

Oral habits



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Habit

▶ William James-

From psychological view, Is a Pathway of discharge formed in brain by which certain incoming currents ever after tend to escape....

Habit: Definitions

- ▶ **Dorland –**

Fixed or constant practice established by frequent repetition

- ▶ **Buttersworth –**

Frequent or constant practice or acquired tendency, which has been fixed by frequent repetition

Habit: Definitions

▶ Moyer

Habits are learnt pattern of muscle contraction of a very complex nature

▶ Hogeboon and Salder

It is a methodical way in which mind and body act as a result of frequent repetition of a certain definite sets of nervous impulses

Habit: Definitions

► Mathewson –

Learned pattern of muscular contraction

► Boucher

As a tendency towards an act or an act that has become a repeated performance, relatively fixed, consistent, easy to perform and almost automatic

Development of habit

▶ Unconscious mental pattern

- Instinct
 - ▶ Elementary reflex-
 - ▶ Pattern and order
- Incorrect outlet of energy
- Pain or discomfort
- Abnormal physical size
- Imitation of others

Dental response to pressure exerting oral habits : Forester

▶ Functional matrix theory –

Position of Dentition- skeletal growth pattern , muscular forces and masticatory forces

▶ Orthopedic effect (Swine hart)

2 types of forces acc. to site and duration

- ▶ Ant. Force against palate (Sucking habit)
- ▶ Constriction force of buccal musculature (Mouth breathing)

Habits: Classification

▶ Obsessive

(Deep rooted)

- Intentional OR meaningful
- Masochistic or Self-inflicting injurious habit

▶ Non-obsessive

(Easily learned)

- Empty or Unintentional
 - ▶ Abnormal pillowing, chin propping
- Functional
 - ▶ Tongue thrusting

Habits: Classification

▶ James (1923)/ Graber

- Useful
- Harmful

▶ Kingsley

- Functional oral habit
- Muscular habit
- combined

▶ Finn (1987)

- Compulsive habits
- Non- compulsive habit
- ✳ Primary habit
- ✳ Secondary habit

▶ Klein (1977)

- Empty
- meaningful

Habits: Classification

▶ Morris and Bohanna (1969)

- Non pressure habit
- Pressure habit
 - ▶ Sucking habit
 - Lip, Thumb sucking, Tongue thrusting
 - ▶ Biting habit
 - Nail biting, Needle, Thread holding
 - ▶ Posturing habit
 - Pillow, Hand rest
 - ▶ Miscellaneous
 - Bruxism, Cheek biting

Habits: Classification

- ▶ Normal
- ▶ Abnormal

- ▶ Retained
- ▶ Cultivated

- ▶ Physiologic
- ▶ Pathologic

- ▶ **Sucking habit**

- Nutritive Sucking
 - ▶ Breast, Bottle feeding
- Nonnutritive
 - ▶ Thumb sucking
 - ▶ Tongue thrusting

Trident of Habit

- ▶ Intensity
- ▶ Frequency
- ▶ Duration

▶ **Direction (Pinkham)**



Treatment philosophy and considerations

▶ Emotional significance of habit in relation to family

- Excessive parental demand
- Prolonged separation
- Birth of sibling

} Psychological
approach

▶ Age

▶ Existing or potential malocclusion asso. with a force exerting habit

Nutritive habits

Nutritive habits

► Breastfeeding

- Rooting reflex (Pinkham)
- Sucking reflex
- Psychological development
- Effect on orofacial development
- Malocclusion



Nutritive habits

▶ Bottle feeding

- Artificial nipple
 - ▶ Size, length, flow rate
location of holes
 - ▶ Orthodontic or
physiologic
- Effect on dentofacial
musculature development
- Malocclusion



Nonnutritive- Thumb sucking

Thumb or Digit sucking

▶ Definition -

Placement of thumb or one or more fingers in various depths into the mouth or oral cavity

▶ Synonyms

- Thumb sucking/ Digit sucking/ Finger sucking

Thumb or Digit sucking

▶ Prevalence

- 16- 45 %
- Age and Prevalence

▶ Damage (malocclusion)

- Original morphology
- Suckle – swallow pattern
- Maturation cycle of deglutition
- Intensity and duration of habit

Graber

Influence of different variables on incidence and Prevalence of Thumb Sucking Habit

Variables	Relationships	Study
Age	No evidence of thumb sucking in neonates 2- 5 years - 17.3% upto 7 years - 45%	Levin and Kaye 1964 Singhal and Bhatia 1988 Garathini et al 1990
	Relatively low incidence in preschool children.	Traisman and Traisman, Robert, Brazelton 1956-1958
	Even distribution in school going children except in six years or older children who were engaged in slight sucking habit.	Backlund 1963
Gender	No correlation in gender in neonates.	Levin and Kaye 1964
	In infants and children no significant difference between boys and girls.	Traisman and Traisman, 1958
	Even distribution among boys and girls in school going children	Backlund 1963

Influence of different variables on incidence and Prevalence of Thumb Sucking Habit

Race	Significantly low incidence found in Negroid races	Brenchley 1992
Pacifier	Related to low incidence of thumb sucking at 5 years	Ravn 1976
Feeding methods	Increase incidence in a low duration breast feeding Longer feeding leads to habit Significant relationship between duration and intensity of thumb sucking and amount of time spent in feeding sessions	Levy 1928 Robert 1944 Yarrow 1954
Siblings	No correlation between level of the habit and number of siblings with the habit.	Larsson et al. 1971
Parental status	High incidence among children of professionals	Popovich and thompson 1973
	No incidence of thumb sucking	Dahlborg, Owen and Moghall 1969.

Thumb sucking: Classification

- ▶ Normal thumb sucking
- ▶ Abnormal thumb sucking

- Psychological
- Habitual

Thumb Sucking: Classification

► Subtelny(1973)

Type A	Type B	Type C	Type D
50%	13-20%	18%	6%
Digit placement	Digit placement	Digit placement	Digit placement
Max/ Mand Ant Contact	Max/ Mand Ant Contact	Max/ Mand Ant Contact	Max/ Mand Ant Contact

Nonnutritive habits

Johnson(1993)

Table 9.8: Classification of NNS habits.

Level	Description
Level I (+/-)	Boys or Girls of any chronological age with a habit that occurs during sleep.
Level II(+/-)	Boys below age 8 with a habit that occurs at one setting during waking hours.
Level III(+/-)	Boys under age 8 years with a habit that occurs at multiple settings during waking hours.
Level IV(+/-)	Girls below age 8 or a boy over 8 years with a habit that occurs at one setting during waking hours.
Level V (+/-)	Girls under age 8 years or a boy over age 8 years with a habit that occurs across multiple settings during waking hours.
Level VI (+/-)	Girls over age 8 years with a habit during waking hours.

(+/-) designates willingness of the parents to participate in treatment.

Thumb or Digit sucking

Incidence

Forester

▶ Sucking reflex

- Starts at 29 week I.U.
- Disappear by 3 - 4 yr
- First coordinated muscular activity
- Psychological and nutritive need

▶ Rooting(Placing) reflex

- Well defined sensory area around mouth
- Head turning and opening of mouth by stimulation



Thumb or Digit sucking

▶ Initiation of digit sucking (Infantile)

- Development of muscular coordination
- Ability to reach the face with hand
- Exploration of environment by placing objects in mouth
- Introjection and Projection



▶ Retained digit sucking

- Lack of oral gratification
- Separation from mother
- Social structure or culture
 - ▶ Eskimo study
 - ▶ Burlington study



Thumb or Digit sucking

▶ Theories (Etiology)

■ Classical Freudian theory (1905)

- ▶ Biologic sucking drive (I.U.)
- ▶ Oral phase- Center of attraction (Oro -erotic zone)
- ▶ Deprivation of activity - Insecurity
- ▶ Assoc. With pleasurable stimuli, but not discarded at usual time due to psychological disturbance
- ▶ Substitution with less desirable habit

Thumb or Digit sucking

► Benjamin theory (1962)

Experimentation on monkey

Two theories

- Thumb sucking - Expression associated with sucking along with primary reinforcing aspect of feeding
- Thumb sucking from Rooting and placing reflex

Thumb or Digit sucking

► Learning theory: Davidson (1967)

- Adaptive response to pleasurable feeling
- No underlying cause
- No emotional or psychological problem
- No substitute

Thumb or Digit sucking

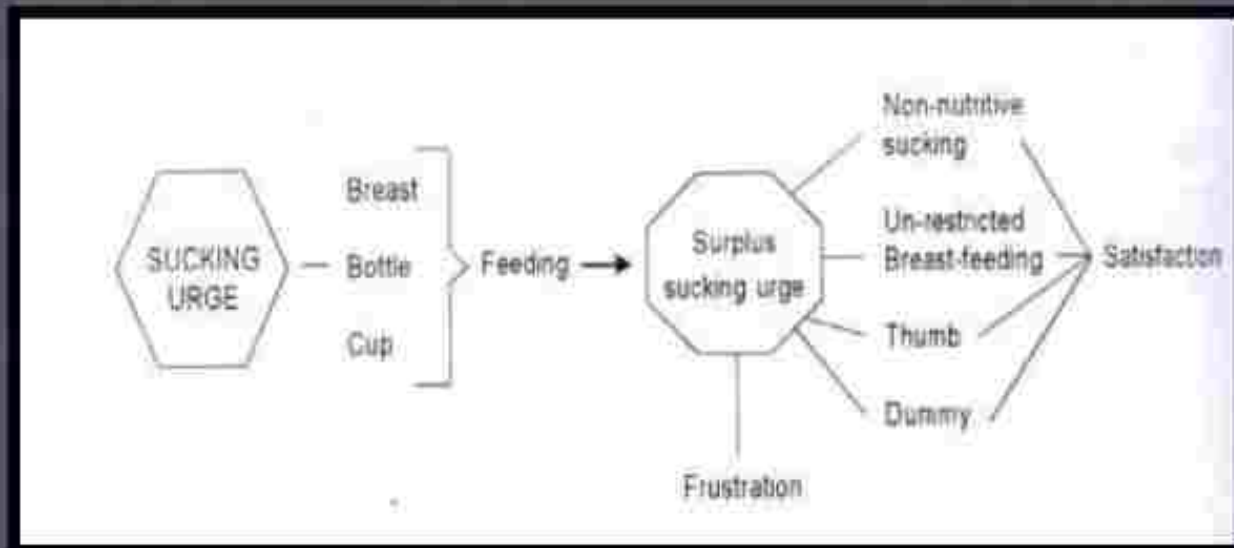
► Oral drive theory (Sears and Wise;1982)

- Duration of feeding
 - Prolonged nursing
- } Oral drive
Habit
- No correlation with frustration of weaning
 - Sucking -↑Erontogenic zone of mouth (Freud)

Thumb or Digit sucking

► Johnson and Larson (1993)

- Combination of two
- Inherent biologic drive for sucking
- Rooting and Placing reflex- Expression of drive
- Environmental factors for sucking drive



Thumb or Digit sucking

► Maintenance of habit

- Normal upto 3 yrs (Psychoanalytic)
- Persistence - psychological disturbance
 - Anxiety management
- Adaptation during development (Learning theory)

Thumb or Digit sucking

➤ Causative factors

1. Parent's occupation
 1. Socioeconomic status
2. Working mother
 1. Absence - insecurity
3. No. of siblings
 1. Compensation for neglect
4. Order of birth of child
 1. Imitation
5. Social adjustment and stress
 1. Peer pressure, scolding parents
6. Feeding practices
 1. Negative relation between breast feeding and habit

Thumb or Digit sucking: Causative factors

► Causative factors

7 Age

1. In neonates

1. Well developed suckling mechanism
2. Primitive Demand for hunger

2. During eruption of primary molar- Teething

3. Still later (Active after 4 year)

1. Emotional tensions
2. Stress outlet mechanism

Thumb or Digit sucking

▶ **Diagnosis**

- Emotional status
 - ▶ Meaningful or empty
- Case history
 - ▶ Active performance
 - ▶ Information from mother
 - Feeding practice
 - Parental care
 - Presence of other habits

