

DR JOBY PETER MDS

Prof and hod

Dept of Pedodontics and Preventive Dentistry

Malabr Dental College and Research Center.Kerala.

Finished his graduation from MCODES, Manglore, MAHE UNIVERSITY 1998.

Finished his postgraduation in pediatric and preventive dentistry from RMDC&H , ANNAMALAI UNIVERSITY 2000.

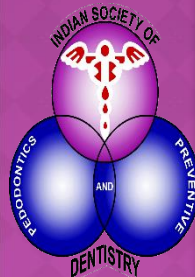
He also hold a PG Diploma in criminology and forensic science.

To his credit he have numerous national and international articles in various journals.

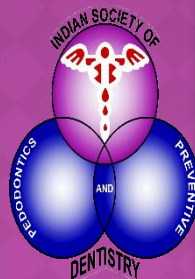


MEMBERSHIP IN OTHER ASSOCIATION

- ◉ Proud member of ISPPD
- ◉ IDA Thripunithura br.
- ◉ AAPD(American Academy of Pediatric Dentistry) USA
- ◉ Academy of Applied Myofunctional Sciences (AAM), California USA.
- ◉ International guest speaker at Academy of Dentist International(ADI) New York
- ◉ AAPD Nashville's USA.(Nashvirtual)2020 may 23rd



- ◉ He holds the LIMCA book of records, ASIAN book of records and INDIAN book of records for travelling in his car for 10,000km in 27 days covering 13 states for a noble cause TOBACCO FREE INDIA , a nationwide campaign organized by IDA Central Branch under the able guidance of then national president Dr George Thomas and Secretary Dr Ashok Dhoblae.
- ◉ More than 180 guest lectures, 120 CDE program with Hands on in IDA, ISPPD, ADI, TII centers, and at various regional and national arenas and continuing.....
- ◉ He has done 100 free webinars during this lock down to support our fraternity with clinically oriented topics. This webinar is 108th in the series of lockdown webinars.



Good Evening





Dr Joby Peter MDS PGDFSC

Professor & Head

**Department of Pedodontic & Preventive
Dentistry**

Malabar Dental College

How to structure your answer?

Removable space regainer?

- **Definition : of space regainer**
- **One classification**
- **Indication and contraindications**
- **Advantage and disadvantage**
- **Types with diagrams if required(reference with author and year)**
- **Critical evaluation and conclusion**

**Body of
the
answer**

HABITS



QUESTIONS ASKED

- **DELETERIOUS ORAL HABITS IN CHILDREN**
- **NON NUTRITIVE SUCKING HABITS AND ITS ROLE IN DEVELOPING MALOCCLUSION**
- **MANAGEMENT OF THUMB SUCKING HABIT**

Deleterious Oral habits in children: 3 hrs

- Introduction
- Definition: **Butter Worth (1961)/Maslow (1970)/Dorland(1957)/Mathewson(1982)**
- Classification: **Sigmund & Finn(1987/Kleins classification(1971)/Anderson (1963)**
- Development of a habit
- Etiological agents in development of a habit
- Factors influencing dento-alveolar skeletal deformation
- Prevalence of oral habits
 - Thumb sucking habit
 - Tongue thrusting habit
 - Mouth Breathing

- Bruxism
- Lip Habits: Lip sucking : Mentalis habit
- Lip thrusting
- Frenum thrusting
- Cheek biting
- Nail biting
- Bobby pin opening
- Masochistic habits
- Oral habit therapy
- Conclusion

H

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Habits

“IT”

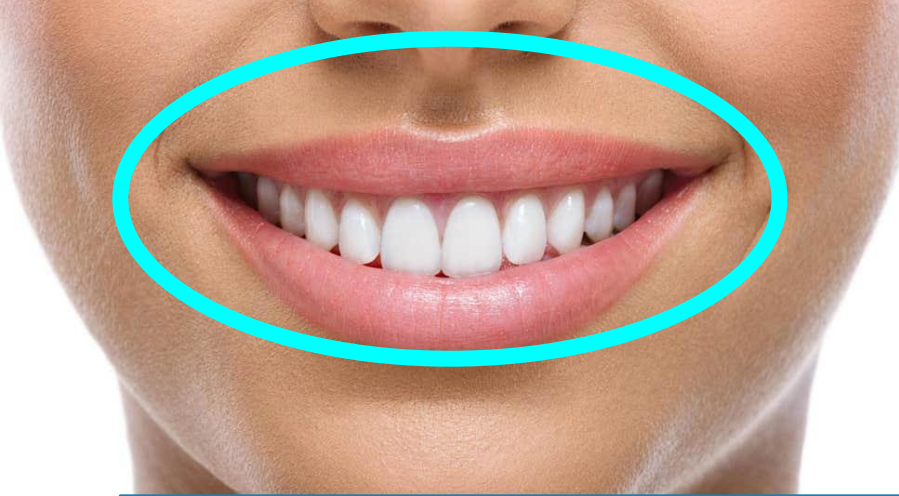
Orthodontist

Pediatrician

**Pediatric
dentist**

**Speech Pathologist
Parents**

Psychologist



Mouth is the zones to express ones emotions and even is a source of relief in passion and anxiety in both children and adults.

Stimulation of this zone is curative and palliative to many hidden state to mind.

BEAR AND LESTER, 1987



Rooting reflexes



Grasping reflexes



DEVELOPMENT OF HABIT

INSTINCTS
(Reflex based)

Rooting /Grasp reflex.

Pattern and order

Pattern and order

Inherited

Acquired

Displacement and move
of instincts

Repeated over a
long time

**Personality
development**

**Deleterious
Habits**

NORMAL DEVELOPMENT

Psychoanalytical theory

Personality development : various stages in childhood: five stages.

First stage : oral stage.

Pleasure- seeking energies of the ID become focused on certain erogenous areas.

MOUTH IS THE PRIMARY EROGENOUS AREA.

This psychosexual energy or libido is the fundamental in developing or shaping a behaviour.

- **If all stages are successful: good personality**
- **If any stage is unsuccessful: fixation.**
- **For eg the first stage : oral stage.**
- **If unsuccessful: feeding problem**
- **Fixation to oral stage: fixation to oral erogenous habits like thumb sucking/pacifiers/nail/lip biting etc.**
- **Non nutritive sucking habits.**



Non-nutritive sucking behaviors in preschool children: A longitudinal study

John J. Warren, DDS, MS Steven M. Levy, DDS, MPH Arthur J. Nowak, DMD, MA Shenghui Tang, PhD

Dr. Warren is assistant professor, and Dr. Levy is professor and graduate program director in the Department of Preventive and Community Dentistry, University of Iowa, College of Dentistry, Iowa City, Iowa. Dr. Nowak is professor in the Departments of Pediatric Dentistry and Pediatrics, University of Iowa, College of Dentistry and College of Medicine, Iowa City, Iowa, respectively. Dr. Tang was a research assistant, Dows Institute for Dental Research, University of Iowa College of Dentistry, and is currently research assistant professor, Medical Statistics Section, Department of Medicine, University of Alabama at Birmingham, Alabama.

Abstract

Purpose: Prolonged duration of non-nutritive sucking behaviors may have consequences in regard to the developing orofacial structures and occlusion. Little is known as to why some children have prolonged sucking habits beyond the first 2 to 3 years of life. This paper reports on non-nutritive sucking patterns among a large cohort of healthy children from birth to 36 months of age and older, and identifies factors predictive of prolonged non-nutritive sucking habits.

older. Factors associated with prolonged sucking habits included older maternal age, higher maternal education level, and having no older siblings.

