

The Dent-Liner

A Bulletin Dealing With Issues For Dental Health Professionals

Removable Partial Dentures- Treatment Protocols

Partial dentures are a treatment modality which is intended to replace missing teeth and also ensure lasting preservation of the remaining teeth. In this way we can prevent tilting and over eruption of the existing dentition. A properly designed RPD in combination with a well planned comprehensive treatment plan will contribute to the preservation of the remaining teeth, bone and gingiva. This is accomplished by maintaining vertical dimension of occlusion. It will improve mastication, speech and also enhance appearance. There are three basic partial denture

conditions that can exist in partially edentulous patients. These are comprised of unilateral, bilateral free end and bilateral all tooth supported. The first variation is that of the unilateral replacement which carries a bar with a clasp to the opposite side of the arch. This category of design is routinely treated as a bilateral free end condition where the missing teeth are in the anterior section of the arch. In the second variation, the identical rule is applied to the anterior free end saddle as it is to the posterior free end and the clasp treatment is the same. The fundamental

problem in each case is to hold the saddle in contact with the ridge. The third variation is the bilateral condition that is free on one side and all tooth supported on the other. The saddle will automatically contact the ridge if the recommended design protocol for a free end case is followed. Even with these three basic conditions, there are over 50,000 combinations of teeth and edentulous spaces that can be accommodated. Generally speaking RPD frameworks should provide broad stress distribution and minimal tooth and tissue coverage unless it is **Continued on page 2**

Efficient Prosthetic Waxing Techniques

Waxing the denture base is generally completed around a finished tooth arrangement. The base pattern is a simulation of soft tissues attached to the teeth, alveolar mucosa and palate. The combination of teeth and waxed up base plate is known as the trial denture. This denture will test the appearance and function of the prosthesis in the patients mouth. The final wax up will be more detailed reproducing the appearance of natural gingival tissues. In order to save time; (50% more) Renfert's newly designed wax knife for electric spatulas, has been introduced to provide easier wax applications. In denture prosthetics, the amount of wax applied to the denture base is much larger than that used for modeling crown and bridge units. Therefore the Renfert wax-carving knife assortment has been extended to include a prosthetic version, which despite the large surface

area, provides uniform heat distribution. In combination with the Wax Profi (wax heater) which keeps the wax at its optimum consistency and the Waxlectric (electric wax knives); a dental technologist can wax quickly and efficiently. Using the new tapered knife the technologist can easily scoop large portions of molton wax from the wax heater and apply it to the denture base. The accurately controlled temperature keeps the wax on the knife at the working temperature and thus reduces expansion and contraction. Because of this, distortion and tension in the wax no longer occurs and the wax properties are no longer destroyed when over heated by an open flame which results in more precision and fewer corrections. Above all the technologist does not need to go back over from the bunsen burner to the wax, with the instrument, which is a sizable time consuming

step. This three step process is then eliminated, which frees up more time to concentrate completely on aesthetic wax coverage of the denture base. The rounded shape of the knife is suited best in forming natural looking details. It is during the carving of the inter dental papilla that the electric wax carving technique shows its real advantages. Primarily, the way the wax flows flawlessly from the knife onto the base wax up. The unique design of the knife tip allows deep symmetrical wax application of inter dental spaces. During bulk waxing it is important to check centric occlusion, since denture teeth will drift in warm wax. When cooled, commence with gingival carving procedures. The objective is to simulate the appearance of natural gingival tissue near the necks of the teeth without establishing food traps. The gingival embrasure should be full and the papilla should be **Continued on page 4**

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Removable Partial Dentures cont'd ...



Prefabrication wax parts make waxing much easier.



A unilateral and bilateral joined by a palatal sheet.

necessary for support or stabilizing and for retentive arms that either release or flex during functional movements of the denture bases. Basic partial denture design should reduce torquing forces on the abutment teeth to result in a more apical direction of vertical forces applied to the artificial teeth and finally to distribute functional loads more evenly. Conventional RPD designs have been time tested and proven with predictable results. They can be used with the majority of patients and are easily fabricated in the dental laboratory. However conventional clasps transmit lateral stress during insertion and the forces are borne by the abutment tooth alone. Labio-buccal aspects used in conventional RPD frequently diverge. This lack of parallelism causes retainers to encounter tooth interference during insertion necessitating the tilting, or orthodontic pulling of the prosthesis from one side to the other. Due to slight movements of the clasps the surface of the natural tooth will gradually be damaged. Furthermore the clasped abutment tooth may become loosened and this may result in the loss of the

tooth over time. The use of clasps has resulted in highly visible metal display drawing attention to the prosthesis. In order to combat these problems, many alternative partial denture designs and concepts have been introduced.

