

ORAL HABITS IN CHILDREN



DEFINITIONS

DORLAND (1957)

Habit can be defined as a fixed or constant practice established by frequent repetition.

BOUCHER (1963)

Habit is a tendency towards an act or an act that has been a repeated performance ,relatively fixed, consistent, easy to perform and almost automatic.

FINN (1972) A habit is an act, which is socially unacceptable.

MATHEWSON (1982)

Oral habits are learned patterns of muscular contractions.

CLASSIFICATION OF HABITS

WILLIAM JAMES (1923)

A. USEFUL HABITS:

Example: Nasal breathing, deglutition, correct tongue posture

B. NON-USEFUL / HARMFUL HABITS: .

Example: Thumb sucking, Mouth breathing, lip biting and lip sucking.

KINGSLEY (1956)

Based on nature of habit:

A. Functional Oral Habit: Example- mouth breathing.

B. Muscular Habits: Example- tongue thrusting, cheek / lip biting.

C. Combined muscular habits: Ex- thumb and finger sucking.

D. Postural habits: Example- chin propping, face leaning on hand, abnormal pillowing.

MORRIS and BOHANNA (1969)

- A. Pressure habits: -- Sucking habits Ex Lip/thumb sucking
-- Biting habits Ex Nail biting
- B. Non-pressure habits: Mouth breathing
- C. Postural habit; Chin rest.
- D. Miscellaneous; Bruxism

KLEIN E T (1970)

A. Intentional (meaningful):

B. Unintentional (empty):

GRABER (1972)

Based on extrinsic and intrinsic factors:

- 1) Thumb or finger sucking
- 2) Tongue thrust or tongue sucking
- 3) Lip and nail biting
- 4) Abnormal swallowing habits
- 5) Speech defects
- 6) Mouth breathing
- 7) Bruxism
- 8) Postural defects
- 9) Defective occlusal habit

FINN AND SIM (1987)

I. A. Non-compulsive Oral Habits:

B. Compulsive Oral habits:

II. A. Primary Oral Habits: Thumb and finger sucking.

B. Secondary Oral Habits: Hair pulling, nose probing, pulling the ear, fondling a favourite toy etc.

BAYARDO ET AL (1996)

A. Sucking habits

Digital, nursing bottle, lips, cheeks, objects, atypical deglutition

B. Biting habits

Habitual nail biting, bruxism, biting body parts, biting object

SINGH (2005)

I. According to cause of habit

A. Physiologic Habits:

Example- nasal breathing, suckling during infancy

B. Pathologic Habits:

Example - Mouth breathing due to deviated nasal septum /enlarged adenoids

II. According to origin of habit:

A. Retained Habits:

Example- thumb sucking, mouth breathing.

B. Cultivated/Acquired Habits:

Example- Cigarette smoking.

III. According to patient's awareness of habit:

A. Conscious Habits

Involve choice or need

Example- Meaningful thumb sucking.

B. Unconscious Habits

They are sustained by unconscious behaviors.

Example- Empty thumb sucking

MOUTH BREATHING HABIT

SASSOUNI ; It is defined as habitual respiration through the mouth instead of nose.

CLASSIFICATION; [FINN 1987]

A] OBSTRUCTIVE MOUTH BREATHING;

Caused by nasal airway obstruction due to enlarged tonsils, adenoids or severe deviation of nasal septum.

B] ANATOMICAL MOUTH BREATHING;

The anatomy of the oro-facial structures may allow easy passage of air through mouth[
Ex. Incompetent, short upper lip]

C] HABITUAL MOUTH BREATHING;

As a matter of habit or persistence of the habit even after elimination of the obstructive cause.

ETIOLOGY OF MOUTH BREATHING

I. DEVELOPMENTAL AND MORPHOLOGIC ANOMALIES WHICH INTERFERE WITH NASAL BREATHING ;

- Asymmetry of the face resulting in asymmetry of the nasal passage due to intrauterine pressure during the period of embryonic development.
- Abnormal development of nasal cavity.
- Abnormal development of nasal turbinates.
- Abnormally short upper lip, preventing proper lip seal.
- Underdevelopment or abnormal facial musculature.

II. PARTIAL OBSTRUCTION DUE TO;

- Deviated nasal septum
- Localised benign tumors.
- Narrow nasal passage associated with narrow maxilla.

III. INFECTION AND INFLAMMATION:

- Chronic inflammation of nasal mucosa.
- Chronic allergic stomatitis.
- Chronic atrophic rhinitis.
- Enlarged adenoids and tonsils
- Traumatic injuries to the nasal cavity.

IV. Genetic pattern

CLINICAL FEATURES;

ADENOID FACIES- is the characteristic feature of the mouth breathers

- Short upper lip
- Lips are held wide apart
- The nose is tipped superiorly
- The bridge of the nose is flat
- Expression less face
- Long narrow face
- The chin is receded and the face has typical pigeon face appearance
- There is lack of tone of oral musculature

Dental and skeletal;

- Low tongue position
- Narrow maxillary area
- Protrusion of maxillary and mandibular incisors
- The palatal vault is high
- Anterior open bite
- Mandible hangs open in a slack manner
- Chronic keratinized marginal gingivitis

GENERAL FEATURES;

- In order to breath, the child bends the neck forward straightening the oro- naso-pharyngeal path. This gives the appearance of a pigeon chest.
- In mouth breathes the oro-pharynx is dry and can produce a low-grade esophagitis
- Turbinates become swollen and engorged.
- Speech acquires a nasal tone.

DIAGNOSIS;

A] OBSERVE THE PATIENT

- Mouth breathers; Lips will be apart.
- Nasal breathers; Lips will be touching.

B] Ask the patient to take a deep breath through nose

- Mouth breathers; No change in shape or size of external nares
- Nasal breathers; Demonstrates good control of alar muscles.

C] MIRROR TEST; [FOG TEST]

Two surfaced mirror is placed on the patient's upper lip. If air condenses on the upper side of the mirror, the patient is nasal breather and if it does on the opposite side , he is a mouth breather.

D] WATER HOLDING TEST ; [MASSLER]

Patient is asked to hold the mouth full of water. Mouth breathers cannot retain the water for a long time.



E] BUTTERFLY TEST; [JWEMEN]

Take a few fibers of cotton and place it just below the nasal opening. On exhaling if the fibers of the cotton flutters downwards, patient is nasal breather and if the fibers flutter upward he is a mouth breather.



F] RHINOMETRY;

This is the confirmatory investigatory parameter that assesses the amount of air flowing through the nose and the mouth. It consists of flow meter and pressure gauge.

G] CEPHALOMETRICS;

It can be used to calculate amount of naso-pharyngeal space, size of the adenoid and helps us to diagnose the long face associated with mouth breathing.

MANAGEMENT

1] Correction of aetiology [Remove the cause]

Nasal airway blockage is usually associated with

- A] Deviated nasal septum.
- B] Inflamed nasal turbinates.
- C] Nasal polyp
- D] Adenoiditis
- E] Tonsillitis

2] Intercept the habit;

a] Habit breaking appliance; ORAL SCREEN



ORAL SCREEN;

- It is a functional appliance introduced by NEWELL IN 1912.
- Oral screen helps in regulating and redirecting the air flow from the more pronounced oral way to nasal way.
- It is a U shaped flat acrylic sheet placed between the dentoalveolar and the buccal musculature.
- It is indicated only when the air way is open.
- It is given to mouth breathers whose nasal obstruction is surgically corrected.
- It prevents the mouth breathing completely since it fills the entire vestibular cavity.

- It is important to make a few holes in the anterior part of the screen to allow passage of some amount of air into the mouth, as the child learns to breathe through the nose. With each appointment the size of the hole is reduced and eventually all the holes are closed. This is to prevent sudden obstruction of oral breathing.
- It is generally inserted at night before going to bed and worn throughout the night, so that the child is forced to breathe through the nose while asleep.
- Ring attached in front of the vestibular screen can be used to perform routine lip exercises.
- A holding ring is made from 0.032 round stainless steel wire. The addition of a small loop to the labial oral shield improves the lip tonus by helping in lip exercises by pulling on the holding ring and closing the lips against pressure.
- These lip exercises are performed for 10 minutes three times a day.
- The appliance therapy spans 6-9 months.

