

The Dent-Liner

A Bulletin Dealing With Issues For Dental Health Professionals

A Simple Approach to Lingualized Occlusion



Peter T. Pontsa, RDT is president of Dent-Line of Canada Inc. with over 37 years of experience in the dental profession as a laboratory owner and a technician. He is a leader in superior professional techniques in fixed and removable restorations and he shares this knowledge through articles and seminars which he regularly provides. He is also a past president of the College of Dental Technologists of Ontario. Currently he is a member of the Academy of Dental Technology.

Lingualized occlusion was first described by S. Howard Payne DDS in 1941. This form of denture occlusion articulates the maxillary lingual cusps with the mandibular occlusal surfaces in centric working and non working mandibular positions. The term lingualized occlusion is attributed to Dr. Earl Pound. He was an early pioneer of lingualized occlusion an exemplar in denture fabrication and education. A great deal of his methods were accepted by many leading prosthodontic teachers and as a consequence these teachings have directly benefited patients both aesthetically and functionally. By forging new ground, he was able to create a method of occlusion which improved the stability of the dentures while preserving the cutting effect with lingual contact. The basic premise of this method is to shift the occlusal contacts as far lingually as practical while still maintaining the common functioning position of the posterior teeth. This method combines some of the constructive basics of anatomical and modified occlusion into the set up. The buccal cusps do not contact and that allows the lingual cusp to move freely

during lateral or protrusive movements. In other words the sharp maxillary lingual cusps contacts the open mandibular central fossae during functional mastication. The lower buccal cusps are not in occlusion and do not contact the upper buccal cusps. Moving the mastication pressure lingually will improve the stability of the dentures, since it does not break the peripheral seal during lateral excursions. By ensuring that the lingual cusp is sharp, it is easier to penetrate the food bolus so that better mastication is achieved. This avoids lateral stresses on the denture. The advantages of lingualized occlusion include denture stability which is superior to standard procedures and the ability to capitalize on functional mastication. This of course depends on steady contacts of the upper lingual cusp and lower central fossae when the posteriors meet, whether in centric relation or during functional mastication. This capacity to pierce and break down food during mastication is effective action, some what like a mortar and pestle when forced together. **Continued on page 2**

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What is the Life Span of Plastic Attachments?

How long will they last? This is a question that is asked of me on a daily basis. As technical director for Dent-line of Canada I field many questions much like this one. My text book answer is that it is all relative. Well just what exactly does this mean? It means that after all of our treatment planning and professional expertise, the prosthesis is in the care and control of the patient over which we have limited influence over after the fact. Some patients are careful with their prosthesis and we have seen female retention sleeves last upwards of five years. With other patients one year and sometimes less. Some of the things we can do to increase the life span is to make sure all male attachments are parallel to the path of insertion. That the alloy being used for the stud is 260 HV or better. Care should be

taken not to over polish the stud or by using the highest retention first. Patients should be cautioned about biting the appliance in place. The initial stress will cause both retention sleeve and stud to wear excessively. The partial should snap into place with finger pressure. The appliance should be cleaned after every meal since tartar can embed itself into the plastic retention and cause rapid wear of the metal stud. Every care and effort has been taken to ensure quality and design are the best possible. Attachment life span is an important issue when selecting a resilient plastic attachment. The repeated insertion and removal of nylon, the most common material, will over time, **Continued on page 4**

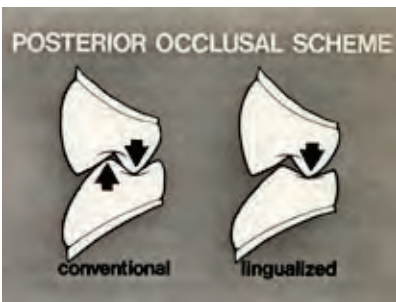
A Simple Approach to Lingualized Occlusion, cont'd...



