SML™
SPACE MAINTAINERS LABORATORIES

TIPS AND TECHNIQUES

CHAIR-SIDE SPACE MAINTAINERS

DR. ROB W. VEIS, D.D.S.

Written exclusively for dentists.
Designated for one CE Contact Hour.

OVERVIEW

Prescribing a space maintainer when primary teeth are prematurely lost is one of the most important services a dentist can provide for a pediatric patient.

Premature loss of a primary molar (when the adult bi-cuspid is not quite ready to erupt) can result in severe orthodontic consequences. If the adult molar is allowed to drift mesially (into the space reserved for the unerupted bi-cuspid), extensive orthodontic treatment will be required in the future.

By providing the child with a proper space maintainer, the dentist preserves arch length and allows the permanent teeth to erupt normally. Being able to provide a simple, cost-effective, space maintainer is an important tool for any dentist.

EDUCATIONAL OBJECTIVES

The overall objective of this course is to provide the participant with an evidence-based guide to the advantages, classification, proper procedural protocols and performance of space maintenance.

UPON COMPLETING THIS COURSE, PARTICIPANTS WILL BE ABLE TO:

- Recognize and evaluate factors and conditions that indicate a need for space maintenance
- Understand the practice potential of providing pediatric patients with a proper space maintainer, and its importance to overall patient health
- Appreciate the necessity of a detailed patient examination and accurate history
- Discuss chair-side procedures and after-care with patients and parents



About the Author:
ROB VEIS, DDS.

Dr. Veis began practicing in 1984 as a solo general dentist and has been a part of both solo and group practices since then.

A graduate of USC Dental School, he taught for 12 years at the University of Southern California as a Clinical Professor in Restorative Dentistry; is an internationally renowned lecturer (at locations including UNLV, Columbia University, Loma Linda University and NYU) on the topics of Dental Sleep Medicine, Orthodontics for the General Practice and Appliance Therapy; and has served on the faculty of the Las Vegas Institute of Advanced Dental Studies.

He is the co-author of The Principles of Appliance Therapy for Adults and Children – considered one of the definitive texts on the subject – and has lectured extensively for the Academy of General Dentistry-sponsored mastership program.

AUTHOR DISCLOSURE:

Dr. Veis discloses that he is the CEO of SML™ Space Maintainers Laboratories.

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DEFINITIONS:

As a general rule, early loss of *anterior* teeth *does not* require a space maintainer. Early loss of a *first primary molar does* require a space maintainer… *if* the adult first premolar will not be erupting for six months or longer and *if* the adult first molars have not yet erupted into proper occlusion. If the adult first molars have already grown into proper occlusion, even very early loss of a first primary molar does not require a space maintainer.

Space maintainer appliances are simple, cost effective, and (for the most part) require little chair time. Loss of arch length can cause serious orthodontic complications. For this reason, it is best to be more proactively aggressive when assessing the need for a space maintainer.

Early tooth loss in the anterior region can be a result of traumatic avulsion or extraction of carious or infected teeth. Unlike tooth loss in the posterior region, anterior tooth loss does not result in space loss if the primary cuspids are erupted.

Lack of teeth does not interfere with the child's ability to eat. It may, however, interfere with speech – if tooth loss occurs *before speech development is complete*. Lack of teeth may compromise a patient's self image. Thus, the most valid reason to replace anterior teeth is for esthetics. Replacement can be accomplished with cemented or removable appliances.

The "pedo partial" is a simple yet effective replacement for extracted anterior teeth. Bands or crowns are fitted on the posterior molars. An impression is taken and sent to the lab with the fitted bands. Pediatric denture teeth (smaller and whiter than adult denture teeth) are available to fabricate a natural-looking appliance.



Fixed Groper Pedo Partial

It takes about six months for a premolar to erupt—if it is still covered by one millimeter of bone (as measured on a bite-wing x-ray). Another good predictor of eruption is root development of the bi-cuspid. When root formation is 60-70% completed, the bi-cuspid is ready to erupt.

