

Section B

The Importance of Breastfeeding as it Relates to Total Health

Presented by:

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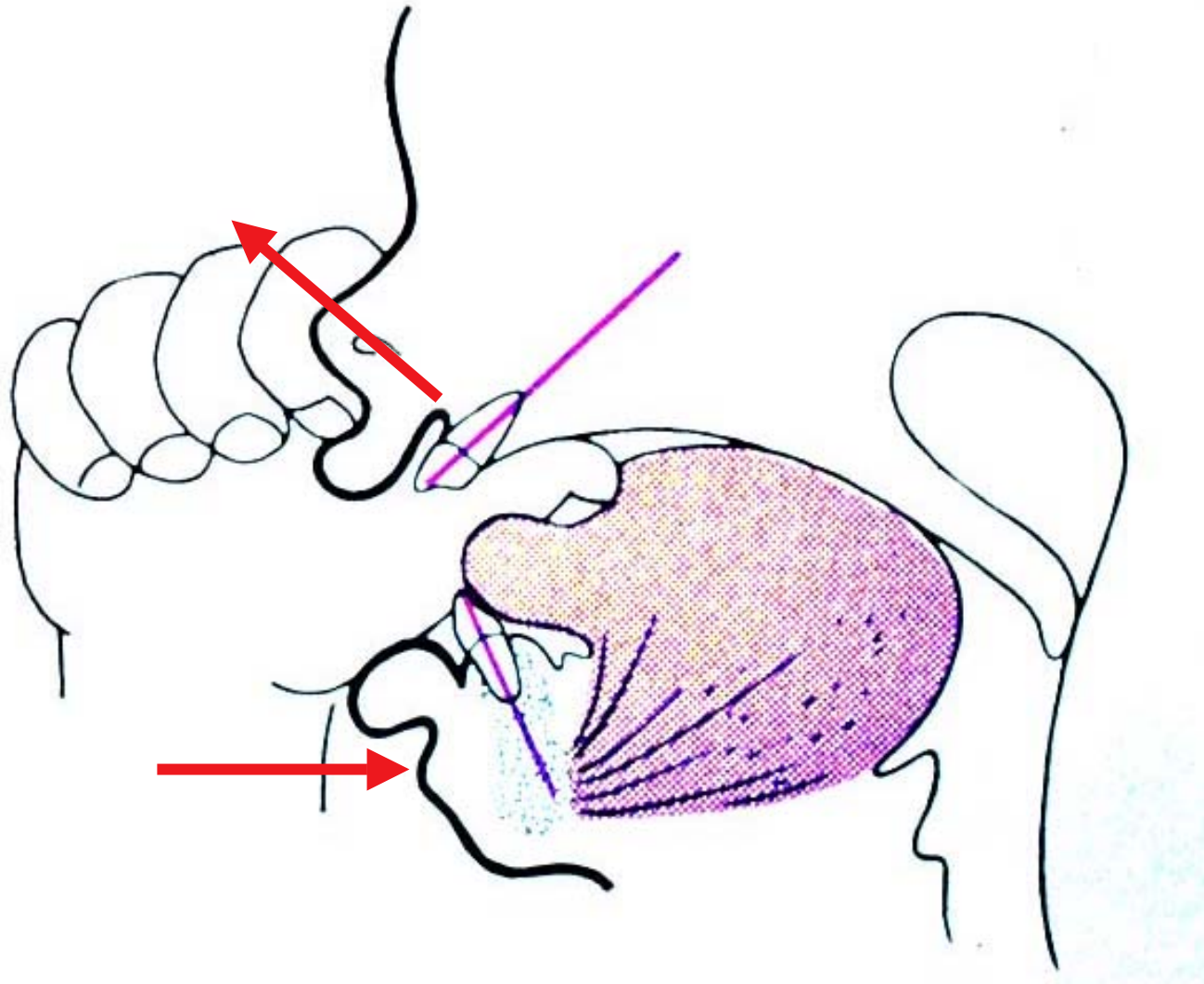
Habits and malocclusion