Conclusions: Identifying factors related to prolonged non-nutritive sucking habits may be important in developing and targeting recommendations regarding such behaviors in an effort to prevent malocclusions that result from prolonged sucking habits. (*Pediatr Dent* 22:187-191, 2000)

Habits and

e in developing

A Rigid

c Equilibrium

External
forces like
habits

Dento
alveolar
structure

Masticatory

Soft tissues :
Tongue, MM

gingival
and PDL
fibres

Newtons
at rest of

A body remains
until acted upon

Functional equilibrium: BREITNER, 1942

External
forces like
habits

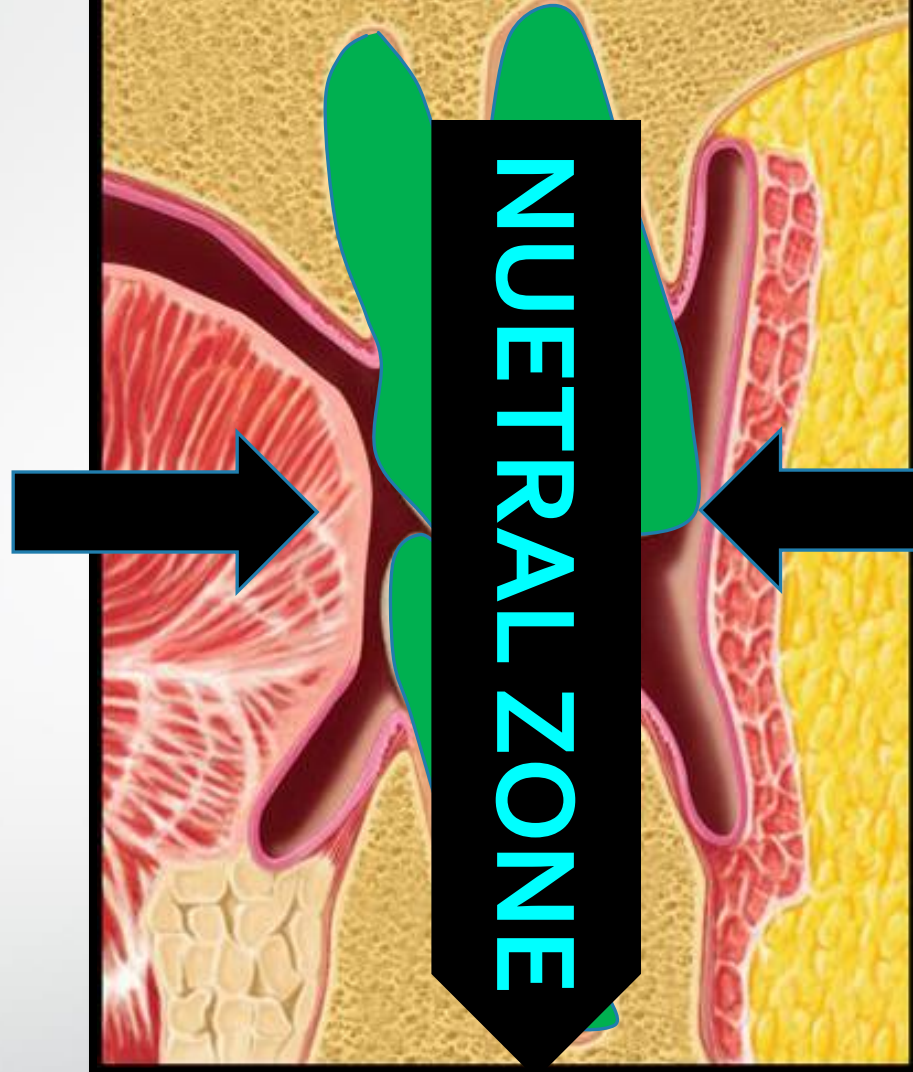
Dento
alveolar
structure

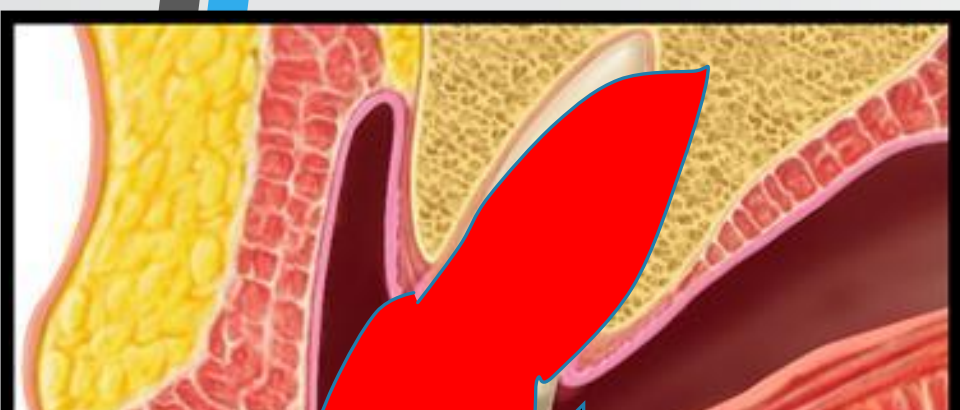
Masticatory

Soft tissues :
Tongue, MM

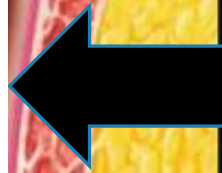
gingival
and PDL
fibres

Functional equilibrium lost





- Proclination
- Crossbites
- Open bites
- Long face
- Crowding
- High arched palate
- Deep bites



To summarize

- In the beginning, the basic instincts of oral stage if unsatisfactory leads to fixation.
- There is constant repetition for gratification.
- Later on the muscles start responding more readily: adaptation
- Habits: which alter the functional equilibrium

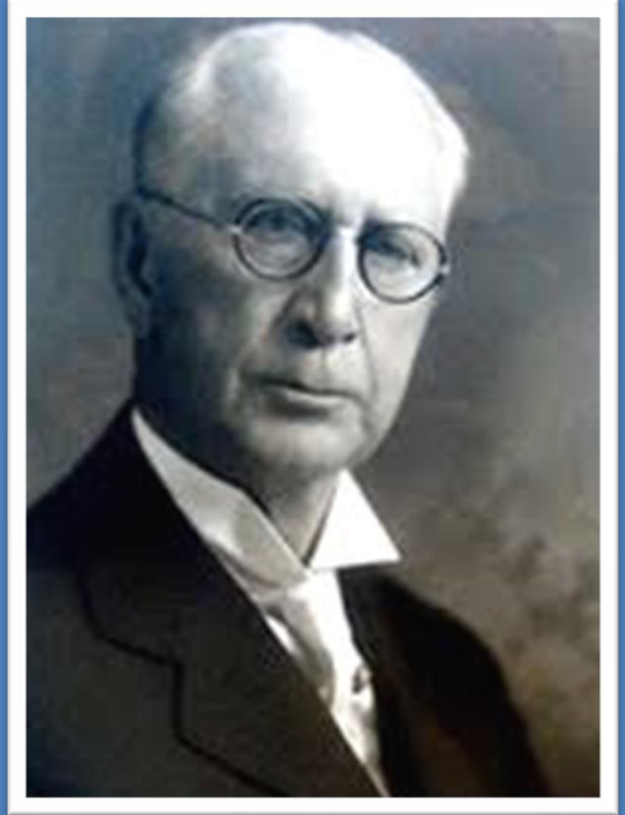
Your answer should contain

- **Psychoanalytical theory: for development of habits**
- **Emotional and cognitive development: for appliance therapy**

Effect of habits on development of malocclusion

Edward Angle's 1907 book titled *The Treatment of Malocclusion of the Teeth*

Equilibrium for stability



1855-1930

Facial development



Genetics, epigenetics, and
causation: Melvin L. Moss, AJO
vol:80, issue 4.p366-77,oct 1981

ction

grows
into....



Functional matrix theory :
Melvin Moss

Thomas M Graber

3 M Concept in Orthodontics

Muscles

Malformation

Malocclusion

AJO, 1963



When it become deleterious habits?

- **Frequency**
- **Duration**
- **Intensity**
 - **I= FXD**

General considerations when deal with oral habits

- Can the habit considered normal for particular age?
- Why child has acquired the habit?
- Psychological implications of allowing habit to continue?
- Is the habit harmful/potentially harmful?
- Does harmful effects subside or persist after habit discontinuation?
- Reasonable time to break the habit?
- How to break the habit?

