



**Case Report**

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## Management of Lip Sucking Habit Using Combination Therapy: A Case Report

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### Abstract

Oral habits are those that are repeatedly performed thereby causing deleterious effects on the teeth and the adjoining oral tissues. In addition to or as a substitute for thumb sucking, lip sucking or biting is often observed. An orthodontic lip bumper, designed to intercept dental and occlusal problems, is a fixed or removable functional appliance. In this case report, the habit was treated using fixed lip bumper, lip exercises and habitual therapy conducted by both parents and the child. Parental encouragement and constant reminders combined with the child's co-operation in wearing the appliance and performing the advised lip exercises regularly are significant factors in the success of this treatment.

**Keywords:** Lip sucking, Habit, Mentalis hyperactivity.

### INTRODUCTION

An automated response to a certain situation can be termed as a habit. It usually occurs due to excessive repetition of a learned set of activity. An unconscious habit develops as a result of this repetition. Some adverse effects on the oral health and its condition are consequences of the associated oral habits. They might lead to anomalies in orofacial structures thus intervening with the normal physical, emotional or social state of the child. Practising a habit frequently, intensely and for a prolonged period of time multiplies the adversity of its effects [1]. About 15 – 25 % of the malocclusions are acquired due to the presence of oral habits. The stomatognathic system, mainly the occlusion, is influenced by the oral habits. The development of the hard tissues and soft tissues is majorly affected as malocclusion occurs. As a result, hypotonic or hypertonic conditions may arise in the perioral soft tissues [2].

Hanson and Barrett in 1988 stated that lip biting is a "relatively infrequent habit, at least to a pathological extent". They classified lip habits into 3 types; lip biting, lip licking and lip sucking; and attributed lip biting to certain types of stress, lip licking primarily to mouth breathing and occasionally to chronic nervousness. Maroto, Gonzalez & Lajardin in 1998, described lip sucking as an oral habit which is paid less attention to by the professionals, but which appears with a certain frequency irrespective of the age group. According to Moffatt (1963), 'sucking of the cheek and lips is less common than thumb sucking, but if practised long enough may contribute towards malocclusion' [3].

Unbalanced muscle equilibrium is one of the causes of malocclusions. This equilibrium could be altered by parafunctional activities, particularly lip sucking and/or biting as well as tongue thrusting [4]. The resting pressure generated by the tongue and the lips as well as the forces generated within the periodontal membrane are the prime factors in maintaining the equilibrium of the dentition [5]. The tongue opposes and balances the forces exerted by the buccinator, orbicularis oris and the mentalis muscles extraorally. The indelible and stable treatment outcomes are based on the elimination of anomalous oral habits. It is known that a lip bumper could be a solution to overcome the lower lip sucking or lip biting habit that causes malocclusion [6]. According to several studies, lip bumper could deliver effect to control molar anchorage, gain the lower arch space, and correct the bad oral habits [7-9].

Patients who habitually indulge in lower lip sucking can benefit from myofunctional therapy. Creating a lip seal and acquiring normal habits can be made easier through lip seal therapy or exercises. These exercises have proven to be beneficial in improving the poor posture of the muscular system by increasing the muscle thickness [10]. In addition to this, a functional appliance like lip bumper can be given in order to raise the awareness of the child and to help him stop the habit [3].

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A lip bumper is a distinct myofunctional appliance that helps in preventing the habit of lower lip sucking. In addition to making the habit more difficult, the patient is reminded of the adverse effects of this habit and is encouraged to reduce and overcome it over time. The lip bumper prevents excessive motor activity of the mentalis muscles thus preventing abnormal forces to act upon the incisors [2].

For effective outcome a lip bumper should be used for 24 hours a day for approximately 100–300 days which may lead to discomfort in young patients [11]. Thus, precise co-operation between the patient, dentist and the parents is essential. The two chief factors in stopping the malicious habit are commitment and immense encouragement from both the child and parents.

**CASE REPORT**

A 10 years old boy came to the Department of Paediatric and Preventive Dentistry accompanied by his parents. The mother reported of protruding upper front teeth and loosened lower lip. The child was also uncomfortable with his condition. Further examination and consultation with the parents divulged the child’s habit of frequently sucking his lower lip. On extra oral examination, the child revealed a brachyfacial, grossly symmetrical and convex profile. The patient also showed incompetent lips while performing the habit. (Figures 1a and 1b). Intraoral examination showed a class I molar relationship with an overjet of 2 mm and 5 mm of overbite. In addition, dry lips and a notable protrusion of the upper front teeth along with drooping lower lip was also observed. Dental caries could be seen in relation to 74 and the restoration placed on 84 was dislodged at the time of presentation. Both the teeth showed grade I mobility.