- Thumb sucking
- Finger sucking
- Lip sucking
- Arm sucking
- Pacifiers

Thumb sucking

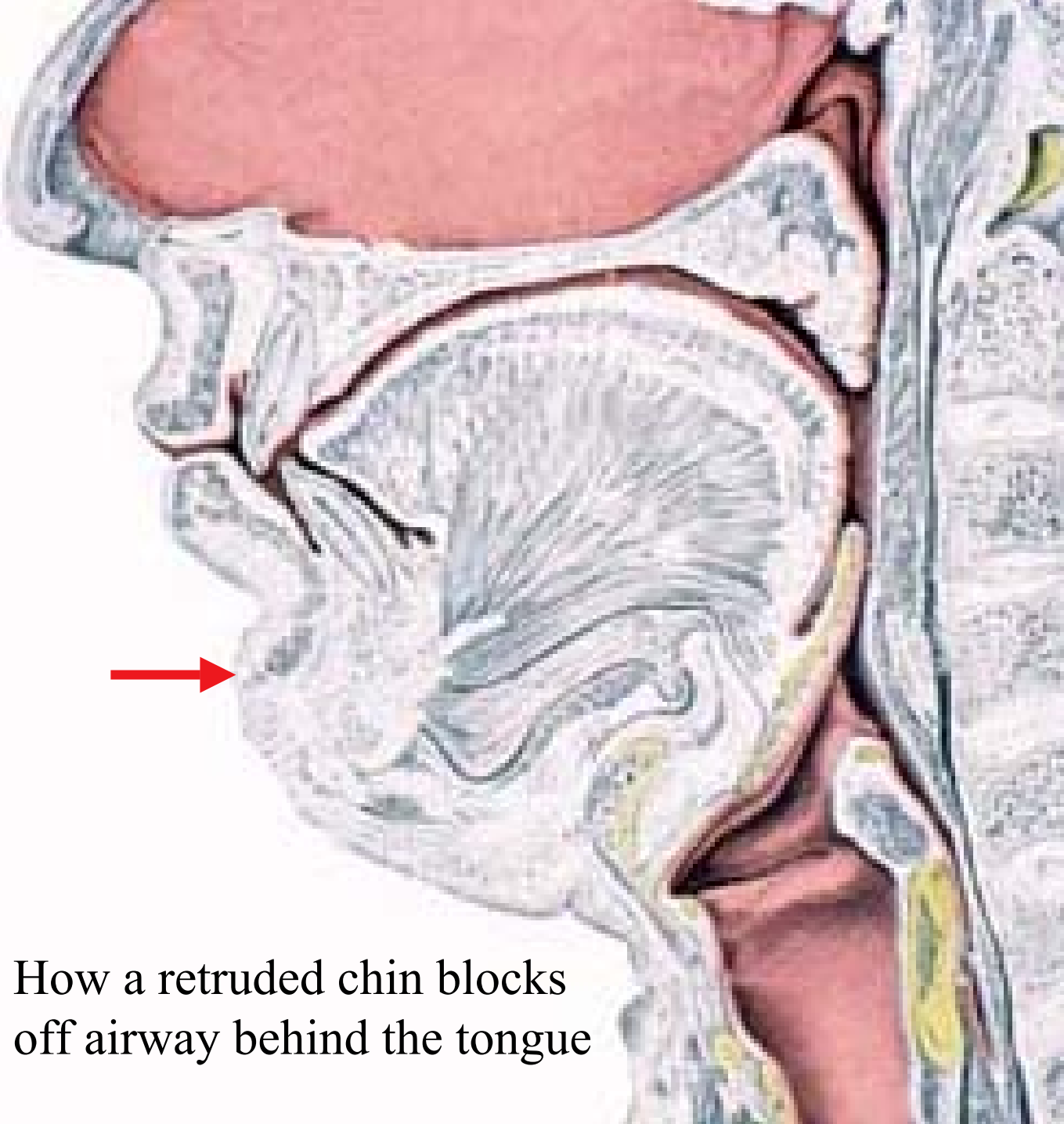


B4 Thumb sucking fetus - learns how to suck / pacify.



