

# Prevalence of Thumb sucking habit and its relation to malocclusion in preschool children

Natheer A Rasheed, M.S.C, B.D.S

## **Abstract:**

**Objectives:** to assess the prevalence of thumb sucking habit among preschool children and the effect of the habit on their occlusion.

**Materials and Methods:** 712 of 4-5 years old preschool children were examined for the presence or absence of thumb sucking habit by questioning, and inspection to the thumbs, and the teeth were examined for the presence of increased overjet and overbite or open bite.

**Results:** 128 children from the total number have thumb sucking habit, 102 of them have increased overjet, 80 of them have increased overbite, and 29 of them have open bite.

**Conclusion:** The percent of children having thumb sucking habit was considered to be high at this age range (4-5) years, and the habit was found to be increasing the prevalence of malocclusion of deciduous teeth.

---

## **Introduction:**

Prevalence of malocclusion is higher in children with sucking habits than in those without the habit at 3-12 years of age, however, when children stop finger sucking before the age of 6 years, they do not have a higher percentage of malocclusion than children with no history of sucking habits<sup>(1)(2)</sup>. When a child places a thumb or finger between the teeth, it is usually positioned at an angle so that it presses lingually against the lower incisors and labially against the upper incisors, and the anterior open bite associated with thumb sucking arises by a combination of interference with normal eruption of incisors and excessive eruption of posterior teeth<sup>(3)</sup>, mild displacement of the primary incisor teeth is often noted in a 3- or 4-year-old thumb sucker, but if sucking stops at this stage, normal lip and cheek pressures soon restore the teeth to their usual positions. If the habit persists after the permanent incisors begin to erupt, orthodontic treatment may be necessary to overcome the resulting tooth displacements<sup>(3)</sup>.

Oral habits should be of primary clinical concern to orthodontists because they may cause malocclusion and interfere with the treatment progress<sup>(4)</sup>. Abnormal oral habits operate so quietly and unconsciously that even the patient is frequently unaware of their existence. All such simple habits at first are performed by conscious effort, with each repetition it becomes less and less conscious effort and is strictly applicable only to motor responses. Until finally it is performed entirely unconsciously, becoming a part of the routine of the mind from which the consciousness is removed<sup>(5)</sup>.

Sucking habit is the first coordinated muscular activity of the infant and it is also considered as a natural reflex. There are essentially two forms of sucking; the nutritive form which provides essential nutrients, while nonnutritive sucking insures a feeling of warmth and sense of security and this type of sucking can be considered an important first step in the child's development of self-regulation and the ability to control emotions<sup>(6)(7)</sup> it is also associated with pleasure<sup>(8)</sup>.

So that, babies suck to comfort themselves when they are upset, it is also away for exploring and in some cases, sucking might be just away for babies to pass the time <sup>(9) (10)</sup>, but many children recognize that the habit is an infantile mechanism, they find it hard to leave because it becomes enjoyable habit by the time <sup>(11)</sup>, Besides, they may use it to gain attention of their parents <sup>(12) (13)</sup>.

The period of sucking habit is important ,A short duration period may be of no or little effect <sup>(13)(14)</sup>.In some children the sucking habit is little or more than a passive insertion of the finger in the mouth ,with no apparent buccinators activity<sup>(14)(15)</sup>,so that children who suck vigorously but intermittently may not displace the incisors much if at all, whereas others who produce 6 hours or more of pressure, particularly those who sleep with a thumb or finger between the teeth all night , can cause a significant malocclusion<sup>(3)</sup>

### **Materials and Methods:**

The sample of this study was consisted of 712 preschool children from (Al-Adhamya, Al-Shaab, AlWazirya and Palestine Street) districts in Baghdad, with age range of 4-5, the selection of this age group is to reveal the prevalence and affect of thumb sucking habit before the time of eruption of permanent teeth. The children were divided into two groups, first group consisting children with thumb sucking habit and the second consisting children without thumb sucking habit. the children were examined for the presence of thumb sucking habit ;the sucked digit often reveal callous formation and under development <sup>(16)</sup>in addition to that a history is taken from the teaching staff about the presence of the habit for all children to confirm the clinical findings, the overjet was measured by avernia by measuring the distance between the labial surface of lower central incisors and labial surface of upper central incisors ,while the overbite is measured by considering the amount of

vertical coverage of the upper central incisors to the lower central incisors.

### **Discussion and Conclusion:**

Prevalence of thumb sucking habit in preschool children and its effect on deciduous teeth was not adequately dealt with in researches; on the other hand, it may be much easier to manage the habit at early stages than to leave it to become more enjoyable behavior to the child, so that data of prevalence and effect of T.S.H. during this stage of child's life is beneficial to know how much efforts are needed to assist children to leave the habit at early stages. This study found that the percent of preschool children having T.S.H. is 18% which is not an neglectable percent because part of them may retain the habit causing malocclusion of the permanent teeth. This study also made a comparism of dental occlusion between children with and without T.S.H.

It was found that the percent of children having increased over jet is higher in the group having T.S.H. which may be due to proclination of maxillary incisors and retroclination of mandibular incisors ;and the overbite in the group having T.S.H. is higher which may be due to over eruption of upper incisors due to the increase in the overjet ,and the percent of children with open bite in the group with T.S.H. is higher which may be due to a combination of interference with normal eruption of incisors ,and excess eruption of posterior teeth, these findings agree with the findings of <sup>(16)(17)(18)(19)(20)</sup> but the differences between the two groups in all types of changes in occlusion (overjet;overbite) are statistically non significant which may be due to the small percent of children with increased overjet ,overbite and open bite in the control group due to causes other than T.S.H, like ; class 2 malocclusion ,mouth breathing, tongue thrusting.

