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## HABITS THAT INFLUENCE THE PERIODONTIUM- A REVIEW

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### Abstract

Periodontitis is one of the most common oral disease affecting worldwide. It is characterized by breakdown of supporting structures of the teeth. Bruxism, tongue thrusting, mouth breathing are known major risk factors of periodontitis. Habits and behaviors to life circumstances affect the immune system and thereby systemic and oral health. Assessment of such risk factors and their management should be a vital part of periodontal therapy.

**Keywords:** Habits, Periodontitis, Bruxism, Tongue thrusting, Mouth breathing.

## INTRODUCTION

Periodontitis is one of the most common oral disease affecting worldwide <sup>1</sup>. Genetics and environmental and behavioral factors involved in the development of periodontitis. Severe periodontitis lead to tooth loss in adults <sup>2</sup>.

Bruxism, tongue thrusting and mouth breathing are the functional habits causing periodontitis.

## HABITS

### Definition

Dorland(1957): Habit can be defined as a fixed or constant practice established by frequent repetition.<sup>3</sup>

Classification<sup>3</sup> -Table :1

Obsessive(Deep rooted)	
A.Intentional or meaningful	Nail biting Digit sucking Lip biting
B.Masochistic or self inflicting injurious habits	Gingival stripping
Non obsessive (Easily learned and dropped)	
A.Unintentional or empty	Abnormal pillowing Chin propping

B.Functional habits	Bruxism Tongue Thrusting Mouth Breathing
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Table 1: Classification of Habits

Habits are actions that are triggered automatically in response to contextual cues that have been associated with their performance <sup>4</sup>. Various health impairing behavior which affects periodontitis are discussed in this review article ;

- Mouth breathing
- Bruxism
- Tongue thrusting

## PERIODONTITIS

Periodontitis affects the tissues surrounding the tooth structures. All the cases of gingivitis do not progress into cases of periodontitis as its depends on the host response.<sup>5</sup>

### 1. Mouth breathing

#### Definition

Sassouni (1971): Defined mouth breathing as habitual respiration through the mouth instead of the nose. Merle (1980) suggested the term oronasal breathing instead of mouth breathing<sup>3</sup>.

#### Classification

Fin(1987) has classified mouth breathing into:

##### A. Anatomic

The anatomic mouth breather is the one whose short upper lip does not permit complete closure without undue effort.

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### B. Obstructive

Children who have an increased resistance to, or a complete obstruction of, the normal flow of air through the nasal passages. The child is forced by sheer necessity to breathe through the mouth.

### C. Habitual

Habitual mouth breather is a child who continually breath through his mouth by force of habit, although the abnormal obstruction has been removed.

#### Etiology

Most of the children suffer from some degree of nasal insufficiency.

Allergies, physical obstructions and chronic infections cause many children to breathe through the mouth.

This airway obstruction may be due to:

- Enlarged turbinates
- Deviated septum and other nasopharyngeal deformities
- Allergic rhinitis, nasal polyps
- Enlarged adenoids or tonsils
- Abnormally short upper lip preventing proper lip seal
- Obstruction in the bronchial tree or larynx
- Obstructive sleep apnea syndrome
- Genetically predisposed individuals

Thumb sucking or similar oral habits can be the instigating agent<sup>3</sup>.

#### Effects on dentofacial structures

Facial form: Patients who mouth breathe due to hypertrophied lymphoid tissue display a tendency towards a more vertical growth pattern. Cephalometric analysis of such patients reveals an increased facial height. Increased mandibular plane angle, retrognathic maxilla and mandible. Allergic children tend to have an increased anterior face height.

Adenoid facies is a particular type of facial configuration frequently associated with mouth breathing. Short upper lip and dolicofacial skeletal patterns are noted. The buccal segments of the maxilla are collapsed, leading to 'V' shape and high palatal vault.<sup>3</sup>

Dental effects: The upper and lower incisor are also retroclined, posterior cross-bites are present and there is a tendency towards an open bite. This is due to the low set position of the tongue in order to allow an adequate inflow of air through the mouth. Thus, an imbalance of force exerted by the tongue and facial musculature on the maxilla leads to constricted maxillary arch. There can also be flaring of anteriors and increase in the vertical overlap of the anterior teeth.

Speech defects: Abnormalities of the oral and nasal structures can seriously compromise speech performances. Nasal tone in voice is seen.

Lip: These patients frequently have a lip apart posture.