EXCESSIVE digit sucking can set up abnormal forces on the oral cavity and surrounding structures.

B5



This adult individual may have died from OSA. Note blockage of airway by soft palate and base of tongue. Also note retruded (pushed back) Class II mandible (chin). (Grant's Atlas)

If this had been an illustration of an infant, he may have died from SIDS.

How a retruded chin blocks off airway behind the tongue

B6



B7

Intense thumb sucker.



B8 Retruded chin and elevated upper lip is a result of his lip sucking.



B9 Thumb sucking created this open bite.



B10 Thumb sucking created this tongue thrust..

Finger sucking



2-digit-sucker
and hair twister.

B12



B13 Position of fingers while she sucked.



B14 Finger sucking created this tongue thrust.



B15 Finger sucking caused this open bite.

Lip sucking



Facial view of
this lip sucker.

B17



B18 Close up of child sucking on his lower lip.



B19 Lip sucking caused this open bite.



B20 Lip sucking caused this tongue thrust.

Arm sucking

B21



B22

Patient who was an arm sucker.



B23

Scar on arm due to arm sucking long after habit stopped



B24 Malocclusion that resulted from arm sucking



B25 She had to wear this palate expander to correct her malocclusion



B26 She needed orthodontics to correct her malocclusion.



B27 Best part of treatment - Kansas University JayHawk retainer.



B28 Final result - but it was expensive. Could have been natural.

Labbok / Hendershot article:

- **Principle finding** - the longer the duration of breastfeeding, the lower the incidence of malocclusion.
- Bottle feeding leads to a habit of forward tongue thrusting and a weakened development of the orbicularis muscles.
- There is a significant decrease in tongue thrusting with an increased duration of breastfeeding .

Labbok M et al. Does breast-feeding protect against malocclusion? Am J Prev Med, 1987;3(4):227-32

Pacifiers

- Positive association between pacifiers use and posterior cross bite and reduced upper arch width.
- Probable mechanism
 - Sucking activity in the cheeks
 - Reduced palatal support as the tongue takes a lower position

Ogaard B, Larsson E, Lindsten R. The effect of sucking habits, cohort, sex, intercanine arch widths, and breast or bottle feeding on posterior cross bite in Norwegian and Swedish 3-year-old children *Am J Orthod Dentofac Orthop* 1994;106:161-6..



Healthy skull form

Prehistoric skull with wide palate and large posterior nasal aperture. There is also good width between the pterygoid plates. This allows for a wide beginning of the airway.



