

Precision Attachment Selection – A Systematic Approach

Part 1 – Reviewing the Basics

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Many dentists and technicians view selecting and using precision attachments as an overwhelming task. Yet, attachments can provide real biomechanical benefits beyond mere esthetic considerations. Attachments not only look better than clasps, they can spare abutments by redirecting unwanted forces and by spreading occlusal forces between

abutments and soft tissue. Overdentures, whether supported by natural roots or implants, are considered to be far superior alternatives to complete dentures by many clinicians. Anchoring an overlay denture to retained roots enhances denture stability and provides numerous functional advantages to the patient.

Certainly, the number of attachments now available on the market has exploded. At the same time, attachments are being used in all manner of restorative procedures, from partial dentures to implant-based prostheses. No single attachment is perfect for every application – it is critical that the appropriate attachment be utilized for each individual case situation.

What has been lacking has been a relatively simple systematic approach that organizes the task into a series of “qualifying questions” covering attachment application; location; construction; function; and the patient’s oral condition, boiling down the choice to a relatively small number of possibilities. At the same time, clinicians should always involve their technicians in the discussion at the treatment planning stage of each case.

1. What is the Application?

All attachments are typically used in one of three different general types of restoration: **removable partial dentures, root-retained overdentures or implant-retained overdentures.** Normally, a quick glance at the study models is all it takes to eliminate many potential attachments from consideration.

2. Where will the attachment be located?

Here there are four basic choices. For Removable Partial dentures, will the attachment be intracoronal or extracoronal? For overdentures, will the prostheses be root- or implant-retained?

3. Will it be Precision or Semi-Precision attachments?

There are a variety of precision and semi-precision attachments available. “Precision” attachments are machined in special metal alloys under precise (within 0.01 mm) tolerances. As the specific hardness of the alloys is controlled, they offer the advantages of less wear on the abutments and standard parts, allowing the components to be interchangeable and usually easier to repair when necessary.

“Semi-Precision” attachments are fabricated by direct casting plastic, wax or refractory patterns. Their main advantages

are economy, easy fabrication and the ability to be cast in a wide variety of alloys without the problem of coefficient differences between cast and machined alloy. However, while they may appear “cheaper” at first glance, they are subject to all of the inaccuracies possible through inconsistent water/powder ratios, burn out temperatures and other variables that can cause the component variance. A semi-precision attachment often takes more technical time and skill to obtain a suitable result. In some instances, it may be better to pay a little more for the attachment, having to spend less time to create a more accurate final prosthesis.

4. What is your philosophy of loading (do you generally prefer resilient or nonresilient attachments)?

Attachments are really simply rigid or resilient connectors that redirect the forces of occlusion. The type used really depends on the clinician’s philosophy of loading. Rigid abutment/tooth supported attachments are highly stable and transfer forces to the abutments. If you believe in maximizing tooth support (splint teeth, rarely use stress breakers, etc.), you will probably choose intracoronal, non-resilient attachments. On the other hand, if you prefer to distribute forces to the soft tissue in a supportive role, you may well choose stress directing resilient (abutment/tooth and tissue-supported) attachments. The key questions then will be how much resiliency and what kind of movement is desired.

5. What is the individual oral condition of the patient?

Case design isn’t a purely mechanical exercise. By analyzing study models and x-rays, the clinician can make several important determinations, each of which will influence final attachment selection. While the final choice must be based on the dentist’s own philosophy and experience, in the next issue of Continuum we will begin to explore the general guidelines as they apply to the first of our three application areas: Removable Partial Dentures.

By employing this suggested common sense, systematic approach, you can easily identify the appropriate attachment based on to how it works and where it can (or can’t) be used. The skilled, experienced Precision Attachment Teams at your closest Aurum Ceramic/Classic laboratory are always ready to assist you in selecting the most suitable attachment for each individual case situation.

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