Thumb or Digit sucking

▶ Extra oral examination

▪ Digit

- ▶ Reddened, clean, chapped, short fingernail (dishpan thumb)
- ▶ Chronic suckers - fibrous, roughened callus on superior aspect of finger
- ▶ Deformation of finger

▪ Lip

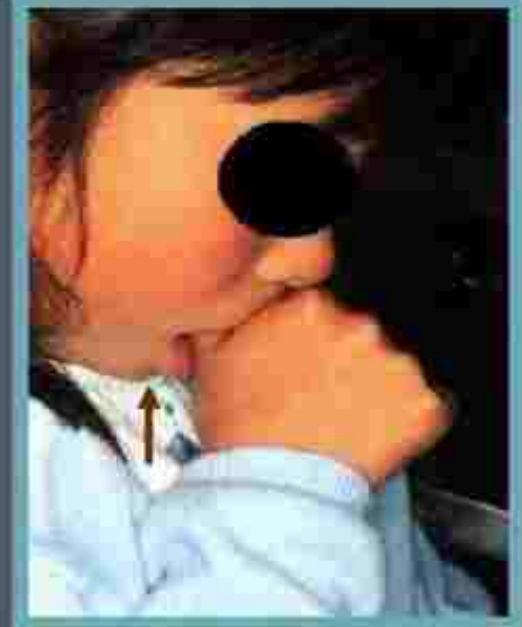
- ▶ Position at rest, During swallowing
- ▶ Hypotonic upper lip
- ▶ Hyperactive lower lips



Thumb or Digit sucking; Extra oral examination

► Facial form analysis

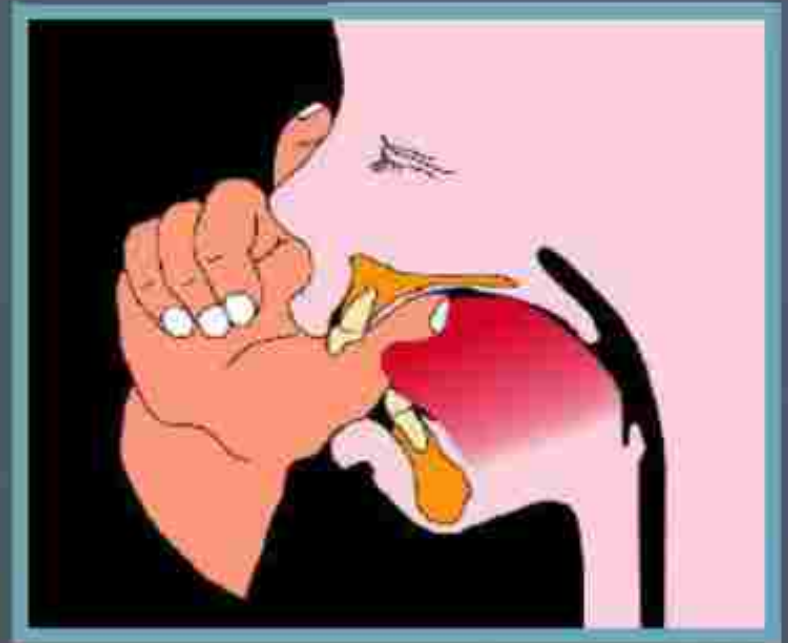
- Maxillary protrusion
- Mandibular retrusion
- High mandibular plane angle
- Profile
- Mentalis muscle contraction



Thumb or Digit sucking

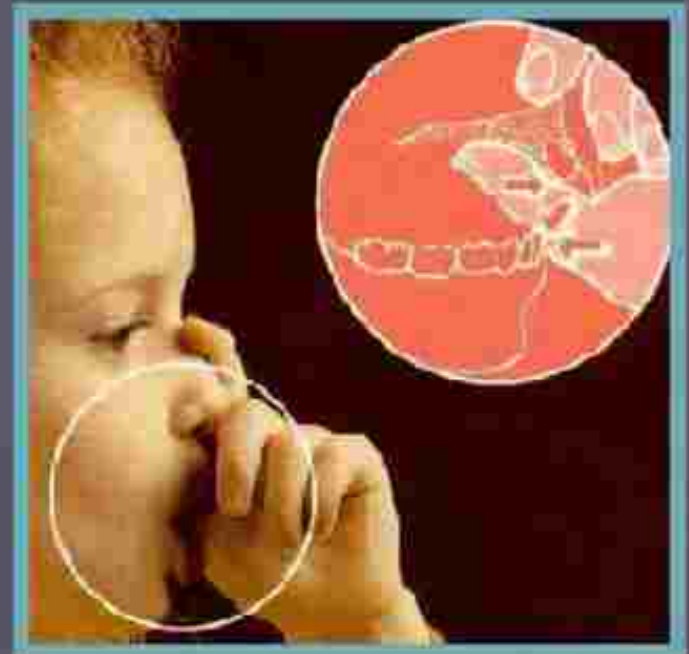
▶ Intraoral examination

- Tongue
 - ▶ Position at rest , during swallowing
- Gingiva
 - ▶ Evidence of mouth breathing
 - Itching
 - Staining on max. labial surface



Thumb or Digit sucking; Intra oral examination

- ▶ **Dento alveolar structure**
 - Flared , proclined maxillary anteriors with diastema
 - Retroclined mandibular anteriors
 - Deformed right or left sided max. arch

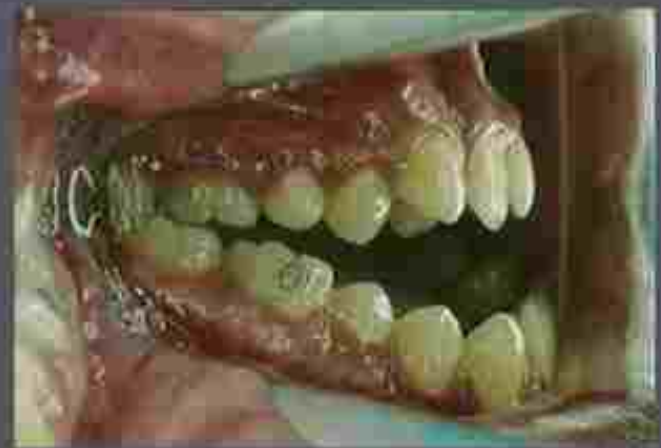


Thumb or Digit sucking

► Dentofacial changes associated with prolonged sucking habit

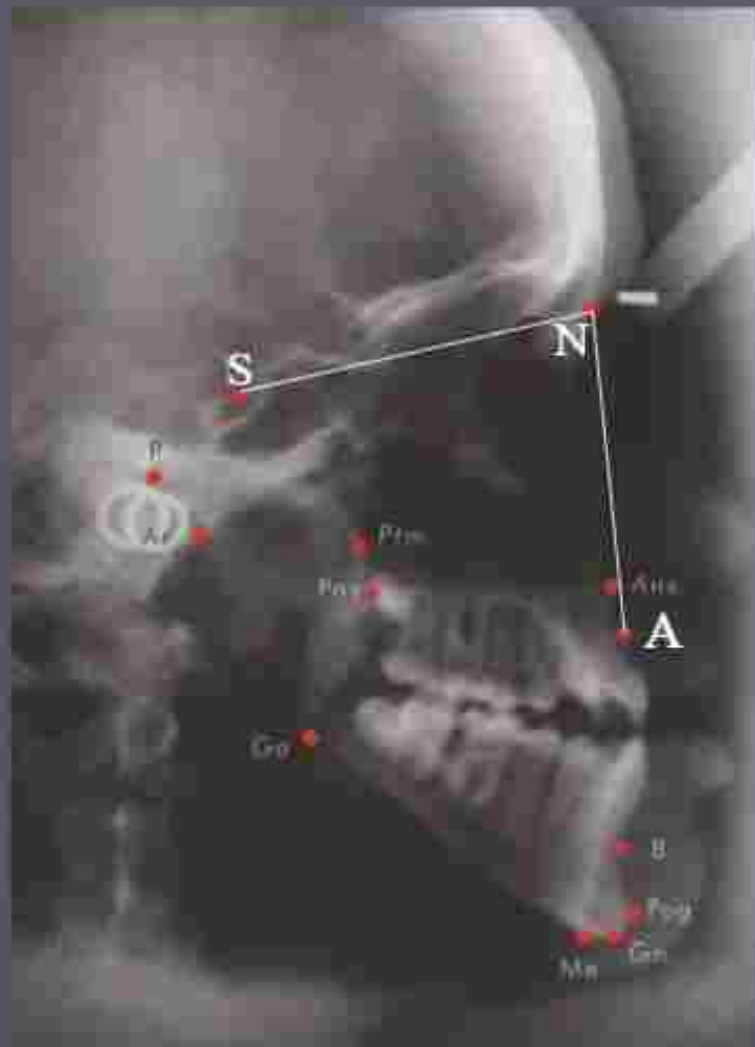
■ Effects on maxilla

- Maxillary arch length
- Clinical crown length of incisors
- Counterclockwise rotation of occlusal plane
- Atypical root formation
- Trauma to incisors
- ↓ Palatal arch width



Thumb or Digit sucking: CI/ F

- ▶ Increased SNA

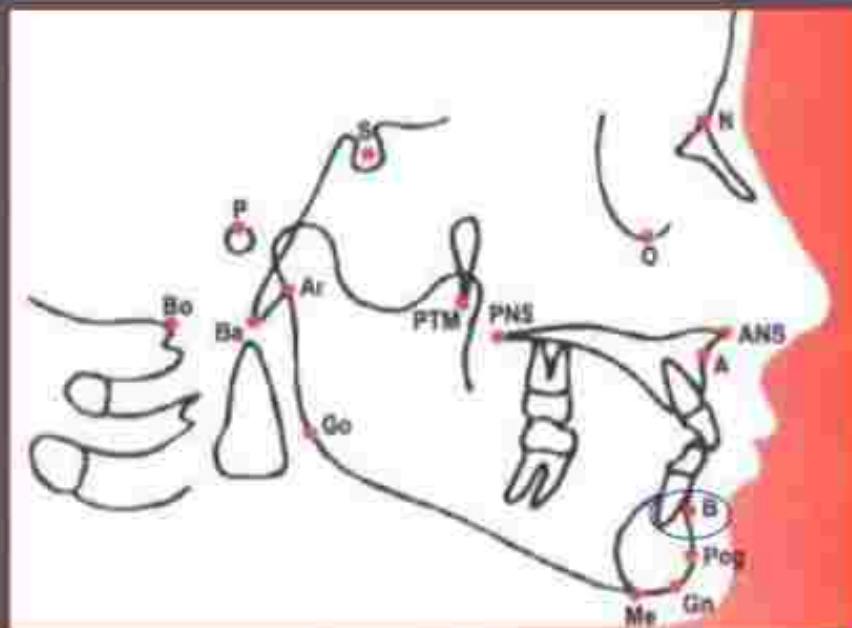


Thumb or Digit sucking: CI /F



► Effect on mandible

- Proclination of incisors (Finger sucking)
- Increased Intermolar distance



- Increased Distal position of B point

Thumb or Digit sucking: CI /F

► Effect on interarch relationship

- Anterior open bite
- Increased over jet

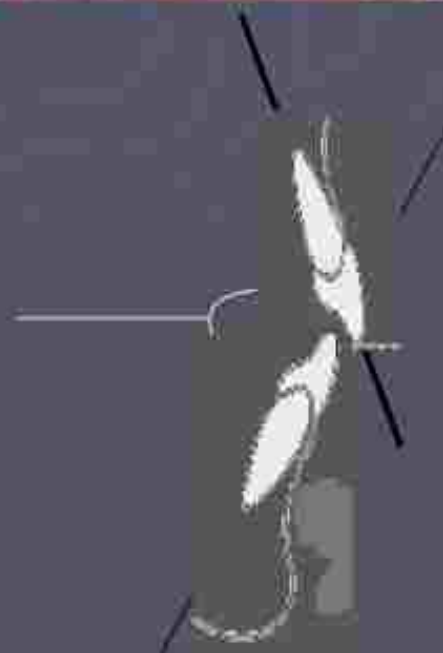


Thumb or Digit sucking: CI /F

Increased unilateral
and bilateral CI II
malocclusion



Decreased U/ L incisal angle



Thumb or Digit sucking: CI /F

- Decreased overbite



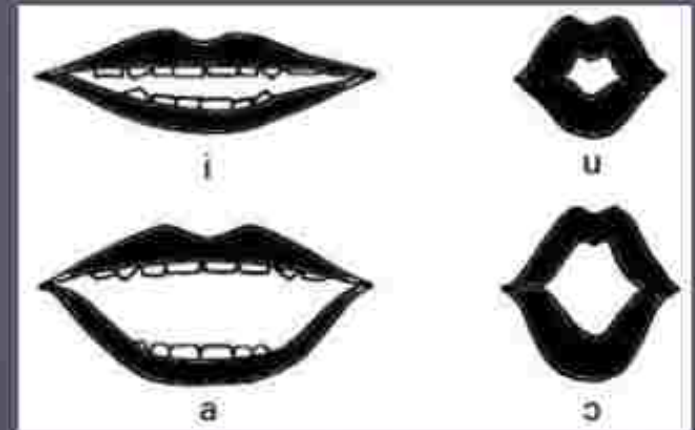
- Increased posterior cross bite



Thumb or Digit sucking: CI /F

► Effect on lip placement and function

- Increased lip incompetence
- Increased lower lip function under max. incisors



► Effect on tongue placement and function

- Increase tongue thrust
- Increased lip to tongue resting position
- Increased lower tongue position