Unhealthy skull form

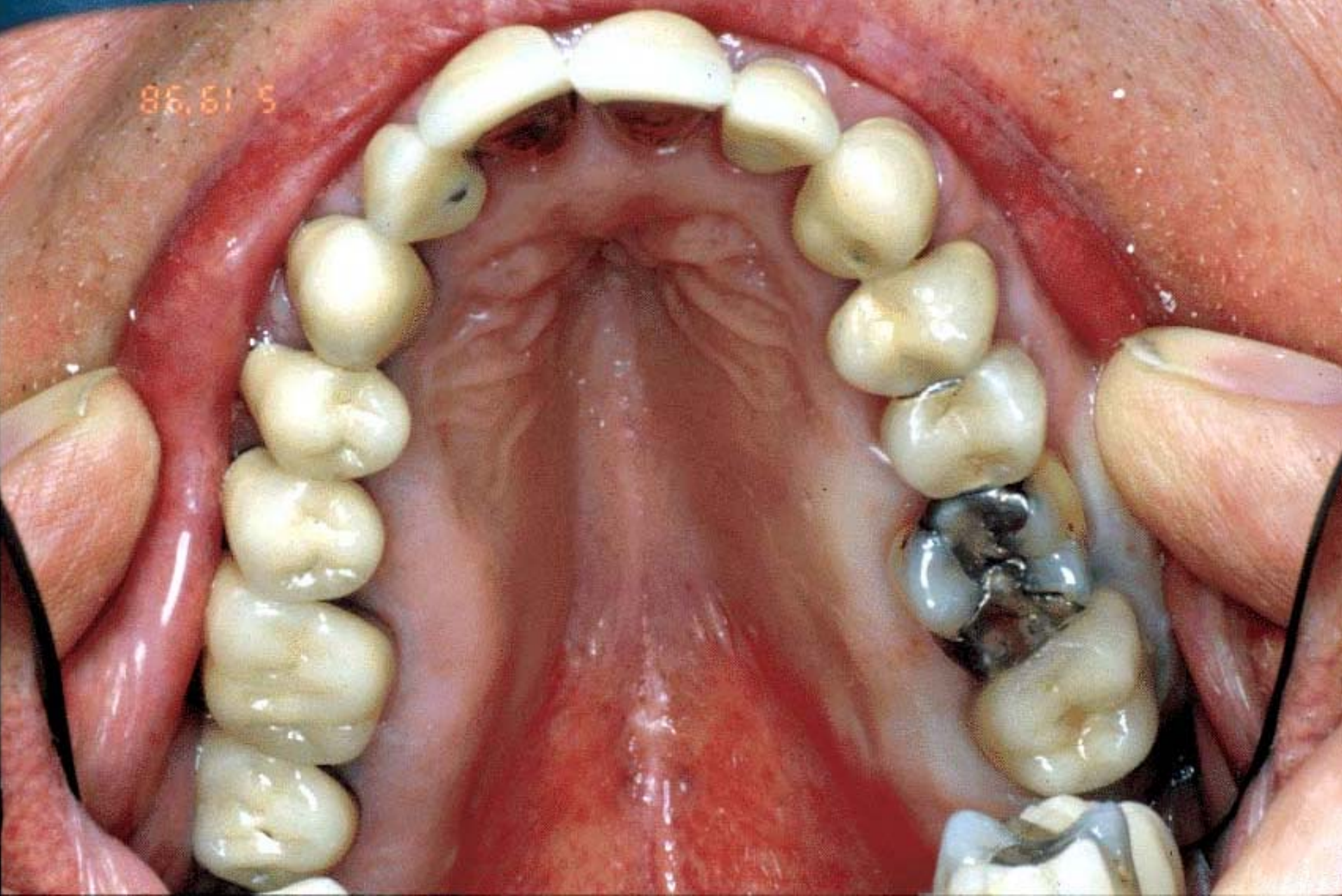
Skull from the 1940s demonstrating a high palate and narrow maxillary arch. Note small nasal aperture and less width between the pterygoid plates. This results in a narrow beginning of the airway - which creates a greater risk of airway collapse.



Ideal wide palate and nice “U” shaped arch of an adult that was breastfed.



Narrow “V” shaped maxillary arch and high palate of an adult that was bottle fed and was a thumb sucker.



B34 Modern high palate and narrow arch



B35

High palate and narrow “V” shaped arch of a thumb sucker.

Excessive sucking is what
causes the damage.

Excessiveness =

Intensity + Frequency + Duration

Oral habits and primary dentition

- Conclusion: While continuous nonnutritive sucking habits of 48 months or longer produced the greatest changes in dental arch and occlusal characteristics, children with shorter sucking duration also had detectable differences from those with minimal habit duration.
- Implications: It may be prudent to revisit suggestions that sucking habits continued to as late as 5 to 8 years of age are of little concern.