Children who mouth breathe have a short thick 'Incompetent upper lip

Gingiva: Mouth breathers frequently present with problems like an inflamed and irritated gingival tissue in the anterior maxillary arch, The gingiva is hyperplastic due to continuous exposure to drying. Chronic gingival condition is due to a decreased salivary flow to remove the debris and bacterial overgrowth. The drying effect of moving air can also lead to heavy deposits of the plaque. Gingiva exhibits a classic rolled margin and an enlarged interdental papilla. When there is presence of interproximal bone loss with the presence of deep pockets, gingivitis progresses to periodontitis.<sup>3,6</sup>

## 2. Bruxism

### Definition

Ramfjord (1966): Bruxism is the habitual grinding of teeth when the individual is not chewing or swallowing.

Rubina (1986): Bruxism is the term used to indicate nonfunctional contact of teeth which may include clenching, Gnashing, grinding and tapping of teeth.

Vanderas (1995): Nonfunctional movement of the mandible with or without an audible sound occurring during the day or night<sup>3</sup>.

### Types

Day Time Bruxism/Diurnal Bruxism

Diurnal bruxism is the conscious or subconscious grinding of teeth usually during the day. It can occur along with parafunctional habits such as chewing pencils, nails, checks and lips.

Night Time Bruxism/Nocturnal Bruxism

Nocturnal bruxism is the subconscious grinding of teeth characterized by rhythmic patterns of masseter EMG activity<sup>3</sup>

### Etiology

#### 1. CNS

The etiology of bruxomania could be from certain definite cortical lesions. This CNS phenomenon was from in children with cerebral palsy and mental retardation

#### 2. Psychological Factors

A tendency to gnash and grind the teeth has been seen to be associated with the feelings of anger and aggression. Teeth grinding could be a manifestation of the inability to express emotions such as anxiety, rage, Hate aggression. Etc.

Olkinuora (1972) divided bruxers into two Categories

#### 1. Those whose bruxism was associated with stressful events

#### 2. No such association

The non-stress related group had more of hereditary influence.

#### 3. Occlusal Discrepancies

Improper interdigitation of teeth may lead to bruxism. Various occlusal abnormalities that prevent a stable occlusion of the mandible may be the cause. This is attenuated to the alteration of definite afferent impulses, originating in the periodontium.

#### 4. Genetics

Genetics has also been seen to play an important role in the etiology of bruxism.

#### 5. Systemic Factors

Gastrointestinal disturbances from food allergies, enzymatic imbalances leading to chronic abdominal disease could also be the cause. Subclinical nutritional deficiencies, allergies and endocrinal disorders have also been attributed to bruxism.

#### 6. Allergies

Allergies have also been related to nocturnal bruxism.

#### 7. Occupational factors

### Manifestation

The signs and symptoms of bruxism depend on:

- Frequency of bruxing
- Intensity with which the patient is bruxing
- The age of the patient which may be associated with the duration of the habit

The forces of bruxism are transmitted to the structures of the masticatory apparatus and depending on the resistance of the individual structures, certain amount of the forces are absorbed and the rest are passed to other structures.

The symptoms and clinical signs of bruxism in children are the same as those seen in adults. However, most of the subjective symptoms are occasional and mild.

The following clinical features may be seen in bruxism:

#### 1. Occlusal Trauma

Bruxism can result in tooth mobility, which may be more in the mornings due to the bruxing activities during the sleep period. Bruxism might be an essential factor for the spread of gingivitis into deeper periodontal structures and alveolar bone loss.

#### 2. Occlusal wear patterns

Non-functional patterns of occlusal wear can be observed as signs of bruxism. Bruxism can lead to an increased tooth sensitivity from an excessive abrasion of the enamel. The enamel prisms are fractured from high muscle forces generated during sleep and later ground down by the jaw movements. The children who are teeth grinders have atypical wear facets. These may appear a shiny uneven occlusal wear with sharp edges. Pulpal sensitivity to cold can also be observed, sometimes, the pulp may be exposed to attrition leading to a periapical abscess. Fractures of the tooth crowns or restorations can also result in bruxism.

#### 3. Muscular tenderness

Tenderness of the jaw muscles, especially to palpation is seen commonly in lateral pterygoid and masseter muscle.

#### 4. Muscular fatigue on waking up

Hypertrophy of the masseter muscle unilaterally/b laterally.

### 5. TMJ Disorders

TMJ disturbances and pain are in many cases the result of bruxism. Pain present in the joints is usually dull and unilateral. Crepitation and clicking within the joint, restriction of mandibular movements and jaw deviations can be observed. Deviation of the chin during mandibular movements occur more frequently to the left. These may be in relation to the physiological functional asymmetry, e.g., right handedness.

### 6. Headache

A common occurrence for chronic headaches have been reported. The headaches are often of muscular contraction type, which suggests pain in the muscle as the underlying cause.

### 7. Other Signs and Symptoms

Grinding and tapping sounds Soft tissue trauma

Small ulcerations or ridging on the buccal mucosa opposite the molar teeth<sup>3</sup>

Bruxism cause masticatory muscle pain, TMJ pain, headache, mechanical tooth wear, prosthodontic complications and cracked tooth. Intense bruxism can lead to apical periodontitis<sup>7</sup>.