Thumb or Digit sucking: C/I /F

► Other effects

- Risk to psychological health
- Increased risk of poisoning
- Increased risk of speech defects, especially lisp
- Habitual mouth breathing
- Tongue thrusting
- Middle ear infection
- Enlarged tonsils

Thumb or Digit sucking

▶ Clinical aspect (Moyer: 1955)

▪ Phase I

- ▶ Normal or sub clinically significant sucking (Pre school infant)
- ▶ Birth to 3 yr
- ▶ Prophylactic approach

▪ Phase II

- ▶ Clinically significant sucking (Grade school)
- ▶ 3 – 7 yrs
 - Related to anxiety
 - Time for dental correction
- ▶ Firm and definitive programme of correction

Thumb or Digit sucking

▶ Clinical aspect

▪ Phase III

- ▶ Intractable sucking (Teenage child)
- ▶ Beyond 4th yr
- ▶ Psychotherapy
- ▶ Treatment for malocclusion

Psychological effects of malocclusion resulting from habits

- ▶ Exceedingly introvert
 - ▶ Oversensitive
- ▶ Immature social behavior
 - ▶ Speech defect
 - ▶ Singled out in crowd

Thumb or Digit sucking

▶ Treatment

Forester

- Treatment rationale
 - ▶ Emotional significance of habit
 - Psychological status of child
 - ▶ Age of patient
 - ▶ Status of occlusion

Management

▶ Preventive treatment

- Littlefield
 - ▶ Best when related to familial tendency
- Hughes (1949)
 - ▶ Fulfillment of hunger
 - ▶ Natural feeding practices- Breast feeding
- McBride
 - ▶ For inhibition of sucking- Discontinuation at inception
 - ▶ Removal of finger from mouth as much as possible
 - ▶ At sleep- Pinning the sleeves to stop the motion towards mouth
- Use of Dummy/ Pacifier

Management : Preventive treatment

▶ Psychological

- Avoidance of scolding, frightening
- Reassurance and positive reinforcement
- Friendly reminders
- Brauer (1965)
 - ▶ Constructive parental education
 - ▶ Favorable contact with environment
 - ▶ Providence of age specific suitable play material
 - ▶ Avoidance of unnecessary regulation
- Lewis (1930)
 - ▶ Immediate post weaning period- Most difficult time to handle
 - ▶ Encouragement of chewing and biting

Management : Preventive treatment

- ▶ β - Hypothesis or Dunlop's hypothesis
 - Forced purposeful repetition
 - Abandonment of habit following unpleasant reaction

Management: chemical treatment

- ▶ Least effective
- ▶ Bitter or sour chemical over the finger
 - E.g. : Foul smelling Quinine, Asofoctine, Pepper, Caster oil, Femite etc

Management: Mechanical or reminder therapy

▶ Extra-oral approach

- Mechanical restraints to hand/ Digit
 - ▶ Adhesive bandage
 - ▶ Covering with cloths
 - ▶ Heckman and Bready - Tubes attached around elbow, Gloves around wrist
- Nail polish
- Thumb guard

Management: Mechanical or reminder therapy

▶ Intra-oral Approach

- Weiss and Eiser (1993)
 - ▶ Upto 5 yr- No intervention
- Graber(1972)
 - ▶ Appliance placement between 3- 4 yr.
- Considerations before use of appliance
 - ▶ Child's understanding
 - ▶ Parent cooperation
 - ▶ Friendly rapport
 - ▶ Goal orientation
 - ▶ maturity

Management: Mechanical or reminder therapy

▶ Removable and fixed appliance

- Palatal crib
 - ▶ Breaks the suction and force on anterior segment
 - ▶ Reminder
 - ▶ Makes the habit nonpleasurable
- Hay rakes
 - ▶ Not much helpful
 - ▶ Symptoms of irritability, night tremor, day wetting



Management: Mechanical or reminder therapy

▶ Oral screen

- Functional appliance
 - ▶ Redirection of muscular and soft tissue pressure
- Prevention of placement of thumb in mouth



▶ Quad helix

- Expansion of constricted maxillary arch
- Helixes as a reminder
- Posterior cross bite correction



Management: Mechanical or reminder therapy

- ▶ **Triple loop corrector:**
Barber (1960)
 - Modified palatal arch
 - Similar to transpalatal arch with 3 loops
- ▶ **Blue grass appliance:**
Bruce Haskell (1991)
 - Between 7 – 13 yr
 - Teflon roller appliance
 - 3 – 6 month placement time



Thumb or Digit sucking: Treatment

According to Forester

- ▶ Younger than 3 yr
 - No active intervention
 - Class I openbite self correcting
 - Reverse Attention

Thumb or Digit sucking: Treatment: Forester

▶ 3 – 7 yr

- Depending on type of habit
 - ▶ Active puller
 - ▶ Idle sucker
- Good molar intercuspsation with little ant. Pull-behavior modification
- Permanent incisor eruption with openbite – active intervention

Thumb or Digit sucking: Treatment; Forester

▶ Under 6 yr

▪ Class I

▶ Behavior conditioning

- Openbite pictures
- Reward system
- Intentional contralateral thumb sucking
- Advise for ignorance by parents
- Band- aid, fingernail polish
- No need of appliance

Thumb or Digit sucking: Treatment; Appliance; under 6 yr; Forester

▶ Class II (Non self correcting)

- With anterior puller – Appliance
 - ▶ With spaced primary dentition=Activator
 - ▶ High mandibular angle with ant. openbite= High pull headgear
 - ▶ Severe crowding in primary dentition= Extraction



Thumb or Digit sucking: Treatment; Appliance ;under 6 yr; Forester

▶ Class III

- Encouragement to suck



- CI III activator with orthopedic chin



Thumb or Digit sucking: Treatment; Appliance ;older than 7 yr; Forester

▶ Class I

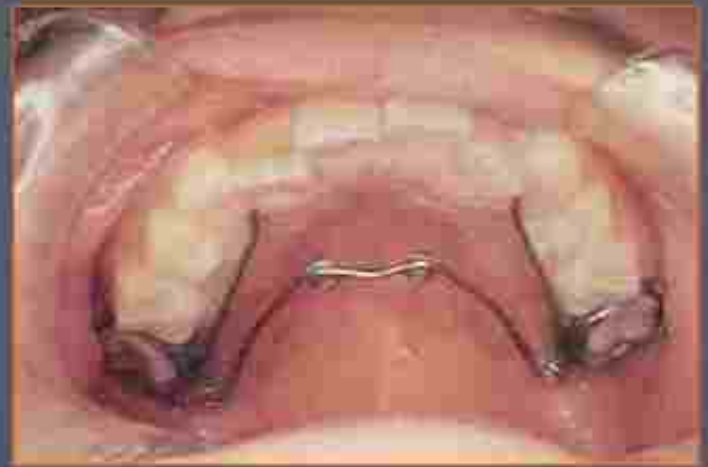
- With ant openbite and spacing
 - ▶ Hawley's appliance
 - ▶ Palatal crib
 - ▶ Blue grass appliance



Thumb or Digit sucking: Treatment; Appliance ;older than 7 yr; Forester

► Non crowding Buccal cross bite

- fixed or removable palatal expansion modified reminder (Quad helix)



► Crowded dentition

- Serial extraction with digit sucking control appt



Thumb or Digit sucking: Treatment; Appliance ;older than 7 yr; Forester

▶ Class II

- Non crowded CI II Div-I with low mandibular plane angle
 - ▶ Activator and headgear that are habit breaking appliance



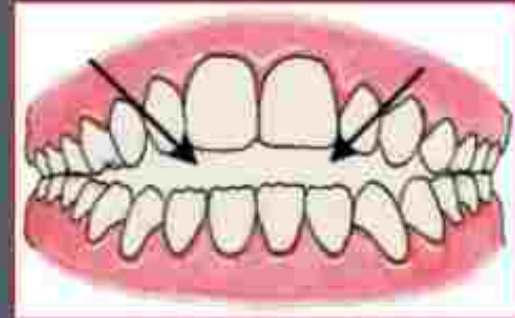
▶ Class III

- Simultaneous CI III correction with habit control Appt.



Thumb or Digit sucking: Treatment: Older than 7 yrs; Forester

- Openbite
 - ▶ Removable
 - Frankle IV
 - ▶ Vestibular configuration
 - ▶ protrusive bows



Thumb or Digit sucking: Treatment: Older than 7 yrs; Forester

▶ Open bite

- Removable appliance
 - ▶ Modified activator-intrusion of molars



- Fixed orthodontic treatment

Thumb or Digit sucking: Treatment: Pinkham

▶ **Reminder therapy**

- Adhesive bandage
- Unpleasant stimuli

▶ **Reward system**

- Contract between child, Dentist, Parent

Thumb or Digit sucking: Treatment Pinkham

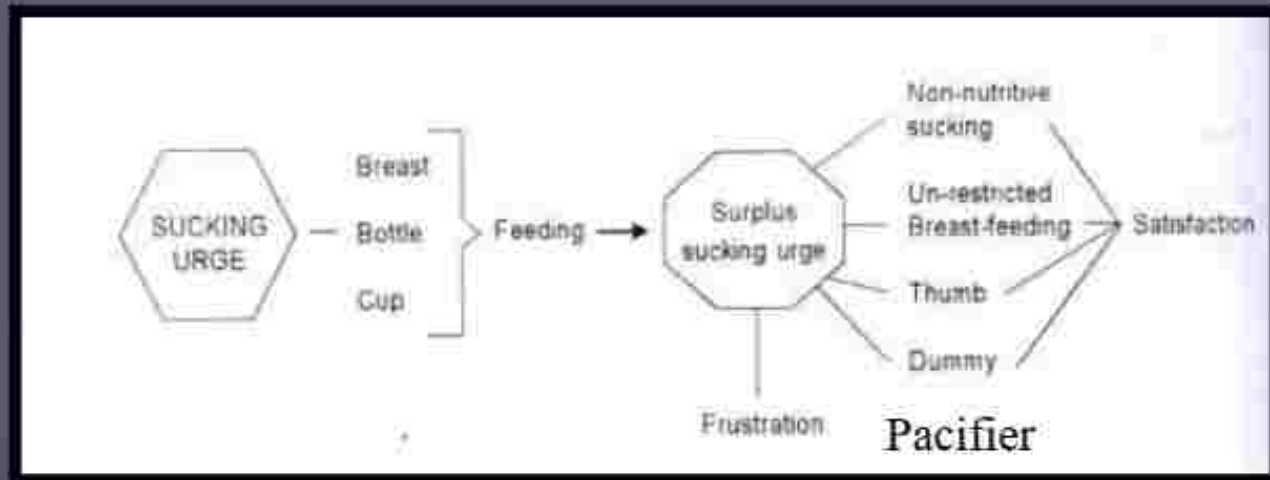
► Appliance therapy

- Attitude
 - Self correcting malocclusion
 - Appliance as reminder
- Fixed reminder
 - Quad helix
 - Palatal crib
- Removable reminder



