

Review Article

Oral Habits and its Relationship to Malocclusion: A Review

Sagar Kharat¹, Swati S Kharat², Pooja Thakkar³, Raju Singam Shetty⁴, Pooja VK⁵, Rose Kanwaljeet Kaur⁶

¹Department of Orthodontics and Orthopaedics, ²Prosthodontics, Triveni Dental College, Bilaspur, Chattisgarh, ³Intern, Ahmedabad Dental College and Hospital, Gandhinagar, Gujarat, ⁴Peoples College of Dental Sciences, Bhopal, ⁵Oral and Maxillofacial Pathology, HKDET Dental College, Humnabad, Karnataka, ⁶Periodontics, Dasmesh Institute of Research and Dental Sciences, Faridkot, Punjab, India.

Abstract:

Oral habits have been regarded as an inane behaviour for infants to collect information from the environment and can lead to malocclusion. Malocclusion may result in esthetic impairment and functional disorders such as bad chewing, speech and swallowing, with a negative impact on quality of life. Several studies evaluated the etiological factors responsible in the initiation of non-nutritive sucking habits and suggested some situations that may stimulate digit sucking habits including; fatigue, boredom, excitement, hunger, fear, physical, emotional stress and insufficient satisfaction of sucking need in infancy. Interruption of these habits as early as possible is very important to prevent severe dentofacial problems.

Key words: Oral habits, Thumb Sucking, Malocclusion.

Corresponding author: Dr. Sagar Kharat, Department of Orthodontics and Orthopaedics, Triveni Dental College, Bilaspur, Chhatisgarh

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Introduction

The study of occlusion is an important aspect of dentistry. Occlusion is a complex phenomenon involving the teeth, periodontal ligament, the jaws, the temporomandibular joint, the muscles and the nervous system. A malocclusion is a misalignment or incorrect relation between the teeth of the two dental arches when they approach each other as the jaws close. The term was coined by Edward Angle, the "father of modern orthodontics",¹ as a derivative of occlusion, which refers to the manner in which opposing teeth meet (mal- + occlusion = "incorrect occlusion"). Malocclusion can occur due to a number of possible causes. Broadly speaking malocclusions are caused by either genetic or environmental factors but oral habits in children have a definite bearing on the development of occlusion.²

Habits Related to Malocclusion: Various habits that can lead to malocclusion are

- Thumb sucking and finger sucking

- Tongue thrusting
- Breast feeding
- Mouth breathing

Thumb sucking and finger sucking

Finger and thumb sucking is common in infancy and early childhood and, in the majority of cases, is spontaneously discontinued by about 5 years of age. In a minority of cases, however, the habit may continue for several more years, even into adolescence and beyond. The habit may produce deformity both of the digit and the dental occlusion, the deformity produced being in direct proportion to the duration, frequency and intensity of the habit.³ Sucking behaviours have long been recognized to affect occlusion and dental arch characteristics. As early as the 1870s, Campbell⁴ and Chandler⁵ recognized that prolonged finger or thumb sucking habits had deleterious effects on certain occlusal traits. Relationships between non nutritive sucking habits and occlusal abnormalities have been much more extensively studied.⁶

These studies found that non-nutritive sucking habits were associated with certain malocclusions in the primary dentition, including anterior open bite, increased overjet, and Class II canine and molar relationships.⁶

Digit sucking can lead to an asymmetrical anterior open bite which is worst on the side that the digit is sucked. Not all digit suckers develop anterior open bite, the important factors being the duration and frequency of the habit. Those who suck for more than 6 hours a day often develop significant malocclusions.⁷ Non-nutritive sucking habits may be acquired through the repetition actions of parents used to calm the emotional need of the child which eventually develops a strong attachment between the child and the sucking object. Several studies evaluated the etiological factors responsible in the initiation of non-nutritive sucking habits and suggested some situations that may stimulate digit sucking habits including; fatigue, boredom, excitement, hunger, fear, physical, emotional stress and insufficient satisfaction of sucking need in infancy. The proposed explanation of acquirement of this habit is that sucking may provide happiness and sense of security during difficult times to the child.⁸

Tongue thrusting

Tongue functions during swallowing are of interest to many orthodontists, dentists, oral surgeons, ear, nose, and throat doctors, radiologists, neurophysiologists, and speech pathologists. In normal deglutition, the tip of the tongue rests on the lingual part of the dentoalveolar area; the contraction of the perioral muscles is minimal during deglutition, the teeth are in momentary contact during swallowing, and there is neither a tongue thrust nor a constant forward posture. Many studies have demonstrated that tongue thrusting, also known as visceral swallowing or infantile swallowing, plays a significant role in the etiology of some orofacial deformities.^{9,10} Tongue thrusting habit pose a special problem and the literature is replete with case reports demonstrating simple cases acquiring unexpected complications due to

