

**SUCCESSFUL PRECISION ATTACHMENT REMOVABLE PARTIAL DENTURES**  
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The treatment of terminally involved cases must be involved with different techniques for different patients for different reasons. The final treatment plan must offer the solution best suited to the individual patient rather than a solution that is most comfortable for the operator. *Expertise of all of the treatment options available is therefore essential:*

1. Full Dentures
2. Overdentures
3. Clasp-type Removable Dentures
4. Precision Attachment Removable Partial Dentures
5. Osseo-integrated Implants

A final treatment plan, based on the diagnosis, must also take into consideration the desires of the patient, the state of the few remaining teeth, the anatomical relationships of the tissues, and a complete medical history of the patient.

Removable partial dentures fabricated with precision attachments for retention and support, using a double-tilt retention mechanism must be considered as a prime choice for treating terminally involved dentitions. For over fifty years we have successfully used intracoronal attachments, in particular the APM Sterngold #7 precision attachment, to restore terminally involved dental arches. We have observed that the average precision attachment case lasts 15 to 20 years, with many cases functioning in health even after thirty years!

There are many different types of prefabricated attachments available and they are usually classified on the basis of location - or shape and form; i.e. extracoronal, intracoronal, stud, bar. We prefer to use a classification system based primarily on the *function* of the attachments:

**FEINBERG CLASSIFICATION OF PRECISION ATTACHMENTS**

**A. Rigid:** Any attachment employing a mechanical locking action with the use of clasps, lingual arms, springs, ball and sockets etc. The removable partial is held firmly in place and the abutment teeth are subjected to all of the forces in the mouth at all times.

**B. Passive:** An attachment that provides a free movement of the male when the abutment teeth are exposed to excessive forces. Such a passive retention mechanism has the effect of an automatic stress-breaker.

**A PASSIVE RETENTION MECHANISM**

Every type of removable partial denture has to handle the problem of preventing gravitational and muscular forces from dislodging the partial denture during function. To resist these forces many different mechanical aids have been developed. Unfortunately, while being retentive, these mechanisms inflict lateral stresses by torquing the abutment teeth during normal function. These lateral stresses may eventually harm the periodontal support of the abutment teeth and limit the longevity of the case. An ideal retainer should be passive and place minimal stress on the abutment. The use of a *double-tilting path of*

*insertion* is an alternative method of retention that eliminates the torquing stresses that most abutments are forced to absorb from conventional mechanical retentive mechanisms.

#### **ESTABLISHING THE DOUBLE-TILT PATH OF INSERTION**

The master model with castings should be placed on the surveyor table of the parallelometer for placement of the females. The model is placed with the occlusal plane approximately parallel to the table with the anterior teeth facing forward.

The heel of the model (posterior) is raised between ten and fifteen degrees to provide an *anterior-posterior tilt*.

The left or right side of the model is subsequently raised approximately ten to fifteen degrees in order to provide a *mesio-distal tilt*.

The females are then luted into position and soldered into the castings. The double-tilt prosthesis is designed to fit lightly and is not rigidly held in place. During functional movements, if one side of the prosthesis is overloaded the males will rise a fraction of a millimeter and gently slide back into place. The prosthesis will not be dislodged because a double-tilt path of removal does not coincide with the path of normal tongue or muscular movements that normally dislodge removable partial dentures. This barely visible movement breaks the stress applied to the abutment teeth and gently massages the soft tissue.

Clinical experience with nearly 2000 cases during the past fifty years suggests that this slight vertical movement provides physiologic stimulation of the supporting tissues, resulting in periodontal health and longevity of the finished restoration—even in cases with only two or three teeth remaining in the arch. There is no question that intracoronal precision attachments using the double-tilt retention mechanism is an extremely successful approach for removable partial denture therapy. Adherence to precision techniques, proper diagnosis and periodic recall preventative therapy will result in successful preservation of the patient's existing teeth for many years with maintainable periodontal health.

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