An especially important warning sign which indicates the need for a space maintainer when early loss of a second primary molar occurs: the position of the adult second molar. If the erupting twelve-year molar is mesially angulated on the x-ray, it is a threat that the first molar might be forced forward and tipped into the space needed for the unerupted second bi-cuspid.



INDICATIONS & TREATMENT:

Loss of a First Primary Molar

A band and loop space maintainer is indicated. The band is placed on the second primary molar. Wire loop extends to the distal of the primary cuspid -- to maintain the space for a missing tooth until the first permanent bi-cuspid starts to erupt. This retruded mandibular position not only results in an extremely unfavorable profile but also places the condyles in a posterior position with a resultant increase in signs and symptoms of temporomandibular joint dysfunction.

Loss of a Second Primary Molar

A band and loop space maintainer is indicated. The band is placed on the first permanent molar. Wire loop extends to the distal of the first primary molar – to maintain the space until the second permanent bi-cuspid starts to erupt.

Loss of More Than One Tooth in a Quadrant, or Loss of a Second Primary Molar

A bilateral space maintainer is indicated. Three examples of bilateral space maintainers are the Lingual Holding Arch, the Nance, and the Transpalatal Arch...

Written by: Rob W. Veis, DDS



Lingual Holding Arch



Nance Appliance



Transpalatal Arch

LAB REQUIREMENTS:

Well-defined upper and lower models are required. Some labs can fabricate custom bands, so there is no need to stock bands in your office. IMPORTANT: *if you are fitting your own bands*, **do not** pour models with bands placed in the impression. This leads to improperly placed bands during model pour-up.

Attach bands to the prescription with scotch tape. The lab will place the bands on the models for you, thus assuring proper placement. IMPORTANT: Be sure that the tooth to be banded is erupted. The entire clinical crown should be visible and clearly defined.

ADJUSTMENTS:

There should be no adjustments necessary, if your appliance is fabricated correctly.

INSTRUCTIONS:

Band Preparation:

Early tooth loss in the anterior region can be a result of traumatic avulsion or extraction of carious or infected teeth. Unlike tooth loss in the posterior region, anterior tooth loss does not result in space loss if the primary cuspids are erupted.

Place a small piece of masking tape (sticky-side down) over the occlusal surface of the band. This makes it easier to load the band with cement and will also serve as a surface where the excess cement can collect. After seating the band, the excess cement is easily removed (cement adheres to the tape when the tape is pulled off). *If cementing multiple bands*, fold the tape over on the buccal side and mark the band number to avoid bands being mixed up.

Tooth Preparation:

Clean buccal and lingual surfaces of teeth with a non-fluoride, oil-free prophy paste. Wash off prophy paste with an oil-free water spray and suction residue. For cementing the lower bands, you may want to position the patient slightly tipped back (or even supine) in the interest of preventing saliva from pooling in the floor of the mouth.

For optimum cement adhesion, the teeth should be as dry as possible. Although acid-etching of the enamel is not required for cementing bands, it will increase bonding strength and is recommended. *For high stress appliances*, acid-etching is very advantageous. Suction away acid-etches and rinse tooth as usual.

Place cotton rolls on the buccal and lingual for the lower teeth, on the buccal for the upper teeth. Dry teeth completely with an oil/moisture-free air spray.

Loading:

Using a toothpick, small spatula or applicator needle, load the band interior with a thin, even coating of cement. NOTE: Avoid flooding the band with cement. This will only result in extra cleanup.

Seating:

Seat band onto dry tooth surface and press band through contacts. Using a bite stick band seater, seat the band into final position.

Clean off the excess cement immediately (with cotton rolls and sealer) *before it begins to set*. To *facilitate total removal of excess cement*, light-cure the occlusal surface for no more than 2 seconds. Cement will become rubbery and can be easily pealed off.

STEPS TO OBTAIN DENTAL CREDITS:

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9129 Lurline Ave.
Chatsworth CA 91311
(800) 423-3270

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Northeast	866-310-5800
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