Stock teeth such as Enigma by Schottlander were selected

When the buccal cusps are in a non contact position, it allows movement in lateral excursions that are free of interferences. The lingualized tooth set up creates more room for the tongue, reduces the risk of cross bite and is excellent for atrophied ridges and implant restorations. Although there are special moulded teeth that have a lingualized configuration, it is not necessary to use these. Stock teeth such as Schottlander's Enigma posteriors with a 23 degree cuspal inclination can be used. In fact lingualized occlusion can be accomplished with any grouping of denture tooth moulds from anatomic to flat cusped teeth. In this case we selected Enigma anterior mould

S14 and maxillary and mandibular mould P5 shade A1. When the posteriors are to be set up on a flat plane the curve of Wilson and Spee can be built in to the set up. However we are using a Protar (Kavo) semi adjustable articulator and a template that incorporates the curve of Wilson and Spee. According to Pound we set up the six maxillary anteriors along the template to account for overjet and over bite. Starting next with the premolars, set them up along the long axis at right angles to the occlusal plane. The lingual cusps should touch the template and the buccal cusps should be raised approximately 0.5 mm above the plane. The first **Continued on page 3**



Conventional as opposed to lingualized occlusion.



Anterior Setup on Template.



Maxillary lingual cusps form primary contacts so only they contact the template.



Bredent's Four Types of Sintered Discs; **REGULAR DISC**, **SUPRA-DISC (small)**, **DUO-DISC** and **SUPRA-DISC (large)**.

Featured Product; Bredent's Sintered Diamond Discs

Bredent's sintered Diamond Discs consist of carefully selected natural diamonds that are completely integrated into a mixture of metal and binding material designed for individual application. Because of the special manufacturing process diamond grit that is worn out is automatically removed and replaced by razor sharp diamond crystals so that automatic sharpening is accomplished. The range of different

shapes of discs ensure individual selection and permits multiple applications. The auto sharpening effect allows highly difficult processing of dental materials in a simple, fast and efficient way, as well as providing highly accurate separation and preparation of inter dental spaces. Four different sizes are available. **For additional information contact the order desk at Dent-line of Canada at 1-800-250-5111.**

Bredent's New Tool Kit Assortment 1.6mm



Bredent's "New" Tool Kit Assortment 1.6 mm

Our new tool set assortment 1.6 mm thread size is now available. The standard 1.4 mm screw has been the benchmark of screw retained prosthesis. Now that Bredent offers a larger 1.6 mm screw many more options are available for producing individual screw connections. The assortment kit consists of a tap holder, screw driver, tap one, tap two, centre drill, diatit drill, stop drill, facing drill and two titanium 1.6

mm. screws. With this technique a milling machine is not required; a hand piece is all that is necessary for fast, tension free screw connections. This system is suitable for two-sectioned bridges, dentures that are removable and for implant fixed retrievables. **Contact the order desk at Dent-line of Canada Inc., at 1-800-250-5111.**

A Simple Approach to Lingualized Occlusion, cont'd...

and second molars are also set up along their respective long axis. There is however, a slight difference since the teeth are set up with a very small sagittal displacement causing the buccal cusps to make no contact while moving the mastication pressure lingually. Duplicate the posterior set up technique on the opposite side of the maxilla. When placing the first lower molar, occlude the central fossae area of the maxillary teeth. As the lower teeth are added check the centric and lateral relationships of each tooth as it is positioned. If any contacts are off in working or balancing occlusion, then confirm it and make adjustments. Lingualized occlusion is the preferred method of denture set up which many implant manufacturers recommend for implant supported over dentures. Increased stability is one of the best rewards of this technique. By wearing unstable dentures, underlying alveolar bone can resorb far faster than with more stable dentures. Because there is less gingival surface area on the lower ridge, it is more difficult to achieve proper stability using a conventional balanced set up. Frank Llyod Wright often stated that form and function are one.

