

ORAL HABITS IN CHILDREN

GENERAL CONSIDERATIONS

- The presence of an oral habit is an important finding during the clinical examination especially in the 3-6-year-old child.
- If a habit that causes dental changes is not eliminated before permanent teeth erupt, they will almost certainly be affected.
- The most important thing to remember about intervention is that the child must want to discontinue the habit.

DEFINITIONS

- **Butterworth (1961)** defined habit as a frequent and constant practice, acquired tendency, which has been fixed by frequent repetition.
- **Moyers (1988)** has defined all habits as learned patterns of muscle contraction of a very complex nature.

TRIDENT OF HABITS

- **Intensity, duration, and frequency** of the habit play an important role in defining the severity of habit outcomes
- **Duration** plays the most important role in abnormal tooth movement!!

CLASSIFICATION

William James (1923)	1. Useful Habits 2. Harmful Habits
Kingsley (1958)	1. Functional oral Habit – Mouth breathing 2. Muscular Habit – Tongue thrusting, lip biting 3. Combined Muscular action – Finger sucking, thumb sucking, dummy sucking
Morris and Bohanna (1969)	1. Pressure Habits 2. Non-Pressure Habits 3. Biting Habits
Klein (1971)	1. Meaningful Habits 2. Empty Habits
Finn (1987)	1. Non-Compulsive Oral Habit 2. Compulsive Oral Habit

THUMB SUCKING

- Thumb sucking can be defined as placement of the thumb into various depths into the mouth.
- Thumb sucking, and finger sucking can more generally be termed as Digit Sucking.

Classification – I

1. Normal Thumb Sucking

- The thumb sucking habit is considered normal up to the third year of life.
- As child matures such a habit will usually see to disappear.

2. Abnormal Thumb Sucking

- When thumb-sucking habit persists beyond the preschool period then it could be considered as an abnormal habit.
- This can again be divided into:
 - i. *Psychological*
 - The habit may have a deep-rooted emotional factor involved and may be associated with insecurities, neglect or loneliness experienced by the child.
 - ii. *Habitual*
 - The habit does not have a psychological bearing however the child performs the act out of habit.

Classification – II

1. *Nutritive sucking habits* – Ex: Breast feeding, bottle feeding
2. *Non-nutritive sucking habits (NUNS habits)* – Ex: Thumb or finger sucking, pacifier sucking

Concepts of Thumb Sucking

1. Classical Freudian theory- habit is associated with pleasurable stimuli early in life
2. Oral drive theory- prolongation of nursing strengthens the oral drive and the child begins thumb sucking.
3. Rooting reflex- thumb sucking arises from the rooting and placing reflexes common to all mammalian infants. This rooting reflex is the movement of an infant's head and tongue towards a stimulus touching the infant's cheek.
4. Learning theory –Habit results from adaptive response (e.g. an infant associate sucking with pleasurable feelings like satiety and being held. These events will be recalled by transferring the sucking action to the most suitable object available (thumb/finger).

Clinical Features

- Maxillary anterior proclination and mandibular retroclination
- The anterior open bite
- Constriction of maxillary arch
- Posterior cross bite

Treatment

1. Psychological Therapy

- *Dunlop's beta hypothesis*: Forced purposeful repetition of a habit eventually associates it with unpleasant reactions and the habit is abandoned. The child should be made to sit in front of a mirror and asked to suck his thumb observing himself as he involves in the habit

2. Reminder Therapy

Extra Oral Approaches

- *Distasteful Agents*: For example, Cayenne pepper, quinine, asafoetida. This is effective only during initial stages of the habit, when it is not firmly entrenched.
- *Thumb Cap*: Thumb sucking habit corrected with thumb cap, Bandages, Gloves, and Long Sleeved High necked Gowns.
- *Thermoplastic thumb post* was derived by **Allen in 1991** where a thermoplastic material was placed on the offending digit. To eliminate the habit a total of 6 weeks of treatment time is required.

Intra Oral Approaches

- Various orthodontic appliances are used to break the habit.
 - i. *Removable appliances* used may be palatal crib, rakes, palatal arch, lingual spurs, and Hawley's retainer with and without spurs.
 - ii. *Fixed appliances*
 - *Fixed intra-oral anti thumb sucking appliance: Blue grass appliance*: Haskell (1991) introduced this appliance. It consists of a modified six sides roller machined from Teflon to permit purchase of the tongue.
 - *Quad helix*: This appliance prevents the thumb from being inserted and also corrects the malocclusion by expanding the arch.

Current approaches

- Thumb home concept
- Three alarm system
- Thumb sucking book

TONGUE THRUSTING

Classification

1. *Physiologic*: This includes of the normal tongue thrust swallow of infancy.
2. *Habitual*: Even after correction of malocclusion, the tongue thrust swallow is present as a habit.
3. *Functional*: Tongue thrust is an adaptive behavior developed to achieve an oral seal.
4. *Anatomic*: Persons having enlarged tongue can have an anterior tongue posture.