Pacifier habit

Pacifier habit



- ▶ Natural sucking instinct or urge
- ▶ Restricted breast feeding and bottle feeding
- ▶ Surplus sucking urge- frustration or satisfaction
- ▶ Pacifier – Satisfaction

Pacifier habit



► Clinical features

- Oral Myofunctional alteration
 - Decrease muscular tonicity of tongue and lip
 - Lip entrapment
 - Lip incompetence
 - Narrow hard palate



Pacifier habit: CI / F



► Dental changes

- Posterior cross bite
 - Increased mandibular arch width
 - Decreased max. arch width
- Anterior open bite
- CI II primary canine relationship
- Increased overjet



Pacifier habit



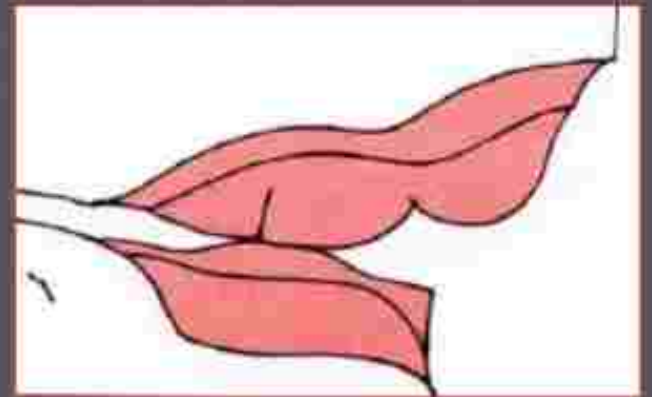
► Recommendations

- Should not use before breast feeding established
- More restraints for use
- Cleaned
- Avoidance of sharing among siblings
- Use should be curtailed before 2 yr, discontinued by 4 yrs

Tongue Thrusting

Tongue thrusting

- ▶ Embryonic life
 - Proportion of tongue to developing mandible
 - Spacing between Gum pads



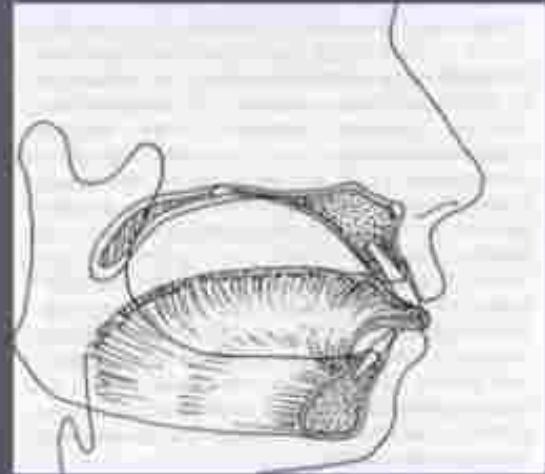
Anatomy and Physiology of Sucking and swallowing

► Sucking –

First Coordinated muscular activity

► Infantile swallow (Moyer)

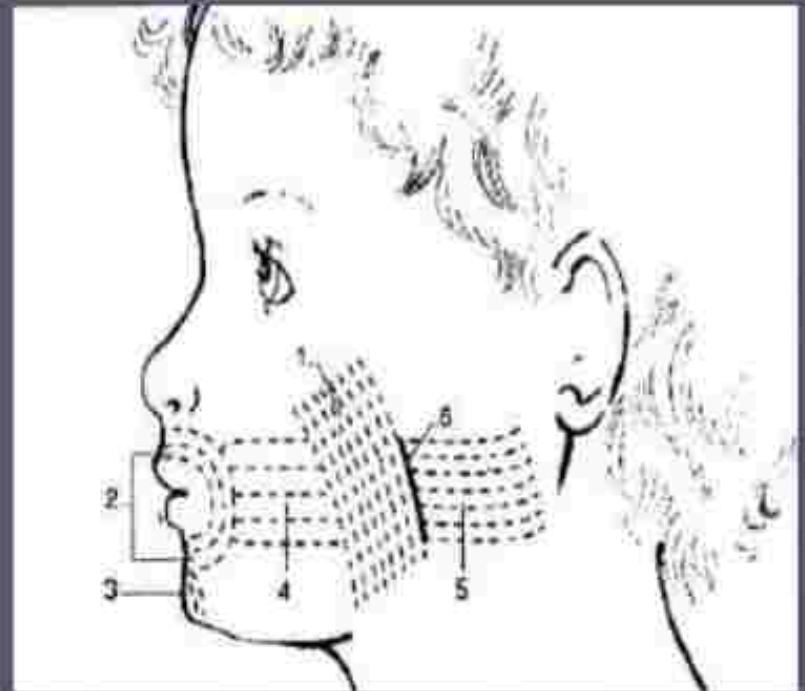
- Anterior tongue thrust between gum pads
- Mandibular thrust, and stabilization by contraction of facial muscles
- Lip constriction



Anatomy and Physiology of Sucking and swallowing

► Infantile swallow

- Muscles involved
 1. Masseter
 2. Orbicularis oris
 3. Mentalis
 4. Buccinator
 5. Superior pharyngeal constrictor
 6. Pterygomandibular raphe



Anatomy and Physiology of Sucking and swallowing

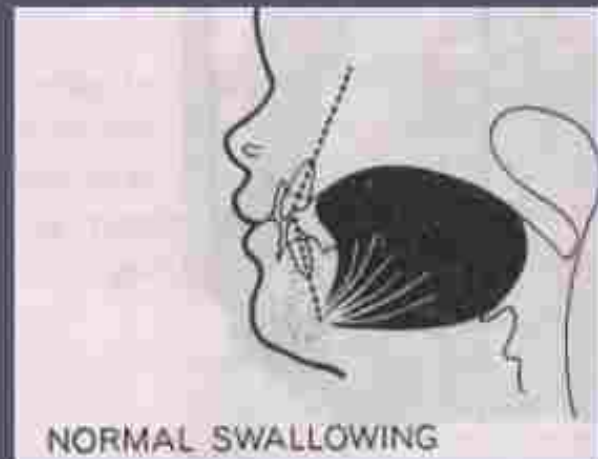
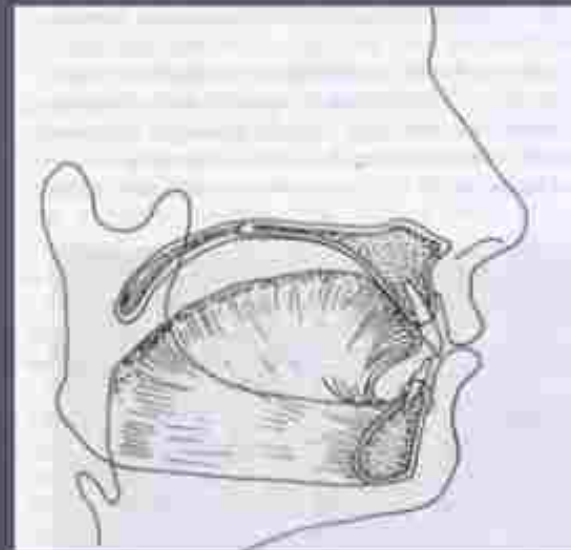
► Transitional swallow

- Inter mixing of normal infantile swallow and mature swallow
- Diminishing Buccinator activity
- Contraction of mandibular elevator during swallow to stabilize teeth in occlusion

Anatomy and Physiology of Sucking and swallowing

► Mature swallow

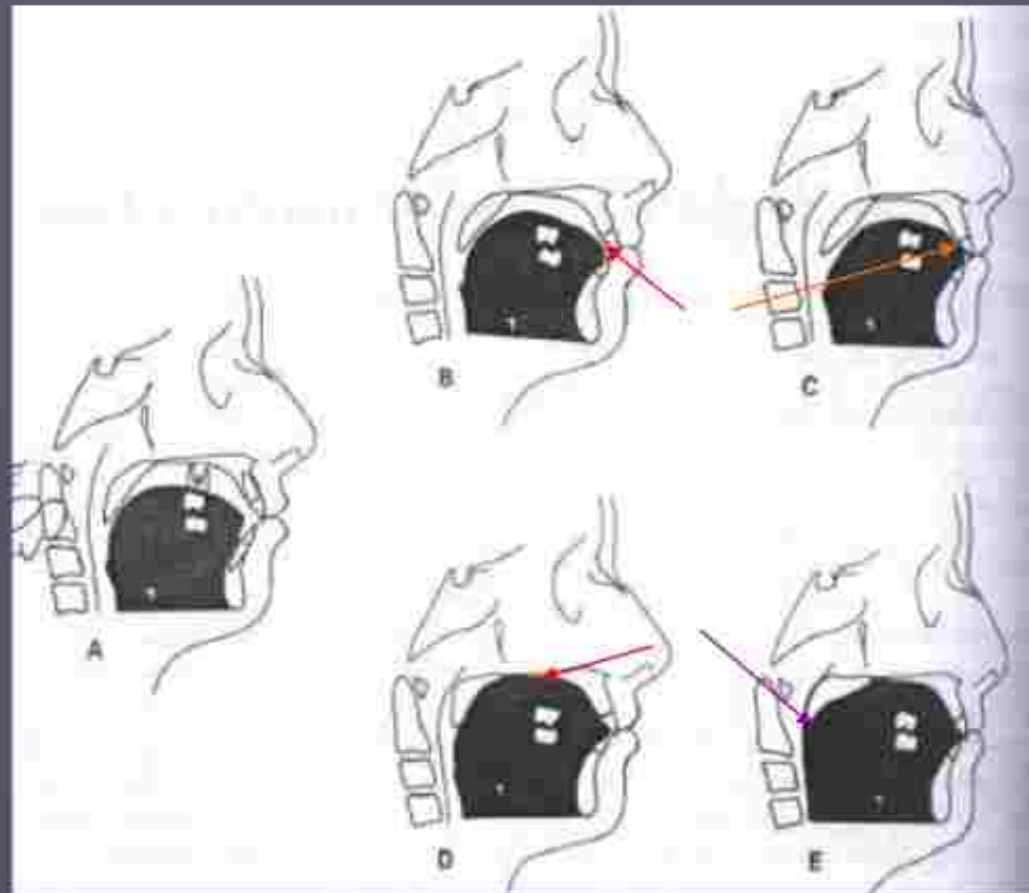
- **Position of tongue** (Stewart)
 - Tongue tip
 - Mid portion
 - Posterior aspect- 45° angulation against pharyngeal wall
- Lip seal
- **Function of masseter, Mentalis, and facial muscles**



Anatomy and Physiology of swallowing

► Process of normal swallowing

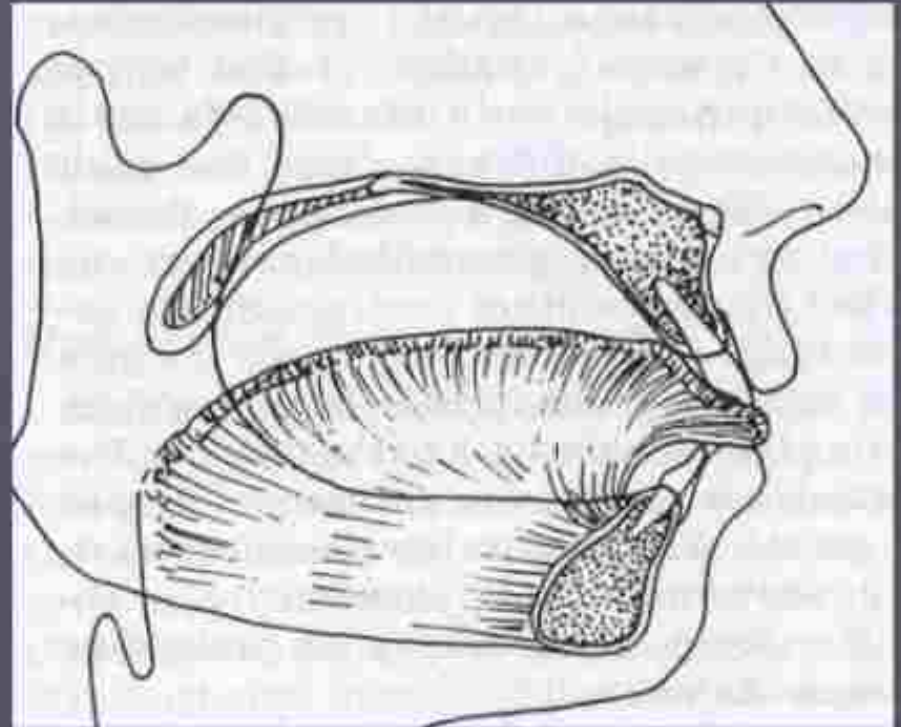
- A. Resting posture
- B. Initiation of deglutition-
Tongue tip movement
- C. First tongue- tip contact
- D. Progression of deglutition:
Tongue contacting palatal structure
- E. Completion of swallowing:
Total contact with posterior pharyngeal wall