Tongue thrusting habit

- Introduction
- Definition
- Classification
- Development of a habit
- Etiological agents in development of a habit
- Factors influencing dento-alveolar skeletal deformation
- Prevalence of oral habits
- Diagnosis of tongue thrusting.

The force comparison chart

Anterior
tooth:
Wienstein.
S AJO 1967

1.7gm

Lip bumper:
Force exerted by
lower lip
Sakuda.M et al
J.Dent.Res 1970

100 to
300 gm

Force
exerted
by
tongue

Upto
500 gm

Profit W.R
Arch Oral
Biol 1972

Lip and tongue pressure in orthodontic patients

Heleen Lambrechts, Evelyne De Baets, Steffen Fieuws and Guy Willems

Department of Orthodontics, Faculty of Medicine, Katholieke Universiteit Leuven, Belgium

SUMMARY The contribution of the force of the lips, cheeks, and tongue is of particular interest in planning treatment. Thus, the aim of this study was to determine if there are differences in lip and tongue pressure as a function of gender, age, Angle classification, characteristics of occlusion, and oral habits.

This cross-sectional study comprised 107 subjects (63 females and 44 males), between 7 and 45 years of age (median 15.2 years), seeking orthodontic treatment. The patients were characterized by the variables gender, age, Angle classification, the characteristics of the occlusion, and oral habits. Lip and tongue pressure were measured with a Myometer 160 and the obtained values were statistically analysed (Kruskal–Wallis and Mann–Whitney U-tests) to highlight possible significant differences between the groups.

There was a difference in lip pressure between males and females, between the Angle Classes, and between patients with various associated oral habits. Lip pressure was not significantly correlated with age or with occlusal characteristics. There was no evidence for a relationship between tongue pressure and any of the five considered variables. The findings of present study showed statistically significant differences in lip pressure between different orthodontic patients. There was a difference ($P = 0.004$) in lip pressure between Class I and Class II division 1 subjects. A higher lip pressure exists in males. Lip pressure in subjects with an open lip relationship was lower ($P = 0.026$) when compared with those with tongue interposition or with no particular habits. Lip pressure was also lower in subjects with lip interposition compared with those with tongue interposition.

Deleterious oral habits in children with hearing impairment

[RALUCA DIANA SUHANI](#),¹ [MIHAI FLAVIU SUHANI](#),² [ALEXANDRINA MUNTEAN](#),¹ [MICHAELA MESAROS](#),¹ and [MINDRA EUGENIA BADEA](#)³

► [Author information](#) ► [Article notes](#) ► [Copyright and License information](#) [Disclaimer](#)

Abstract

Go to: 

Background and aims

Deleterious oral habits represent a serious public health issue. The information available about this problem in children with hearing impairment is insufficient. The purpose of this study was to investigate the prevalence of deleterious oral habits among children with hearing impairment and comparing results against children without hearing impairment.

Method

This epidemiological study was carried out in a sample size of 315 children. We used a random sampling technique that included 150 children with hearing impairment and 165 without hearing impairment. All subjects were submitted to a clinical examination. The parents/legal guardians were asked to complete a questionnaire regarding the deleterious habits of their children.

Results

The data collected indicated a higher prevalence of deleterious oral habits among children with hearing impairment: 53.3% as opposed to 40.6% among children without hearing impairment. There was a higher incidence of malocclusion in children with hearing impairment (79.3%) compared to children without hearing impairment (57%).


Comparison of soft-tissue, dental, and skeletal characteristics in children with and without tongue thrusting habit

[Uma B. Dixit](#) and [Raghavendra M. Shetty](#)¹

► [Author information](#) ► [Copyright and License information](#) [Disclaimer](#)

This article has been [cited by](#) other articles in PMC.

Abstract

Go to: 

Results:

Significantly, higher number of children with tongue thrusting showed lip incompetency (86% vs. 14%), mouth-breathing habit (38% vs. none), hyperactive mentalis muscle activity (24% vs. none), Open-bite (52% vs. none) and lisping (86% vs. none) when compared to children without tongue thrust. Children with tongue thrust showed increased upper lip thickness and proclination of maxillary incisors. No differences were found in angulation of mandibular incisors, inter-premolar or inter-molar widths and all the skeletal parameters studied.

Conclusions:

Tongue thrust seemed to affect some of the soft-tissue and dental characteristics causing lip incompetency, mouth-breathing habit, and hyperactive mentalis muscle activity, lisping, open-bite, and proclination of maxillary incisors; however, no significant skeletal changes were observed.

A Tongue Force Measurement System for the Assessment of Oral-Phase Swallowing Disorders

Stephen N. Robinovitch, BAsC, Cecil Hershler, MD, PhD, Douglas P. Romilly, PhD

ABSTRACT. Robinovitch SN, Hershler C, Romilly DP: Tongue force measurement system for assessment of oral-phase swallowing disorders. *Arch Phys Med Rehabil* 1991;72:38-42.

• A computer-aided measuring system using a highly sensitive beam transducer has been developed to provide a quantitative, reliable measure of tongue strength. This tool has application in both the diagnosis and treatment of dysphagic patients with oral-stage dysfunction. The device is customized to comfortably adapt to each individual. Audiovisual feedback is used to enhance subject interest and motivation. The device has proven reliable in measurements of upward and side tongue thrust in six able-bodied subjects measured during five separate sessions. It has also been used with two dysphagic patients.

KEY WORDS: Deglutition disorders; Dysphagia

A common finding associated with oral-phase swallowing disorders is poor tongue strength and coordination. Current techniques in diagnosis and therapy rely on subjective methods to estimate tongue strength and coordination, such as gauging the magnitude of tongue thrusts against the cheek or against a wooden tongue depressor. To provide an accurate, repeatable method to objectively quantify tongue strength and endurance, the clinical research laboratory of our rehabilitation center developed the tongue force measurement system (TOMS). This device is relevant only to the oral phase of swallowing.

The core of TOMS is a highly sensitive beam transducer capable of measuring the magnitude of tongue thrusts in upward and side directions. This transducer is interfaced to a microcomputer which performs high-speed data acquisition and processing. Computer graphics provide instantaneous visual feedback which motivates the individual to maintain a predefined target level.

The tongue force measurement system can be used to assess deficiencies in tongue strength and to monitor a patient's progress during rehabilitation; TOMS can also be used as an exercise tool for dysphagia rehabilitation. The development of

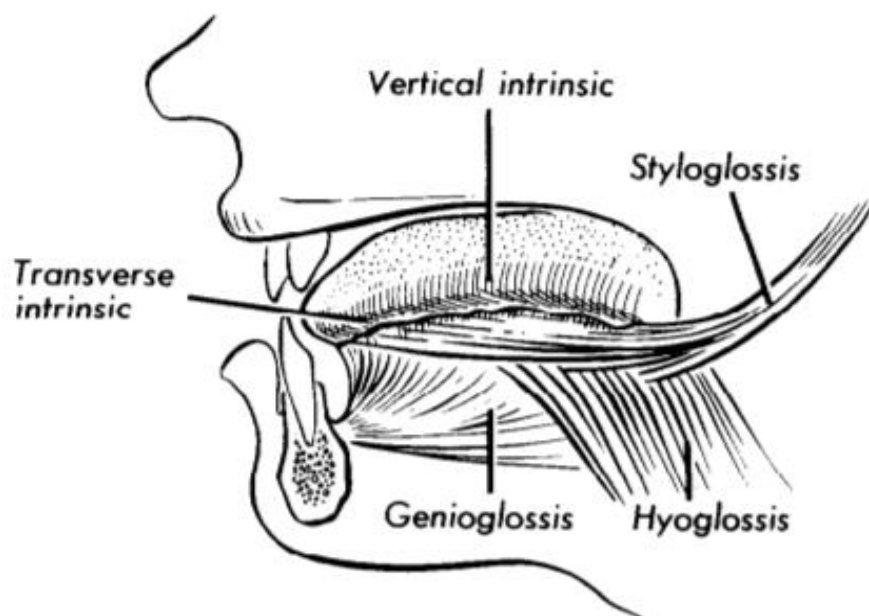


Fig 1—Intrinsic and extrinsic muscles of the tongue.