Etiology

- The cause of tongue thrust remains controversial.
- Several causes:
 - Retained infantile swallow
 - Upper respiratory tract infections such as mouth breathing, chronic tonsillitis, allergies, etc. promote a more forward tongue posture.
 - Neurological disturbances
 - The tongue can protrude when the incisors are missing.
 - Induced due to other oral habits
 - During initial stages of child development, thumb and finger sucking habits may still be prevalent in many children. When there is malocclusion such as an anterior open bite due to this habit, the tongue is seen to protrude between the anterior teeth.
 - Hereditary - For example, inherited hyperactivity of orbicularis oris with specific anatomic configuration and neuromuscular activity.

Clinical Features

Extra Oral Findings

- Lip separation is greater in the tongue thrust group
- Child may have various speech disorders, such as sibilant distortions, lispings, problems in articulation of /s/, /n/, /t/, /d/, /l/, /th/, /z/, /v/ sounds.
- Increase in anterior face height

Intra Oral Findings

- Various malocclusions occur due to tongue thrust. These can further be subdivided as
 - Features pertaining to the maxilla
 - Proclination of maxillary anteriors resulting in an increase in overjet
 - Generalized spacing between the teeth
 - Maxillary constriction
 - Features pertaining to the mandible
 - Retroclination or proclination of mandibular teeth depending on the type of tongue thrust present.
 - Intermaxillary relationships
 - Anterior or posterior open bite based on the posture of the tongue
 - Posterior teeth crossbite

Treatment

- Correct swallowing pattern and tongue posture should be trained.
- Myotherapeutic exercises
 - The child is asked to place the tip of the tongue in the rugae area for 5 minutes and is asked to swallow.
 - Orthodontic elastic and sugarless fruit drop exercise, which are held by the tongue tip against the palatal rugae area during swallowing.
 - **4S exercises**: This includes identifying the spot, salivating, squeezing the spot and swallowing.

- Other exercises. The child is asked to perform a series of exercises such as whistling, reciting the count from sixty to sixty-nine, gargling, yawning, etc, to tone the respective muscles.
- Removable appliance therapy
 - Hawley's appliance with tongue cribs can be used to treat tongue thrust.
- Fixed Habit Breaking appliance
 - Three or four 'V' shaped projections extending downwards to a point just behind the cingulum of the mandibular incisors are made with the arms of the crib soldered to the base bar connecting the upper first permanent molars.
- Modified Oral screen
 - The abnormal muscle forces can be intercepted and channeled into beneficial activity using an oral screen with an acrylic or wire loop barrier to prevent tongue thrusting.
- Correction of malocclusion
 - If the anterior tongue placement is the result of adaptation to the previously existing anterior open bite, the solution is a correction of the malocclusion. Upon resolution of the malocclusion the tongue usually changes its swallow pattern and adapts to the new tooth position.
- Surgical treatment
 - The treatment of the retained infantile swallow behavior is difficult and often consists of orthognathic surgical procedures to correct the skeletal malformation as well as myofunctional therapy.
- Newer concept
 - Galella habit breaking appliance

MOUTH BREATHING

Classification

1. **Anatomic**
 - It is the one with short upper lip that does not allow complete closure of mouth without undue effort.
2. **Obstructive**
 - Increased resistance to, or a complete obstruction of the normal air flow through upper respiratory tract.
3. **Habitual**
 - It is the one who continuously breathes through his mouth due to habit.

Etiology

1. Deviated septum and other nasopharyngeal deformities
2. Allergic rhinitis, nasal polyps and Enlarged adenoids or tonsils
3. Abnormally short upper lip preventing proper lip seal
4. Obstructive sleep apnea syndrome
5. Genetically predisposed individuals like Ectomorphic children (they have tapering face and nasopharynx which are prone for nasal obstruction)

Clinical Features

- *Adenoid facies*: A facial form most commonly seen with mouth breather characterized by a long narrow face with narrow nose and nasal passages, flaccid lower lips with the upper lip being short and dolicofacial skeletal patterns
- *Dental effects*
 - Posterior cross bites and Open bite
 - Flaring of incisors and a decrease in the vertical overlap of the anterior teeth
 - Speech defects: Nasal tone in voice may be seen
 - Lip: short thick incompetent upper lip and a voluminous curled over lower lip.
 - External nares: Slit like external nares with a narrow nose.
 - Gingiva: an inflamed and irritated gingival tissue in the anterior maxillary arch.