Warren J et al. Effects of oral habits' duration on dental characteristics in the primary dentition. JADA 2001(Dec);132:1685-93

Habits and malocclusion

- Dummy and digit sucking strongly associated with malocclusion.
- Malocclusions found in 35% of 3-year-olds
 - Anterior open bites in 27%
 - Unilateral cross bites in 8%

Paunio P, Rautava P, Sillanpaa M, The Finnish family competence study: The effects of living conditions on sucking habits in 3-year-old Finnish children and association between these habits and dental occlusion. *Acta Odontol Scand* 1991;51:23-29

Habits and malocclusion

- Digit and dummy sucking resulted in increased tendency to tongue thrust.
- Tongue thrust related to: open bite, cross bite, overjet, Class II malocclusion.
- Sucking habits influence etiology of malocclusion.

Melsen, B, Stensgaard K, Pedersen J. Sucking habits and their influence on swallowing pattern and prevalence of malocclusion. Euro J Othodont 1979;1(4):271-280.

Sucking habits and malocclusion

- Digit and dummy-sucking was the lowest among children who had good opportunity for breastfeeding.
- Significant relationship was found between sucking habits and malocclusion such as: Class II malocclusion, increased overjet, anterior open bite.

Farsi N, Salama F, Pedro C. Sucking habits in Saudi children: prevalence, contributing factors and effects on the primary dentition. *Pediatr Dent* 1997;19(1):28-33

Bottle feeding and malocclusion

- There is a strong association ($p=0.0006$) between exclusive bottle-feeding and malocclusion.
- This mal-relationship does not diminish as the child grows from the primary to permanent dentition.

Davis D, Bell P. Infant feeding practices and occlusal outcomes: A longitudinal study. J Can Dent Assoc 1991;57(7):593-94

Impact of infant sucking habits

- Digit and dummy sucking resulted in increased tendency to tongue thrust.
- Tongue thrust related to: open bites, overjet, and Class II malocclusion.
- Sucking habits influence the etiology of malocclusion

Melsen B, et al., Sucking habits and their influence on swallowing pattern and prevalence of malocclusion; European J of Orthodont, 1979, 1(4):271-280.

Cup-feeding as an alternative

“Data support cup-feeding as an alternative to bottle-feeding for supplying supplements to breastfed infants. Administration times, amounts ingested, and infant physiologic stability do not differ with cup- or bottle-feeding.”

Howard CR, et al. Physiologic stability of newborns during cup- and bottle-feeding 1999;Pediatr(104)(5):1204-7.

Swallow

Thrust

Facial form

The Basics of Swallowing

The importance of the “N” sound.