in tongue form: they consist of fibers oriented in the longitu-

Relations and Speech in Children with Oral Habits

Master of Science, Paediatric Dentistry, 2008

Ihab Yousef Suwwan, B.D.S

Graduate programme in Paediatric Dentistry, University of Toronto

Abstract

A longitudinal pilot study to compare, in children with reduced overbite malocclusions associated with oral habits (finger-sucking and tongue-thrusting), the effects of the experimental Myofunctional Trainer (MFT; Myofunctional Research Co.) and the conventional Bluegrass appliance (BG) on dento-alveolar relations, tongue position, and on speech. **Methods:** The experimental group received the MFT appliance while the control group received the BG appliance. Dento-alveolar changes were assessed by cephalometry and study models. Longitudinal midsagittal 2-dimensional B-mode ultrasound scans of the tongue surface were performed to determine tongue position. Speech acceptability tests were also performed. **Results & Conclusions:** The BG appliance was successful in breaking the finger-sucking habit. The MFT appliance showed only partial success which could be attributed to lack of compliance. At the end of treatment, the open bite was reduced in both groups due to dento-alveolar changes. The BG appliance had a deleterious effect on speech acceptability while in place, while there was no such effect with the MFT appliance.

REVIEW ARTICLE



Tongue thrusting habit: A review

Suchita Madhukar Tarvade, Sheetal Ramkrishna

Journal of Dentistry and Oral Hygiene Vol. 4(2), pp.12-15, May 2012

Available online at <http://www.academicjournals.org/JDOH>

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Review

Abnormal oral habits: A review

N. Shahraki, S. Yassaei* and M. Goldani Moghadam

Department of Orthodontics, School of Dentistry, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Accepted 12 April, 2012

Oral habits are learned patterns of muscle contraction and have a very complex nature. They are associated with anger, hunger, sleep, tooth eruption and fear. Some children even display oral habits for release of mental tension. These habits might be non-nutritive sucking (thumb, finger, pacifier and/or tongue), lip biting and bruxism events. These habits can result in damage to dentoalveolar structure; hence, dentists play a crucial role in giving necessary information to parents. This

27

Pediatric Dentistry: Infancy Through Adolescence : NOWAK 6th edition P386

Oral Habits

CLARICE S. LAW

CHAPTER OUTLINE

Thumb and Finger Habits

Treatment

Pacifier Habits

Lip Habits

Tongue Thrust

Mouth Breathing

Nail Biting

Bruxism

Summary

mouth. The frequency of digit sucking throughout a routine day will also have an impact on tooth movement. Clinical experience suggests that 4 to 6 hours of force per day is probably the minimum necessary to cause tooth movement.³ Therefore a child who sucks intermittently with high force may not produce much tooth movement at all, whereas a child who sucks with less force but continuously (for more than 6 hours) can cause significant dental change, which is consistent with the equilibrium theory. However, it is the duration of time sucking (in months and years) that probably plays the most critical role in tooth movement caused by a digit habit.^{1,2,4,5} The most frequently reported dental outcomes of an active digit habit are the following³:

1. Posterior crossbite
2. Anterior open bite
3. Increased overjet

Some studies have also reported differences in canine and molar relationship, but these are not present with the same frequency.

The maxillary arch constriction associated with a posterior crossbite is a habit that is often associated with a digit habit.

The presence of an oral habit in a 3- to 6-year-old child is a significant finding in the clinical examination. The

- Screening tongue thrust swallow

Screen for

Tongue size

Tongue tie

Tongue function

Tongue posture.

Tongue exercise

What happens in habits



Key studies

- “An Electromyographic Analysis of the Temporalis Muscles and Certain Facial Muscles in Thumb and Finger-sucking Patients” 1960, Claude Baril and Robert E. Moyers
 - Effect of thumb sucking on temporalis, buccinator, mentalis and orbicularis oris muscle using EMG.
-
- PRESSURE SEEN DURING THUMB SUCKING • Mishiro et al. studied 60 female children aged 7-12 years using a pressure sensor similar to ours on the anterior region of the palate. Thumb-sucking pressure measured in this study far exceeded tongue pressure, causing malocclusion and potential dental migration.

Non-nutritive suckling habits in brazilian children: effects on deciduous dentition and relationship with facial morphology Cintia Regina, AJO 2004.

- The study was to assess the relationship between non nutritive suckling habits, facial morphology and malocclusion in all three planes of space, in four year old children attending state school.
- Conclusions drawn from these studies are prevalence of malocclusion was high 49.7% and 28.5% of the children had association of 2-3 malocclusion factors (posterior crossbite, anterior open bite increased overjet).

Nutritive and Non-Nutritive Sucking Habits – Effect on the Developing Oro-Facial Complex; A Review

Jyoti S* and Pavanalakshmi GP

Department of Pedodontics and Preventive Dentistry, Vydehi Institute of Dental Sciences, EPIP area, White field, Bangalore, India

Abstract

Children have unique dental needs. During developmental period, the children go through various phases i.e., from no teeth, to primary teeth, to losing teeth, to permanent teeth, which occur in about the first 12-14 years. If this routine goes without any disturbance, the child enters the adulthood with a strong and healthy dentition and oral structures. If there is any disturbance, either physical or psychological or both, it will result in mal development and malocclusion.

The development and maturation of normal oropharyngeal function plays an important role in craniofacial growth and occlusal physiology. Any muscular imbalance caused by intrinsic or extrinsic pressure will show their effect on the growing bone which will result in malocclusion. One of the important factors resulting in malocclusion is oral habit practiced by a child.

Having an oral habit is not a tragic situation, but needs to be stopped at the appropriate time with an appropriate method to get a good long-term result.

Keywords: Nutritive sucking habit; Non-nutritive sucking habit; Oro-facial complex

Introduction

Suckling is a reflex occurring in the oral stage of development and disappears during normal growth between the ages 1 and 3 ½ years [1,2].

It is the first coordinated muscular activity of the infant, which helps in due to finger sucking, bottle feeding and mouth breathing. Labbok and Hendershot noted that there is a strong indication that breast feeding, especially if prolonged does protect against malocclusion. They concluded that, oral facial development might be one health issue on which breast-feeding may have measurable impact [4].

Bottle feeding

Digit-sucking: A Review of the Literature, Clinical Observations and Treatment Recommendations

R A Van Norman

"The overall goal is to create as normal an environment as possible so as to facilitate normal growth and development." The early elimination of digit-sucking habits is one of the most important therapeutic services. Treatment after the pathology is fully developed is invasive, not cost-effective and does not provide as good a clinical result. Little mouths deserve a big chance to grow healthy and straight.

However, as demonstrated by Kelly, et al (1973), millions of children do not discontinue their sucking habits before permanent teeth erupt. In addition, stress levels in today's world are probably significantly greater than when this study was done. Because stress is a powerful stimulus for the sucking activity, it is highly probable that if a similar study were done today, it would produce a substantially greater number of individuals with prolonged sucking habits. The active pursuit of

Oral Habits--Part 1: The Dental Effects and Management of Nutritive and Non-Nutritive Sucking

Mihiri Silva¹, David Manton²

Affiliations + expand

PMID: 25514257

- **Silva M, Manton. Oral Habits-Part 1: the dental effects and management of nutritive and non-nutritive sucking. J DentChild 2014; 81(3): 133-39.**

Abstract

Nutritive sucking and non-nutritive sucking are among the most commonly reported oral habits in children. These habits generally cease around four years of age as interaction with other children increases. However, prolonged habits may alter dento-skeletal development, leading to orthodontic problems, which may persist into the permanent dentition. Rewards, reminder therapy, and appliance therapy have been described for the management of nutritive and non-nutritive sucking habits. Reminder therapy includes the use of gloves, thumb-guards, mittens, and tasters applied to fingers. When other modes of treatment have failed, appliance therapy, such as palatal cribs or Bluegrass appliances, may be necessary to prevent the placement of the digit in its sucking position. These tools are very effective and are associated with few adverse effects; however, they must be used with the cooperation of the child and never as punishment. The purpose of this paper is to update clinicians about nutritive and non-nutritive sucking habits in children and their impact on dental/skeletal development, and management options.