Equipoise™ is a concept that is slightly complex in its design principals, although it provides improved aesthetics there may be a possible wedging effect on the abutments. The clasps are difficult to adjust and difficult to repair if broken.

Saddle lock™ has an aesthetic clasp design, utilizing a milled saddle lock. It utilizes labio-lingual under cuts. There is no reciprocal clasp and it is difficult to adjust or repair.

Cusil™ is adaptable to periodontally involved teeth although a rest is needed to stop vertical dimension loss. A denture tooth can easily be added if a tooth is lost. There is an easy transition to a complete denture. It is however, not an inexpensive substitute since the wear of the silicone gasket can be quite rapid.

Virginia Partial™ has good aesthetics in periodontal patients and is tooth and / or tissue supported. It is easy to add to should teeth be

lost, and it can be used with few remaining teeth. Usage is ideal with difficult paths of insertion. The soft elastic white flange is bonded to hard acrylic and may be a problem to adjust. There may be constant recalls to address tissue resorption.

Flexite™ is a thermoplastic material which is fabricated like a cast metallic partial. It has good aesthetics, is biocompatible and has excellent physical properties, which are dimensionally stable.

Valplast™ is a nylon moulded injection technique and is hard to repair. It is very flexible, biocompatible with good patient comfort. There are pros and cons to about every type of RPD system and we haven't mentioned all of them.

Attachments Ideally the attachment fixed denture may avoid the disadvantages of all the clasped removable dentures such as tooth wear orthodontic removal and metal clasps that show the RPD. Prior to fabrication, the abutment teeth are prepared. In this way the teeth are protected against damage. The crowns will feature the original shape and shade of the natural teeth as well as

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Bredent's Retention Plus System



Bredent now has higher retention levels beyond the original three.

Up until recently the VKS attachment line had three retention inserts (green- friction 1, Yellow- friction 2, Red- friction 3). During normal usage these retention inserts are usually sufficient. During parafunction there are extreme conditions that prematurely wear the retention inserts. Bredent's Research and Development

department has developed a series of higher retention inserts that can deal with these abnormal conditions. The OC type 1.7 goes to friction 7, the 2.2 stud goes to friction 6. In the SG type the 1.7 stud and the 2.2 stud goes to retention level 10. This new development will allow existing restorations to function indefinitely without

premature replacement cost to the patient. They are now available and come in packages of four.

For further information, contact Dent-line at 1-800-250-5111 or e-mail us at info@dent-line.com



Renfert's Power Pillo.

Renfert's Power Pillo Deflasking Chisel

The air driver Power Pillo chisel dramatically reduces the amount of effort needed to deflask an object. It is constructed in a way which channels the force from the striking mechanism directly towards the tip. This reduces

unpleasant vibrations. Systematic deflasking includes six individual chisel tips that provide a scope of use from plaster to investment. Whether the material is coarse or fine, all restorations made of

precious alloys, base metals or plastics can be deflasked with care.

For further information, contact Dent-line at 1-800-250-5111 or e-mail us at info@dent-line.com

Removable Partial Dentures cont'd ...

pictures courtesy of Dr. John Nasedkin



Partial placed showing the lingual milled rest and arm which provides stress relief on the abutments.



The retention inserts have proved their reliability for 15 years by providing safety and ensuring comfort of wear for the patient.



Labial view showing no metal clasps and a proper colour match between the denture tooth and the porcelain crown.

an attachment that is placed to receive the partial. One of the easiest attachments that can achieve this treatment protocol is Bredent's Vario Soft 3. A plastic to metal attachment that has a slide retention that is even suitable for patients with limited manual dexterity. When designed with a milled lingual arm, the crowns and attachments direct the occlusal forces away from the retaining abutments and onto the soft tissues. When the retentive element is worn, it can be replaced much

easier than adjusting a clasp. The thermo-plastic material is forgiving, insoluble, infusible and resistant to corrosion. It is also impermeable to oral fluids so that it will not become insanitary or disagreeable to the patient in taste or colour. The many advantages of attachment borne RPD's are numerous. The retention and stability are provided by the attachment while the milled reciprocal arm provides the needed stress relief. Teeth will not be damaged as with inserting

and removing clasp borne partials. The attachment not only retains the partial but also prevents it from moving around the abutment. Finally the aesthetic results with attachment borne removable partial dentures play a large role in patient satisfaction.

Source: Peter T. Pontsa, RDT

For further information, contact Dent-line at 1-800-250-5111 or e-mail us at info@dent-line.com



Great aesthetics in both upper and lower attachment borne removable partial dentures.

