

## Extra Oral Habit Reminder for Finger Sucking Habit

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### INTRODUCTION

Thumb sucking is a form of non-nutritive sucking occurring as early as the 29th week of gestation.[ 1] It is seen commonly in infants and peaks at 18-21 months of age.[2] Thumb and finger sucking habits, or non nutritive sucking, are considered to be the most prevalent of oral habits, with a reported incidence ranging from 13% to almost 100% at some time during infancy.[3,4] The finger sucking habit, normal in the first 2-3 years of life, may cause permanent damage if continued beyond this time.[5] The continuation of oral habits is usually due to physical and emotional stimuli such as boredom, stress, hunger, hyperactivity, sadness, pleasure, and various kinds of disabilities[1]. An acute increase in the child's level of stress or anxiety can also account for continuation of the sucking habit.[6]

Sucking behaviors in infants and young children are mainly derived from the physiologic need for nutrients. Current understanding of child development suggests that sucking behaviors also arise and persist in part because of psychological needs; normally developed infants have an inherent biological drive for sucking.[5] The dentist, in discussing the problem of a persistent oral habit must try to determine, if it is a habit which the child enjoys or if there

are emotional problems that may be the cause.[7]

Much attention has been directed toward oral habits, such as non-nutritive sucking habits and tongue-thrust, as possible causes of unbalanced functional forces on the developing dentition. Unbalanced functional forces are potential etiologic factors in the development of dentoskeletal abnormalities and hence possible etiologic factors in malocclusion. This is based on the theory of craniofacial growth proposed by Moss in the 1960s in his "functional matrix theory"[8].

Methods for habit intervention include counselling, positive reinforcement, a calendar with rewards, an adhesive bandage, bitter nail polish, long sleeves and appliance therapy. All of the previous methods that are used to stop the finger-sucking habit have been reported in the literature with variable success rates.[9] If an appliance is used it should not be painful or interfere with occlusion; instead it should merely act as a reminder.[10]

Oral appliance, if inserted for several months, usually eliminates the habit in children who wants to stop. However emotional problems, difficulty with speech and eating, and iatrogenically "self inflicted" wounds can occur



with oral appliances. This type of appliance tends to be regarded as a punitive rather than a supportive treatment.[11]

In the light of these factors an extraoral electronic habit reminder (Patented, application No. 2853/CHE/2014 A, publication date 27/06/2014) was used to successfully manage thumb sucking habit in a 8 year old boy.

### Case report

A 8 year old male child along with his mother reported to the department, with a chief complaint of finger sucking (left middle finger) habit. A history of finger sucking regularly, about 4-7 hrs/day was noted, unconsciously in sleep or when the child was idle, since the primary dentition period. On examination, a decrease in normal overbite (Fig 1) was found and callous formation was seen over his left middle finger that confirmed the diagnosis. A non-punitive reminder therapy was planned

using extra-oral appliance. The appliance is a simple device, which gives alarm when the child takes the finger into the mouth, as the appliance has to be worn on that finger which is involved in sucking. The alarm part was encased in an attractive wrist watch (Fig 2) so as to make the appliance attractive to the child. The appliance was custom fabricated by measuring the length of the finger (Fig 3) and by taking the impression of the involved finger (Fig 4). The appliance was delivered (Fig 5) and the child was instructed to wear during day time as well as night time, except while taking food or other important activities etc. The child was recalled by the end of every 3 weeks for checkup. The child was very comfortable with the appliance and enjoyed wearing it. The frequency of the habit gradually came down, and by the end of 4 months child had discontinued the habit. The child was instructed to continue to wear the appliance for another 6 months so that the habit does not relapse.

**Figure 1. Reduced overbite in a child with history of finger sucking**



**Figure 2. Extra oral Habit Reminder**



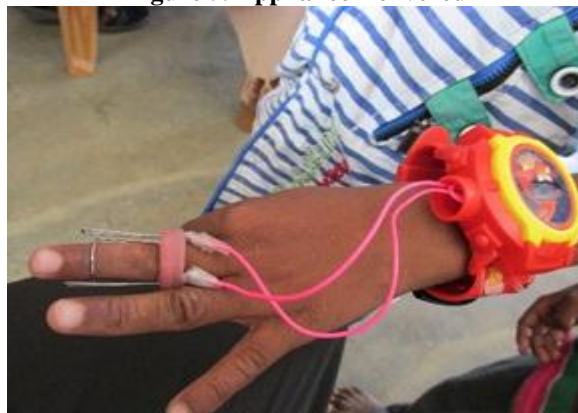
**Figure 3. Taking Measurement**



**Figure 4. Custom appliance constructed**



**Figure 5. Appliance Delivered**



## DISCUSSION

Thumb sucking is common phenomenon in pediatric age group that reflects the earliest form of habitual manipulation of body. Many questions arise in the minds of general dentist, pediatricians, pediatric dentists and psychiatrists regarding impact of sucking habits on developing dentition. The age of the child, intensity, duration and frequency of the habit, child cooperation and motivation are all important factors to be considered for the success of any intervention. Sufficient time should be given for the child to stop the habit on his/her own.[12]

Appliance therapy should be considered after consultation with the parent of the child. From many years, habit breaking appliances in the form of palatal cribs, spurs, palatal bars, hay rakes, and cage type appliances have 4 been used in the pediatric age group. However, emotional disturbances, difficulty in speech and eating, and iatrogenically self-inflicted wounds can occur with such appliances. [13]

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Haskell and Mink[14] described the blue grass appliance which is easy to wear, and did not have problems associated with traditional palatal cribs and rakes, however, since it is an intraoral appliance, that might lead to articulatory and oro-myofunctional disorders.<sup>[15]</sup> considering these factors, In the present case the extra oral electronic habit reminder appliance was fabricated. The wrist part which contained alarm was attractive to the child, that motivated him to wear the appliance, and to successfully eliminate the habit.

## CONCLUSION

Extra oral habit reminder appliance is a non-punitive appliance and child can wear it comfortably. This being an extra oral appliance is effective in managing the non-nutritive sucking habits without any complications and eliminates the habit in a short period of time.

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