Clinical Tests

1. Mirror test (Fog test)
 - Hold a mouth mirror alternately in front of the nostrils and the mouth and observe for condensation of moisture. In a nasal breather, it gets clouded when held in front of the nostril. In a mouth breather, it gets clouded when held in the mouth.
2. Butterfly test (Massler and Zwemer)
 - The patient is asked to close his eyes and a piece of cotton spread in the form of a butterfly on the upper lip in front of the nostrils is placed
 - No movement of cotton: patient is mouth breather.
3. Water holding test (Massler)
 - Ask the patient to fill his mouth with water and hold for 1 minute without swallowing. A nasal breather can hold the water comfortably.
 - A mouth breather cannot hold the water continuously for a minute.

Treatment

1. *Elimination of the cause*
 - Removal of obstruction in upper respiratory tract by surgery or local medication. If a respiratory allergy is present, this should be treated and control.
2. *Interception of the habit*
 - Even after elimination of cause, if the habit persists then it should be corrected.
 - Correction can be obtained by following ways:
 - Exercises
 - If there is no physiologic cause the patient should be instructed in breathing and lip exercises.
 - Lip exercises
 - The child is instructed to extend the upper lip as far as possible to cover the vermilion border under and behind the maxillary incisors for about 15-30 minutes a day for a period of 4-5 months in the case of a short upper lip.
 - Oral Screen (most Effective way)

BRUXISM

Etiology

1. Psychological factors: like stress
2. Systemic factors: Nutritional deficiencies like Calcium, magnesium and vitamin deficiencies, Intestinal parasite infection
3. Local Factors: Improper interdigitation of teeth and occlusal abnormalities
4. Occupational factors - An over enthusiastic student or compulsive overachievers may also develop the habit.

Manifestations

1. Occlusal Trauma leads to periodontal structures and alveolar bone loss.
2. Tooth structure: Increased tooth sensitivity, Sometimes, the pulp may be exposed to attrition leading to a dental abscess.
3. Muscular tenderness: Hypertrophy of the masseter muscle unilaterally/bilaterally
4. TMJ disorders: TMJ disturbances and pain
5. Headache

Treatment

1. Occlusal adjustments
2. Occlusal splints
 - Vulcanite splints have been recommended to cover the occlusal surfaces of all the teeth as treatment for bruxism.

- TMJ Appliance: It is a prefabricated intra oral appliance designed mainly for the treatment of TMJ disorders.
- 3. Restorative treatment
 - If the abrasion is so severe that penetration into the pulp chamber is imminent, pulpal therapy with full coverage stainless steel crown is indicated.
- 4. Psychotherapy
 - Counselling the patient can lead to a decrease in tension and create habit awareness.
- 5. Physical therapy
- 6. Drugs
 - Local anesthetic injections directly into the TMJ or into the muscles, tranquilizers and sedatives and muscle relaxants are used. Placebos may be used to rule out psychological etiology.

LIP HABITS

Classification

1. Lip Wetting with the tongue
2. Lip Sucking or pulling (Schneider 1982)

Etiology

1. Malocclusion (Class II division 1)
2. Associated with other Habits
3. Stress

Clinical Manifestations

- Protruded maxillary incisors and retruded mandibular incisors
- Lip-biting habit
 - It will cause maxillary incisors to move labially and upward with interdental spacing and lower incisors to collapse lingually with crowding.
- Lip-sucking
 - Lip sucking can be recognized by reddened irritated and chapped area below the vermilion border.
 - The Mentolabial sulcus becomes accentuated

Treatment

1. Correction of malocclusion
2. Treating the primary habit
3. Appliance therapy - Oral shield, Lip bumper

NAIL BITING

- Nail biting is the commonest form of habit seen in children and adults. It can be due to internal tension.

Age of occurrence

- The incidence rises sharply from 4-6 years and remains at a constant level between 7 and 10 year and rises again to a peak during adolescence.

Etiology

- Emotional problems can lead to Persistent nail biting.

Effects

- The common effects of nail biting on the teeth are crowding, rotation and attrition of incisal edges of the incisors (mandibular)
- Nail and nail beds get inflamed

Management

- Mild cases no treatment is indicated
- Treat the child emotional problems that are responsible for the act
- Encourage activities which help in reliving the tension
- Application of remainder agent like nail polish, light cotton mittens.

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

- Masochistic habits are those acts that result in physically damage the person.
 Eg. Stripping of gingiva due to pricking at gingival margin by finger nails (gingival stripping); chewing inside of cheek, lip or on tongue.
- Extremely rare in normal child, between 10-20% in mentally retarded population
- It is a self-destructive habit in which the sufferer derives pleasure from his own pain.