This is an essential examination capable of creating anything that has a good outward appearance and works. The lingualized occlusal set up fits this description well. Since we are not talking about a type of moulded tooth, but rather a technique that encompasses all types of stock teeth in this application. For patients who have nominal support from their ridges, the lingualized occlusal technique can provide the stability they need without compromising form, function, aesthetics or phonetics. This technique allows food to be cut up and avoids creating lateral forces on the denture. Finally in a study paper by Massad and Connelly, two in three patients preferred lingualized occlusion to gnathological occlusion. **Source Peter T. Pontsa RDT**
References; Koide K.;*Selection of Occlusal Scheme on Masticatory Function in Denture Wearers; Nippon Hotetsu Shika Gakkai Zasshi, 2004 Dec: 48 (5):681-90*
Massad J.J., Connelly M.E. *A Simplified approach to Optimising Denture Stability with Lingualized Occlusion; Compend Contin Educ Dent.,2000 July 21 (7):555-8.*



The points of the contacts on the upper posteriors are marked in red.



Points of the contacts on the lower posteriors are indicated with red articulating film.



Molars with lingual occlusion will preserve the "cutting effect". The lingual cusp is not locked and moves freely.



The template incorporates the curve of Spee and Wilson.



Upper set up is completed with final molar in place.



Occlude the central fossae area of the mandibular first molar to the lingual cusps of the maxillary teeth.



The first two opposing posterior quadrants in centric buccal view.



Final prosthetic wax up; note the working balance.

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What is the Life Span of Plastic Attachments ? cont'd....

wear down the anchoring capability of the attachment. However, in the pursuit of an alternative material with better properties, Bredent developed "duro-plast". This polystyrene thermoplastic material is insoluble, infusible and resistant to corrosion. Some of the important attributes of "duro-plast" are that it has adequate strength, resilience and abrasion resistance to even withstand abnormal usage. It is also impermeable to oral fluids, so that it will not become insanitary or disagreeable to the patient in taste or odour. The design factors also are important with the snap feature. The VKS-SG type females have two positive design parameters that stand out. The first one is the proximal wall that assists in locating the proper position and helps facilitate insertion. The second feature is the snap itself, which is located on the inner area of the horseshoe design. With this combination of both external and internal retentive surfaces, a superior retention is achieved. After years of research, the dilemma

of wear became a priority as the conditions of life span on retention sleeves became apparent. Solving conditional problems is complicated because there are so many circumstances that need to be addressed. Therefore, a few solutions were provided to facilitate these wear conditions. Originally there were three retention levels which were adequate at the outset. Now there are seven more retention levels that have been added. This will alleviate the problem of life span wear and rescue the fixed crowns, bridges or bars. Remaking crown and bridge abutments that facilitate attachment borne partial dentures is an expensive venture for both the clinician and patient. The other solution is the reworking kit which is used intra-orally to reduce the original stud ball, thread it and replace it with a new titanium stud ball which is glued using our DTK adhesive. Both of these solutions should solve the majority of problems that occur regarding issues of retention life span.

Source; Peter T Pontsa, RDT

Special Announcement:

Dent-line of Canada Inc., and Renfert U.S.A. would like to announce a donation to the College Édouard Mon Petit located in Montreal. On Friday October 28th, 2005, Peter T. Pontsa, RDT and Angela Van Breemen representing Dent-line of Canada Inc., donated a Renfert "Top Spin" which is a Laser guided pin hole drill machine. Also presented to Mr. Raymond Haché the co-ordinator of the Dental Technology Program were ceramic and wax up instrument kits. Dent-line of Canada Inc., and Renfert U.S.A. are proud to support our dental technology programs and schools.

Trade News:

Dent-line of Canada Inc., on behalf of Mr. Joe Nagy, donated dental materials to the Technical Vocational School, College Édouard Mon Petit and George Brown College. These materials consisted of slide presentations on occlusion, denture construction, articulators etc. Also donated were Kavo study models for use in Dental Technology course studies. We thank Mr. Nagy for his generosity. The Pacific Dental Conference is from March 9th to 11th, 2006 in Vancouver at the Convention and Exhibition Centre. To obtain registration forms send your email to pdinfo@bcdental.org. Dent-Atlantic takes place May 5th and 6th in Halifax at the Congress Centre.



From Left to Right; Peter T. Pontsa, 2nd year students, Angela van Breemen and Raymond Haché.



Tamra Mayham graduated in 2005, top of her class, from the Technical Vocational dental technology program. Renfert USA and Dent-Line of Canada awarded her with a Wax up instrument Kit for her fine accomplishment.