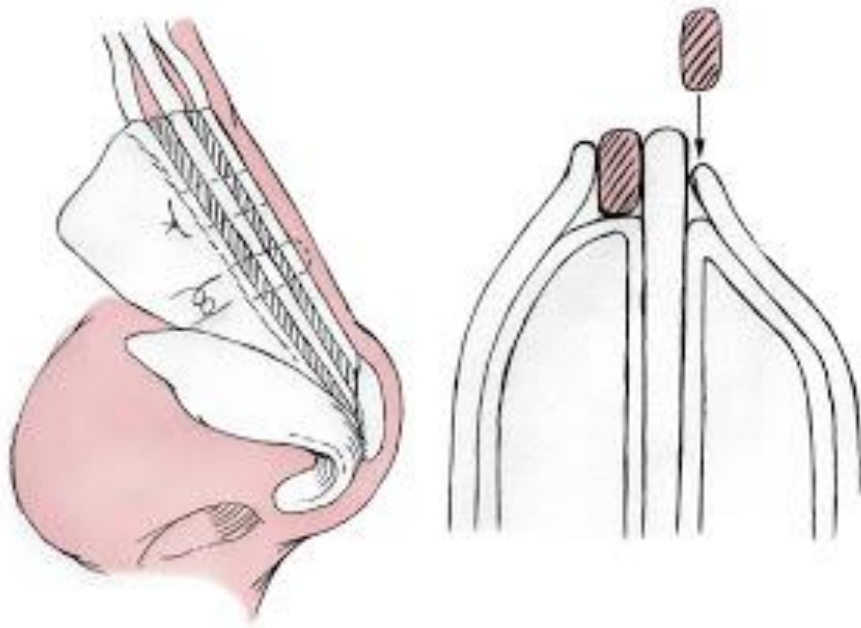
Beware:
Limited structure
Visibility
Widening
Asymmetry
Poor diagnosis
Lateral recurvature worsening
with batten

Lateral wall implant

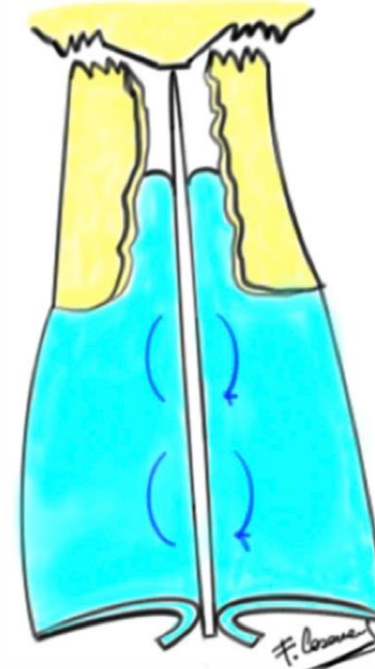
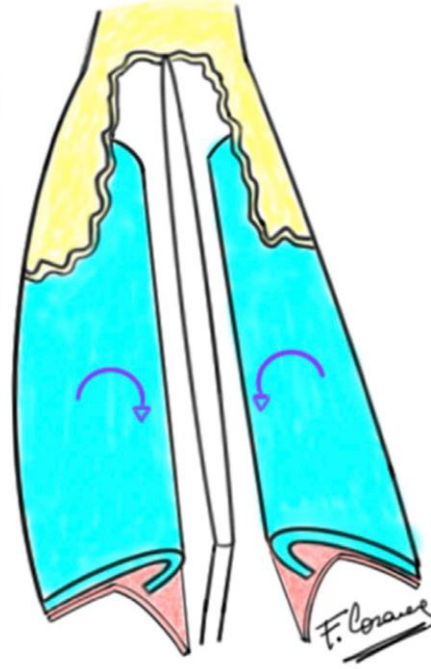
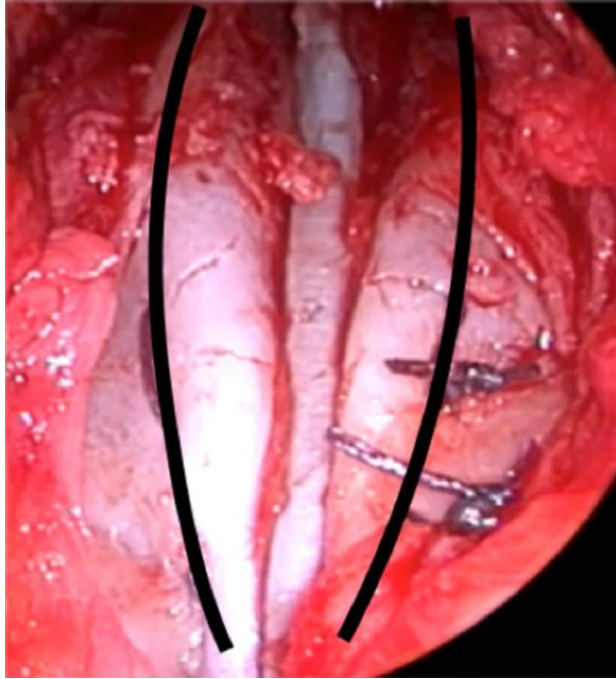