Anatomy and Physiology of Sucking and swallowing

▶ Abnormal swallow (Stewart)

- Position of tongue
 - ▶ Tip
 - ▶ Mid portion
 - ▶ Posterior aspect
- Faulty Masseter activity
- Mentalis activity



Tongue Thrusting

► Definition

■ Brauer -

Tongue thrust is said to be present if the tongue is observed thrusting between and the teeth did not close in centric occlusion during deglutition

■ Tulley -

Forward movement of tongue tip between the teeth to meet the lower lip during deglutition and in sounds of speech , so that the tongue becomes interdental

Tongue Thrusting: Definition

▶ Barber-

It is an oral habit pattern related to persistence of an infantile swallow pattern during childhood and adolescent and thereby produces an openbite and protrusion of anterior tooth segment

▶ Shneider-

it is a forward placement of the tongue between the anterior teeth and against the lower lip during swallowing

Tongue Thrusting

► Prevalence

- Newborn – 97%
- 5-6 yrs – 80%
- By 12 yrs – 3%

Tongue Thrusting

▶ Significance (Forrester)

- Function governs form
 - ▶ Adverse muscle forces – Abnormal form

▶ Occurrence (Profit)

Younger children with normal occlusion

- ▶ Transitional stage in physiologic maturation

At any age with displaced incisors-

- ▶ Adaptation for seal

Tongue Thrusting

▶ Classification

- Physiologic
 - ▶ Infancy
- Habitual
 - ▶ Present after correction of malocclusion
- Functional (Profit)
 - ▶ Overjet, Open bite
- Anatomical
 - ▶ Macroglossia

Tongue Thrusting: Classification

James S. Braner and Holt

Type I : Non-deforming tongue thrust

Type II : Deforming anterior tongue thrust

Sub group 1 : Anterior open bite

Sub group 2 : Anterior proclination

Sub group 3 : Posterior crossbite

Type III : Deforming lateral tongue thrust

Sub group 1: Posterior open bite

Sub group 2 : Posterior crossbite

Sub group 3 : Deep overbite

Type IV : Deforming anterior and lateral tongue thrust

Sub group 1: Anterior and posterior open bite

Sub group 2 : Proclination of anterior teeth

Sub group 3 : Posterior crossbite

Simple Classification of Tongue thrust

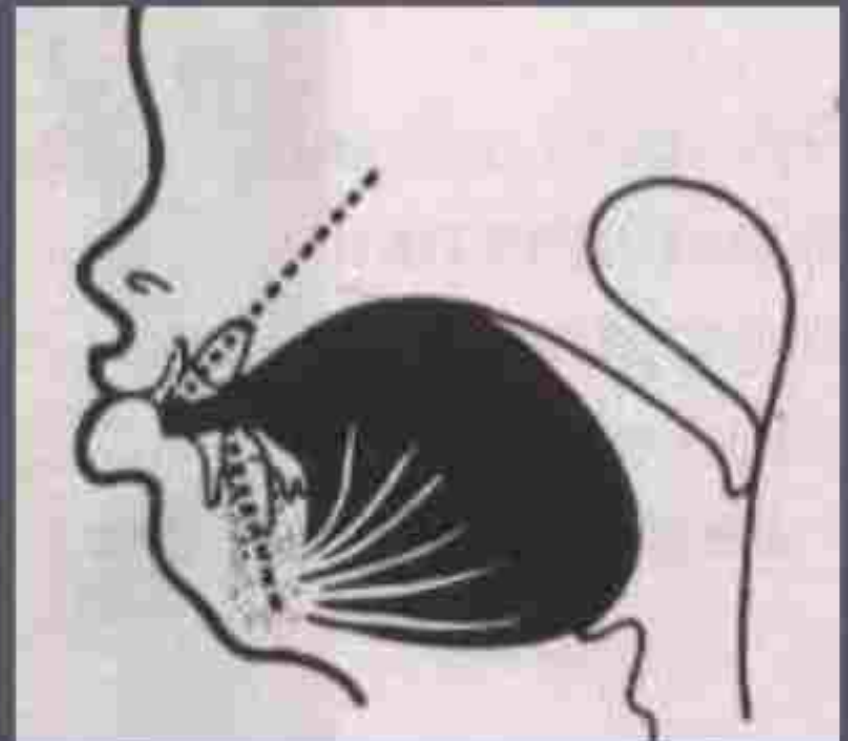
Simple tongue thrust

Complex tongue thrust

Tongue Thrusting: Etiology

► Retained infantile swallow

- Retention of infantile suckling mechanism
- Incisor eruption – No drop of tongue
- Altered Tongue posture at rest



- ▶ Contraction of lips , facial muscles
- ▶ Increased buccinator activity
- ▶ Inexpressive face
- ▶ Poor prognosis

Tongue Thrusting: Etiology

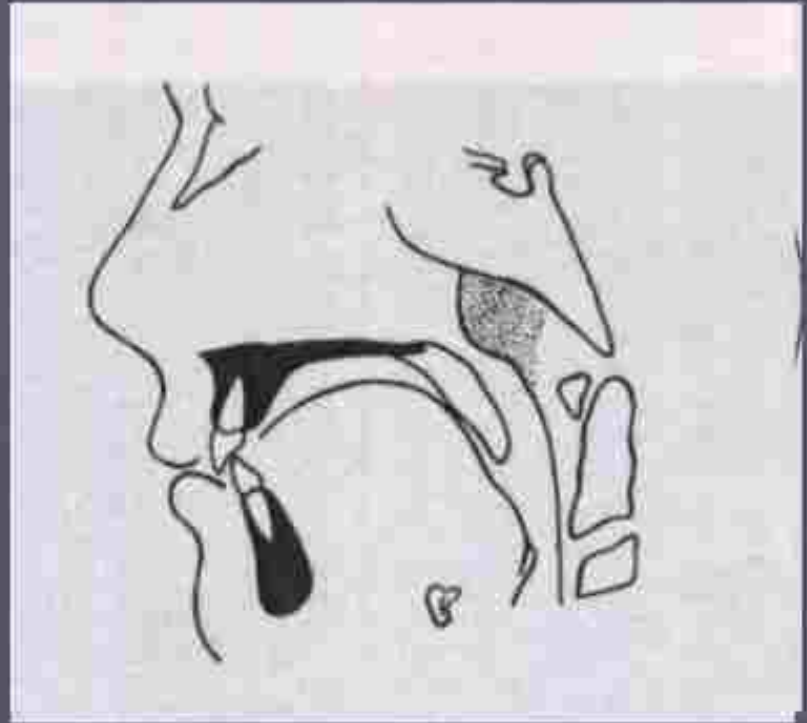
▶ URTI

- Obstruction of nasal passage
- Mouth breathing
- Forward tongue posture –

Physiologic need of adequate airway

Tongue Thrusting: Etiology

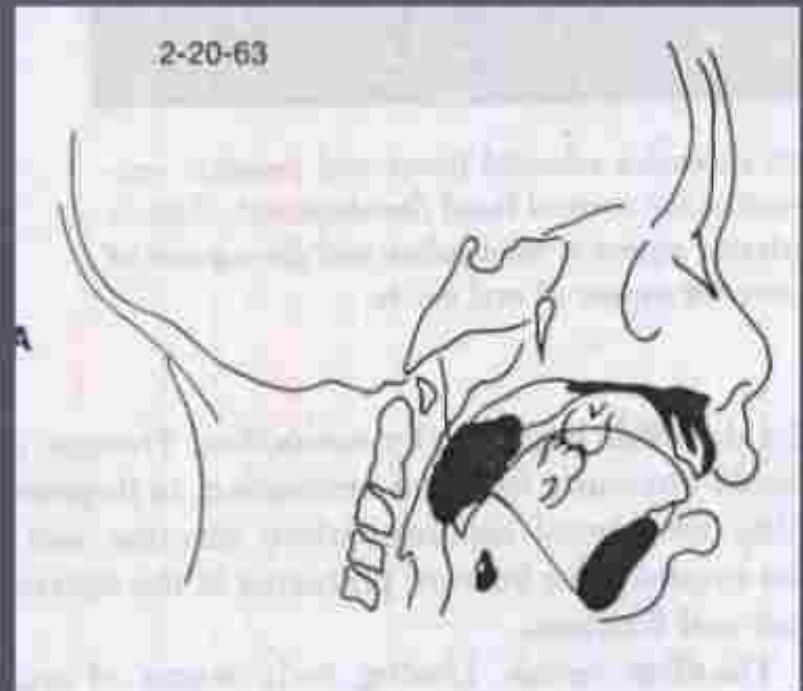
▶ Adenoids



Tongue Thrusting: Etiology

▶ Lymphoid tissue (Tonsils)

- Location
- Hypertrophy – Obstruction of oropharyngeal area
- Tongue posture



Tongue Thrusting: Etiology

► Neurological disturbances

- Hypo sensitive palate
- Motor disability- brain injury
- Disrupted sensory control and coordination of swallowing

Tongue Thrusting: Etiology

► Functional adaptability to transient change in anatomy

- Missing incisors
- Protrusion
- overjet
- openbite

ANTERIOR SEAL

Tongue Thrusting: Etiology

► Feeding practices

- Bottle feeding
- Breast feeding
- Consistency of infant's food-

Development of adult swallow pattern

Tongue Thrusting: Etiology

- ▶ **Induced due to other habits**
 - Digit sucking
 - Pacifier sucking
 - Sleeping habits

Tongue Thrusting: Etiology

► Hereditary

- Inherited hyperactive orbicularis oris
- Anatomical configuration
- Neuromuscular activity

Tongue Thrusting: Etiology

- ▶ **Tongue size**
 - Macroglossia
- ▶ **Soft diet-**
 - Disuse atrophy of musculature
- ▶ **Trauma**
 - Persistent traumatic condition leading to abnormal deglutition



Classification of etiological factors: Fletcher (1975)

1. Genetic factor

1. Inherited variation in orofacial form
 - ▶ Constricted arch

2. Learned behavior

1. Acquired habits
2. Prolonged Tonsillar hypertrophy, URTI

3. Maturational

1. Delayed progression from infantile to mature

4. Mechanical restriction

1. Macroglossia, constricted dental arches, Enlarged adenoids

5. Neurological disturbances

1. Hyposensitive palate, motor disability

6. Psychological factors

1. Effect from forced discontinuation of other habit

Tongue Thrusting: Diagnosis

History

- ▶ Sibling swallow, Parent
- ▶ Previous respiratory infections , sucking habits , neuromuscular problem

▶ Examination

- Tongue
 - ▶ Size
 - Macroglossia - Lateral scalloping
 - ▶ Shape
 - Asymmetry

Tongue Thrusting: Diagnosis

► Movements of tongue

- Lateral
- Protrusive
- Retrusive
- Restricted movement (Ankyloglossia)

► Functional examination

- Observation of tongue
 - Mandibular rest position
 - Various swallow
 - Unconscious swallow
 - Command swallow of saliva
 - Command swallow of water
 - Unconscious swallow during mastication