## 3. TONGUE THRUSTING

### Definition

Brauer(1965):A tongue thrust is said to be present if the tongue is observed thrusting between and the teeth do not close in centric occlusion during deglutition.

### Classification

1. Physiologic: This comprises normal tongue thrust swallow of infancy
2. Habitual: The tongue thrust swallow is present as a habit even after the correction of the malocclusion.
3. Functional: when the tongue thrust, mechanism is an adaptive behavior developed to achieve an oral seal, it can be grouped as functional.
4. Anatomic: person having enlarged tongue can have an anterior tongue posture.

### Etiology

The cause of tongue thrust remains controversial. Several theories have been proposed based on clinical observation and existing research results.

### Retained infantile swallow

There is a considerable amount of evidence which suggests that tongue thrust is merely a retention of the infantile suckling mechanism. With the eruption of the incisors at six months of age, the tongue does not drop back as it should and continues to thrust forward. Tongue posture during rest is also forward.

Upper respiratory tract infections such as chronic tonsillitis, allergies, etc., promote a more forward tongue posture due to pain and decrease in the amount of space which brings about a tongue thrust swallow. It may also be present due to the physiological need to maintain an adequate airway.

### Neurological disturbances

Hyposensitive palate, moderate motor disability, disruption of sensory control and coordination of swallowing can lead to tongue thrust.

The tongue can protrude when the incisors are missing. Following the loss of deciduous teeth and prior to full eruption of the permanent incisors, there exists a natural opening for the tongue. The tip of the tongue may protrude into the open area during swallowing. It has been observed that this protrusive activity will change with the full eruption of the permanent incisors.

### Feeding practices and tongue thrusting

The development of improper swallowing habits has been attributed to bottle-feeding. However, there is a controversy as to whether bottle-feeding is more contributory than breast-feeding to tongue thrust development. The consistency of the infant's diet may also be a factor in the development of an adult swallow pattern.

### Induced due to other oral habits

During these stages of development, thumb and finger sucking habits may still be prevalent in many children. When this habit has created a malocclusion such as an anterior open bite, the tongue is seen to protrude between the anterior teeth during swallowing.

With correction of the habit and with normalization in occlusion, a change in the protrusive tongue activity can take place.

### Hereditary

The type of maxillary structure that favors the development of tongue thrust may be hereditary. For example, inherited hyperactivity of orbicularis oris with specific anatomic configuration and neuromuscular activity.

### Tongue size

Tongue size as well as tongue function is an important consideration. Conditions such as congenital aglossia and macroglossia can have an effect on the dentition.

Clinical manifestations noted in patients with tongue thrust swallow will depend on variables such as the intensity, duration, frequency and type of tongue thrust.

## Extra-oral Findings

### Lip posture

Lip separation is greater in the tongue thrust group and this is a consistent finding both at rest and in function. This observation may suggest some lack of compensatory lip activity during swallowing in these subjects.

### Mandibular movements

The mandibular movements during swallowing in the tongue thrust group are more erratic, and no correlations can be found between the movements of the tongue, lip and of the mandible itself. In the tongue thrust group, the average path of mandibular movement is upward and backward with the tongue moving forward.

### Speech

Tongue thrust children are more likely to have various speech disorders, such as sibilant distortions. Lispering, problems in articulation of sounds.

### Facial form

Increase in anterior facial height.

### Tongue posture

The tongue tip at rest is lower in the tongue thrust group. This could be because of the anterior open bite present and also because of the longer period of time required for the tongue tip to move from rest to second stage of swallowing in the tongue group.

### Malocclusion

- Proclination of maxillary anteriors resulting:
- In an increase in overjet
- Generalized spacing between the teeth
- Maxillary constriction

Retroclination or proclination of mandibular teeth depending on the type of tongue thrust present

### Tongue thrusting and periodontitis

Tongue thrust, a parafunctional habit, occurs when the tongue is positioned forward between the front teeth.<sup>8</sup> This abnormal swallowing pattern, along with tongue thrust, can lead to various dental issues. The tongue thrust swallowing pattern can cause several problems, including:

- Periodontal pockets
- Gingival recession
- Alveolar bone loss
- Tooth mobility
- Diastema

These issues can have a significant impact on oral health and dental stability.

## CONCLUSION

Oral hygiene plays an important role in development of periodontitis. Poor oral hygiene increases the risk of having periodontitis. Patients with poor oral hygiene had a moderate deposit of plaque and calculus leading to periodontitis. Smoking associated with increased risk of periodontitis. Smoking cessation may restore normal periodontal healing response.

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