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Parafunctional habits: A literature review

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Abstract

Introduction: The presence of parafunctional habits increases the prevalence of malocclusions and alterations in craniofacial development.

Objective: To analyze the literature on parafunctional habits, such as tongue habit, digital suction, bruxism and others, as well as their prevalence, alterations and treatment of each one of them.

Methodology: A search was carried out in the databases PubMed, Scopus and Google Scholar using the keywords "Bruxism", "Finger sucking", "Nail biting", "tongue thrust" and "lip sucking".

Results: Based on the literature it was found that the most prevalent habit varies with age, in children aged 6-12 years bruxism is more prevalent, on the other hand, from 12-16 years onychophagia prevails. The most common developmental alteration is digital sucking and the most frequent alteration among them is the protrusion of the upper anterior incisors. The treatment for tongue habit is by means of myofunctional therapy and orthopedic appliances, for digital suction bluegrass appliance, in bruxism physiotherapeutic treatment and psychotherapy and for other orthopedic appliances.

Conclusion: The prevalence of parafunctional habits varies according to age, and all of them can cause dental malocclusions and developmental alterations. Digital sucking is the habit that can generate the most alterations. In terms of treatment, various options are covered, from myofunctional therapy when muscle strength is involved in the habit, to the use of orthopedic appliances, which not only eliminate the habit, but also contribute to correcting the alterations caused by it.

Keywords: Bruxism, Finger sucking, Nail biting, tongue thrust, lip sucking

1. Introduction

Parafunctional habits generate movements that evidence their influence on functional and structural disorders, such as malocclusion and alterations in the temporomandibular joint, as well as in the oral and dental structures ^[1].

The frequency of oral parafunctional habits in children varies from 7% to 15.1%, with higher predisposition in girls than in boys ^[2]. Patients with parafunctional habits have shown higher levels of stress, anxiety and depression ^[3].

Bruxism is presented as the most common oral habit, followed by digital suction and onychophagia ^[1].

Parafunctional habits of children and adolescents have increased due to the change in lifestyle after confinement ^[4]. They can lead to alterations in craniofacial development, which underlines the importance of raising awareness about their prevalence and the consequences they entail. It is crucial to provide up-to-date information on strategies to address these habits and thus improve both oral health and the quality of life of affected individuals. In this paper we analyze the literature on parafunctional habits, such as tongue habit, digital sucking, bruxism and others, as well as their prevalence, alterations and treatment of each of them.

2. Materials and Methods

Articles on the subject published through the PubMed, Scopus and Google Scholar databases were analyzed, with emphasis on the last 5 years. The quality of the articles was evaluated using guidelines, i.e., identification, review, choice, and inclusion.

The quality of the reviews was assessed using the measurement tool for evaluating systematic reviews. The search was performed using Boolean logical operators AND, OR and NOT, with the keywords: "Bruxism", "Finger sucking", "Nail biting", "tongue thrust", "lip sucking" and "Oral habits". The keywords were used individually and related to each other.

3. Results and Discussion

3. Parafunctional habits

3.1 Tongue thrust habit

This habit is estimated to be present in 20 to 60% of children over 6 years of age^[5].

Tongue thrust habit is an important etiological factor of malocclusions, in particular anterior open bite. Tongue habit is associated with an altered tongue position^[6], which can cause a number of problems, such as: malocclusions because the tongue thrust can cause protrusion of the anterior teeth^[7], leading to anterior open bite, another related malocclusion is posterior crossbite. Also speech problems because it hinders the production of certain sounds, such as sibilant consonants and respiratory problems due to difficulty nasal breathing, which can lead to oral breathing^[8].

Treatment of tongue habit can be complex and requires a multidisciplinary approach^[9]. Treatment options include: Orofacial myofunctional therapy^[10], which helps patients learn to control the muscles of the mouth and face^[11], which can help correct tongue position. Froggy Mouth is a myofunctional therapy device which achieves mimic correction and lip incompetence^[12] orthopedic appliances such as a tongue cradle helps to reposition the tongue and teeth by retraining the muscles, provides physical restraint and if used fixed gives better results^[13], and orthodontics which helps to correct the position of the teeth^[14]. Tongue thrust habit is a problem that can have a negative impact on oral health especially found in children over 6 years of age, it causes alterations that end up affecting speech and breathing, which predisposes to present an anterior open bite. Its treatment involves retraining the tongue muscle to place it in its correct position by means of myofunctional therapy and orthopedic appliances.