the presence of persistent tongue thrust. Several reported studies found tongue therapy to be effective in containing the habit and there was no relapse or reverting of the habit noticed.¹¹ A forward tongue posture, where the tongue rests between the incisors, may obstruct incisor eruption and lead to the development of an anterior open bite. This should not be confused with a secondary adaptive tongue thrust, in which the tongue moves forward during swallowing to contact the lips and form an anterior oral seal secondary to an anterior open bite. A diagnostic feature on the lateral cephalograph suggesting forward tongue posture is the presence of a reverse curve of Spee in the lower arch caused by reduced incisor eruption. Tongue-thrust habits can be observed clinically with forced opening of the lips during swallowing. Orthodontists can easily notice the difference in tongue movements between a mature swallower and a tongue thrust swallower. However, a quantitative and qualitative diagnostic method for differentiating the two swallowing patterns has rarely been reported.¹²

Breast feeding

Satisfactory maternal breastfeeding has been associated with growth and development of the maxillomandibular complex. Reports in the literature regarding breastfeeding and occlusofacial problems differ in their findings. Studies have failed to confirm this association empirically. This may be because they use mainly univariate analytical techniques and therefore do not take into account confounding or interactions between variables, because they use relatively small or convenience samples or because they evaluate the effects of this practice on deciduous dentition.¹³ Some authors think that breastfeeding protects against malocclusion by stimulating the mandible's sagittal growth and promotes a correct intermaxillary relationship by mechanically stimulating the facial muscles while sucking. Evidence is lacking to support this view. Other researchers believe genetic and environmental factors both contribute to these outcomes. Neither breastfeeding duration nor non-nutritive

sucking habits were related to the presence of Class II facial patterns. Children breastfed for less than 6 months had a much higher prevalence of non nutritive sucking habits. These non nutritive sucking habits were related to an increased presence of Class II malocclusion.¹⁴ Legovic and Ostric¹⁵ found no statistically significant differences in the frequencies of Class I and Class II malocclusions among breastfed and non-breastfed children. Some authors found no relationship between breastfeeding and the development of malocclusions. Warren and Bishara¹⁶, after assessing 372 children, 4 to 5 years old, found no statistically significant associations between breastfeeding duration and the prevalence of anterior open bite, posterior crossbite, and increased overjet.

Mouth breathing

The association between nasal respiratory impairment and dento-facial morphology has been studied for more than a century and for decades it has been strongly accepted that inter-arch growth pattern can be influenced by an unbalanced muscular function on mouth breathers. The knowledge that obstruction of nasal breathing most likely will perversely impact the facial growth even led some authors to propose classic terms to describe such patients as “adenoid faces”, “long face syndrome” and “respiratory obstruction syndrome”.¹⁷ A stereotype of these patients, therefore, can be drawn, where an anterior open bite, a reduced transversal dimension, associated or not with posterior crossbite, and a class II malocclusion are expected.

However, as individual facial genotypes have different sensitivity on developing malocclusion, following the exposure to mouth breathing, a wide variety of inter-arch relationships can be found. Open-mouth posture, as a habit or as a result of adeno-tonsillar enlargement or prolonged inflammation of the nasal mucosa associated with allergies or chronic infections, inhibits transverse maxillary growth and leads to a significant increase in the prevalence of posterior crossbite. It is also connected with posterior head posture and facies adenoidea. It seems that, in children with posterior

crossbite and those who breathe through their mouth, excessive vertical dimension is associated with deficient transverse dimension; nevertheless, the true relationship between mouth breathing and posterior crossbite is still in question.¹⁸

Discussion

There is a correlation between oral habits and malocclusion of deciduous dentition; 40% of the causes of malocclusion were found to be related to oral habits.¹⁹ It has been reported that the incidence of malocclusion in children with oral habits was 74.0%, while the incidence was only 25.1% in children without any oral habit.²⁰ Effect of oral habits, bottle feeding, breast feeding and nursing duration on the deciduous dentition has already been reported in many studies.²¹ Since parents try to make their children stop sucking habits without knowledge of the process of child mental development, their actions may lead to the persistence of oral habits. Persisted digit sucking can cause a condition in which the upper incisors are flared out. Malocclusion will thus be more difficult to be corrected later.

Eliminating digit sucking prior to tooth movement is advisable, as this habit might disturb correction of the sagittal discrepancy and the growth modification. Such habits are much easier to control by early intervention and developmental advantages can be achieved by correcting the interference.²² It has recently been suggested that the relationship between breastfeeding and dental occlusion is not direct, but is mediated by bad oral habits. So, FB/BSP is associated with POH, and these habits constitute one of the most important environmental factors involved in the genesis of malocclusions. Theories that endeavour to explain this trend suggest that children who are naturally breast-fed satisfy their sucking needs and thus have less need to suck a pacifier, digit or other object. In addition, by satisfying their psychological and affective requirements through close, intimate contact with the mother when breast-feeding, the child becomes calmer and has less need to search for other objects commonly used for oral satisfaction.¹³

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