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INTRODUCTION

Whenever extraction is done or tooth is fallen the adjacent teeth moves into the arch & tries to fill the space of that extracted tooth which may result in malocclusion.

For the prevention of that malocclusion interceptive measures are used.
The basic interceptive methods used by pedodontist are:

- Serial extraction
- Space regaining
- Correction of ant. & post. crossbite
- Oral habits elimination
- Muscle exercise
- Removal of soft or hard tissue impediments to the pathway of eruption
- Resolution of crowding
- Interception of developing skeletal malocclusion
SPACE REGAINING:

The process of gaining the space lost by drifting of adjacent teeth following premature loss of deciduous teeth/tooth.

SPACE REGAINER:

A fixed or removable appliance capable of moving a displaced permanent tooth into its proper position in dental arch.
SPACE REGAINING

If the space maintainer is not used on the premature loss of deciduous second molar, the permanent first molar may tip or move mesially resulting in the loss of arch length.

The loss of arch length may impede on the space required for the second molar to erupt.
Causes of mesial tipping or drifting of molars are:

- Premature extraction of primary molars
- Extensive carious lesion
- Ectopic eruption
TIMINIG OF DISTILIZATION

If the child is treated before the age of 9 yrs. the root of the 1st permanent molar to be moved has not completed its growth & the orthodontic tipping or bodily movement to neutralize its position is easier.

The age ranging between 7-10 yrs. is the best time for bodily movement or tipping to recover the lost arch space.
METHODS OF SPACE REGAINING

Methods are divided into:
1. Fixed appliance
2. Removable appliance
Fixed appliances includes:

1. Open coiled space regainer:
   Herbst space regainer
2. Jackscrew space regainer
3. Gerber space regainer
Removable appliances include:
1. Upper & lower Hawley’s appliance with helical spring
2. Hawley’s appliance with split acrylic dumb-bell spring
3. Hawley’s appliance with sling shot elastic
4. Hawley’s appliance with palatal spring
5. Hawley’s appliance with expansion screws
OPEN COILED SPACE REGAINER
(HERBST SPACE REGAINER)

In this the band is adapted & pinched on the teeth that is to be distalised to regain the space.

The buccal & lingual tubes are soldered to the adopted band.

The tube should be parallel to one another in all the planes & there lumen should be aimed at the junction of crown & the gingiva.
An impression of the band & tubes is taken with the band seated on the tooth & the band is then removed.

The holes in the tube are plugged with carding wax to prevent them getting blocked by stone plaster.

The bend is then seated in the impression & the stone is poured.

A stainless steel wire is then bent to a 'U' shape which will fit in both buccal & lingual tubes.
The ant. part of the 'U' shape wire should have a reverse bend where it contacts the distal outline of the 1st molar.

At the junction of the straight part & curved part of the wire, both buccally & lingually flow enough solder to make a stop.

Then cut enough spaced open coil spring so as to extend from the stop to a point about 2mm distal to the ant. limit of the tube on the molar band.
The band is then removed from the model & the coil spring is slipped on the wire.

The wire is then put in the tubes & the band with the wire & compressed springs is cemented on the molars.

The compressed spring will exert pressure to the molars distally & premolars mesially.

The seating pressure is applied on the buccal side in case of mandibular molars & both buccal & palatal in case of maxillary molar.
Jackscrew space regainer

The jackscrew space regainer is used to recover the loss of space caused by tooth drift into an edentulous area.

It uses 2 adjacent teeth & a threaded shaft with a screw & a locknut.

This is activated regularly to exert a consistent force against the banded teeth.
A bilateral version of this appliance consist of a coiled loaded lingual arch that passes through tubes soldered lingually to molar bands.

This appliance produces rapid results.
GERBER SPACE REGAINER

In this a ‘U’ shaped assembly is used into which the ‘U’ shaped wire can be fitted.

This in turn is soldered onto the mesial aspect of the band & the coiled spring is fitted on to the ‘U’ shaped wire, which in turn fitted into the ‘U’ assembly & finally cemented.
REMOVABLE SPACE REGAINERS

1. Hawley’s appliance with helical spring:
   - It can be used for both mandibular & maxillary molars.
   - It consist of:
     - Short labial bow, as it gives more anchorage.
     - Adam’s clasp on contralateral molars
     - Helical spring with the active arm towards the tissue
Helical spring is in 2 configurations:
- Single
- Double

Double helical spring requires slightly more time to bend but is more effective.

These helical springs should be adjusted with little or no pressure exerted distally against the molar during the 1st week of treatment.
At the 2nd week & thereafter at intervals of 2 weeks, the spring should be adjusted to produce a slight distal pressure against the permanent 1st molar.

Usually it takes about 2-4 months to move a molar distally by a distance of 2mm.

To decrease the treatment time if excessive pressure is applied than it will lead to sore tooth & possible tissue necrosis in the periodontium of the molar under treatment.
The active arm of the helical spring lies in the mesial undercut of the molar.

Placing the spring in the undercut also aids in the retention of the appliance.
2. Hawley's appliance with split acrylic dumb-bell spring:

- It is used in the mandibular arch.
- Space regained is upto 2mm by this appliance.
- It is an effective & comfortable appliance.
The spring should be adjusted twice a month, creating an increment of opening in a split acrylic area of 0.5mm at a time.
3. Hawley’s appliance with slingshot elastic:

- In this appliance instead of using a specially contoured wire springs that transmits a force against the molar to be distalised, a wire elastic holder is used with hooks.

- Also called as ‘SLINGSHOT APPLIANCE,’ since the distalizing force is produced by the elastic stretched between 2 hooks.
One hook is located on the middle one third of the lingual aspect & the other hook in the same position on the buccal aspect of the molar to be distalized.
4. Hawley’s appliance with palatal spring

- It is made up of 0.5mm stainless steel wire.
- The active arm of palatal spring is placed mesial to the permanent molar to be distalized.
- The activation is 2mm by opening the spring.
5. Hawley’s appliance with expansion screws:

- Schwarz in 1938 introduced the expansion screws.
- Expansion screws depending on their incorporation divided into 2 types:
  1. Encaused type: They are sturdy & resist stress; the spiral part may however sometimes turn back.
  2. Skeleton type: Have a part of spiral embedded in the acrylic & are therefore more superior.
Broader for the maxillary plates & narrower for the mandibular plates.

The smaller size is more effective for distalization of tooth.