SPACE MAINTAINANCE IN PEDIATRIC DENTISTRY (5)
LEARNING OBJECTIVES

• To learn the different space regainers
• To learn indications and contraindications of space regainers
CONTENTS

• Space regainers
• Fixed space regainers
• Removable space regainers
• Conclusion
• Take away message
SPACE REGAINERS

• Appliances which help to regain the lost space.

Considerations:

• Most important procedure is diagnosis
• Assessment of dental and skeletal relation
• Radiographs and study models
• Mixed dentition analysis
• Anchorage considerations
DETERMINATION OF THE SPECIFIC PROBLEMS

• Reasons of space loss.

• Teeth which is lost.

• Arch which is affected by tooth loss.

• According to Finn Distalization potential for maxilla is 5-7 mm, 1-2mm in mandible.
APPLIANCE SELECTION

• 1) Patient cooperation
• 2) Integrity of the appliance
• 3) Maintenance.
• 4) Modifiability
• 5) Cost
TYPES

Space regainers

Fixed space regainers

Removable space regainers

Examples:
- a) Open coil regainer
- b) Gerber space regainer
- c) Fixed lip bumper
- d) Anterior space regainers

Examples:
- a) With helical coils
- b) With jack screw
- c) Split saddle design
- d) Sling shot design
FIXED SPACE REGAINERS
Fred Ehrlich appliance or Open coil space regainer

• Useful in the repositioning of the distally moved premolar.
• Proposed by Fred Ehrlich in 1950.
• It can be used with good advantage in the mandibular arch.
CONSTRUCTION

• A molar band is fitted to the first permanent molar

• Molar tubes are soldered

• Stainless steel wire slightly smaller than tube size is selected and bent into a 'U' shape

• Base of the 'U' should contain a reverse bend to contact the distal surface of the first premolar

• Wire should aim toward the first premolar at a point just below the greatest distal convexity of the first premolar
• According to Finn Spaced coil spring, cut about 2 to 3 mm longer than the distance from the anterior stop to the molar tube

• Band is cemented with the coil springs compressed
GERBER SPACE MAINTAINER AND REGAINER

• This appliance can be directly fabricated in the patients mouth during one relatively short appointment and requires no lab work.
CONSTRUCTION

• Selection of the preformed band.
• Mesial surface marked for the placement of U assembly.
• Placement of wire section inside the tube
• Appliance adjusted in the patient’s mouth.
DETERMINATION OF THE COIL LENGTH

• Extend the wire to the contact with the mesial tooth.
• Distance measured from the tube stops and the distal end of the U tube.
• To this distance add the amount of space to be regained +1-2 mm
• Place the coil on the wire.
• Ligature wire or floss should be tied over the assembly to hold stored force in compressed spring.
• After cementation the ligature wire or floss should be cut and spring becomes active.
MAYNE’S SPACE MAINTAINER/ REGAINER

• Designed by W. R. Mayne
• Type of nonfunctional space maintainer that permits minor adjustments for space control while the tooth in question is erupting
• Cantilever arm initially engages the first deciduous molar

When it is lost, it can be bent to contact the erupting first premolar and to guide it mesially to create adequate space

• Minor adjustments may be made on the erupting second premolar, moving it lingually or distally
MAYNE’S SPACE MAINTAINER AND REGAINER
LIP BUMPER APPLIANCE

• Simple appliance which extends slightly beyond the mandibular incisors and connect distally on to the mandibular molars.

• Can cause slight distalization and uprighting of molars.
CONSTRUCTION GUIDELINES

• Should be constructed with heavy wire to prevent the distortion.

• Wire adjusted 1.5 to 2mm labial to lower incisors

• Plastic shield should extend 2mm below the incisal edge
• This increases the lip pressure that is transmitted to the molars and will cause increased molar movement.
• Lip bumper designed to distalize maxillary molars is called Denholz appliance.

• However the distalization achieved is limited.

• The appliance success is completely dependent on the patient cooperation.

• Has to be worn for the full time to get the expected results.
ANTERIOR SPACE REGAINERS

• Introduced by Bayardo(1986)

Technique:

• Space regainer utilizing direct bonding, labial tubes attached to lateral incisors
• 0.014" round wire was then inserted in an open coil spring and activated
REMOVABLE SPACE REGAINERS
SPACE REGAINERS WITH HELICAL COIL / LOOPS

- Provide light continuous forces, which are ideal for tooth movement.
- The light springs are often bent and displaced by patient use.
- Double helical loop is usually required when rotation must be combined with tipping.
- A single helical loop is usually sufficient when only tipping is needed.
SPACE REGAINERS USING JACK SCREWS

• Removable appliance incorporates an expansion screw in the edentulous space
• Offers best control of any removable appliance when correction of rotation is not needed
• Patient or parent is instructed to open jackscrew one-quarter turn (0.25 mm) twice a day
• Instructions changed to one-quarter turns every second or third day
• Space is opened by expanding plates antero-posteriorly
SPLIT SADDLE SPACE REGAINER
(WILLIAM GOODALE 1957)

• Functional part of the appliance consists of an acrylic block that is split buccolingually and joined by a wire in the form of buccolingual loops.
• A split saddle design is most successful for regaining 1 or 2 mm space without alteration of the distal portion of appliance
• Sturdy and durable
• Indicated when the active patient has only a small amount of space to regain
• Appliance is activated by periodic spreading of the loops
SLING SHOT SPACE REGAINERS

• Consists of wire elastic holder instead of springs.

• Elastics stretched on the middle of lingual surfaces of the molar to be moved.
• Elastics are placed in the holder when the appliance is outside the mouth.

• Then this appliance is placed back in the oral cavity and the final positioning of the elastics is done.

• Elastic is placed on the mesial margin of the molar to be distalized.
• Appliance offers durability and light continuous forces

• Chair time required to supervise appropriate size of elastic to continue light forces as the tooth moves into position

• Sling shot wire consisted of an "S" bend

• Top curve of the "S" bend is used as the elastic hook
CONCLUSION

• Space regainers are used to regain small amount of space
• Fixed space regainers are preferred over removable space regainers
TAKE AWAY MESSAGE

• Fixed space regainers are better than the removable space regainers

• Mayne’s space regainer is a modification of band and loop space maintainer

• Lip bumper is a form of myofunctional appliance
LAQS AND SAQS

- Classify space regainers
- Lip bumper
- Open coil space regainer
- Name few fixed space regainers
- Name few removable space regainers
THANK YOU