Beware:
Glasses wearer
Visibility
Poor diagnosis

Spreader graft, Autospreader/turn-in flaps

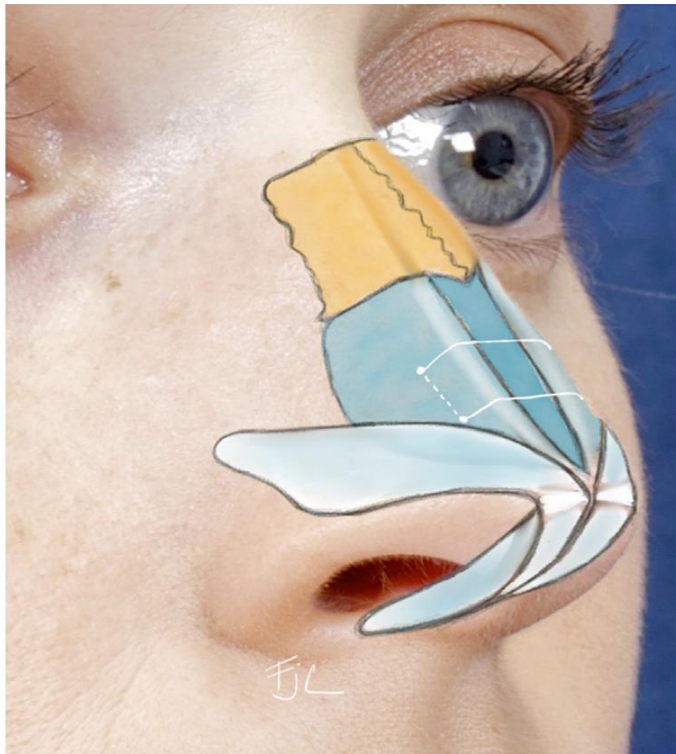


Spreader graft, Autospreader/turn-in flaps

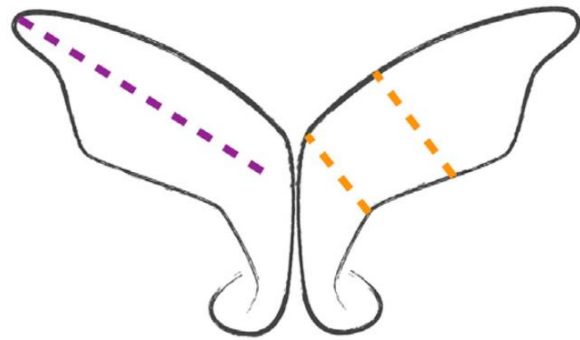


Beware:
Asymmetry
Dorsal widening
Poor diagnosis

Suture valve suspension

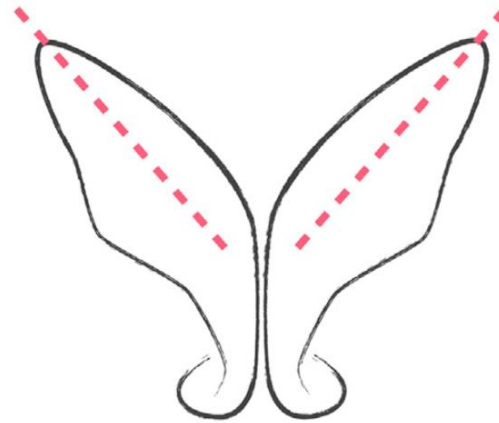


Beware:
Limited improvement
Insurance denial
Poor diagnosis