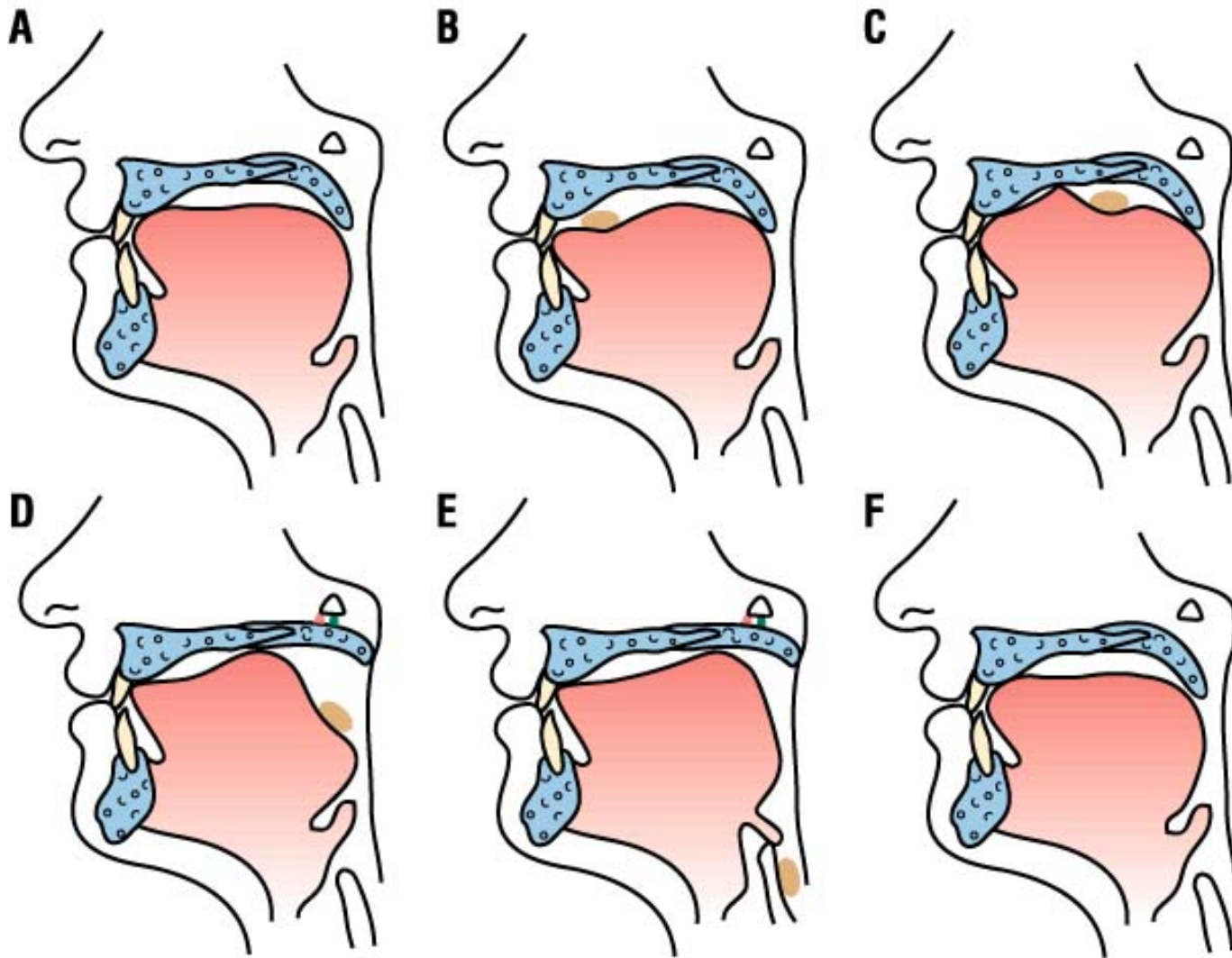
Test yourself!



B46

Tip of tongue positioned behind upper front teeth during “N” sound.

Adult Swallow



B47 Peristaltic motion of tongue across roof of mouth during swallow

Consequences of not having a
correct swallowing pattern.



Infant tongue thrust and resultant anterior open bite. In this case the tongue thrust was due to a tight frenum.



B49



**Tongue thrust with
resultant anterior open bite
malocclusion.**



B50



**Adult tongue thrust
created anterior
open bite.**



B51



Adult tongue thrust created anterior open bite and caused gingival recession.



B52



**Tongue thrust caused
open bite malocclusion.**



B53



Adult tongue thrust created spaces and significant malocclusion.



B54



B55 Post ortho open bite - 2 bicuspids removed.



Actual tongue thrust and open bite of study model case. An orthodontic failure because the tongue thrust was not addressed.



B56



B57 The case that started my research about 30 years ago. She is still a patient in my practice. Patient has a **posterior bilateral tongue thrust**.



B58 Posterior open bite on right side due to a posterior tongue thrust.



Posterior open bite on left side due to a posterior tongue thrust.



B59

AAPD Vision Statement - 1996

- “the advantages of breast-feeding from the standpoint of oral health are unknown at this time.”
- “the beneficial effects of breast-feeding on dento-facial growth has not been clearly demonstrated.”

Pediatr Dent, (J Amer Acad Pediatr Dent),
Spec Issue:Reference Manual 1995-96,17(6).