Tongue Thrusting: Diagnosis

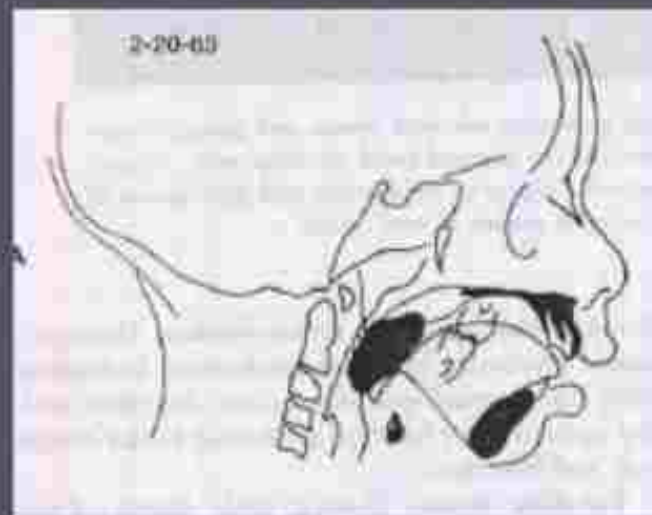
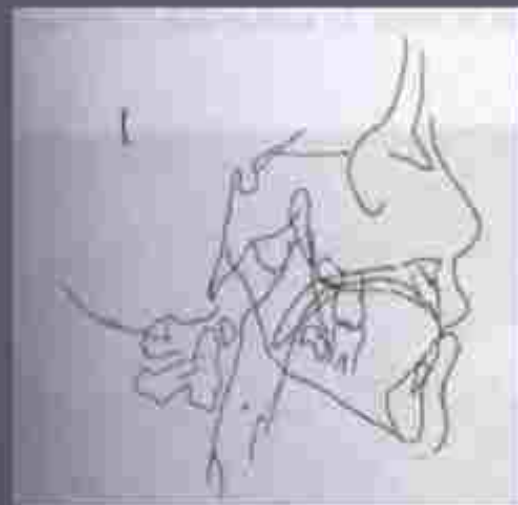
- ▶ **Abnormal tongue posture**
 - Retracted tongue
 - ▶ Withdrawn tongue tip from anterior
 - ▶ Posterior openbite with lateral spread
 - ▶ 10 % of all children, Edentulous patients



Tongue Thrusting: Diagnosis

▶ Protruded tongue

- Result in openbite
- Types
 - ▶ Endogenous
 - Retention of infantile swallow
 - Continuous presence of tongue between teeth
 - Excessive vertical anterior face height
 - ▶ Acquired
 - Transitory adaptation due to enlarged tonsils or pharyngitis



Tongue Thrusting: Diagnosis

- **Tests**

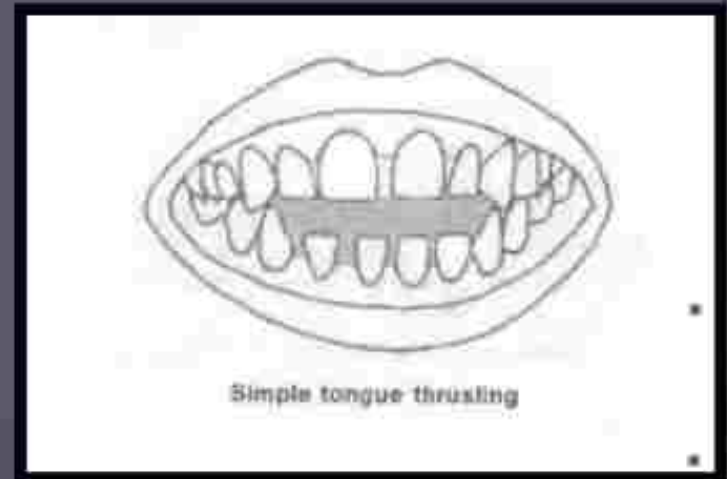
- ▶ Masseter activity test
- ▶ Temporalis activity test
- ▶ Lip apart swallow test



Tongue Thrusting: Diagnosis

► Simple tongue thrust

- Molar occlusion
- Ant. Open bite
- Contraction of lips, Mentalis, mandibular elevators
- Adaptive mech to maintain an open bite
- well circumscribed

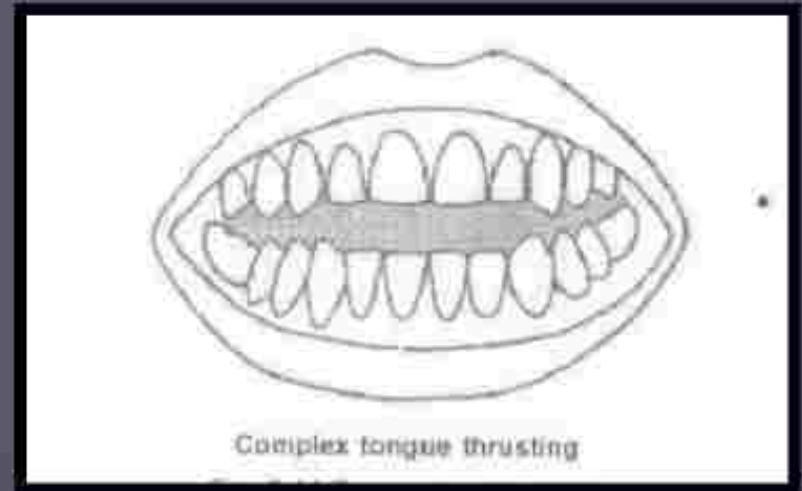


- ▶ Precise intercuspatation
- ▶ Simple treatment
- ▶ Diminishes with age

Tongue Thrusting: Diagnosis

► Complex tongue thrust

- Generalized open bite
- Absence of contraction of mand elevators .
- Contractions of lips, facial and mentalis muscles
- Teeth apart swallow



- ▶ Diffuse open bite
- ▶ Poor occlusal fit
- ▶ Does not diminish with age
- ▶ Poor prognosis.

▶ Lateral tongue thrust

- Posterior open bite
- Tongue thrusting laterally

Tongue Thrusting

CLINICAL FEATURES

▶ Extra oral

- Lip posture
 - ▶ Lip separation
- Mandibular movement
 - ▶ Upward and backward with tongue moving forward
- Speech
 - ▶ Speech disorder
 - ▶ Sibilant distortion, lisping, problem in articulation of s, n, m, t, d, l, th, z, v
- Facial form
 - ▶ Increased Anterior face height

Tongue Thrusting: C/I/F

▶ Intraoral

- Tongue posture
 - ▶ Downward and forward
 - ▶ At rest- lower

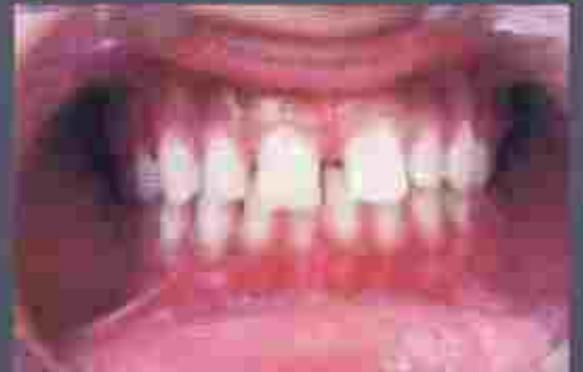


Tongue Thrusting: C/I/F

▶ Malocclusion

▪ In relation to maxilla

- ▶ Increased overjet
- ▶ Generalized spacing
- ▶ Maxillary constriction



Tongue Thrusting: CI/F

- In relation to mandible
 - ▶ Retroclination or proclination of mandibular teeth
- In relation to Intermaxillary relationship
 - ▶ Ant. Or post. Openbite
 - ▶ Posterior crossbite



Tongue Thrusting

▶ Treatment considerations

▪ Age

- ▶ Self correcting by 8-9 yr
 - Improved muscular balance during swallowing
- ▶ Orthodontic correction in early mixed dentition(9-11)

▪ Presence or absence of associated manifestation

- ▶ Not indicated without malocclusion or speech problem

Tongue Thrusting: Treatment considerations

- **Malocclusion**
 - ▶ Correction of malocclusion
- **Speech defect**
 - ▶ Speech therapy during elementary school yr.
- **Associated with other habits**
 - ▶ Other habit correction

Tongue Thrusting :Treatment

- ▶ Myofunctional therapy
- ▶ Speech therapy
- ▶ Mechano therapy
- ▶ Correction of malocclusion
- ▶ Surgical treatment

Treatment: Myofunctional therapy: Garliner

- ▶ Guidance of correct posture of tongue during swallowing by various exercises
 - Placement of tongue tip in rugae area for 5 min
 - Orthodontic elastics and sugarless fruit drops
 - **2 S , 4 S exercises**
 - Identification of Spot
 - ▶ Salivating
 - Squeezing in spot
 - ▶ Swallowing
 - **Other exercise**
 - ▶ Whistling
 - ▶ Reciting from 60 To 90
 - ▶ Yawning

Treatment :Myofunctional therapy: Garliner

▶ Lip exercise

- Tug of war and button pull exercise

▶ Lip massage

- Lower lip over upper massage

▶ Subconscious therapy

- Time- Special time for reminding
- Subliminal therapy
 - ▶ Placing reminder sign in sight during meal
- Autosuggestion
 - ▶ 6 times swallow before sleeping

Tongue Thrusting :Treatment

► Speech therapy

- Training of correct position of tongue
- Articulation of speech
- Repetition of words with 'S' sound

Not indicated before 8 yrs

Tongue Thrusting :Treatment

▶ Mechano therapy

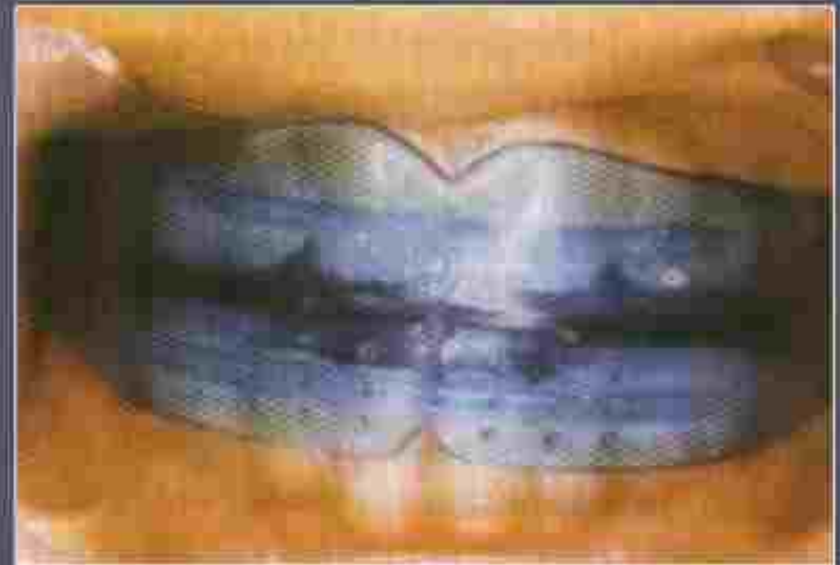
▪ Purpose

- ▶ Reeducation of tongue position
- ▶ Maintaining tongue in the confines of dentition
- ▶ Maintaining the interocclusal distance
 - Prevention of over eruption and narrowing of maxillary buccal segment

Tongue Thrusting :Treatment

► Preorthodontic trainer for myofunctional training

- Aids in correct positioning of tongue with the help of tongue tags
- Tongue guard



Tongue Thrusting :Treatment

► Appliance therapy

- Removable appliance
 - Hawley's appliance
 - Modifications
 1. Active labial bow
 2. Addition of palatal crib
 - Oral screen and vestibular screen



Tongue Thrusting :Treatment

- ▶ **Treatment with myofunctional appliance**
 - Promote lip closure
 - Enlarge oral cavity
 - Move incisors
 - Improve relation among jaws, tongue, Dentition and soft tissue
 - E. g
 - ▶ Activator
 - ▶ Bionator