Oral Habits--Part 2: Beyond Nutritive and Non-Nutritive Sucking

Mihiri Silva ¹, David Manton ²

Affiliations + expand

PMID: 25514258

Silva M , David Manton : Oral Habits--Part 2: Beyond Nutritive and Non-Nutritive Sucking. J Dent Child (Chic) Sep-Dec 2014;81(3):140-6.

Abstract

In addition to sucking habits, a range of other habits have been associated with short- and long-term dental and orthodontic problems. These habits include tongue thrusting and atypical swallowing, lip sucking, oral self-mutilation, mouth breathing, and bruxism. Although the association between form and function continues to be controversial, if habits are of sufficient duration they may lead to dental malocclusion and impede successful management. Oral self-injury and bruxism can lead to significant problems, such as soft tissue trauma and infection. Accurate history taking and examination are essential steps in formulating a diagnosis and management plan. Although a range of treatment options are often available, clear guidelines for treatment are difficult to develop due to a lack of high quality clinical trials. Optimal management is likely to be dictated by patient and severity variability. The purpose of this paper is to review and discuss the management of tongue thrust and atypical swallowing, lip sucking, oral self-mutilation, mouth breathing and bruxism.

EVIDENCE BASE UPDATE

Evidence-Based Psychosocial Treatments for Pediatric Body-Focused Repetitive Behavior Disorders

Douglas W. Woods and David C. Houghton

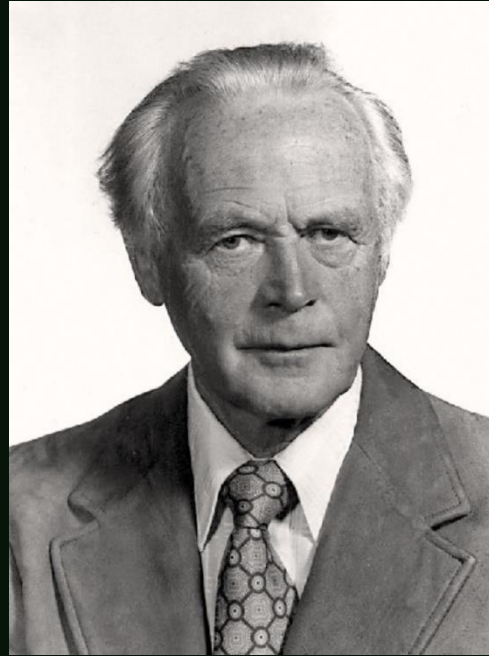
Department of Psychology, Texas A&M University

Habits, such as hair pulling and thumb sucking, have recently been grouped into a category of clinical conditions called body-focused repetitive behavior disorders (BFRBDs). These behaviors are common in children and, at extreme levels, can cause physical and psychological damage. This article reviews the evidence base for psychosocial treatment of pediatric BFRBDs. A review of academic databases and published reviews revealed 60 studies on psychosocial treatments for pediatric BFRBDs, 23 of which were deemed suitable for review. Based on stringent methodological and evidence base criteria, we provided recommendations for each specific BFRBD. Individual behavior therapy proved probably efficacious for thumb sucking, possibly efficacious for several conditions, and experimental for nail biting. Individual and multicomponent cognitive-behavioral therapy was named experimental for trichotillomania and nail biting, respectively. No treatment met criteria for well-established status in the treatment of any BFRBD. Recommendations for clinicians are discussed. Reasons for the limitations of existing research in children and adolescents are explored. Several recommendations are presented for future pediatric treatment research on BFRBDs.

MOUTH BREATHING



Egil Peter Harvold



Primate experiments on oral respiration: Harvold EP et al Am J Orthod 1981 Apr;79(4):359-72.

Comparison between MB and normal breathers



Three-dimensional assessment of pharyngeal airway in nasal- and mouth-breathing children: Matheus Alves et al.
International journal of pediatric otorhinolaryngology
75(9):1195-9 · September 2011



Review Article

Model of orofacial rehabilitation in children with obstructive sleep apnea: rapid maxillary expansion

Luca Le
Giovane

^aDepartment of
Insubria Un

^bDepartamento de Fonoaudiologia da Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

^cDepartamento de Psicobiologia da Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

If RME is supported by an adequate functional rehabilitation, the possibility to change the breathing pattern is considerably amplified



ARTICLE INFO

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Palatal expansion technique

Mouth breathing

Myofunctional therapy

ABSTRACT

Rapid maxillary expansion (RME) is a widely used practice in orthodontics. Scientific evidence shows that RME can be helpful in modifying the breathing pattern in mouth-breathing patients. In order to promote the restoration of physiological breathing we have developed a rehabilitation program associated with RME in children. The aim of the study was a literature review and a model of orofacial rehabilitation in children with obstructive sleep apnea undergoing treatment with rapid maxillary expansion. Muscular training (local exercises and general ones) is the key factor of the program. It also includes hygienic and behavior instructions as well as other therapeutic procedures such as rhinosinusal washes, a postural

Orofacial myofunctional therapy in mouth breathing children

- **CONCLUSION:** Ten sessions of myofunctional therapy, with an emphasis on strengthening the musculature of the phonoarticulatory organs and training of nasal breathing were sufficient to obtain improvement in patients. .

I

Speech therapist; Improvement in Orofacial Motricity by the Brotherhood Santa Casa de Misericórdia of São Paulo, ISCMSP, São Paulo, SP

II

Speech Therapist; Coordinator of the Oral Motricity Improvement Course in Speech Therapy at the Brotherhood of Santa Casa de Misericórdia de São Paulo, ISCMSP, São Paulo, SP; Master in Speech Therapy from the Pontifical Catholic University of São Paulo

Geovana de Paula Bolzan¹
Juliana Alves Souza²
Luane de Moraes Botton³
Ana Maria Toniolo da Silva⁴
Eliane Castilhos Rodrigues Corrêa⁵

Facial type and head posture of nasal and mouth-breathing children

Tipo facial e postura de cabeça de crianças respiradoras nasais e orais

- **Results:** There was an association among facial type and breathing mode/mouth breathing etiology: the brachyfacial type was more frequent among nasal breathers, and less frequent in subjects with obstructive nasal breathing.

Fotogrametria
Criança

possibilitou a constituição de três grupos: com respiração nasal – 12 crianças; com respiração oral obstrutiva – 22 crianças; e com respiração oral viciosa – 22 crianças. Foram mensuradas a altura e a largura da face com paquímetro digital, para determinação do índice e do tipo facial. A postura da cabeça foi avaliada por meio de exame físico e fotogrametria computadorizada. **Resultados:** Verificou-se predomínio de face curta nos respiradores nasais e de face longa nos respiradores orais. Houve associação entre tipo facial e modo respiratório/ etiologia da respiração oral, o tipo braquifacial foi mais frequente nos respiradores nasais e menos frequente nos respiradores orais de etiologia obstrutiva. As crianças dos três grupos apresentaram postura de cabeça semelhante. Não foi verificada correlação entre índice morfológico da face e a postura da cabeça. **Conclusão:**

Relationship Between Mouth Breathing and Postural Alterations of Children: A Descriptive Analysis

L H Krakauer¹, A Guilherme

Affiliations + expand

PMID: 11307345

- Krakauer L.H. and Guilherme A. 2000. Relationship between mouth breathing and postural alterations of children: a descriptive analysis. Int. J of Orofacial Myology, 2000. 25(1): 13-23.