AAPD Vision Statement - 1996

- “89% of youth, ages 12 - 17 years, have some occlusal disharmony.”
- “16% of youth have a severe handicapping malocclusion that requires mandatory treatment.”

Pediatr Dent, (J Amer Acad Pediatr Dent), Spec Issue:Reference Manual 1995-96,17(6).

Pacifier use

- 75-85% of all children in western countries use pacifiers. Children weaned from breastfeeding early use a pacifier more often than those who are breastfed longer.

Victora CG et al Pacifier use and short breastfeeding duration: cause, consequence, or coincidence? 1994, *Pediatr*;99:445-53.

Craniofacial Development

- Largest increment occurs within the first 4 years of life.
- Is 90% complete by 12 years of age

Shepard J, et al. Evaluation of the upper airway in patients with OSA, *Sleep* 1991;14(4):361-71.

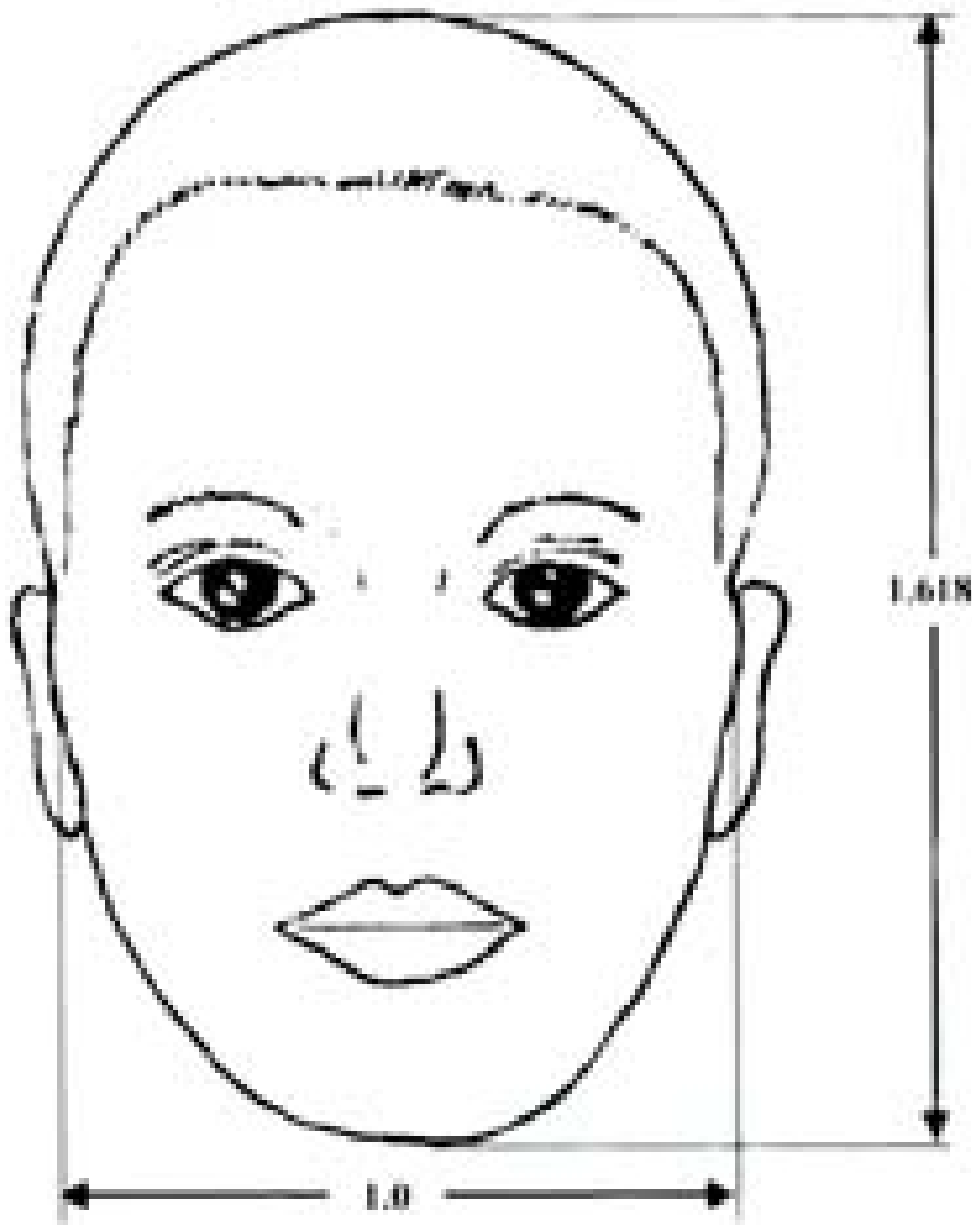
Facial Form

Why breastfed babies
have a better chance
of being prettier
than bottle-fed babies.

Facial form is the result of:

- Skeletal influence
- Development of the airway

Laurence Barsh. The Origin of Pharyngeal Obstruction during Sleep. *Sleep and Breathing* 1999, 3(1):17-21



**Natural beauty has
a divine proportion
ratio of 1.618 / 1.0**

Divine Proportion of the face

B66

Yosh Jefferson. Skeletal Types:
Key to unraveling the mystery of
facial beauty and its biologic
significance. JGO 1996;7(2):7-25.



Two-year -old breastfed infant with divine proportion of the face.

Same breastfed infant at age 3 years-4 months. Note nice facial form and lip contour / shape.