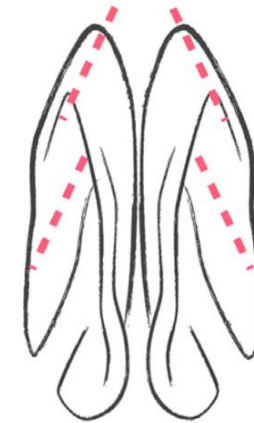


--- SHORT AXIS/DOME ANGLE
--- LONG AXIS

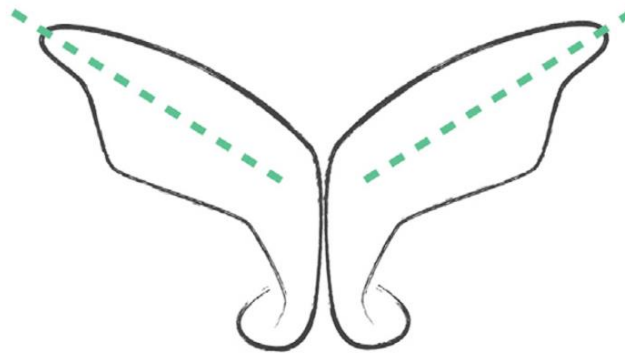
G. HANCOCK



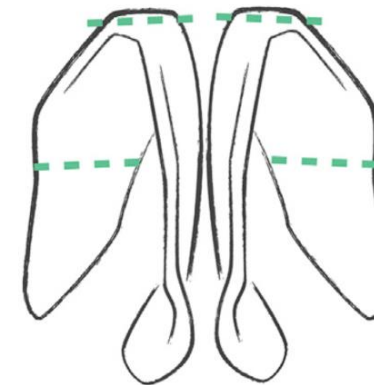
CEPHALIC MALPOSITIONING



SAGITTAL MALPOSITIONING

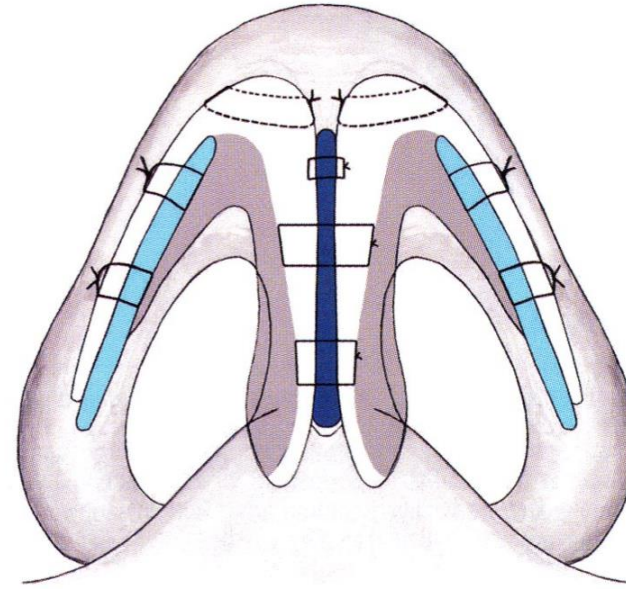


IDEAL



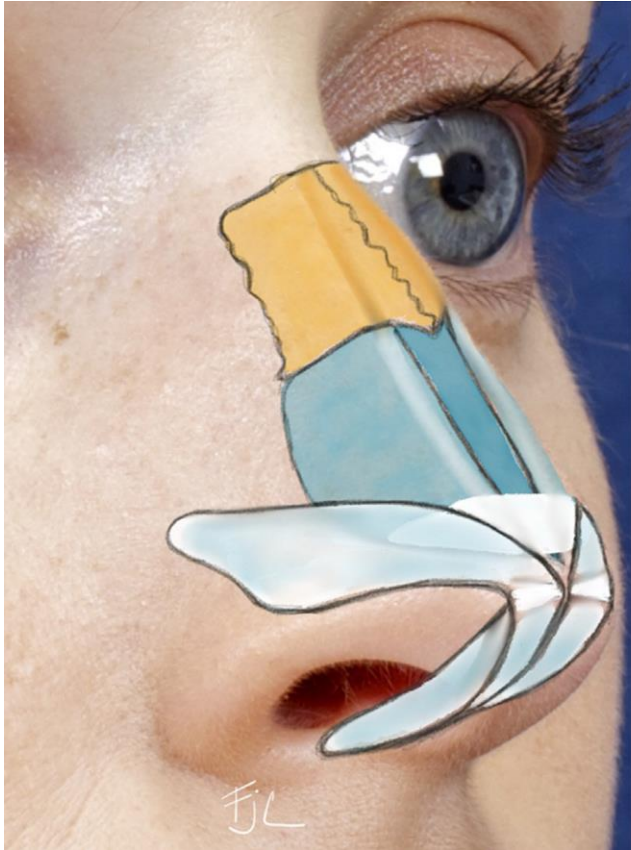
IDEAL

Lateral repositioning, lateral crural strut



Beware:
Variables
Aesthetic change
Asymmetry
