

CAST PARTIALS

PARTIAL DENTURE TIPS & TECHNIQUES

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For most dentists and technicians today, the removable partial denture has been one of the least understood prosthetic devices in modern dentistry. Twenty-first century materials and techniques have made the creation of partial dentures easier and more reliable than ever before. Aurum Ceramic/Classic's proven Saddle-Lock® "Hidden Clasp" cast partials eliminate visible metal display without the aid of cast crowns or expensive precision attachments. And now, with the improved handling characteristics and advanced physical properties of the newly formulated Vitallium® 2000 and Vitallium® 2000 Plus alloys, it is possible to create smaller, lighter partial dentures with extraordinary strength and superior fracture resistance while supplying improved aesthetics and greater patient comfort.



The Materials



Saddle-Lock®

Utilizing the more pronounced natural mesial and distal undercut planes of the abutment teeth adjacent to the denture saddle, stress is shared by the adjoining teeth as forces are distributed in an anterior-posterior direction. Clasp emergence is back at the casting finishing line providing proper resiliency. The clasp terminals are positioned at the end of the denture saddle, effectively locking the segment to the ridge. Accurate measurement and paralleling of the planes using the "Retentoscope" (a precise survey and design Instrument) ensures each abutment tooth has a comfortable, yet positive load. Saddle-Lock also handles inadequate retention and instability in free-end saddle cases. The retentive clasp force located in the distal undercuts transmits its stabilizing effect into the loose end segment of the denture resisting dislodging forces during mastication.



Vitallium® 2000

Manufactured in a unique, quality-controlled process that produces a purer alloy, Austenal's new Vitallium® 2000 Partial Denture System provides you with two premium biocompatible nickel and beryllium free chrome cobalt alloys. Exceptionally strong and lightweight, the alloys' improved handling characteristics and advanced physical properties offers guaranteed strength, function and superior fit. Vitallium 2000 alloys have double the elongation value of the original Vitallium, resulting in a partial that permits predictable adjustments with unprecedented fracture resistance (adjust like gold with no fear of deformation). And, they have a lower Vickers hardness making each partial less abrasive to opposing dentition and restorations.

Features and Benefits

- Extraordinary strength, superior fracture resistance and smaller, lighter design applications – guaranteeing patient comfort and acceptance.
- Superior fit utilizing the hidden natural mesial and distal undercut planes of the abutment teeth adjacent to the denture saddle.
- Vitallium 2000 improves virtually all of the working characteristics of original Vitallium.
- Tensile strength of over 855 MPa's.
- Elongation of 9% (partials adjust like gold).
- Lower Vickers hardness minimizes abrasion on opposing dentition. Coupled with yield strength of over 600 MPa's, resists permanent deformation.
- Metal surfaces retain high luster and resist plaque.
- Partials seat quickly and easily with fingertip pressure, yet there is a strong resistance to dislodgement.

NOTE: See Vitallium 2000 Physical Properties Comparison on page 4.

What is the Best Possible Removable Partial Denture?

There is no perfect removable appliance, but we can meet as closely as possible the following criteria:

1. Restores the lost occlusal function caused by the patient's missing teeth
2. Minimizes the stress placed on abutment teeth to ensure their longevity
3. Minimizes the trauma to the supporting and surrounding tissue and bone
4. Self-cleaning and does not produce food entrapment areas
5. Comfortable for the patient to use and wear
6. Meets the particular esthetic needs of the patient

Benefits of Esthetic Designs

1. **Esthetics:** No facial display of the metal retentive clasp arms.
2. **Superior Retention:** Normal tooth contour provides a more dependable and usable undercut on the proximal surfaces than on the facial or lingual surfaces.
3. **Gentler to Abutments:** Both the rest placement and retention area used reduce stress on the abutment tooth during normal functions.
4. **Superior Function:** The retentive clasp is activated to resist lift of the appliance due to tacky food during chewing compression and does not transmit stress to the tooth.
5. **Durability:** It does not bend or torque during function. This reduces work hardening and the resulting clasp breakage. Esthetic designs function longer without problems.