B67



Adult who was breastfed as a child. She would not touch a bottle or pacifier. A pretty proportional face.

B68



Same adult with beautiful smile and teeth. Never had orthodontics (braces).

B69





Lip contour of 4 month old breastfed infant



Same infant at 4 1/2 years. Note natural lip line

B70



B71

Note collapse of cheeks and bottle due to vacuum created during excessive sucking.



Aggressive thumb
sucker at 4 months.

Lip contour and tongue
position of same aggressive
thumb sucker when thumb
removed. (4 months)



B72



B73

Same patients at 4 1/2 years of age. Note lip contour and forward position of tongue at rest.



Same patient at age 7 years Note long face and open mouth.

B74



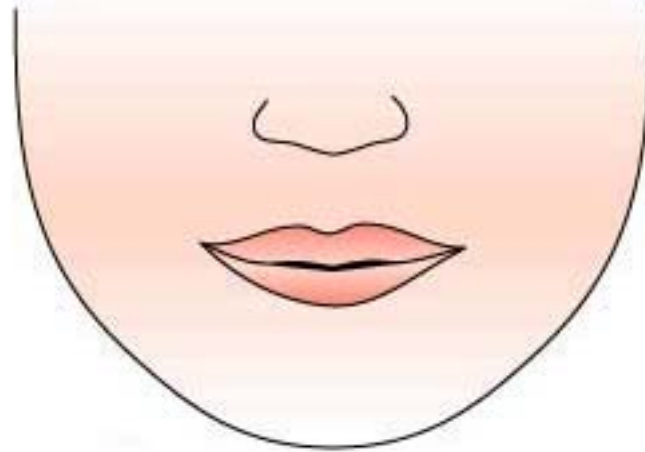
Open bite on same 7 year old. Note forward position of tongue.

Compromised oropharynx (throat) of same 7 year old.



B75

Lip and Facial Contours



Infant exclusively breastfed



B76

Infant who has sucked on a foreign object **excessively**

Reasons for the collapse of the oral cavity and airway space:

- Improper feeding - artificial bottles and nipples.
- Noxious habits - pacifiers, excessive digit sucking, etc.
- Grossly enlarged tonsils and adenoids.
- Ankyloglossia / tongue-tie.
- Facial-skeletal growth abnormalities.
- CNS dysfunction affecting facial muscles.
- Drugs - refined sugars might be considered in this category.

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