MUSCLE EXERCISES;

a] Paper holding exercise;

b] Pencil holding exercise;

C] Taping the lips;

e] Button aided exercise;



f] Stretch and curl exercise



C] Muscle Exercise;

Lip exercises are advocated to alter the position and improve the tone of flaccid and hypotonic lip.

a] Paper holding exercise; The child is asked to hold a paper in between lips with firm grip. The action is performed for 5-10 min and repeated 3-4 times per day.

b] Pencil holding exercise; During day time – hold the pencil between the lips.

C] Taping the lips; During night time, tape the lips together with surgical tape.

b] Button aided exercise; A firm thread with a button attached to each of its two ends is used for the exercise. One button is held in the mouth with the help of upper and lower lip. The other button is held with hand. A pull is exerted to bring out the button from the mouth, while the circumoral muscles contract and try to hold it back.



c) Stretch and curl exercise; This exercise is best indicated for short , flaccid lips with proclined upper anteriors. The child is asked to stretch the upper lip and curl it below and behind the lower incisors. Further the child is asked to hold the upper lip in this position and extend the lower lip to cover the upper lip.

This exercise is performed 20-30 sec and repeated 20-40 times twice or thrice a day under parental supervision.



BRUXISM

Nadler (1957) defined Bruxism as “the grinding” or clenching of teeth at other times than for mastication of food.

American Academy of Pediatric dentistry (2003) defined bruxism as habitual, nonfunctional, forceful contact between occlusal tooth surfaces, which can occur while awake or asleep.

McDonald (2004) defined bruxism as nonfunctional grinding or gnashing of teeth.

CLASSIFICATION

Olkimora (1972) divided bruxers into 2 categories:

1. Those in whom bruxism was associated with stressful events.
2. No such association. The non stress related group had more of hereditary influence.

Kato et al. (2001)

- (A)
1. Diurnal Bruxism: It refers to conscious or subconscious grinding of teeth, usually during day.
 2. Nocturnal Bruxism: It refers to a subconscious grinding of teeth during sleep with audible sounds that are usually not reproducible during the conscious state.
- (B)
1. Primary (Idiopathic): Include day time clenching and sleep bruxism in the absence of a medical cause.
 2. Secondary (Iatrogenic): Associated with either neurologic, psychiatric or sleep disorders or with administration or withdrawal of drugs.

ETIOLOGY

According to Nadler (1957) causes of bruxism are:

- I. Local factors
- II. Systemic factors
- III. Psychological factors
- IV. Occupational factors.

I. Local Factors

- a. Faulty restorations.
- b. Calculus and periodontitis
- c. Functionally incorrect occlusion.
- d. Traumatic occlusal relationship
- e. Faulty eruption of deciduous or permanent teeth.

II. Systemic Factors

1. Nutritional deficiencies.
2. Calcium and vitamin deficiencies.
3. Intestinal parasite infection.
4. Gastrointestinal disturbances from food allergy.
5. Enzymic imbalances in digestion causing chronic abdominal distress.
6. Persistent, recurrent urologic dysfunction.
7. Endocrine disorder, e.g, hyperthyroidism.
8. Hyperkinetic children. Histamine released during stress may act as an exciting agent in the initiation of bruxism.
9. Pubertal growth spurt peak in boys and start of spurt in girls sees increase in bruxism.
10. Hereditary
11. CNS disturbances e.g. cortical brain lesions, disturbances in medulla and pons, epilepsy, tuberculous meningitis.
12. Allergy

III. Psychological Factors

- It is the most dominant factor. Nervous tension finds a most gratifying release in clenching and bruxism.
- Childhood bruxism may be related to other oral habits, such as; chronic biting and chewing of toys and pencils, digit sucking, tongue thrusting and mouth breathing.

IV. Occupation Factors

1. Athletes indulge in bruxism because of a great desire to excel.
2. Over anxious students/ compulsive over achievers.
3. Computer programmers, software professionals, armed forces due to high stress levels at the work place.

SIGNS AND SYMPTOM;

ON TEETH;

1. Tooth mobility.
2. Dull percussion sounds.
3. Soreness to biting stress.
4. Increased sensitivity from excessive abrasion of enamel.
5. Atypical facets- Shiny, uneven, occlusal wear with sharp edges, abrasion on incisal edges of upper and lower incisors.
6. Other feature- pulp exposure, abscess.
7. Fracture of crown/restoration.
8. Root fracture.

ON MUSCULATURE ;

1. Muscular facial pain.
2. Muscular incoordination.
3. Hypertrophy of muscle.
4. Tightness of muscle.
5. Tenderness of jaw muscles to palpation.

ON T M J;

1. Pain
2. Crepitus/ clicking
3. Restricted jaw movement
4. Jaw deviation

MANAGEMENT;

1. Determine the underlying cause and eliminate it.
2. Psychotherapy including counselling, hypnosis, conditioning, relaxation exercises.
3. Drugs like vapocoolants(ethyl chlorine) for pain in TMJ area and muscle relaxants.
4. Occlusal adjustments/equilibration, high point elimination.
5. Appliances;
 - a) Bite guard/bite plane/occlusal splints- helps in relieving occlusal interference and prevents attrition of teeth.
 - b) Crowns for occlusally worn out teeth to restore lost occlusal height.
 - c) Prosthetic replacement of lost teeth.
6. TENS (Transcutaneous electrical nerve stimulation)
7. Acupressure



DIGIT/THUMB/FINGER SUCKING HABIT

GELLIN; defined digit sucking as placement of thumb or one or more fingers in varying depth into the mouth.

MOYERS ; Repeated and forceful sucking of thumb with associated strong buccal and lip contraction.



CLASSIFICATION OF THUMBSUCKING

A. COOK (1958) described 3 different patterns of forces active against the palate during thumb sucking.

(1) Alpha Group

Thumb pushes against palate in a vertical direction and only little buccal wall contractions are displayed.

(2) Beta Group

Strong buccal wall contractions are seen and a negative pressure is created resulting in posterior cross bite.

(3) Gamma Group

Alternate positive and negative pressure is created.

SUBTENLY ET AL (1973) : described four types of thumb sucking.

GROUP I

The thumb is inserted into the mouth considerably beyond the first joint. It occupies a large area of vault of hard palate pressing against palatal mucosa and alveolar tissue. Lower incisors press against thumb, contacting it beyond the first joint.

This type was seen in 50 percent of children.

GROUP II

The thumb extends into the mouth around the first joint or just anterior to it. No palatal contact, contacts only maxillary and mandibular anterior. This type is seen in almost 13-24 percent of children.

GROUP III

The thumb is placed into the mouth just beyond the first joint and contacts the hard palate and only the maxillary incisors, but there is no contact with the mandibular incisors.

This type is seen in almost 18 percent of children.

GROUP IV

Thumb does not progress appreciably into the mouth. The lower incisors contact at the level of thumb nail.

This type is seen in almost 8 percent of children.

TYPES OF SUCKING

There are two forms of sucking

1]NUTRITIVE FORM;

It provides essential nutrients.

Ex.Breast feeding

2]NON NUTRITIVE FORM;

Does not provide any essential nutrients

Ex Digit sucking

THEORIES AND CONCEPTS OF THUMB SUCKING;

1. CLASSICAL FREUDIAN THEORY;

A psychoanalytical theory states that psychosexual drive and biological sucking drive are the cause of this habit.

2. LEARNING THEORY;

Sucking thumb is an adaptive response and it is perceived as pleasurable.

3. ORAL DRIVE THEORY;

Prolonged nursing of the child causes oral drive and roots the habit.