Abstract

Children with nasal respiration, age 8 and above, present with better posture than those who continue oral breathing beyond age 8.

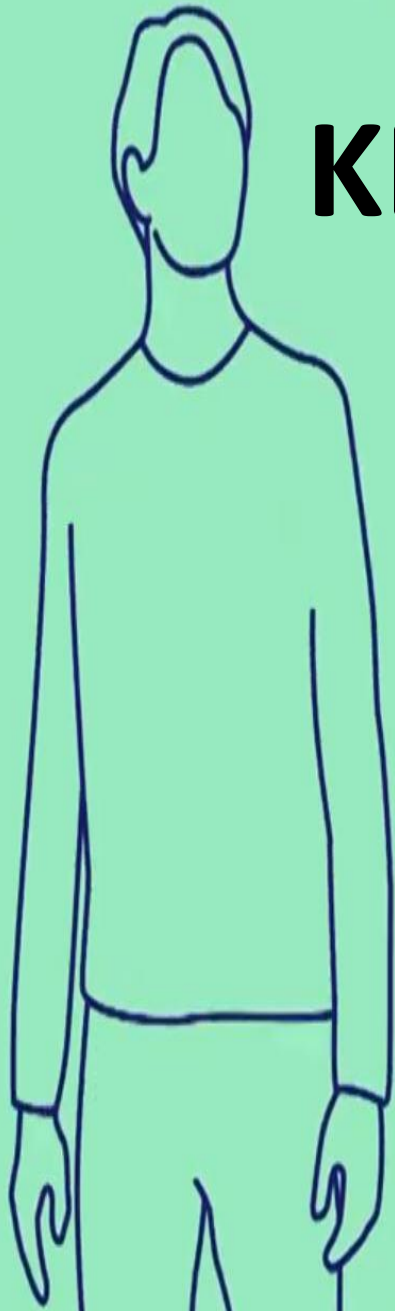
breathing
in specific
with
ture

documentation is stressed in order to provide the most information regarding postural changes. A review of research and literature is provided in the article.

Prevalence and Persistence of Sleep Disordered Breathing Symptoms in Young

- **Results:** In multivariate analyses of combined symptoms, socioeconomic factors have stronger, more persistent effects upon increased SDB risk than gestational age, gender, or race
- Adenoidectomy decreases risk by 40%-50%.
- **Conclusions:** This is the first natural history study of the primary symptoms of SDB across a key 6-year period in the development of SDB symptoms.
- Snoring rates are higher and spike earlier than previously reported.
- Symptoms are dynamic, suggesting the need for early and continued vigilance in early childhood.

KEEP YOUR



1.5M

SPACE MANAGEMENT

1. Classify space maintainers. Enumerate their indications and contraindications. Discuss Lingual arch space maintainer.

2. Early and late mesial shift

3. Discuss the role of space management in development of normal occlusion

4. Discuss in detail management of a 5 year old child who comes with a history of loss of 75 and 84

5. How does the term space management and space control differ and various factors that influence the planning of space maintainers. Discuss in detail the management of a 5 year old child who comes with a history of loss of 85 and 74.

6. Management of Space in developing dentition 75M

7. Occlusal guidance in children 75M



Let's lock the space

SPACE MAINTAINERS

Space maintainers can be defined as appliances used to maintain space or regain minor amounts of space lost, so as to guide the unerupted tooth into a proper position in the arch.

SPACE MANAGEMENT

Space management includes measures that diagnose and prevent / intercept situations so as to guide the development of dentition and occlusion.

SPACE MAINTENANCE

Space maintenance can be defined as the provision of appliance (active or passive) which is concerned only with the control of space loss without taking into consideration, measures to supervise the development of dentition.

Spaces in a dental arch

Baume classification of spaces in primary dentition 1950

Class I: Primary dentition with spacing

Class II: Primary dentition with no spacing

- Physiological spaces or Secondary space
- Primate spaces
- Leeway space of Nance
- secondary spacing
- Tertiary spacing

Baume LG. Physiological tooth migration and its significance for the development of occlusion. 1. The biogenetic course of the deciduous dentition. J Dent Res 1950;29:123–132.



Objectives of Space Maintenance

- To prevent the loss of arch length, arch width, and arch perimeter by maintaining the relative position of the existing dentition.
 - American Academy of Pediatric Dentistry



Kronfeld's theory

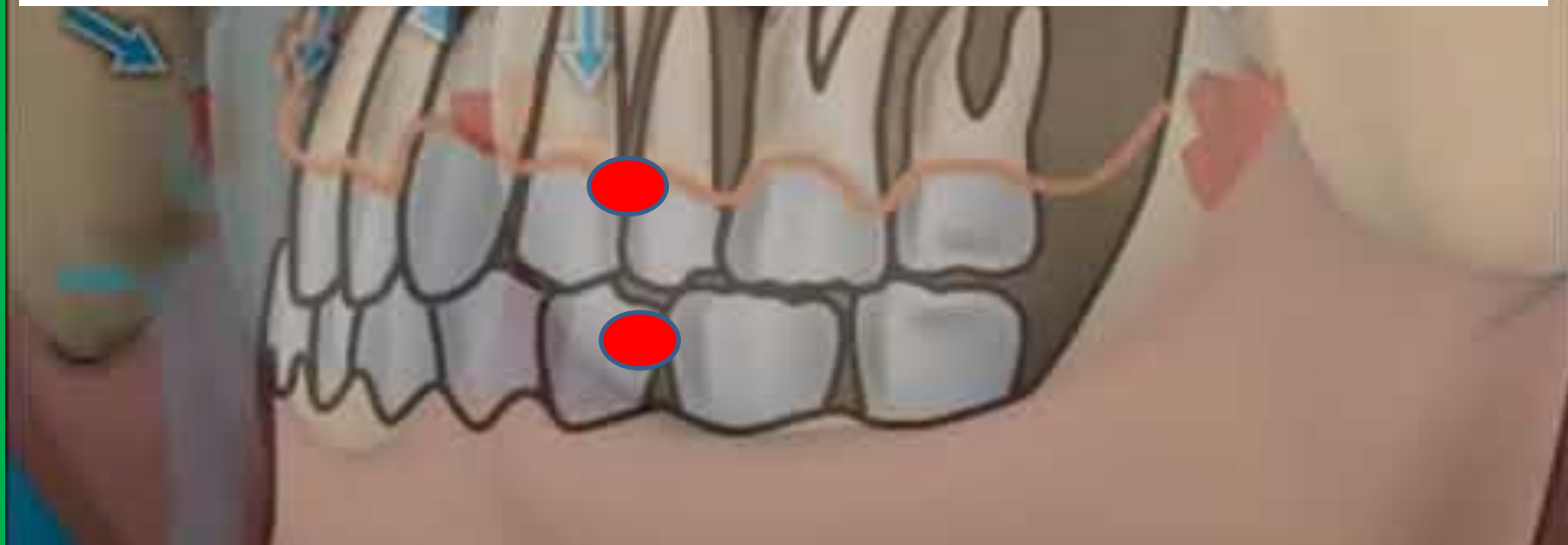
- Kronfeld's theory states that there are neutral areas located in the following:
- Between the bicuspids in the maxilla
- Mesial to the 1st molars in the mandible.



Based on this theory:

Teeth anterior to the neutral area have a tendency to drift distally

Teeth posterior to the neutral area have a tendency to drift mesially.