3.2 Digital suction

Finger sucking is more prevalent in females and in children who were breastfed for less than 6 months^[15] since the abandonment of breastfeeding is a predisposing factor for the appearance of non-nutritive sucking habits^[16]. The finger that is involved in greater quantity is the thumb of the right hand^[17] and this habit also decreases with age^[18].

They present class II division I malocclusion, accompanied by increased protrusion^[15], the upper jaw is protruded compared to the skull base, with an increase in the length of the tongue and palate^[19], strongly associated with crowding and the development of decreased facial height^[16]. If the habit is prolonged, the likelihood of developing an open bite is increased, so it is important to stop the habit at an early age^[20].

The use of orthopedic appliances such as the modified bluegrass appliance has good results in the elimination of the digital sucking habit, it is comfortable, does not give complications to the patients and performs its function in a short period of time^[21] and the modified Haas expander (with a tongue trap) that besides correcting digital sucking also solves the posterior crossbite^[22]. Finger sucking is a habit that is associated with breastfeeding time, because children will

seek a method of comfort when it is withdrawn early, it predisposes to class II malocclusion with proinclined upper anterior teeth and a protruded maxilla, which should be treated by orthopedic appliances that prevent the contact of the finger with the palate.

3.3 Bruxism

Bruxism has a high prevalence in students, with a higher frequency from 5 years of age onwards^[23], with no gender preference^[24], this prevalence can increase in mouth breathers^[25], when there are ear problems, when pacifiers are used or when the habit of digital suction is present^[26]. There are external factors such as excessive screen time, sleep disturbance, family conformation, diet and genetics that also increase its prevalence^[27].

Headaches^[28], discomfort on palpation in the masseter and temporalis muscle and^[29] pain in the TMJ^[30] are frequently present. In addition, it is associated in children with lip habit, digital sucking and biting objects^[31].

It is essential that an accurate diagnosis is made with a multidisciplinary team^[32], guidance is provided to parents, possible oral health complications are avoided and possible additional medical conditions are detected^[23]. For treatment, therapies such as physiotherapy and psychotherapy are recommended^[33], as well as the use of soft occlusal splints helps to decrease pain in the involved muscles and TMJ^[30].

Bruxism is a common problem, with a greater predisposition between 6-12 years of age, which causes a series of dental alterations, but has a greater affection in the muscles, causing pain and problems in the TMJ, which should be treated with physiotherapy and psychotherapy in order to solve the external factors that are involved in its etiology.

3.4 Other

Onychophagia is most prevalent in students 12-16 years of age^[34], this habit decreases by the age of 18 years, but it can also continue into adulthood^[35]. On the other hand, lip sucking is frequently found in children older than 6 years and is related to stress or anxiety^[36].

Onychophagia develops alterations in the bite, resulting in the presence of a moderate overbite^[34], children present absence of the primate spaces which are intended to help the correct eruption of the permanent teeth^[37]. Lip sucking has a high prevalence in the development of malocclusion and deep overbite^[36], due to alterations in the development of the maxilla, in the position of the mandible being in a lower position than normal^[38], the upper incisors are protruded and the lower incisors are retracted^[39].

Onychophagia by early orthodontic treatment^[34], such as the use of a fixed intraoral appliance which is composed of twisted ligature wires placed along the incisal edges of the anterior-inferior teeth^[40]. In lip sucking, treatment options include myofunctional training to correct oral habits and establish muscle balance^[41], and the use of functional appliances^[42] and fixed appliances such as the Bass that serves as a trainer^[38].

Onychophagia is found with a greater predisposition between the ages of 12-16 years while lip sucking from the age of 6 years, both present the development of a moderate to deep overbite, should be treated by means of orthopedic appliances, in the case of lip sucking accompany it with myofunctional therapy.

4. Conclusions

The prevalence of parafunctional habits varies according to

age, and all of them can cause dental malocclusions and alterations in development. however, digital sucking is the habit that can generate the most alterations. In terms of treatment, various options are covered, from myofunctional therapy when muscle strength is involved in the habit, to the use of orthopedic appliances, which not only eliminate the habit, but also contribute to correcting the alterations caused by it.

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