Tongue Thrusting :Treatment

- **Fixed appliance**
 - ▶ Tongue crib



Tongue Thrusting :Treatment

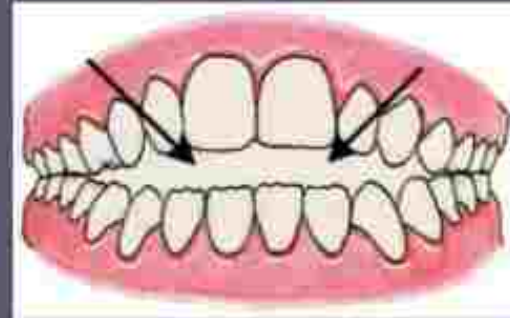
▶ Correction of malocclusion

- Openbite

▶ Removable

- Frankle IV

▶ Vestibular configuration



Tongue Thrusting: Treatment : Malocclusion : Openbite

▶ Removable appliance

- Modified activator-
intrusion of molars

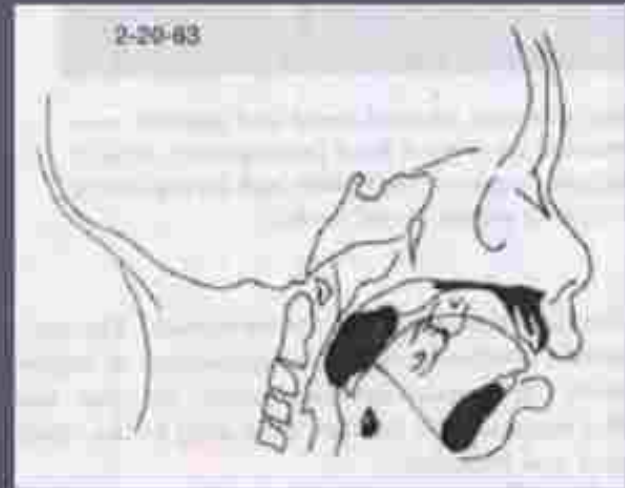


▶ Fixed orthodontic treatment

Tongue Thrusting :Treatment

► Surgical treatment

- Removal of tonsils
- Correction of skeletal malformation



Mouth breathing

Mouth breathing

- ▶ **Nasal breathing Vs Mouth breathing**
 - Purification of air
 - Development of muscles of chest ,back, neck
 - ▶ Postural defect
- ▶ **Functional adaptation for mouth breathing**
 - Mandible
 - Tongue posture
 - Head
- ▶ **Manifestations**
 - Facial height, Openbite, Crossbite

Mouth breathing

► Definition

- **Sassouni (1971)** - Habitual respiration through the mouth instead of the nose

- **Merle (1980)** - Suggested the term oro - nasal breathing instead of mouth breathing

Mouth breathing: Incidence

- ▶ Common among 5 – 15 yr
- ▶ 85% nasal breathers suffer from some degree of obstruction

Mouth breathing

▶ Classification

▪ Finn (1987)

▶ Anatomical

- Short upper lip

▶ Obstructive

- Obstruction in nasal passage

▶ Habitual

Mouth breathing

▶ Etiology

- **Developmental and morphologic anomalies interfering nasal breathing**
 - ▶ Asymmetry of face
 - ▶ Hereditary
 - Size of nasal passage
 - Position of nasal septum
 - ▶ Abnormal development of nasal cavity, Nasal turbinates
 - ▶ Abnormally short upper lip
 - ▶ Under developed or abnormal facial musculature

Mouth breathing: Etiology

- ▶ Partial obstruction due to
 - Deviated nasal septum – Birth injury
 - Localized benign tumor
 - Narrow maxilla
- ▶ Traumatic injuries to nasal cavity

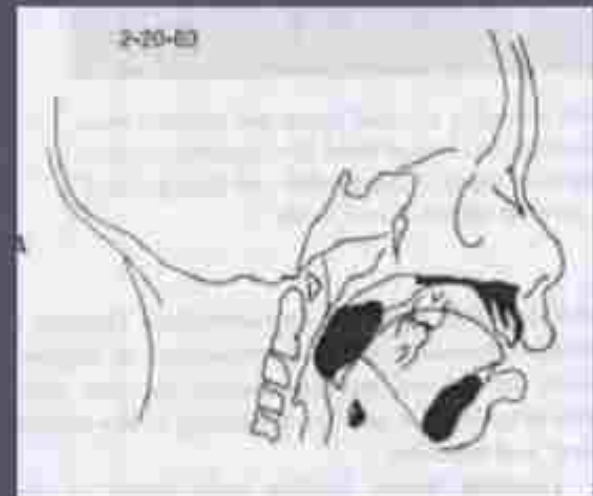
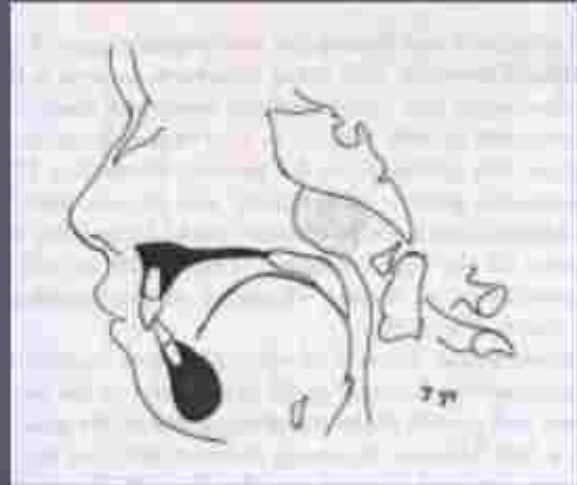
Mouth breathing; Etiology

▶ Infection and inflammation

- Ch. Inflammation of nasal mucosa
- Ch. Allergic stomatitis
- Ch. Atrophic rhinitis
- Enlarged adenoids, tonsils
- Nasal polyps

▶ Genetic factor

- Ectomorphic child



Mouth breathing

- ▶ Clinical features
 - General features
 - ▶ Pulmonary development
 - Pigeon chest
 - ▶ Lubrication of esophagus
 - No mucous gland
 - Dry - Esophagitis
 - ▶ Blood gas constituent
 - 20 % more CO₂

Mouth breathing

► Adenoid facies

- Long narrow face
- Narrow nose and nasal passage
- Nose tipped superiorly
- Flat nasal bridge
- Flaccid lips
- Short upper lip
- Collapsed buccal segment of maxilla
- High palatal vault
- Dolicofacial pattern
- Expressionless face



Mouth breathing: CI / F

► Dental effect

- Protrusion with spacing of upper incisors
- Decreased overbite
- Openbite
- Lower tongue position
- Posterior cross bite



Mouth breathing: CI / F

- Increased overjet
- Constricted maxillary arch



Mouth breathing: CI / F

- Narrow palate and cranial vault
- Narrow long face



Mouth breathing: CI / F

▶ Lips

- Incompetent upper lip
- Everted, heavy lower lips
- Voluminous curled lower lips
- Gummy smile

▶ External nares

- Slit like external nares with narrow nose
- Atrophied nasal mucosa



Mouth breathing: CI / F

► Gingiva

- Ch. Keratinized marginal gingivitis
 - Classic rolled margin and enlarged interdental papilla
 - Heavy plaque deposition
 - Salivary flow and bacterial overgrowth
-
- Periodontal disease
 - Pocket formation and interproximal bone loss



Mouth breathing: CI / F

► Other effects

- Narrow maxillary sinus and nasal cavity
- Turbinates- Swollen and engorged
- Atrophic nasal mucosa
- Speech- Nasal tone
- Infection of Lymphoid tissue
- Otitis media
- Dull sense of smell
- Loss of taste

Mouth breathing

- ▶ Sleep apnea syndrome
 - Increased enlargement of lingual tonsils
 - Mechanism

Mouth breather lying on back



Tongue fall posteriorly

Touch post. Pharyngeal wall



Occlusion of oropharynx

Sleep apnea syndrome

► Signs / Symptoms

- Snoring
- Loud pharyngeal snoring with interrupted silences
- Abnormal behavior
 - Movement of limbs
- Morning headache

Mouth breathing

▶ **Diagnosis**

▪ History

- ▶ Lip apart posture
- ▶ Tonsillitis, allergic rhinitis, otitis media

Mouth breathing: Diagnosis

▶ Examination

- Observation of breathing
- Lip posture
- Nasal orifices

▶ Clinical test

- Mirror test
- Butterfly test
- Water holding test
- Inductive plethysmography
 - ▶ Airflow through nose and mouth
- cephalometrics



Mouth breathing

▶ Treatment consideration

- Age ; maturity of the child
- E.N.T. examination; determine whether conditions requiring treatment are present in tonsils adenoids or nasal septum.
- Correction time
 - ▶ Mix dentition

Mouth breathing: Treatment

- ▶ **Symptomatic relief**
 - Gingival coating
 - Periodontal consideration
 - ▶ Prophylaxis

Mouth breathing: Treatment

▶ Elimination of cause

- Removal of nasal or pharyngeal obstruction

▶ Interception of habit

▪ Exercises

▶ Physical – deep inhalation exercise

▶ Lip

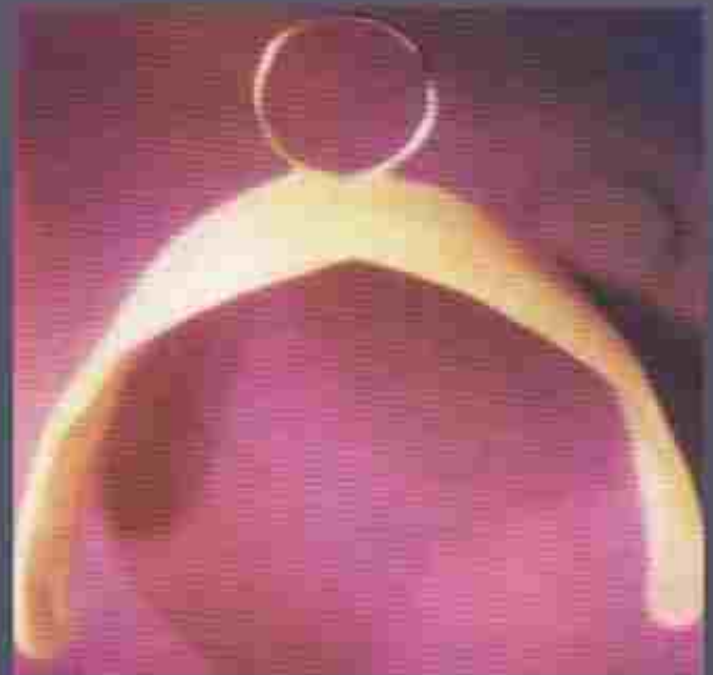
- Upper lip extension exercise
- Upper, lower lip combined exercise

▶ Playing wind pipe

▶ Disc holding exercise

Mouth breathing: Treatment

- ▶ **Maxillothorax myotherapy**
 - Macaray activator
 - Oral screen



Mouth breathing: Treatment

- ▶ Correction of malocclusion

- CI I

- ▶ Oral screen

- CI II Div-1

- ▶ Noncrowded dentition (5-9 yr) – Monobloc



Mouth breathing: Treatment

- CI III
 - ▶ Interceptive chin cap



Lip habits

- ▶ Vary with imagination of child
 - Basic type
 - ▶ Wetting of lip with tongue
 - ▶ Pulling the lip into mouth between teeth
 - Lip sucking-
 - ▶ Entire lower lip with vermilion border pulled in mouth
 - Mentalis habit-
 - ▶ Vermilion border everted



Lip habits

► Etiology

- Association with digit sucking

(Grabert)

Increased overjet

Lip seal

Incompetent upper lip

Position of lower lip behind upper incisors

negative pressure for swallowing



Lip habits: Etiology

▶ Malocclusion

- CI II Div-1

- ▶ Large overjet and overbite

- Emotional stress

- ▶ Increases the intensity and duration

Lip habits: CI / F

▶ Lip

- Reddened , irritated, chapped area below vermilion border
- Vermilion border
 - ▶ Relocation outside the mouth due to constant wetting
 - ▶ Redundant and hypertrophied
- Ch. Herpetic infection
- Cracking

Lip habits; CI/ F

▶ Accentuated mentolabial sulcus

▶ Malocclusion

▪ Winder–force equilibrium

Lip  tongue

1. Protrusion of upper incisors

1. Flaring with interdental spacing

2. Retrusion of lower incisors

1. Collapse with crowding

3. openbite



Lip habits: Treatment

- ▶ Not self- correcting
- ▶ Deleterious with age
- ▶ Treating primary habit
 - Correction of digit sucking followed by habit reminder (Hawley's appliance)
- ▶ Chemical reminder
- ▶ Correction of malocclusion
 - CII Div-1-
 - ▶ Fixed or removable appliance
 - Activator