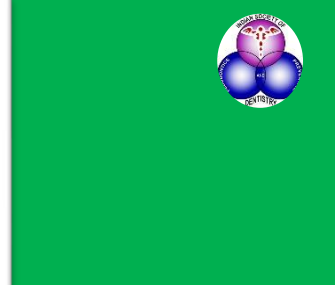
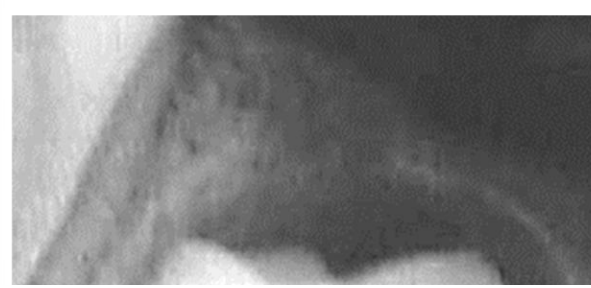
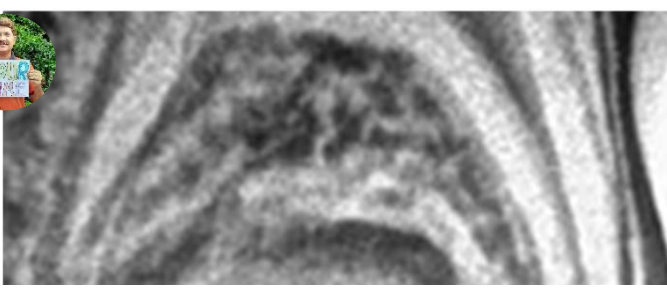
Dynamics conti.....

- 6. Time elapsed since the extraction**
- 7. Location of space loss: maxilla or mandible**
- 8. Oral musculature and its role**
- 9. Crowding**
- 10. Facial pattern**
- 11. Occlusion of teeth**



Nolla's 10 Stages of Calcification

- Stage 2 - initial calcification
- Stage 6 - eruptive movement begins (crown formation complete)
- Stage 8 - alveolar crest pierced (2/3 root development)
- Stage 9 - gingival margin pierced (3/4 root development)
- Interval between Stage 6 and full interdigitation is about 5 years



SCIENTIFIC ARTICLE

Eruption of the primary dentition in human infants: a prospective descriptive study

Sarah A. Hulland, BSc (Hons), DDS, MSc, DPD, FRCD(C) James O. Lucas, MDSc, LDS, FRACDS, FICD
Melissa A. Wake, MBChB, MD, FRACP Kylie D. Hesketh, BBS(Hons)

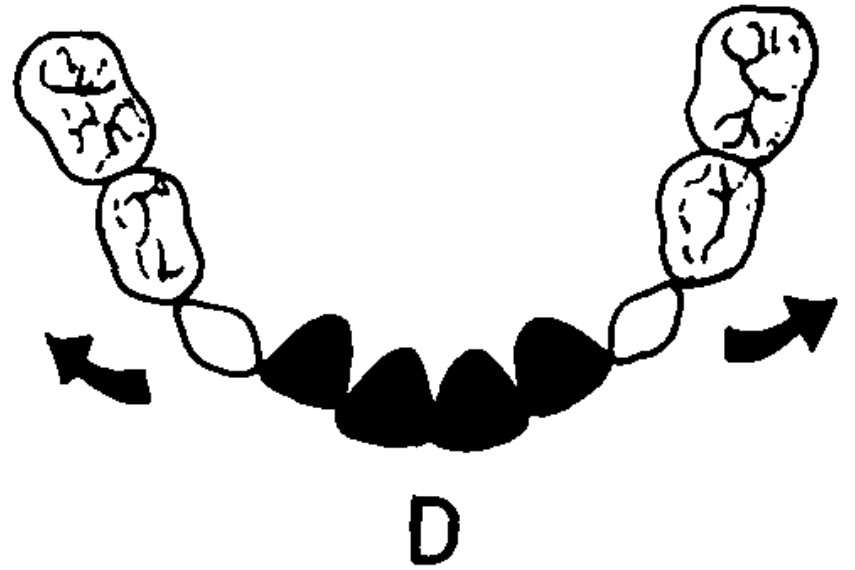
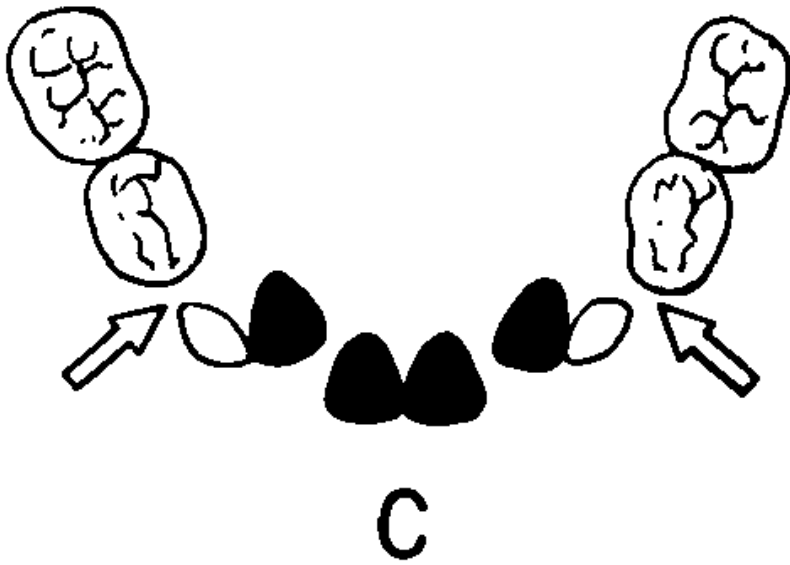
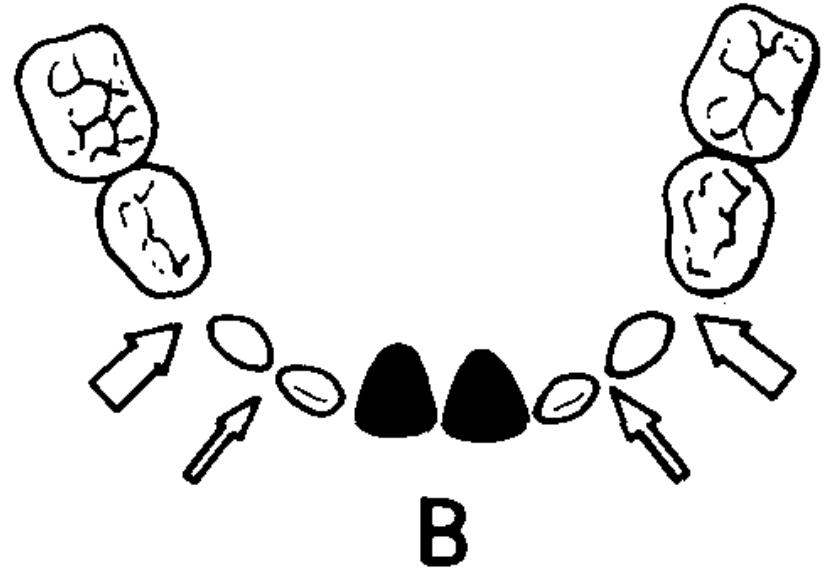
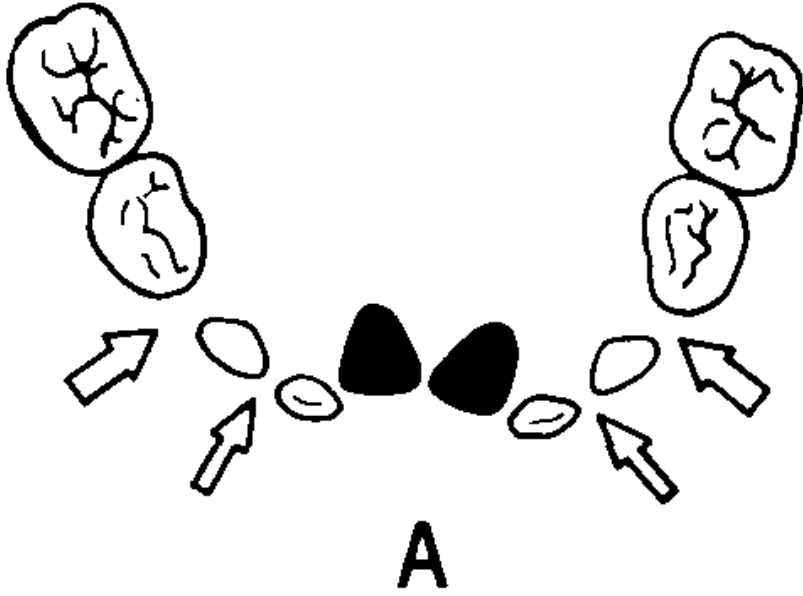
Dr. Sarah A. Hulland is the clinical research associate, Department of Dentistry; Dr. James O. Lucas is the deputy director, Department of Dentistry; Dr. Melissa A. Wake is the director and Ms. Kylie D. Hesketh is the research assistant, Research and Policy Unit, Centre for Community Child Health and they are all at Royal Children's Hospital, Melbourne, Australia. Correspond with Dr. James Lucas at drjameslucas@bigpond.com