Classification

1. Organic Syndromes such as Lesch – Nyhan and Delange’s have been associated with self-mutilation such as repetitive lip, tongue, finger, knee and shoulder biting.
2. Functional: **Type A** are injuries superimposed on a preexisting lesion. e.g. a skin lesion occurs by repeated skin biting habit.
 - **Type B** are injuries that occur to another established habit e.g. rotating the thumb during sucking, which can hurt soft tissues.
 - **Type C** are injuries of unknown or complex etiology and will help in release of stress

Treatment

Psychotherapy

- Palliative treatment
- Adjunctive therapy can be done like bandages for oral ulcerations which help in wound healing as well as serve as a habit reminder.

Mechanotherapy

- An oral shield will also help the child from the unconscious continuation of the habit. Use of restraints and protective padding can also be use in severe cases.



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- B. Bruxism and mouth breathing
C. Cheek, lip and nail biting
D. All the Above
2. **Cribs can serve**
A. To make the habit non-pleasurable for the patient
B. To remind the patient that he is indulging in the habit
C. To break the suction and force on the anterior segment
D. All of the above
3. **The oral screen**
A. Allows the passage of air through the mouth and nares
B. Allows for the passage of air through the mouth
C. Causes the child to breathe through the nose
D. Prevents the passage of air through the nares
4. **Bruxism**
A. The etiology is epilepsy
B. Is due to gastrointestinal disease
C. The etiology is obscure
D. The etiology is not obscure
5. **At some time thumb sucking is noted in**
A. All
B. Over 50%
C. 10 to 50%
D. Under 10%
6. **How long should a palatal crib be worn by a patient being treated for thumb sucking?**
A. One month
B. Three months
C. Six months to one year
D. Two to three years
7. **Children suck their thumb or finger?**
A. When they are hungry
B. When they are afraid
C. After taking food
D. All of the above
8. **Thumb sucking habit is considered normal upto**
A. 1 – 2 years of age
B. 2 – 5 years of age
C. 2 1/2 – 3 years of age
D. 5 – 6 years of age
9. **Effect of thumb sucking on the maxilla is**
A. Open bite with increased proclination of maxillary incisors
B. Arch length of maxilla is increased
C. Over jet is increased and the overbite is decreased
D. All of the above
10. **Effect of thumb sucking on the mandible is**
A. Lingual inclination of mandibular incisors
B. Labial inclination of mandibular incisors
C. Arch length is increased
D. Mandibular inter molar distance is decreased
11. **Due to the habit of mouth breathing**
A. Lower lip becomes hypoactive
B. Lower lip becomes hyperactive
C. Both lips becomes hypoactive
D. Upper lip becomes hyperactive
12. **Management of thumb sucking habit**
A. Should be started at the age of 4 years
B. Should be started at the age of 6 years
C. Should be started at the age of 8 years
D. Should be started at the age of 10 years
13. **Management of thumb sucking habit is done by**
A. Psychological approach
B. Chemical approach
C. Mechanical aids
D. All of the above
14. **Etiology of mouth breathing is**
A. Rhinitis and sinusitis
B. Over eruption of lower anterior teeth touching the palatal mucosa
C. Reduced size of airway due to deviated nasal septum
D. All of the above
15. **Clinical feature of mouth breathing is**
A. Pigeon face appearance
B. 'V' shaped upper arch
C. Short and flaccid upper lip
D. All of the above
16. **Effect of long – term tongue thrusting is**
A. Proclination of anterior teeth
B. Bimaxillary protrusion

- C. Posterior cross bite
- D. All of the above

Learning theory

Oral drive theory

17. Bruxism is seen in

- A. Chorea
- B. Epilepsy
- C. G.I.T. disturbances
- D. All of the above

8. C
 Shobha Tandon Pg 437 I edition

9. D
 Shobha Tandon Pg 436 I edition

18. In cases of bruxism, the appliance usually given in childhood is

- A. Activator (Passive)
- B. Hawley's appliance
- C. Bite plate
- D. Bionator

10. A
 Shobha Tandon Pg 436 I edition

11. B
 Shobha Tandon Pg 447 I edition

Answers

1. D
 Shobha Tandon Pg 428 I edition

2. B
 Shobha Tandon Pg 438 I edition

3. C
 Shobha Tandon Pg 450 I edition
 Oral screen is an effective method to re-establish nasal breathing and to prevent air entry into the oral cavity.

12. A
 Shobha Tandon Pg 437 I edition

13. D
 Shobha Tandon Pg 437, 438, 439 I edition

14. D
 Shobha Tandon Pg 446 I edition

15. D
 Shobha Tandon Pg 447 I edition
 Adenoid facies
 Long narrow face, flaccid lips, narrow nose passages, expressionless face

4. C
 Shobha Tandon Pg 451 I edition

5. C

16. D
 Shobha Tandon Pg 441 I edition

6. C

17. D
 Shobha Tandon Pg 451, 452 I edition

7. D
 Shobha Tandon Pg 430 I edition
 This is explained by the theories
 Classical freud theory

18. C
 Shobha Tandon Pg 453 I edition