4. JOHNSON AND LARSON'S THEORY;

Sucking, rooting and placing reflexes are biological. Environmental factors such as inadequate breastfeeding in case of working mothers play a role in initiating the habit.

5. ORAL GRATIFICATION THEORY ;

If a child is not satisfied with sucking during the feeding period, it will persist as a symptom of an emotional disturbance by digit sucking.

FACTORS CONTRIBUTING TO ETIOLOGY OF DIGIT SUCKING

- A. Number of siblings**
- B. Order of birth of child**
- C. Socioeconomic status**
- D. Working mother**
- E. Social adjustment and stress**

FACTORS CONTRIBUTING TO ETIOLOGY OF DIGIT SUCKING

A. Number of siblings

The number of siblings in the family play a strong role, as oral habits was more of a problem for the single child group possibly due to isolation, over protection, loneliness and communication problems. (Bayardo et al.1996). As the number of siblings increases, attention meted out to the child by parents gets divided. A neglected child may attempt to compensate insecure feelings by sucking. (Tandon, 2001).

B. Order of birth of child

Hanna, (1967) found that the later the sibling rank of a child, the greater the chance of having an oral habit.

C. Socioeconomic status

In the high socio-economic status group, the mother is in a better position to feed the baby and in a short time the baby's hunger is satisfied. Whereas, in the low socioeconomic group mother is unable to provide sufficient breast milk to the infants, hence in the process, the infant suckles intensively for a long time thereby exhausting the sucking urge. This theory explains the increased incidence of thumb sucking in industrialized areas when compared to rural areas.

D. Working mother

The sucking habit is commonly observed to be present in children with working parents because such children are brought up in the hands of caretaker and develop feelings of insecurity.

E. Social adjustment and stress

Digit sucking has also been proposed as or emotionally based behaviour.

PHASES OF DEVELOPMENT OF THUMB SUCKING

Phase I

Normal and Sub clinically Significant Sucking.

Phase II

Clinically Significant Sucking.

Phase III

Intractable sucking.

PHASES OF DEVELOPMENT OF THUMB SUCKING

Phase I

Normal and Sub clinically Significant Sucking.

This phase extends from a child's birth to about 3 years of age depending on child's social development. Most infants exhibit digit sucking during this period, particularly at the time of weaning. The sucking is usually resolved towards end of phase I.

Phase II

Clinically Significant Sucking.

The second phase extends roughly from age 3 to age 6 or 7 years. Continual purposeful digital sucking during this time deserves more serious attention because it is an indication of possible clinically significant anxiety and it is the best time to solve dental problem related to sucking. A firm and definite corrective program is indicated at this time.

Phase III

Intractable sucking.

Persistence of thumb sucking is a symptom of significant problem and may require psychotherapy besides treatment of malocclusion.

Children who stop thumb sucking and begin again later in childhood, often have underlying social or psychological problems.

EFFECT OF THUMB SUCKING

Effects on maxilla

- Increased proclination of maxillary incisors.
- Increased maxillary arch length.
- Increased anterior placement of apical base of maxilla.
- Increased clinical crown length of maxillary incisors.
- Increased counter clockwise rotation of occlusal plane.
- Decreased palatal arch width.
- Increased atypical root resorption in primary central incisors.

Effects on mandible

- Increased proclination of mandibular incisors.
- Increased mandibular inter-molar distance.

Effect on interarch relationship

- Increased maxillary and mandibular incisor angle.
- Increased overjet.
- Increased overbite.
- Increased posterior cross bite.
- Increased unilateral and bilateral class II occlusion.

Effect on lip placement and function

- Increased lip incompetence.
- Hypotonic upper lip
- Hyperactive lower lip .

Effects on tongue placement and function

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

Other effects

- Risk to psychologic health
- Increased deformation to digits.
- Increased risk to speech defects, especially lisping.

DIAGNOSIS

1. HISTORY OF DIGIT SUCKING

a] Frequency;

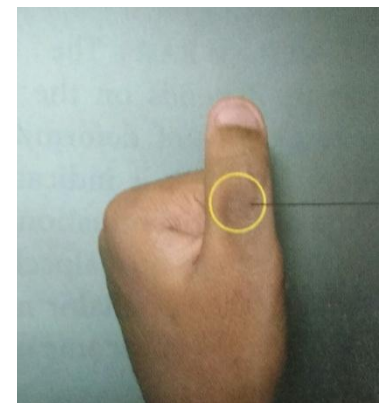
b] Duration;

c] Intensity;

Extra oral examination;

THE DIGIT;

- a] Cleaner digit
- b] Redness, chapped and blistered due to regular sucking
- c] Dishpan thumb- clean thumb with short nails
- d] Fibrous / roughened wart like callus on superior aspect of digit



LIPS; Short and hypotonic lip.

OTHER FEATURES;

Higher incidence of middle ear infections,
enlarged tonsils and mouth breathing.

Intraoral examination;

MANAGEMENT

According to FORRESTOR(1981) three main area should be assessed in constructing a treatment plan.

1. Emotional significance of the habit.
2. Age of the patient.
3. The status of the child's occlusion.

A] YOUNGER THAN 3 YEARS

B] 3 – 7 YEARS;

C] 7 YEARS AND OLDER;

YOUNGER THAN 3 YEARS;

- No active intervention
- Most children out grow the habit
- Malocclusion is self-correcting
- Parents are advised to ignore habit

3 – 7 YEARS;

- More concern due to anterior orthopedic force vectors associated with sucking.
- Watching and counselling

7 YEARS AND OLDER;

- Anterior open bite will not close by itself due to established functional patterns. Therefore orthodontic intervention needed.

The treatment can be broadly divided into

1. Preventive therapy
2. Psychological therapy
3. Reminder therapy
 - a] Chemical
 - b] Mechanical
4. Appliance therapy

1. PREVENTIVE THERAPY;

- Firstly feed the child whenever he is hungry and let him eat as much as he wants.
- Secondly feed the child the natural way.

2. PSYCHOLOGIC APPROACH;
DUNLOP'S THEORY OR BETA HYPOTHESIS;

DUNLOP'S THEORY OR BETA HYPOTHESIS;

States that the best way to break a habit is by conscious, purposeful repetitions i.e the subject should sit in front of a large mirror and suck observed as he does it.

This forced purposeful repetition of habit is eventually associated with unpleasant reactions and the habit is abandoned.

This is especially practised in older children (8 yrs and above)

3.REMINDER THERAPY;

A]CHEMICAL APPROACH OF HABIT CONTROL;

B] MECHANICAL APPROACH OF HABIT CONTROL;



a) CHEMICAL APPROACH OF HABIT CONTROL;

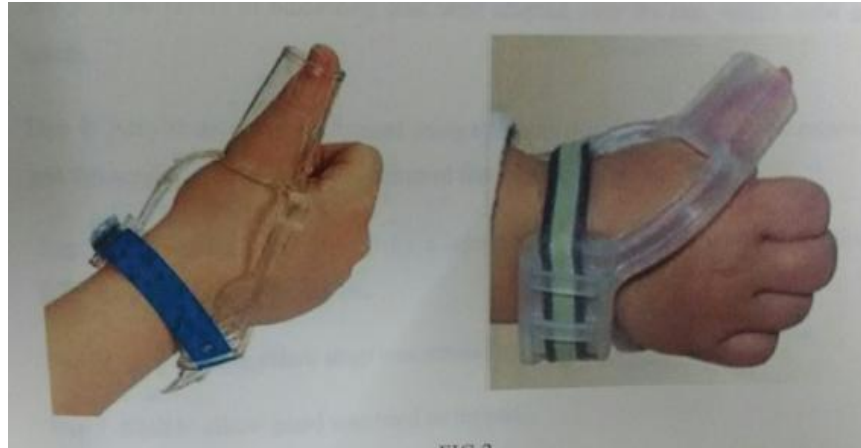
Hot tasting, bitter preparations or distasteful agents can be applied on the digit involved in the habit. These agents help the children to keep the digit out of the mouth. Ex. Chemicals- pepper, castor oil, quinine etc.