It can be concluded that thumb sucking habit effect the deciduous teeth by in creasing overjet, overbite and prevalence of open bite; these effects may arise in permanent teeth if the habit was retained, and the percent of children having the habit of thumb sucking at this age range is still considered to be high, so it is suggested that parents should be instructed to consult psychiatrist and orthodontist if the child still having the habit at this age, to stop the habit as soon as possible.

### **Results:**

From the 712 examined children, 128 of them have thumb sucking habit. Representing 18% of the total no.

By comparism of the degree of overjet and overbite between the group of children having thumb sucking habit and the control group, the percent of children in relation to the degree of overjet and overbite were shown in

tables 1 and 2.

**Table 1: The effect of T.S.H.on overjet.**

Over jet	Percent of children with out T.S.H.	Percent of children with T.S.H.
<b>0-3 mm</b>	<b>95.6%</b>	<b>85.8%</b>
<b>More than 3 mm</b>	<b>4.4%</b>	<b>14.2%</b>

**Table 2: The effect of T.S.H.on overbite.**

Over bite	Percent of children with out T.S.H.	Percent of children with T.S.H.
<b>A</b>	<b>97.3%</b>	<b>85%</b>
<b>B</b>	<b>1.9%</b>	<b>11.1%</b>
<b>Open bite *</b>	<b>0.8%</b>	<b>3.9%</b>

**A:** The upper central incisors cover only the incisal third of the lower central incisors.

**B:** The upper central incisors cover cover the incisal and middle third of the lower central incisors or more.

**\*:** Any space between upper central incisors and lower central incisors.

### **References:**

- 1.Leung AK, Robsen WL. (1990): Nail biting.Clini Pedia phila; 29(12):690-2.
- 2.Ghafari J. (1997): Management of oral habits related to occlusal problems.
- 3.Proffit W R , fields H W , Acherman J L , Sinclair P M , Thomas P M , Camilla Tulloch J F . (1993): (Contemporary Orthodontics , 2<sup>nd</sup> ed . (126-127).
- 4.Goto S, Boyd RT, Neilsen L, Iizuka T. (1994): Long term follow up of orthodontic treatment of a patient with maxillary protrusion, severe deep overbite and thumb-sucking. Angle Orthod;64 (1):7-12.
- 5.Tewari A (1970): Abnormal oral habits relationship with malocclusion and influence on anterior teeth.J Indian Dent Assoc; 81-4.
- 6.Turgeon ;O'brienh ;Lachapelle D ;Gagnon PF ;Larocque I ;Maheu. Robert LF (1996): Nutritive and non nutritive sucking habits: areview.ASDCJ.Dent.child.Sep:Oct.63 (5):321-7.
- 7.CNN (2003): Pacifiers the good bad news. Health Library .Available from:http:# <[www.cnn.com](http://www.cnn.com)>.
- 8.Kennard M.A. (2001): Dental implication of digit and pacifier sucking and ways to stop the habit. Topics in pediatrics vol.19, No.1; 8-11.
- 9.Richard Widmer, Angus Cameron (2001): Oral habits. Handout Pediatric Dentistry .West mead Hospital Dental Clinic school .Available from <[www.kourelis.com](http://www.kourelis.com)>
- 10.Williams; Sheram; Tnornbury; Sims and Wagner (2001): Pacifiers. Continuity clinit Note book ch.1: the prenatal and well child risit:[www.mcg.edu/pediatrics/ccnotebook/chapter/pacifiers.htm](http://www.mcg.edu/pediatrics/ccnotebook/chapter/pacifiers.htm).-8k.>
11. Graber TM,Bedrich N. (1984): Removable orthodontic appliances. 2<sup>nd</sup> ed. Saunders Company.

12. Behram RE, Kregman RM, Nelson WE, Vaughen VC. (1990): Nelsen textbook of pediatrics. Saunders Company, Philadelphia, 4<sup>th</sup> ed.
13. Jennings RE. (1969): At what age should thumb sucking be treated? Dent Obstetrics; 14:73-4
14. Baer PN, Lester M. (1987): The thumb, the pacifier, the eruption tooth and a beautiful smile. Pediatr; 11:113-9.
15. Linder's A, Modeer T. (1989): Relationship between sucking habit and teeth arrangement in preschool children with unilateral crossbite. Scan J Orthod; 97:278-83.
16. Nanda RS, Khan I, Anand R. (1972): Effect of oral habits on the occlusion in preschool children. J Dent child; 449-52.
17. Melsen B, Stensgar K, Pedersen J. (1979): Sucking habits and their influence on swallowing pattern and prevalence of malocclusion. Eur J Orthod; 271-80.
18. Finn SB. (1987): Clinical pedodontics. Saunders Company, Philadelphia.
19. Larsson E. (1987): The effect of finger sucking on the occlusion of review. Eur J Orthod; 9:279-82.
20. Larsson E. (1997): Artificial sucking habits, etiology, prevalence and effect on occlusion. Int J Orofacial Myology; 20:10-21.