Efficient Prosthetic Waxing Technique cont'd ...

convex in all directions. Throughout the labial gingival cut back, hold the wax carver at 45° to the horizontal of the tooth and remove wax around the cervical / neck intersection. On the lingual, expose the denture tooth in a similar motion. In the contouring procedure, the intention is to simulate three key areas starting with the free gingiva zone, which includes the gingival roll, papilla and embrasures. The root eminences are the most visible contours in the attached gingival zone, which is a band that is broad in the anterior area and then narrows posteriorly. The alveolar mucosa begins at the muco-gingival junction and then continues into the depth of the sulcus. Finally the buccal and lingual surfaces of the denture base are formed so that it supports a retentive denture. A posterior palatal seal is a feature integrated into the

maxillary denture to improve retention and can be carved into the master model before or after the boil out procedure. The palatal area is removed and the borders of the denture are sealed. The rugae can be created by performed wax patterns or a flexible reusable rugae pattern. The intention here is to make the palatal area strong without effecting the patient's phonetics. The clinician can grind the rugae away if the patient dislikes the feel of it. The uniformity of the gingival cut back should be alternated by varying the shape and height of the curved and interdental papilla. It is typical for the maxillary cuspid, cervical margin to be the highest in the quadrant and for the first bicuspid margin to be slightly lower. The structural gingival physiology changes with age. On young people a half circle shaped cervical margin is acceptable, with

middle aged people, use a half circle, half oval gingival margin on various teeth. In much older patients, create a pattern of half oval and blunted "V" gingival margins, exposing a modest area of the neck on several teeth to replicate recession of the gingival margin. The inter dental papilla also diminishes as people get older and this occurrence should be simulated in denture aesthetics. All root eminences and concavities should blend into one another, while flange surfaces are mostly concave. Stippling effects a denture surface and appears more natural by interrupting sizeable reflective surfaces. The result is less glossy and a more natural appearance. I have never been a fan of positive stippling because blowing hot wax from an instrument onto the wax base is technique sensitive.

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Meticulous preparation of the wax up means very little finishing will be required.



Renfert's Waxelectric and Wax Profi being utilised for faster waxing.

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Efficient Prosthetic Waxing Technique Cont'd



It is easy to scoop large portions of molten wax and apply it to the denture base.

The negative stippling technique utilizing a tooth brush is more appropriate and much easier to do. The brush is pushed into the wax, leaving many tiny indentations over the contoured areas. A careful pass with a low brush flame over the indentations cause the wax flecks to disappear and glaze the high contours, leaving the denture with a natural appearance. Inserting dental floss between the teeth will clean out the wax and provide a more individual appearance. The wax up is not really finished until the occlusion is verified.

Trade News:

On Nov. 2nd, 2004, Peter T. Pontsa, RDT, on behalf of Dent-Line and Leach & Dillon donated chairside assortments, shade guides and training DVD's to the Denturism Program at George Brown College.



From Left to Right: Mr. Carlos Soccia, dd; Mr. Mike Vakalis, dd; Mr. Peter Pontsa, RDT

Upcoming Events:

Bredent attachment course schedule 2005: Implant course January 13 & 14, February 17 & 18, March 10 & 11. VKS VS3 introductory course May 6. All Courses held at the XPdent facilities in Miami Florida USA. **For further information, contact Charlie Rivas at 305-233-3312 ext. 214.**

Announcement:

The Vario Stud Snap VKS-OC 1.7 Exchangeable stud is now available and in stock. **For further information, contact Dent-line at 1-800-250-5111**



The new knife allows controlled temperatures of the wax.

Balanced complete dentures must exhibit multiple bilateral posterior contacts in centric occlusion with the incisal guide pin touching the incisal guide table. This wax up was made using time saving equipment and procedures. It was also produced in accordance with phase one and two of Dr. Earl Pounds parameters regarding natural tooth position, colour, festooning and high lighting. The areas that were included in the final wax up were the natural root eminences, bony contours, convex inter dental papilla, and gingival recession. Meticulous preparation of the wax up will require very little finishing especially if gingival colour tones are to be added to the aesthetic denture. Some of the ideas and techniques discussed may surpass the standards of practice. Raising the bar can only improve our techniques and provide patients with a superior restoration.

Source: Peter T. Pontsa
For further information,
contact Dent-line at
1-800-250-5111 or e-mail us
at info@dent-line.com

Dent-Line and Renfert USA provided a wax-up course on Oct. 28th, 2004 at George Brown College. Mr. Michael Kessenich, CDT, came from Germany to provide the course.



Participants at the Renfert Wax Up Course.