Commercially available; Femite, thumb-up, anti-thumb.



b) Mechanical approach of habit control;

T-GUARD [THUMB GUARD] ;



T-GUARD [THUMB GUARD] ;

The thumb guard is a device that is attached to a child's wrist using a colorful bracelet. When attached properly, a child can not remove T-Guard. The children must wear the appliance whenever they may be tempted to suck. It comes in different bright colors. The kit comes with an instructional video, the guard and 60 wrist bands. Once the guard is worn the child can not generate vacuum so the sucking is not that satisfying. In the morning the band can cut be off. The device is used with the child's permission.



LONG SLEEVE GOWN;



LONG SLEEVE GOWN;

This is useful in children who sincerely want to discontinue the habit and only perform it during their sleep.

The arms of their night suit are lengthened so that they cannot reach the thumb during night.

The advantage of this method is it does not prevent the movement of the hands but makes it difficult for the child to get his/her hand out from the sleeve, such that the child cannot suck his/her digit during sleeping.

BANDAGES;



BANDAGES;

The bandage is wrapped snugly, but not too tightly, from the mid-arm to mid-forearm on the side used for the habit. The bandage does not impede blood flow in the arm. Once in bed, the child will find that she can place the thumb/finger in the mouth, though increased effort will be required. As he/she tires, however the elasticity of the Ace bandage will bring the hand away from the mouth, allowing her to fall sleep without sucking the thumb.

THUMB-HOME CONCEPT:



THUMB-HOME CONCEPT:

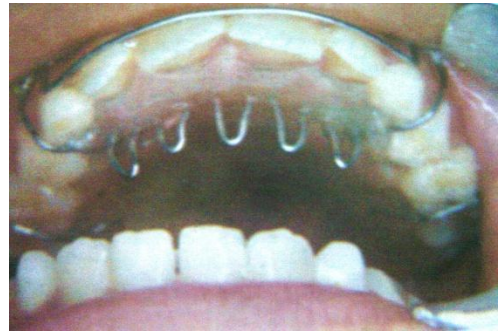
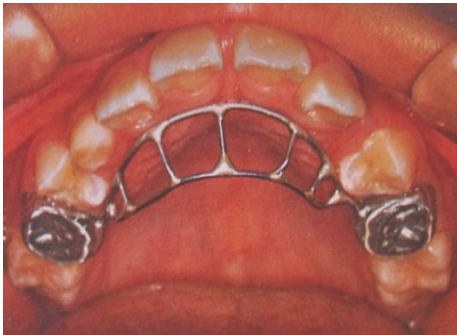
A small bag is given to the child to tie around his wrist during sleep and it is explained to the child that just as the child sleeps in his home, the thumb will also sleep in its house and so the child is restrained.

THREE ALARM SYSTEM;[NORTON & GELLIN-1968];

-Recommended between 3-7 yrs;

1. Offending digit is taped and when the child feels the tape in the mouth it serves as the first reminder.
2. Bandage tied on the elbow of the arm with the offending digit, safety pin is placed lengthwise . When child flexes the elbow, the closed pin mildly jabs indicating a second alarm.
3. Bandage tightens if the child persists serving as a third alarm.

4. APPLIANCE THERAPY; REMOVABLE OR FIXED PALATAL CRIB

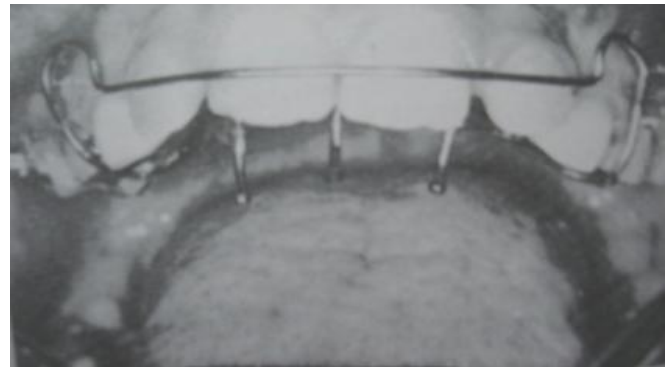


1.REMOVABLE OR FIXED PALATAL CRIB

- The palatal crib is designed to interrupt a digit habit by interfering with finger placement and sucking satisfaction.
- A crib is a habit- retraining appliance which utilizes a blunt wire “reminder” to prevent the child from indulging in habit.
- The crib consist of a wire embedded in a removable acrylic appliance similar to Hawley retainer, or it may be a “fence” added to an upper palatal arch and used as a fixed appliance.
- For a palatal crib, bands are fitted on the permanent first molars or primary second molars. A arch wire is bent to fit passively in the palate and is soldered to the molar bands. Additional wire is soldered onto this base wire to form a crib or mechanical obstruction for the digit. The lower cast is used to check the occlusion for interferences.

- The major problem with the palatal crib is the difficulty of maintaining good oral hygiene. The appliance traps food and is difficult to clean thoroughly. Oral malodor and tissue inflammation can result.
- The parent and the child should be informed that eating, speaking and sleeping patterns may be altered during the first few days after appliance delivery. These difficulties usually subside within 3 days to two weeks.
- An imprint of the appliance appears on the tongue as an indentation which disappears after the appliance is removed.
- The palatal crib usually stops the child from sucking immediately but requires atleast another six months of wear to extinguish the habit completely.

2. HAY RAKES:



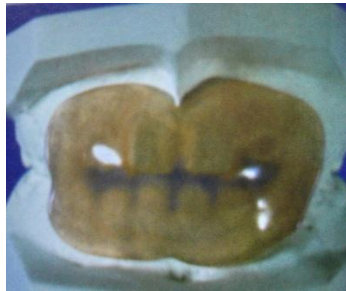
HAY RAKES:

A rake may be a fixed or removable appliance, just as the crib, but has blunt tines or spurs projecting from the cross bars or acrylic retainer into the palatal vault. The tines discourage not only thumb sucking but tongue thrusting and improper swallowing habits as well

The device was called hay rake as it was designed with a series of fence like lines that prevented sucking .

But the disadvantage of this appliance is it punishes rather than reminds the child.