Lip habits: Treatment

▶ Appliance therapy

▪ Oral shield

- ▶ CI I malocclusion
- ▶ Lip exercise for improvement of lip tonus



▪ Lip bumper

- ▶ Prohibits excessive force on mandibular incisors
- ▶ Reposition of lower lip away from upper incisors



Bruxism

► Definitions

Ramfjord

- Habitual grinding of teeth when the individual is not chewing or swallowing

Rubina

- Nonfunctional contact of teeth which may include clenching, gnashing and tapping of teeth

Vanderas

- Nonfunctional movement of mandible with or without an audible sound occurring during the day or night

Bruxism

▶ Classification

- Okinuwora

- ▶ Bruxism associated with stressful event
- ▶ No such association (Hereditary)

▶ Types

- Day time bruxism / Diurnal

- ▶ Conscious or subconscious grinding
- ▶ Along with parafunctional habits
- ▶ Silent

- Night time / Nocturnal

- ▶ Subconscious grinding in rhythmic pattern of masseter

Bruxism

► Occurrence

- **Infants**

- Eruption of first primary tooth

- More prevalent in mixed dentition

- Throughout life

- **Sleep**

- Transition from deeper stages to lighter

- REM stage

Bruxism

▶ Etiology

▪ Local theory

- ▶ Reaction to an occlusal interference
 - High restoration, irritating dental condition
 - ▶ Disturbed afferent impulses from PD

▪ CNS

- ▶ Cortical lesions, cerebral palsy, mental retardation

Bruxism: Etiology

► Systemic

- Intestinal parasites – GI disturbance
- Nutritional deficiencies - Mg deficiency
- Enzymatic distress
- Allergies - Food
- Endocrine disorder

Ch. Abd
distress

Bruxism: Etiology

▶ Psychological theory

- Associated with feeling of anger, aggression
- Stress
- Emotional status – inability to express the emotion

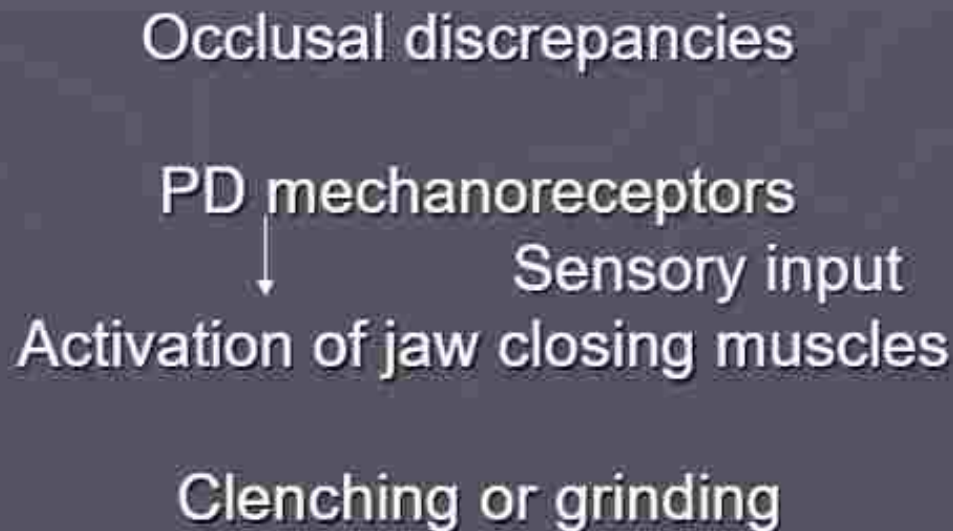
▶ Other causes

- Genetics
- Occupational factors
 - ▶ Enthusiastic student, compulsive overachiever
 - ▶ Competition sports

Bruxism

► Causal hypothesis

- Malocclusion can initiate and maintain forceful grinding or clenching
- Mechanism



Bruxism

- Removal of occlusal interference
 - ▶ Continued bruxism
- Nocturnal bruxism
 - ▶ Protective mechanoreceptor function cancelled
 - ▶ Continuation of clenching

Bruxism

► Indicators

- Presence of dental wear / Attrition
- Bruxofacet
- Grinding or clenching

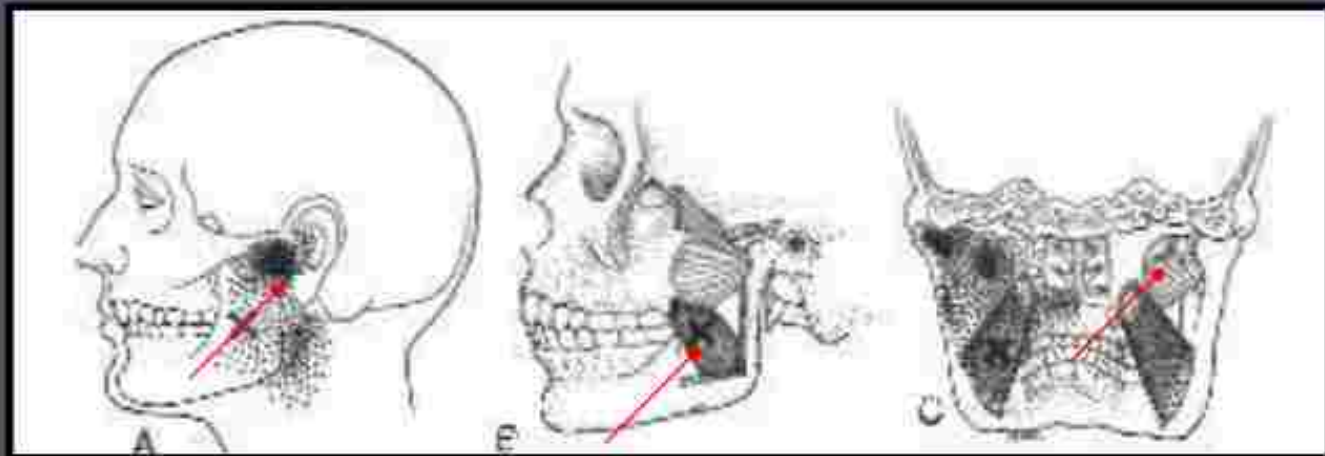


Bruxism

- ▶ Clinical manifestation
 - Occlusal trauma
 - ▶ mobility
 - Morning time
 - Tooth structure
 - ▶ Nonfunctional occlusal wear
 - ▶ Sensitivity
 - ▶ Atypical shiny wear facet with sharp edges
 - ▶ Pulpal exposure
 - ▶ # crown, restoration



Bruxism: CI / F



► Muscular tenderness

- Lateral pterygoid, masseter on palpation
- Fatigue on waking
- Hypertrophy of masseter

► TMJ disturbances

- Crepitation , clicking ,
- Restriction of mand. Movement
- Deviation of chin
- Pain – Dull , unilateral

Bruxism: CI / F

▶ Headache

- Muscular contraction type

▶ Other signs and symptoms

- Sounds- Grinding and tapping
- Soft tissue trauma
- Small ulceration or ridging on buccal mucosa opposite the molar teeth

Bruxism: Treatment

- ▶ **Occlusal adjustment**
 - Disappearance of habitual grinding
 - ▶ Coronoplasty
 - ▶ High point correction
- ▶ **Occlusal splints (Night guard)**
 - Vulcanite splint to cover occlusal surfaces
 - ▶ Reduction of increased muscle tone
 - TMJ appliance
 - ▶ Prefabricated intra oral appliance for TMJ disorder



Bruxism: Treatment

▶ Restorative

- Severe abrasion
 - ▶ Pulp therapy
 - ▶ Stainless steel crown

▶ Psychotherapy

- Counseling
 - ▶ Tension relief
 - ▶ Habit awareness -
Increase voluntary
control



Bruxism: Treatment

▶ Relaxing training

- Tensing and relaxing exercise
 - ▶ Voluntary relaxation
- Hypnosis
- Behavior Conditioning
- Physical therapy
 - ▶ Musculoskeletal pain and stiffness

▶ Drugs

- Placebo
- Vapocoolant – Ethyl chloride for pain -TMJ
- Local anesthetics - TMJ
- Tranquilizers, sedatives, muscle relaxants
- Diazepam – Anxiety and alteration of sleep arousal
- Tricyclic antidepressants- Reduce REM

Bruxism: Treatment

▶ Biofeedback

- Positive feedback for Learning of tension reduction

▶ Electrical method

- Electro galvanic stimulation
 - ▶ Muscle relaxation

▶ Acupuncture

▶ Orthodontic correction

- Cl II,III, Ant. Openbite, Crossbite

Cheek biting

► Definition-

- keeping or biting the cheek muscles in between the upper and lower posterior teeth

► Clinical features

- Ulcers at the level of occlusal line
- Open bite
- Tooth malposition in buccal segment



Cheek biting

► Treatment

- Vestibular screen
- Reminders



Nail biting

▶ Sign of stressful condition

▶ Age of occurrence

- Before 3 yr- absent
- 4-6 yr- sharp rise in incidence
- 7-10 yr- constant level
- Adolescence- sharp rise

▶ Etiology

- Emotional problem
- Stressful condition



Nail biting: CI/ F

▶ Nail

- Inflammation of nail beds and nail
- Irregular nail margins

▶ Dental effect

- Crowding
- Rotation
- Attrition of incisal edges of incisors



Nail biting

► Management

- Avoidance of punitive methods
- Mild case- No treatment
- Care for emotional condition
- Encouragement of stress relieving activities
- Nail polish, light cotton mittens as reminder
- Bitter or sour chemical over the finger
 - E.g. : Foul smelling Quinine, Asofoctine, Pepper , Femite etc



Conclusion

References

- ▶ Graber
- ▶ Profitt
- ▶ Moyer
- ▶ Tandon
- ▶ Forester
- ▶ Stewart
- ▶ Pinkham

► QUESTIONS

ESSAY

Describe the etiology clinical picture and management of thumb sucking habit

Enumerate the oral habits responsible for mal occlusion. Discuss their effects on occlusion

Define habit? Discuss the determinations effect of thumb sucking and its management

Describe the etiology clinical picture and management of tongue sucking habit

- ▶ Short notes on
- ▶ Thumb sucking, Tongue Thrusting, mouth breathing.
- ▶ Types of Tongue Thrusting
- ▶ Management of Tongue Thrusting
- ▶ Masochistic habits?
- ▶ Define and classify oral habits?
- ▶ Write a note on mouth breathing
- ▶ How will you manage mouth breathing habit in children
- ▶ Self inflicted oral injuries in children
- ▶ Oral screen

- ▶ M.C.Q.
- ▶ 1. Suckling reflex starts at the age of
 - ▶ a. 4 weeks IU (b) 15 weeks IU
 - ▶ c. 29 weeks IU (d) 40 weeks IU
- ▶ 2. Thumb sucking is normal upto the age of
 - ▶ a. 3 years (b) 4 years (c) 5 years (d) 7 years
- ▶ 3. habits are classified into
 - ▶ a. Normal / abnormal (b) retained/ cultivated
 - ▶ c. Physiological / pathological (d) all of the above
- ▶ 4. Benjamin theory was put forward in
 - ▶ a. 1950 (b)1960 (c)1997 (d) 1962
- ▶ 5. Muscles involved in infantile swallow
 - ▶ a. Masseter (b) Orbicularis oris (c) Buccinator (d) all of the above

- ▶ 6. Open bite could a consequence of
- ▶ a. tongue thrusting (b) thumb sucking © both of the above (d) none of the above
- ▶ 7. Sleep apnoe syndrome is seen in
- ▶ a. tongue thrusting (b) thumb sucking © mouth breathing (d) all of the above
- ▶ 8. TMJ disturbances can be seen in
- ▶ a. tongue thrusting (b) bruxism © lip biting (d) nail biting
- ▶ 9. Self injurious habits are also called as
- ▶ a. masochistic (b) Sadomasochistic © self Mutilating (d) all of the above
- ▶ 10. Clinical feature of Bobby pin opening
- ▶ (a) Notched incisors (b) Peg laterals (c) both of the above (d) none of the above

▶ ANSWERS:

▶ C

▶ A

▶ D

▶ D

▶ D

▶ C

▶ C

▶ B

▶ D

▶ A