Impression Techniques and Tips

Clinical Examination and Study Model Impression

- A. Conduct a complete clinical examination including Periapical and Panoramic x-rays.
- B. Take a high quality alginate impression (e.g., Accu-Dent System 2 from Cerum Dental Supplies Ltd.) for both maxillary and mandibular arches. The Accu-Dent System 2 is a unique and highly accurate impression system. Two irreversible hydrocolloid formulations of Syringe Gel and Tray Gel allow the most accurate mucostatic impression imaginable. Ensure

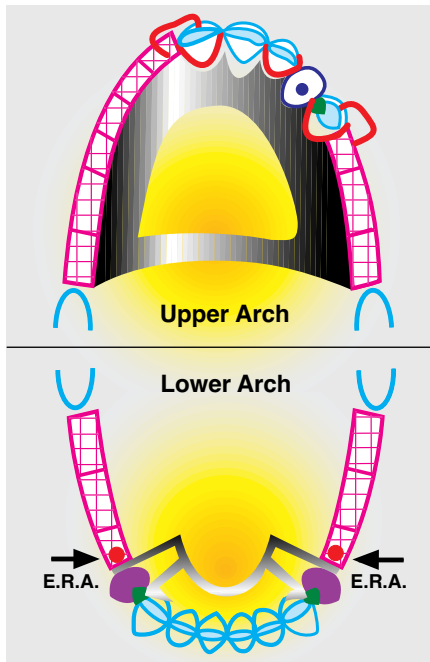
impression extends into the retro-molar areas of distal extension cases.

- C. Pour completed impressions in high strength laboratory stone to create accurate Study Models within 5 minutes of impression-taking.
- D. Provide an accurate interocclusal record/bite registration (Futar Occlusion from Cerum Dental Supplies or Regisil).
- E. Provide a complete prescription including usual information pertaining to patient and treatment plan. Send prescription, study models and bite registration to Aurum Ceramic/Classic. The laboratory will return mounted study models and bite rims (if bite registration wafers are not sufficient) for next appointment.
- F. Once the dentist has approved these, take the Master Impression.

Case Planning

- A. It is suggested that study models be sent to Aurum Ceramic/Classic for pre-planning and computerized prosthesis design to determine rest areas and any adjustments needed to dentition.
- B. Takes all the guesswork out of the process and virtually eliminates adjustments.
- C. You will be provided with a duplicate model on which a survey and design has been outlined with rest preparation suggestions highlighted in a green colour. You can request that a custom tray be provided along with the survey and design recommendation.





Computerized Prosthesis Design

Clear, Graphic Communication

- Completely customized computer-generated prosthesis/restoration designs.
- Provides for up to 15,000 different partial designs per arch.
- Maintains library of all components required to create prosthesis.
- Can also specify tooth condition, crown, clasp type, various courses of action and materials.
- Applies one of Stress Broken, Semi-Rigid or Mixed Technique methodologies.
- Automatically creates a recommended design taking every possible configuration of teeth into account.
- Generates full colour plots of design alternatives for practitioner consideration and approval.
- Also excellent patient education tool to explain proposed treatment.
- All final designs stored on the system.

Master Impression

- Restore the dentition where necessary. Prepare the teeth for rests, guide planes, occlusal room, retention, etc. as indicated by the design.
- Using high quality alginate (e.g., Accu-Dent System 2 from Cerum Dental Supplies Ltd.), take a final impression (NOTE: If the opposing model is damaged, take a new impression of this as well). Pour completed impression(s) in high strength laboratory stone within five minutes of impression-taking to create final Master Model.

- Send complete prescription, master model, opposing model, bite registration, articulator and final design to laboratory. Laboratory will return a framework for try-in.

Impression and Model Tips

Master Impression

1. Ensure that a full mouth impression is taken with all teeth and anatomical landmarks reproduced.
2. Impression must be fully extended
3. If for an upper cast partial, make sure that the palate is included in the impression.
4. If for a lower cast partial, ensure full extension of the impression including the retromolar pads.

Bite Registration

1. Ensure bite registration is taken in centric.

Models

1. Die stone mixed with water (NO Hardener) is recommended in a very thick, smooth mix. A thick mix will flow under vibration but does not run like a thin mix. Thickly mixed, the model is harder with less chance of air bubbles.
2. Indication of correct thickness of mixed stone: the mix does not drip or fall off when the spatula is inverted.
3. IMPORTANT: After the impression is poured, DO NOT invert the tray onto a stone paddy. Inverting can cause error. The unset stone will try to sag away from the impression. The degree of sag (if it occurs) will not be visible to the eye, but is sufficient to cause poor fit of the framework. Instead, mound the thick stone on top of the tray and allow it to set. Before pouring the model, place Playdoh (or children's modelling clay) in the tongue area of the lower tray to keep the stone from locking over the lingual flange.

Preparation Requirements

General Principles

- Proper tooth preparation is a must for a successful cast partial restoration.
- Ensure there is adequate reduction for interocclusal space (e.g., minimum 1 mm space for clasp clearance where frame crosses dentition).
- If necessary, ensure there is adequate preparation for rests, guide planes and interocclusal space as indicated by design.
- Guide planes must be parallel and surfaces smooth to ensure easy insertion.