3. ORAL SCREEN



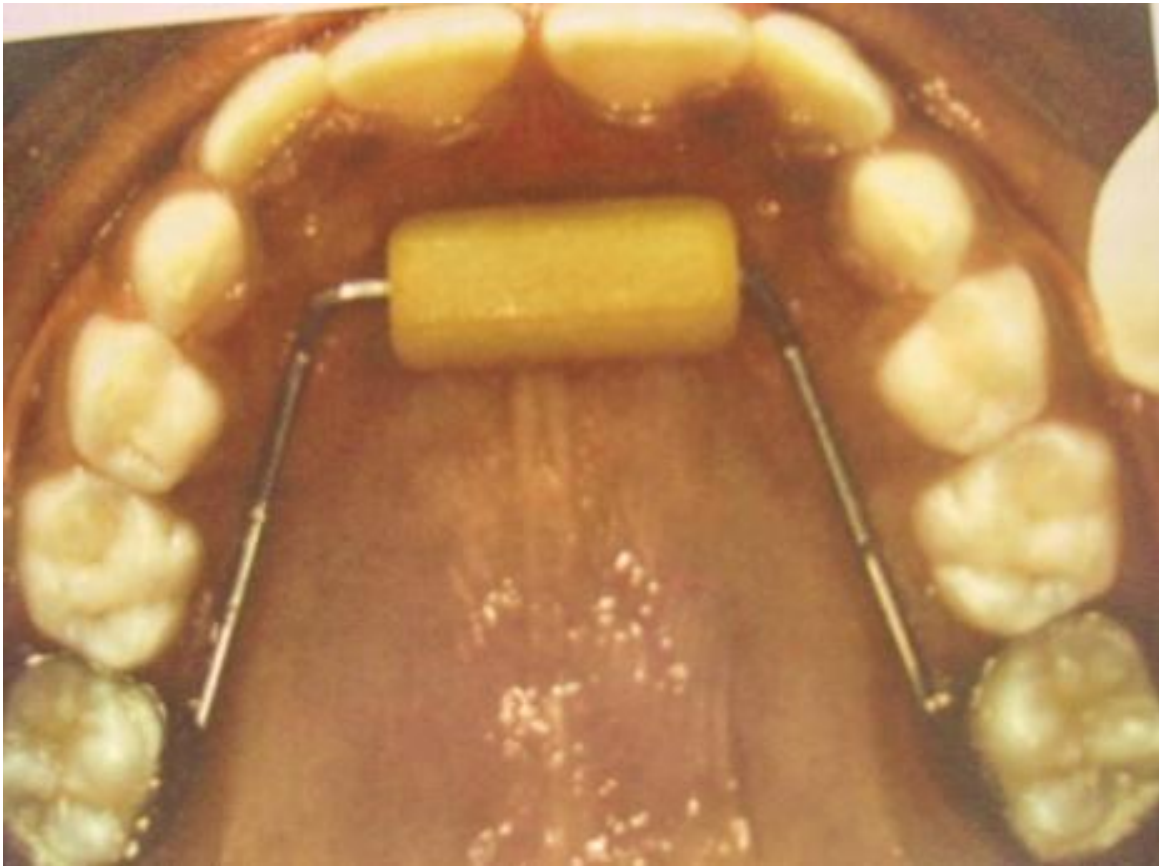
ORAL SCREEN

Oral screen is a functional appliance introduced by Newell in 1912. It produces its effect by redirecting the pressure of the muscular and soft tissue curtain of the cheeks and lips. It prevents the child from placing the thumb or finger into the oral cavity during sleeping hours.

The simplest form of the vestibular screen or shield is a commercially manufactured polyamide or thermoplastic appliance. The appliance can be used to intercept mouthbreathing and some thumbsucking or lip sucking habits. It prevents the development of alveolar protrusions and open bites. The lips exert pressure through the plastic against the anterior part of the dentition and the bony support. The buccal part of the screen is wide enough to keep the pressure off the posterior teeth (2 mm to 3 mm clearance on each side in the first deciduous molar area). The tongue's active function molds the posterior segments and helps to expand narrow dental arches.

:

BLUE GRASS APPLIANCE



BLUE GRASS APPLIANCE

This appliance was developed by Haskel B. S and Mink J.R (1991). Also called as habit correction roller.

This appliance ensures positive reinforcement in the child but also helpful in avoiding physical barriers associated with cribs.

It is indicated for those children who have continued thumb-sucking habit, affecting the mixed or permanent dentition.

The appliance consists of a six-sided roller machined from Teflon . A 0.045 inch stainless steel wire is soldered to molar orthodontic bands. The roller must not be in contact with the palatal tissue so that the patients can roll them with their tongue .The roller is placed in the most superior aspect of the palate.

The bands can be placed on either the maxillary first permanent molars or on the primary second molars. The appliance acts as a reminder and also as a new “toy” with which the children play with the tongue thereby distracting the child from habit.

MODIFIED BLUE GRASS APPLIANCE



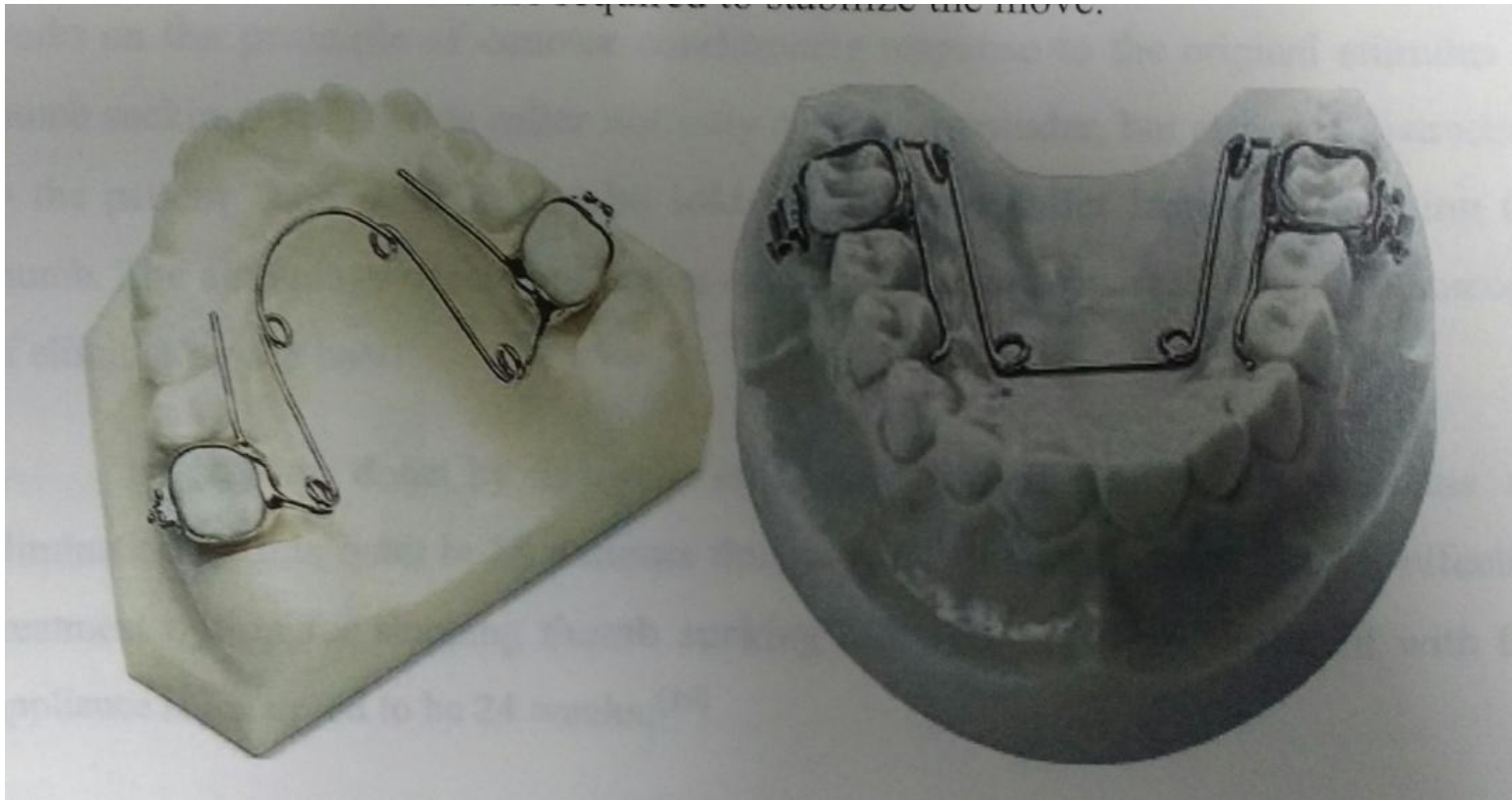
MODIFIED BLUE GRASS APPLIANCE

This is a modification of the original appliance with the difference being that this has two rollers of different colors and material instead of one. If the patient tries to suck on his thumb the suction will not be created and his thumb will slip from the rollers thus breaking the act.

Baker, C.R.N (2000). The design consists of 4 mm acrylic beads made from dental monomer and polymer placed on the cross-palatal wire. The advantages of this design are:

1. It encourages neuromuscular stimulation by using two or more beads
2. Its reduced bulk resulting in less obstruction and more stimulation of tongue function
3. Available in various colors
4. The wire and bands cemented to the second deciduous molars cannot be seen from outside the mouth.
5. The child quickly becomes comfortable with the Bluegrass and enjoys the sensation of the tongue playing with the beads .
6. It is prescribed even for pre school age children and the direction of growth is corrected as early as possible.