Alar retraction
Firmness
Poor diagnosis

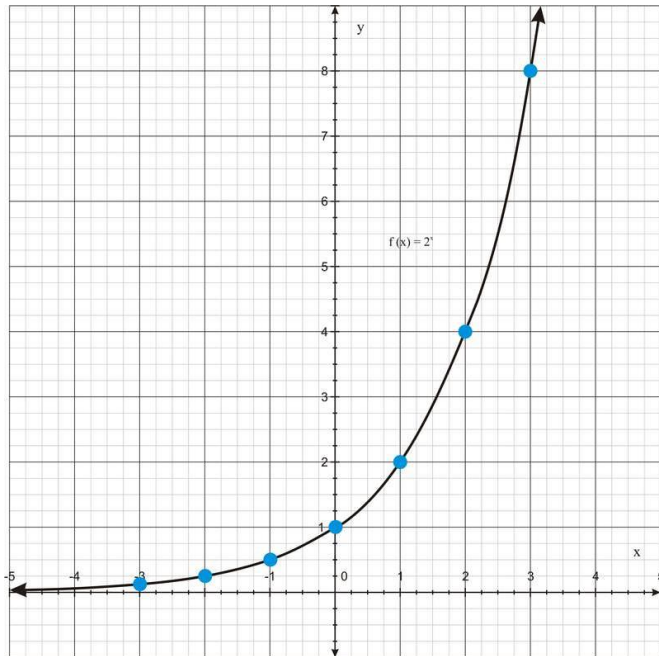
Butterfly graft



Beware:
Visibility

Do it right the first time.

Revision functional reconstruction can be quite difficult.



Each iteration becomes exponentially more difficult.

Don't be afraid to say no.

Know your limitations.
Know your comfort level.



Peter_c_Revenaugh@rush.edu
216-702-6555

Thank you!
Questions?