EXHIBIT 1

PATIENT PRESENTATION

Initial Presentation to Patients

It is important to understand the patient's perceptions regarding removable restorations. They simply do not understand. What we do not understand, we fear and doubt. Patients doubt that the prosthesis will function. They fear their removable restoration will destroy their abutment teeth because of stress or decay. With aesthetics becoming a prerequisite for all patients, they refuse to accept any restoration that shows unsightly metal on the abutment teeth.

Key points you can use:

- "Replacing your missing teeth will not only improve your appearance and the way you feel, it can prevent many other problems from occurring."
- "The space left from a missing tooth affects the rest of the teeth in your mouth. The surrounding teeth try to fill the space by drifting, tipping or rotating while the teeth in the opposite jaw gradually move up or down into the spaces left by the missing teeth."
- "When your healthy teeth move because of missing teeth, they may cause you to bite in an unnatural way. This creates stress on your healthy teeth and the surrounding bone. Left untreated, this condition may lead to the loss of bone or additional teeth."
- "These problems can be prevented with a custom-designed Partial Denture which will replace your missing teeth."

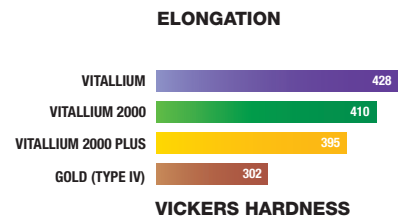
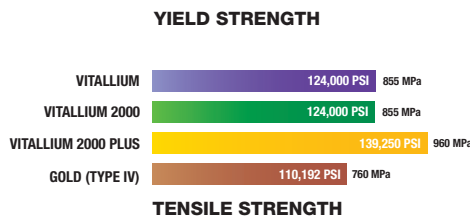
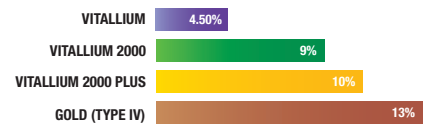
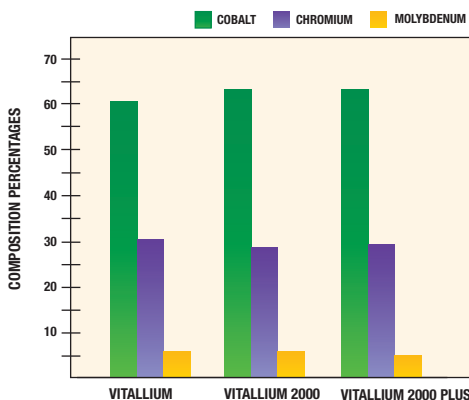
Insertion Presentation to Patients

1. Put patient at ease.
2. Explain function of partial.
3. Prepare the patient for the fact that it will take them a while to adjust to wearing a cast partial.
4. Demonstrate cast partial insertion and removal to patient. Patient must be able to perform this properly before leaving office.
5. Instruct patient in cast partial management and care.

Removable Partial Denture Problems and Solutions

PROBLEM	SOLUTION
Very tight fit of clasps, will not allow frame to seat.	Open clasp arm very slightly with pliers to allow frame to seat.
Rests not seating or frame resting on teeth.	Apply disclosing agent to internal contact areas of frame. Insert into mouth. Relieve premature contacts until seating is achieved. Polish adjusted area.
Occlusal interference of rests or connectors.	Identify premature contacts with articulation paper, paste or spray. Adjust metal with carbide burs and polish. Leave minimum 1.5 mm thickness of metal. If necessary, adjust opposing tooth structure.
Finished cast partial is almost, but not completely, seating.	If adjustment of premature contacts does not solve the problem, let patient wear cast partial for 48 hours. Slight movement of teeth might have taken place between appointments.
Patient has problem inserting or removing cast partial.	Practice path of insertion of cast partial on master model repeatedly. Demonstrate to patient in mouth. Let patient try it until it is very easy to accomplish. In rare cases, a notch in the acrylic will help the patient remove the cast partial with their fingernail.
Addition of a tooth, clasp or section to an existing cast partial.	In most cases, it is preferable to take the impression in the mouth with the denture in place and remove it with the impression.
Clasps loose on abutment	Adjust clasp with Ortho pliers. Ensure adjustment only made to last 1/3 (i.e., the tip) of the clasp. Gradually adjust the clasp step-by-step until the retention is adequate.

Vitallium 2000 Physical Properties



Calgary 1-800-661-1169
Edmonton 1-800-661-2745
Saskatoon 1-800-665-8815
Vancouver 1-800-663-1721
Victoria 1-800-663-6364
Kelowna 1-800-667-4146
Vernon 1-800-663-5413
Ottawa 1-800-267-7040
Toronto 1-800-268-4294



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