

## Introduction to Prosthodontics

The word prosthodontics is derived from the Greek and Latin prosthesis (artificial substitute for a body part) and odontia (the teeth). Prosthodontics is the specialty of dentistry that deals with the diagnosis and treatment planning, restorative management, and maintenance of patients with missing teeth and /or missing hard and soft tissues in the maxillofacial region. Prosthodontics is one of the nine recognized dental specialties (prosthodontics, periodontics, pediatric dentistry, orthodontics, oral pathology, oral radiology, oral surgery, endodontics, and public health dentistry) and is a major component of the typical general practice. The discipline of prosthodontics covers a broad area and includes fixed, removable, and maxillo-facial prosthodontics. Implant prosthodontics is sometimes considered as a separate entity and sometimes as a component of the other sub specialties.

Fixed prosthodontics is involved with the restoration of individual teeth or the replacement of missing teeth with restorations that are permanently attached to the teeth and can not be removed by the patient. **Crowns** and **fixed partial dentures** of various designs and fabricated from a variety of materials are the most common fixed restorations. Many times an individual tooth will be severely compromised by caries or fracture and a foundation restoration must be placed to support the overlying crown which protects the tooth from further breakdown. This foundation restoration is called a **core** and may be made of amalgam, composite, or cast metal. In the case of a tooth that has received endodontic therapy, a prefab or custom post may be required to support and retain the core (post and core).

Removable prosthodontics is involved with the replacement of missing teeth and associated structures with restorations that are removable by the patient on a daily basis. These restorations derive their support from the teeth and/or bone and soft tissues. A **complete denture** replaces all the missing teeth while a **removable partial denture** replaces one or more missing teeth, but at least one natural tooth is retained. Common variations include the **overdenture** which derives some support from underlying retained natural teeth that have been endodontically treated and reduced to a low profile and the **immediate denture** which is a prosthesis that is delivered the same day a tooth or the remaining teeth are extracted.

Maxillo-facial prosthodontics is the sub specialty that deals with the treatment of patients with developmental and acquired defects of the maxillofacial region and is not restricted to the teeth and oral cavity. The principles of fixed, removable, and implant prosthodontics are used to treat patients defects associated with cleft palate, trauma, or resection due to malignancy e.g., many times in combination.

Implant prosthodontics is probably the most rapidly expanding area of dentistry as increased research and development is combining with patient interest to create increasing demand. In simple terms, implant prosthodontics involves the use of dental implants which may be thought of as artificial tooth roots to support/ retain prostheses of various sizes and designs from single tooth

to full arch and fixed and removable approaches. In some aspects implant supported restorations are very similar if not identical to conventional restorations, but in some aspects they are very different as the implant does not function in the same way as the natural tooth.

Operative dentistry and Prosthodontics are both forms of restorative dentistry but are different in many ways. In operative, most restorations are for single teeth even if multiple restorations are placed in a single visit and the restorations are typically completed in one appointment. Preparations are directed inside the tooth (**intracoronal**) and restorations derive their retention from internal features and the restorative materials are placed directly into the prepared tooth(**direct technique**). In contrast, prosthodontics typically deals with multiple teeth at one time up to a complete arch although single tooth restorations are also very common. Tooth preparations are primarily on the external surfaces of the teeth (extra coronal) and the retention is derived by preparing these surfaces with suitable length and taper. Restorations require multiple visits to complete and are fabricated outside the mouth in the dental laboratory (**indirect technique**). Impressions are made to provide replicas of the tooth preparations or edentulous ridges for use in the laboratory and temporary restorations(**provisionals**) are made to protect the teeth and provide reasonable esthetics and function while the definitive restorations are being fabricated.

Prosthodontics may be thought of as civil engineering for the mouth and in fact, many of the same considerations that are involved with the design and construction of a highway bridge are also important when replacing missing teeth with a prosthesis. In addition to these mechanical factors, there are the biological aspects of the periodontium, the pulp, and the TMJs as well as the psychological aspects of patient management to consider. Success in prosthodontic treatment requires a strong background in both basic and clinical sciences, excellent manual and technical skills, effective organizational capabilities, and an attention to detail. Prosthodontics is not everyone's cup of tea, but if you like working with your hands and making things and enjoy problem solving and design, then you may find a tremendous amount of satisfaction in this type of work. It is very rewarding to be able to restore comfort, esthetics, and function for patient who had previously been severely compromised and uncomfortable.