QUARD HELIX;



QUARD HELIX;

The quard helix is a fixed appliance commonly used to expand a constricted maxillary arch, a common finding accompanied by posterior cross bite in non-nutritive sucking patients. The helices of the appliance serve to remind the child not to place the finger in the mouth.

The quard helix is a versatile appliance because it can correct a posterior cross bite and discourage a finger habit at the same time

TONGUE TRUSTING HABIT

Tulley (1969)

Tongue thrust is defined as the forward movement of the tongue tip between the teeth to meet the lower lip during deglutition and in sounds of speech, so that the tongue lies interdentially.

NORTON AND GELLIN (1978)

Condition in which the tongue protrudes between anterior and posterior teeth during swallowing with or without affecting tooth position.

Schneider (1982)

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

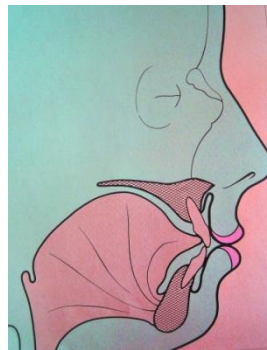
Proffit (2000)

Tongue thrust swallowing is defined as “Placement of the tongue tip forward between incisors during swallowing.”

TYPES OF SWALLOWING PATTERNS

INFANTILE SWALLOW

1. Active contraction of lip muscle.
2. Tongue is placed between the gum pads and tongue tip is brought forward into contact with the lower lip.
3. Little posterior tongue activity.
4. Tongue –to-lower lip posture adopted by infants at rest.
5. Contraction of lip and facial muscles(buccinator) helps to stabilize the mandible.



MATURE SWALLOW

1. Cessation of lip activity i.e lip relaxed
2. Placement of tongue tip against the palate and behind upper incisors.
3. Posterior teeth into occlusion during swallow.
4. Downward and forward man. growth increases intraoral volume and vertical growth of the alveolar process changes the tongue position.
5. Mandible stabilized by contraction of muscles of mastication.



CLASSIFICATION OF TONGUE THRUSTING

BACKLUND (1963)

1.ANTERIOR TONGUE THRUST;

-Forceful anterior thrust



2.POSTERIOR TONGUE THRUST;

-Lateral thrusting in case of missing teeth.



BRAUER and HOLT (1965)

Type 1 – Nondeforming Tongue Thrust (TT)

Type 2 – Deforming Anterior Tongue Thrust

Subgroup 1 –Anterior open bite

Subgroup 2 –Proclination of anterior teeth.

Subgroup 3- Posterior cross bite

Type 3 – Deforming Lateral TongueThrust

Subgroup 1 – Posterior open bite

Subgroup 2 – Posterior cross bite

Subgroup 3 – Deep over bite.

Type 4 – Deforming Anterior and Lateral Tongue Thrust

Subgroup 1 – Anterior and posterior open bite

Subgroup 2 – Proclination of anterior teeth

Subgroup 3 – Posterior cross bite

PICKETT'S (1966)

1. ADAPTIVE TONGUE THRUST

- Tongue adapts to an open bite caused by missing teeth.

2. TRANSITORY TONGUE THRUST

- Tongue is put forward only for a short period. Forceful and rapid.

3. HABITUAL TONGUE THRUST

- Due to a habit or presence of open bite.

MOYER'S (1970)

1. SIMPLE TONGUE THRUST

-Teeth are together.

2. COMPLEX TONGUE THRUST

-Teeth are apart and buccal occlusion is deranged.

3. RETAINED INFANTILE SWALLOW

- Persistence of infantile swallow even after permanent teeth appear.

TANDON (2001)

- **Physiologic**
Normal tongue thrust swallow of infancy.
- **Habitual**
Tongue thrust swallow is present as a habit even after correction of malocclusion.
- **Functional**
When tongue thrust mechanism is an adaptive behavior developed to achieve an oral seal.
- **Anatomic**
Persons having enlarged tongue can have an anterior tongue posture.



SIMPLE TONGUE THRUSTING

1. Open bite is well defined with definite beginning and ending.
2. Mandible is stabilized by muscle of mastication.
3. Facial muscle contraction during swallowing is not seen.
4. Proper, secure, posterior occlusal fit.
5. Usually will have a previous history of thumb sucking.
6. Treatment is simple with less relapse tendency.
7. Occlusal equilibration may be needed.



COMPLEX TONGUE THRUSTING

1. Open bite is diffuse, ill defined.
2. Mandible is stabilized by muscle of lips and cheeks (facial muscle)
3. Facial muscle contraction can be seen during swallowing.
4. No proper posterior occlusal fit.
5. Usually will have history of tonsillitis or airway obstruction.
6. Treatment is difficult with more relapse tendency.
7. Occlusal equilibration is mandatory.

ETIOLOGY OF TONGUE THRUSTING HABIT

1. GENETIC INFLUENCE
2. THUMB SUCKING
3. OPEN SPACES DURING MIXED DENTITION
4. GAP FILLING TENDENCY
5. TONSILS AND ADENOIDS
6. ALLERGIES
7. MACROGLOSSIA AND MICROGLOSSIA
8. ANAESTHETIC THROAT
9. BRAIN INJURY
10. SOFT DIET
11. ORAL TRAUMA

ETIOLOGY OF TONGUE THRUSTING HABIT

According to Barret.H.Richard (1978)

1. GENETIC INFLUENCE

- An inherited variation in oro-facial form that precipitates tongue thrust pattern.
- Inherited anatomic configuration and neuro-muscular interplay generating tongue thrust
- Genetically predetermined pattern of mouth behavior.
- An imbalance between the number or size of the teeth and the size of the oral cavity.

2. THUMB SUCKING

-Tongue thrust habit often accompanies or is a residuum of thumb sucking. This act depresses the tongue and keeps the teeth apart which could also induce malfunctions of the tongue during deglutition.

3.OPEN SPACES DURING MIXED DENTITION

-When a child loses deciduous teeth especially a canine or an incisor, the tongue frequently protrudes into the space at rest, and during speech and swallowing activities.

4. GAP FILLING TENDENCY

-Any space around the dental arches not occupied by teeth will tend to be filled by the tongue partly due to exploratory excursions of the tongue and partly due to prevention of food escaping during deglutition.

5. TONSILS AND ADENOIDS

-The enlarged or inflamed tonsils contribute by fastening a low forward posturing of tongue and the adenoids thereby interfering with free nasal breathing. When both are enlarged, mouth breathing is encouraged which further contributes to forward habitual rest position of the tongue. Also chronically inflamed tonsils causes painful swallowing, resulting in reflex opening of mouth and forward movement of tongue to allow room for passage of food. A new neuromuscular pathway may be established, which continues even after inflammation subsides.

6. ALLERGIES

-Allergies affecting the upper respiratory tract cause their effect on tonsils and adenoid leading to mouth breathing and tongue thrusting.

7. MACROGLOSSIA AND MICROGLOSSIA

- Microglossia; In these situations the tongue is inadequate to fill the oral space resulting in a forward thrusting habit.
- Macroglossia ; Large tongue limits the space in oral cavity and forces a forward thrust.

8. ANAESTHETIC THROAT

- Congenital physiological discrepancy manifested by hyposensitivity of the velum brings about abnormal handling of the bolus of food and thus tongue thrust.

9. BRAIN INJURY

- Birth trauma, mal development of brain and other dysfunctions of the central nervous system have been attributed to the etiology of tongue thrusting. In cerebral palsy and athetosis there may actually be disruption of the pharyngeal stage of swallowing.

10. SOFT DIET

- Oral laxity is encouraged with resulting underdevelopment of orofacial muscles. Although the tongue lies flat from disuse, it spreads between the teeth during deglutition, as it is not restrained in the arch by the emerging contraction of masticatory muscles.

11. ORAL TRAUMA

- A number of patients seen have been mostly adults in whom a traumatic condition has persisted for a sufficient time to effect changes in deglutition.