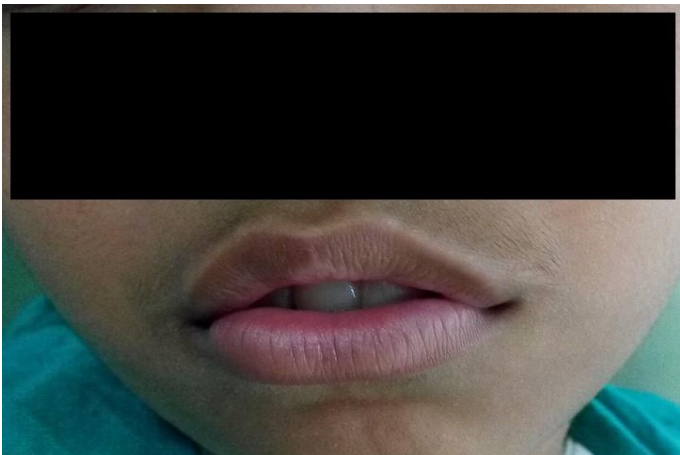
**Figure 2a:** Insertion of a lip bumper in the lower jaw



**Figure 2b:** Insertion of a lip bumper in the lower jaw



**Figure 1a:** Extraoral facial photograph prior to treatment of patient performing the habit



**Figure 1b:** Extraoral facial photograph prior to treatment showing incompetent lips



**Figure 3a:** Extraoral facial photograph after 5 months of lip bumper application



**Figure 3b:** Extraoral lateral profile after 5 months of lip bumper application

Lip bumper was established as a treatment plan for overcoming the habit. The carious teeth were treated initially, followed by the lip bumper therapy. 74 and 84 were extracted as they showed grade I mobility. The teeth casting was done after the restoration of the carious teeth was performed. The establishment of the study model was followed by development of the working model which helps in designing and construction of the appliance. The appliance was inserted 2 weeks after the casting (Figure 2a and 2b). Lip bumper adjustment was carried out fluently, and both the patient and the parents cooperated well throughout the procedure.

Since it was a fixed appliance, the patient was informed that the appliance had to be worn for a period of 3-4 months until the cessation of the habit was evident. Along with lip bumper therapy, the child was also advised to perform certain lip training exercises. Since the patient had hypotonic and short upper lip, he was advised to extend the upper lip over the lower lip without opening the mouth with the holding time of 30 s and a frequency of 15 - 20 times a day. This helps in improving the tonicity of the hypotonic upper lip. To maintain the oral seal, the patient was advised to extend the upper lip over the lower lip towards the chin in a posterior-inferior direction. Lip pressing is another exercise to increase lip competency that involves tightly closing the lips. The child was constantly motivated and encouraged by the parents to regularly perform the lip training exercises. The patient was evaluated once in a month. A significant reduction in the habit was seen in the first follow up appointment. The patient was able to completely eliminate the habit after 5 months of appliance therapy. The patient showed competent lips and a better facial profile (Figure 3a and 3b) and thus the treatment was found to be successful.

## DISCUSSION

Lip sucking is an adverse oral habit that hampers the normal lip development and occlusion. Self-correction is helpful in overcoming the oral habit automatically in children below 3 years of age. If children over the age of 3 years continue practising the habit of lip sucking, it becomes deliberately harmful in character. This harmful habit should be correctly treated as its persistence during the eruption of the permanent incisors can damage the dentition more severely [12]. Lip bumper and habitual therapy along with lip training exercises are accurate treatment protocols in overcoming the bad habit of lip sucking and the resultant

malocclusion [13]. A lip bumper is a fixed or removable simple appliance functional in nature, that can be well tolerated by the patients. In this case, the patient presented with dry lips, protruded upper anterior teeth, deep overbite and loosened lower lip. After clinical examination and proper history from the patient's parents, it was revealed that the patient had a habit of lower lip sucking. A lip bumper was not only used to eliminate this adverse habit but also in improving the tonicity of the labialis and mentalis muscles. As a result of this appliance, the lower lip and cheek muscles are kept away from the mandibular teeth in an attempt to disrupt the equilibrium around the dentition. Due to this, the unbalanced lingual forces exerted by the tongue causes forward and lateral expansion of the mandibular arch [14]. Besides, the pressure exerted by the lower lip against the lip bumper is transmitted directly on to the lower molars while swallowing. This pressure promotes an increase in arch length by causing distalization and distal tipping of the molars [15]. The child was advised and taught lip training exercises that were to be performed regularly which helped in improving the tonicity of the lips. Moreover, continuous habitual reminders were given by the parents. They reminded and motivated the patient to refrain from the adverse habit. Thus, both medical and psychological approach was utilized to overcome the habit of lip sucking. Medically, the appliance was utilized to shield the labia in order to prevent the habit. For effective results, the device was used for a period of 24 hours for 6-18 months, depending on the movement of teeth and the expected treatment goals [16]. In this case, the continued appliance therapy for a period of 4-5 months along with lip training and reminder therapy resulted in a significant reduction in the habit. The patient completely overcame the habit within 5 months of insertion, which is an overall satisfactory result.

## CONCLUSION

The elimination of adverse oral habits is the groundwork of long-term stability after orthodontic correction [13]. Fixed lower lip bumper and habitual therapy complimented with lip training exercises was chosen to overcome the habit of lower lip biting in this case. High co-operation from the patient and the parents was essential for success of the treatment. There was withdrawal of lower lip trapping between the upper and lower anterior teeth after habit control. Thus, a combined treatment modality resulted in a desired treatment outcome. It can be expected that a normal occlusion will result after the treatment and there will be a long-term stabilization of the treatment.

## Conflict of Interest

None declared.

## Financial Support

None declared.

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