Abstract

Purpose: *This study investigated the clinical process of the emergence phase of eruption of the primary dentition including length of time taken to erupt and the association between soft tissue changes and stages of eruption.*

Methods: *Twenty-one children aged 6 - 24 months at commencement of the study were recruited from three suburban daycare centers in Melbourne, Australia. Daily oral examinations of each child were conducted for seven months.*

eral theories have been suggested including the alveolar bone growth theory; the root growth and pulpal proliferation theory; and the blood and tissue fluid pressure theory.⁷⁻¹⁰ The most likely source of eruptive forces has been identified as those associated with the periodontal ligament.⁷⁻⁹ Research in this area has revealed that no single causative factor adequately explains the mechanism of tooth eruption although it is clear that a complete, essentially time-specific, biological interaction occurs





Your case selection: Before the incisor liability



- Dimensional changes in the arch
 - **IOWA Growth study: Meredith and Higley 1946**
 - Dental arch changes: Ferguson and Bishara 2001 chapter 6 p 61-75
 - Facial and dental changes in adolescence : Bishara 2001 chapter 7 p 76-82

SPACE ANALYSIS

- 1 Nance Method
- 2 Moyer's analysis
- 3 Tanaka and Johnson Method
- 4 Huckaba analysis
- 5 Hixon and old father method
- 6 Revised Hixon and Oldfather method: Staley and Kerber 1980
- 7 Iowa Prediction Method for Both Arches Bishara
- 8 Ballard & Wylie's modification, 1947
- 9 Total space analysis in mixed dentition (Leven Merrifield 1988)
- 10 Boston university approach by Gianelly

APPLYING PREDICTION METHODS TO DIFFERENT RACIAL GROUPS

Tooth size arch length analysis: Robert Staley in text book of orthodontics Bishara 2001 chapter 12 p 134-45

- Applicability of the Moyers mixed dentition probability tables and new prediction aids for a contemporary population in India
 - Nebu et al American Journal of Orthodontics and Dentofacial Orthopedics Volume 138, Issue 3, September 2010, Pages 339-345.
- The validity and reliability of mixed-dentition analysis methods: A systematic review: Nghe S et al. 2011
 - The Journal of the American Dental Association Volume 142, Issue 10, October 2011, Pages 1143-1153.
- Primary Dentition Analysis: Exploring a Hidden Approach.
 - Int J Clin Pediatr Dent. 2016 Jan-Mar; 9(1): 1–4. Sivakumar N et al

Loss of space and changes in the dental arch after premature loss of the lower primary molar: A longitudinal study

PADMA KUMARI B.^a, RETNAKUMARI N.^b

Abstract

The purpose of the study was to evaluate the space changes, dental arch width, arch length and arch perimeter, after the unilateral extraction of lower first primary molar in the mixed dentition period. A longitudinal study was conducted among forty children in the age group of 6-9 years, who reported for extraction of lower first primary molar in the department of Pedodontics, Govt. Dental College, Trivandrum. Study models were made from alginate impression taken before extraction and after extraction at the periodical intervals of two months, four months, six months and eight months. The mesiodistal width of lower first primary molar of the non-extracted side was taken as the control. The results of the study showed statistically significant space loss in the extraction side (P value < 0.01) and no significant space loss in the control side (P value > 0.05). The rate of loss was greatest in the first four months. The arch width, arch length and arch perimeter had no significant change from initial to eight months follow up. The present study challenges the use of a space maintenance under the circumstances of premature loss of mandibular primary molar for preventing space loss.

- Do we need a space maintainer with D loss?

The premature loss of primary first molars:

Space loss to molar occlusal relationships and facial patterns

Stanley A. Alexander^a; Marjan Askari^b; Patricia Lewis^c

ABSTRACT

Objective: To investigate space changes with the premature loss of primary first molars and their relationship to permanent molar occlusion and facial forms.

Materials and Methods: Two hundred twenty-six participants (ranging in age from 7 years

The relationship between the first permanent molar occlusion and facial form of the child has an influence on the loss of space at the primary first molar site.

Conclusions: The relationship between the first permanent molar occlusion and facial form of the child has an influence on the loss of space at the primary first molar site. (*Angle Orthod.* 2015;85:218–223.)

Space maintenance

EMMA LAING, PAUL ASHLEY, FARHAD B. NAINI, DALJIT S. GILL

First published: 07 April 2009 | <https://doi.org/10.1111/j.1365-263X.2008.00951.x> | Citations: 24



Mr Daljit Gill, Department of Orthodontics, Eastman Dental Hospital, 256 Gray's Inn Road, London, WC1X 8LD. E-mail: daljit.gill@nhs.net

- There is limited evidence to recommend either for or against the use of space maintainers to prevent or reduce the severity of malocclusion in the permanent dentition.
- Decisions regarding the use of space maintainers should be guided by balancing the occlusal disturbance that may result if one is not used against the potential plaque accumulation and caries that the appliance may cause.



Time for Exams



Band and loop exam preparation

- 1. Case selection**
- 2. Record preparation**
- 3. Preparing the case for exam**
- 4. History taking and Presenting the case**
- 5. Instruments and disinfection protocol**
- 6. Band selection or pinching and show the finished work**
- 7. Impression taking and transferring the band**
- 8. Stabilizing the band**
- 9. Disinfecting the impression and band**
- 10. Pouring the cast**



11. Fabrication of loop and checking the occlusal high points
12. Soldering and polishing
13. Disinfecting and Sterilize the appliance and pouch.
14. Check in patient mouth for fit .
16. Lute the appliance
17. Instructions for parents/patients
18. Follow up appointments and future plan.



Case selection



- **Single primary molar loss: mandible**
- **Bilateral loss: choose the side you are comfortableCAUTION**
- **Check for factors in selecting the SM (11).**
- **Health of the abutment tooth**
- **Health of canine: distal contour**



Case records

- **Good quality IOPA/OPG(recent)**
- **Staging of successor teeth**
- **Study models :pour base and in good occlusion**
- **Space analysis: result**



Case preparation

- **Try to prepare your case by yourself**
- **Preventive and therapeutic care**
- **Filling should be checked: abutment(E) and C**
- **Practice on patient**
- **Band selection can be done or ready for pinching the band.**
- **If 6 erupted put a separator 3 days before**
- **Select the correct size impression trays**
- **Keep all instruments clean/sterilized and pouched**



History taking and Presenting the case

- **Relevant finding**
- **Justification: space maintenance or space management?**
- **Your choice of appliance and its justification**
- **Any future proposal and follow up plans**



- **Band selection or pinching and show the finished work**
- **Impression taking and transferring the band**
- **Stabilizing the band**
- **Disinfecting the impression**
- **Pouring the cast**



- Fabrication of loop
 - Just above the contact area without occlusal interference
 - Rapp modification
 - T MODIFICATION
- Checking the occlusal high points in the cast.
- Soldering and polishing
- Disinfecting the appliance and pouch it



- Call the patient 1 hr early
- Check for fit and adaptation
- Lute the appliance
- Instructions for parents/patients
- Follow up appointments and future plan.
- **Let's wait for the result**

**WISH YOU
ALL THE
BEST**