CLINICAL FEATURES / EFFECTS OF TONGUE THRUST;

EXTRA ORAL FEATURES;

1. Usually dolichocephalic face
2. Increased lower anterior facial height.
3. Incompetent lips.
4. Expressionless face as the mandible is stabilized by facial muscles instead of masticatory muscles during deglutition.
5. Difficulty of speech, especially articulation of s,n,t,d,l,v and z sounds
6. When at rest an open mouth position with a forward tongue posture is noted.
Ex, while watching television or reading a book
7. Lip postutre - Lip seperation is greater in tongue thrust, both at rest and in function.

INTRAORAL FEATURES;

1. Proclined, spaced and flared upper and lower anteriors resulting in increased overjet.
2. Presence of anterior open bite.
3. Presence of posterior cross bite.

DIAGNOSIS

1. Examination of -Size and shape of the tongue.

2. Functional examination

A] Observe the tongue position while the mandible is at rest position.

B] Observe the tongue during various swallows

- Conscious swallow
- Command swallow of saliva
- Command swallow of water
- Conscious swallow during mastication

3. Palpatory examination

A] Place hand over the temporalis muscle and ask to swallow

-Normal; Temporalis contracts and mandible is elevated.

-Tongue thrusting; No temporalis contraction.

B] Hold the lower lip and ask the patient to swallow

-Normal- Swallow can be completed.

-Tongue thrusting- Patient cannot complete swallows.

- C] Place water beneath the patients tongue tip and ask him to swallow
- Normal; Mandible rises and teeth are brought together but no contraction of lips or facial muscles.
 - Tongue thrust; Marked contraction of lips and facial muscles

MANAGEMENT

I] IDENTIFICATION & ELIMINATION OF ETIOLOGY;

Enlarged adenoids/tonsils, general health disorders such as hormonal disorder and neural disorders and mental retardation may cause tongue thrust habit. Such cases have to be identified before attempting the eliminating of tongue thrusting habit.

Referral to ENT surgeon or general physician is mandatory in such situation.

Surgical removal of a triangular wedge from the anterior part of the tongue in case of Macroglossia.

II] EDUCATION AND MOTIVATION OF PARENT AND CHILD;

- It is important that both the parents and child understand that tongue thrusting can affect the dentition and aesthetics.
- It is equally important to explain in the simple terms about the consequences of leaving the habit untreated and the action of appliance in eliminating the habit.

III] MYOFUNCTIONAL THERAPY;

1.Practice of swallow

**2.Re-education of the tongue posture with
the use of sugarless mint/candy**

- 3. Barnett's tongue positioning exercise;**
- 4. Single elastic swallow;**
- 5. Double elastic swallow;**
- 6. 4 S Exercise**
- 7. Peanut and elastic band**
- 8. Lip exercises;**
- Button aided exercise;**
- 9. Other exercises;**

III] MYOFUNCTIONAL THERAPY;

- 1. Re-education of the tongue posture with the use of sugarless mint/candy;** A flat sugarless candy is placed at the tip of the tongue and the child is asked to hold the tip of the tongue against the palate until the candy melts. This exercise re -educates the tongue to a correct posture.
- 2. Practice of swallow** correctly 20 times before meals with water in the mouth and mirror in hand.

3. Barnett's tongue positioning exercise;

- a] Identify the incisal papilla as the spot behind the front teeth.
- b] Practice touching the spot with tongue tip.
- C] Swallow with lips and teeth closed and tongue tip touching the incisal papilla.
- d] This exercise is repeated 20-30 times twice or thrice a day.

4. Single elastic swallow; Tongue tip is held against the palate with orthodontic elastic of 5/16" placed at the tip and the child is asked to swallow. This exercise is repeated 20-30 times twice or thrice a day

5. Double elastic swallow; Place one elastic at the tip and middle of the tongue contact with tip and mid part of palate and the child is asked to swallow. The purpose is to force the anterior and midpoint of the tongue to proper position on the hard palate during swallowing. This exercise is repeated 20-30 times twice or thrice a day

6. 4 S Exercise; This exercise involves four steps, namely spot, squeeze, salivate and swallow. The child is first taught about the ideal spot for posturing tongue tip at rest. The child is then taught to place the tip of the tongue in that spot and squeeze the spot. With the tongue held in the same spot and position, the child is instructed to salivate and swallow the saliva.

7. Peanut and elastic band; Patient is asked to chew the peanuts but not swallow it. The chewed peanut is placed at the middle of the tongue.

- Place elastic at the tip of tongue

- Instruct the practice of swallow

8. Lip Exercise

Button aided exercise; A firm thread with a button attached to each of its two ends is used for the exercise. One button is held in the mouth with the help of upper and lower lip. The other button is held with hand. A pull is exerted to bring out the button from the mouth, while the circumoral muscles contract and try to hold it back.

9. Other exercises; The child is asked to perform a series of exercise such as whistling, reciting the count from 60 to 69, gargling, yawning, etc to tone the respective muscles.

IV] MECHANOTHERAPY;

Both fixed and removable appliances can be fabricated to restrain anterior tongue movement during swallowing with the objective of retraining the tongue to a more posterior superior position in the oral cavity.

All form of habit breaking appliances have some form of physical obstruction to the forceful anterior movement of tongue during thrusting. These appliances tend to force the tongue downward and backward during swallowing.

A] ORAL SCREEN



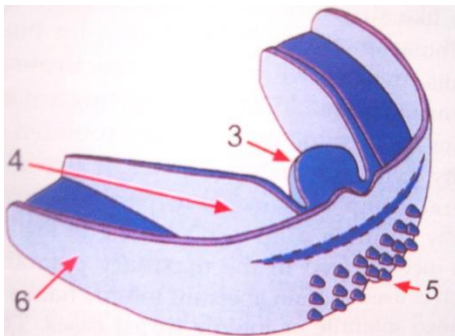
B] TONGUE CRIB OR RAKES

The spurs and cribs which are placed palatally acts to wall off the tongue during thrusting. The appliance also conditions the reflexes and guides the tongue position so that the dorsum of the tongue approximates the palatal vault and the tip of the tongue contracts the palatal rugae during deglutition. As a result the tongue spreads laterally and exerts pressure and the maxillary buccal portion is widened thereby preventing the narrowing of the arch.



C] PREORTHODONTIC TRAINER;

This appliance aids in correct position of the tongue with the help of the tongue tag. The tongue guards prevent the tongue thrusting when in placed .

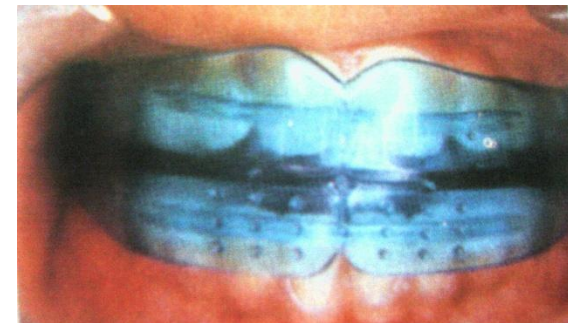


3. Tongue tag

4. Tongue guard

5. Lip Bumpers

6. Enables jaw
positioning into



LIP HABITS

- Habits that involve manipulation of the lips and perioral structures are called lip habits.
- The lip habits commonly practised are lip licking, lip pulling, lip sucking, lip biting, wedging the lips forcefully between the upper and lower teeth or mentalis habit..

LIP LICKING:

- Lip licking is relatively benign habits as far as dental effects are concerned.
- This type of lip habit does not contribute significantly to malocclusion.

CLINICAL FEATURE; Red inflamed and chapped area below the vermillion border and the vermillion border may be relocated farther outside the mouth due to constant wetting of the lips.

TREATMENT:

- The primary treatment is to institute a closed mouth resting posture.
- It is helpful to keep the entire outer surface of the lip constantly wet with a cream or lubricating ointment.

LIP SUCKING AND MENTALIS HABIT



LIP SUCKING AND MENTALIS HABIT:

- It is often an advanced stage of lip licking.



- In many instances the lip sucking habit is a compensatory activity that results from excessive overjet and the relative difficulty of closing the lips properly during deglutition.

- The most common presentation of lip sucking is the lower lip tucked behind the maxillary incisors. This places a lingually directed force on the mandibular teeth and a facial force on the maxillary teeth. The result is a proclination of maxillary incisors, a retroclination of the mandibular incisors and, increased overjet



- An important variation of lip sucking is the mentalis habit. The mentalis muscle originates on the labial surface of the mandible in the area of the apices of the mandibular incisors. Its fibers extend inferiorly, crossing over the midline and inserting into the soft tissue of the chin. Their function is to lift the lower lip. When this muscle is flexed, the skin of the chin will appear puckered.
- The difference between lip sucking and mentalis habits is that in lip sucking, the entire lip including the vermilion border is pulled into the mouth whereas in the mentalis habit, the vermilion border of the lower lip is often everted, with the lingual aspect elevated into the mouth. Along with the lower lip eversion, a sub labial contracture line develops between lip and chin, causing the skin of the chin to appear puckered.

ETIOLOGY;

1. Malocclusion

In Angle's Class II division I with a large over bite and overjet, this habit develops when the child wants to produce a normal lip seal during swallowing by placing the lower lip behind the maxillary incisors.

2. Habits

The digit habit may result in a large over bite and overjet situation and the child will again attempt to create a lip seal by placing the lower lip directly behind the maxillary incisors.

3. Emotional stress

Children in stressful situations have an increased salivary output, thus increasing the number of swallows and lip seals required. Occasionally the habit may become a compulsive and gratificational activity during sleep.

4. Cases of of mentalis muscle hyperactivity.

CLINICAL FEATURES

Maxillary incisors move labially with interdental spacing and lower incisors to collapse lingually with crowding.

In a Class II Div.1 malocclusion, the existing overjet may be increased.

Lip sucking is characterized by a reddened, inflamed and chapped area below the vermilion border.

A chronic herpes infection with areas of irritation and cracking of lip may appear.

TREATMENT:

1. CORRECTION OF MALOCCLUSION:

- a. Class II division I malocclusion or an excessive overjet problem:
- b. Class I malocclusion with increased overjet:
A fixed or removable appliance is used to tip the teeth back.
- c. Class II malocclusion:
Growth modification procedures are used to treat malocclusion. If the child has an uncrowded early mixed dentition, an activator may be placed in an attempt to reposition the maxilla to the mandible in a favourable position and allow the child to have a more normal lip seal.

2. TREATING THE PRIMARY HABIT:

3. APPLIANCE THERAPY:

ORAL SCREEN:



4. LIP BUMPER;





LIP BUMPER:

The lip bumper can be fixed/semifixed or removable appliance

The lip bumper is positioned in the vestibule of the mandibular arch and serves to prohibit the lip from exerting excessive force on the mandibular incisors and to reposition the lip away from the lingual aspect of the maxillary incisors. This enables the distal repositioning of the maxillary incisors resulting in a decreased overjet and over bite

- Since it is the lower lip, by virtue of the hyperactive mentalis muscle, that does the most damage, the lip bumper is usually made for the mandibular arch.

LIP BITING

In rare instances, the lip habit affects only a portion of the anterior teeth. A habit of biting only half the lower lip may cause the central and lateral incisors to be pushed out of proper alignment or if the central incisor is labially placed then a habit develops where the child places his lips between the teeth causing the lateral on the affected side to assume a like position.

TREATMENT:

Keeping the exterior of the lip coated with a lubricating ointment or paste. A lip bumper is also recommended to prevent this habit.

CHEEK BITING: (Morsicatio Buccarum)



CHEEK BITING: (Morsicatio Buccarum)

Is the placement/ interposition of the soft tissues and buccal pad of fat between occlusal surfaces of maxillary and mandibular teeth.

Linea Alba Buccalis is seen as a white line along the line of occlusion. It appears white because of the absorption of water from saliva or it is sometimes seen as a shelf of buccal tissue that forms and hardens into a fibrous ridge. There may even be an ulcer.

It is more likely to be seen in children with bucco version of molars, buccal nonocclusion, flabby cheeks, and atrophy of muscles seen in paralysis and emotional stress.



MANAGEMENT;

1. The child who indulges in cheek biting is usually undergoing emotional stress, which is frequently the result of unhappiness and conflict in the home. Before treating the malocclusion the child should be referred to the psychologist or family counselor.
2. The cause of cheek biting should be identified, as in many cases it may be purely a nervous habit. Symptomatic relief can be achieved with topical anaesthetic agents and analgesics.
3. When a persistent cheek biting habit exists a vestibular or oral screen may be used.

4. CHEEK PLUMPER



FIG - 27 - PARTS OF THE FABRICATED APPLIANCE



FIG - 28 - ARTICULATED FINAL TRIMMED APPLIANCE



FIG - 29 - REFLECTED BUCCAL MUCOSA WITH BUCCAL SHIELDS

NAIL BITING HABIT(ONYCHOPHAGIA)

- It is a common stress- relieving oral habit.
- Seen both in children and young adults.
- It includes biting the cuticle and soft tissue surrounding the nail as well as biting the nail itself.
- Most cases of nail biting is seen between 4 and 6 years, it stabilizes from 7 to 10 and increases considerably during adolescence.

ETIOLOGY;

1. Insecurity
2. Psychosomatic successor of thumb sucking
3. Nervous tension

EFFECTS;

1. Crowding, rotation and alteration of incisal edges of incisors.
2. Inflammation of the nail bed.

MANAGEMENT;

1. Patient is made aware of the problem.
2. Treat the basic emotional factors causing the act.
3. Encouraging outdoor activities may help in easing tension.
4. Application of nail polish, cotton mittens as reminder.

SELF INJURIOUS HABITS

SELF INJURIOUS HABITS (SADOMASOCHISTIC, SELF-MUTILATION, MASOCHISTIC HABITS)

Self-injurious behaviour or self mutilation has been defined as the deliberate destruction or alteration of body tissue without conscious suicidal intent and occurs in conjunction with a variety of psychiatric disorders as well as various developmental disabilities and some syndromes.

Repetitive acts that result in physical damage to the person. e.g, pricking of gingiva with fingernails (gingival stripping), chewing the inside of cheek, lip or tongue (Schoenwetter, 1975).

CLASSIFICATION;

1. ORGANIC;

In organic mutilation, the person injures himself unknowingly, unintentionally and compulsively .

2. FUNCTIONAL;

Functional mutilation is performed as a response to certain stimuli

It is generally divided into three subcategories;

- a. Mutilation motivated by and sustained by secondary gain
- b. Factitial or neurotic self excoriations
- c. Self mutilation during psychotic episodes

STEWART AND KERNOHAN;

1. Type A ; injuries are superimposed on a pre-existing conditions, such as herpetic lesions or localized gingival infection.
2. Type B; injuries are secondary to established habits, such as finger sucking.
3. Type C; injuries have unknown or complex etiologies. These would include injuries due to psychological problems.

ETIOLOGY;

1. Genetic, biochemical, or enzymatic deficiencies .
Ex. Lesch-nyhan syndrome, Tourettes syndrome, Stereotypic movement disorder, Borderline personality disorder, Pervasive developmental disorders, Schizophrenia.
2. Mental retardation
3. Sensory neuropathies ; Sensory loss of pain sensation in anesthesia dolorosa.
4. Infectious disease such as encephalitis.
5. Psychological problems.

TREATMENT;

1. PHYSICAL RESTRAINTS;

Includes arm boards, facial masks, helmets, mouth guards, protective paddings.

2. Psychotherapy ; Some children experiences a feeling of neglect and loneliness and thus use this behaviour in an attempt to solicit attention and love.

3. Pharmacological