

# The Dent-Liner™

*A Bulletin Dealing With Issues For Dental Health Professionals*

## How the Locking Pin E Creates Overdenture Stability



Peter T. Pontsa, RDT has over 39 years of experience in the dental profession. In 1991 he established Dent-Line of Canada Inc. and is currently president of this dental supply company. 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. Peter is a past president of the College of Dental Technologists of Ontario and a current member of the Academy of Dental Technology. He is also pleased to be involved as co-publisher of Spectrum Denturism.

### Special Interest Articles:

• How the Locking Pin-E Creates Overdenture Stability 1

• Microwave Disinfection: How relevant is the treatment? 1

### Individual Highlights:

• Bredent's CompoForm UV 2

• Renfert's Geo Natural Diagnostic Wax 2

• Trade News 4

• Announcements 4

Nearly one third of North Americans older than 65 years are fully edentulous which necessitates artificial teeth replacement. Whereas many patients' requirements can be met by the traditional denture, others need additional retention. This is usually the norm for mandibular supported dentures that call for supplementary retention to increase stability, function and improve aesthetics. Nowadays, the implant supported denture is another option to the traditional removable denture because patients have significant information and expectations for good oral health. In the hands of a qualified practitioner, implant surgery is a relatively simple procedure and may well be less than an hour. Conventional retention and stability can be achieved by lingualized occlusion or anatomical artificial teeth which minimizes stress. Therefore a stabilizing force counteracts the tendency of the lower denture to rotate and lift off. Balance occlusion, good base adaptation, good border seal, frenum attachments and neutral zone compliance are the standards employed in traditional denture construction. However, improper placement of upper to lower teeth can cause traditional dentures to sway mainly when chewing, causing suction to be compromised, thus forcing dentures off the ridge. The fact is ridges will progressively become smaller over time and cause capillary seals to become less functional, making dentures unstable. The resorption of the

alveolar process can be so severe as to make it virtually impossible to fabricate stable dentures to the patient's satisfaction. The rate of residual ridge resorption in patients may be as much as several millimetres a year. Because of this dilemma, new dentures will be necessary and in the future, function, occlusion and aesthetics may be compromised as the ridge recedes. The implant supported denture is an obvious treatment option for these predicaments. Pre-eminent scientists and clinicians held a conference at McGill University in Montreal in 2002 to debate treatment for edentulous patients. The resulting unanimous agreement specified treating edentulous patients with a mandibular implant supported over denture. Short distal bar extensions can be added to the most distal plastic cylinder (UCLA abutment) to prevent posterior lift off. However depending on the patient's behaviour sometimes cantilevering does not work. Another study however, discusses the biologic behaviour of two or three implants retaining different designs of over denture bars that are cantilevered to compare stress levels. Caputos & Sadowsky's study "Stress transfer of four mandibular implant over denture cantilever designs" indicates that plunger-retained (Locking pin) prosthesis resulted in more homogeneous stress distribution to the ipsilateral (to the same side) terminal abutments when compared to the clip **continued on page 3**

## Microwave Disinfection: How relevant is the treatment?

Our aging population is expanding at a rapid rate, which means increasing amounts of older patients who will need dentures. To ensure proper hygiene, dental health professionals must continue to educate themselves on up to date denture disinfection procedures in order to provide service and guidance to denture patients. Proper denture care for these patients can be critical to their oral hygiene, which if gone unchecked can be detrimental to their oral health and well being. This is where it is imperative for dental health professionals to

emphasize to their patients that correct denture cleaning necessitates both home and clinical intervention. For repairs or relines, when a denture arrives at the dental laboratory, it can be disinfected (Bredent Denture Disinfectant) before the technicians or clinicians proceed with the repairs. The disinfectant avoids transmission of viruses, bacteria and fungi from the patient. Also the same disinfectant is used when the repair or completed denture is finished and sent out to the clinic for insertion **continued on page 2**

Microwave Disinfection: How relevant? cont'd...



Bredent's Dentaclean Impression and Denture Disinfectant (52001006) and Dentaclean Denture Cleaner (52000992) for use in the ultrasonic machine.



Microwave disinfection should be done at 690 watts for six minutes in a commercial cleaner.



Renfert's New Easy Clean Ultrasonic provides state of the art ultrasonic cleaning technology for all types of ultrasonic cleaning.

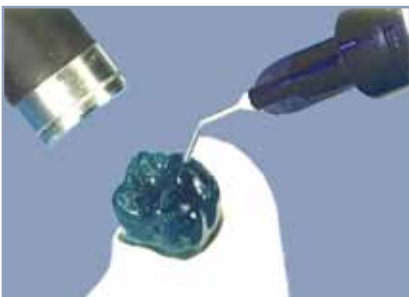
Relevant studies indicate that over 80% of denture wearers dread the denture odours which result from microorganisms and deposits. These same oral bacteria produce infectious oral substances which may cause denture related stomatitis, a fungal infection in the mouth, associated by white or red spots, bleeding, swelling and burning sensations. Because of the micro porous surfaces of acrylic denture resins, there is an extensive area to support microorganisms which can be detrimental to the health and welfare of a susceptible patient. Research has shown that tooth brushing of dentures is not adequate to combat stains and odours caused by bacteria. Recent research has indicated that microwave treatment makes denture cleaners more effective. Over the counter denture cleaners that involve soaking of the denture may make them look clean, but not necessarily sanitize them. Chemical solutions like bleach and vinegars can alter and damage denture base resins and must be completely washed off before the denture is placed back in to the mouth. Researchers found the combination of drug store denture cleaners with microwave treatment was most effective at eradicating micro organisms such as bacteria, yeasts and

fungi found in and around the teeth, rugae and the micro porous surface. Brushing alone or with tooth paste is an insufficient technique for keeping denture plaque in check, however, the effect of microwave disinfection on denture materials over the long term may be clinically significant. A Study paper published in the "Brazilian Dental Journal" title "Effect of microwave disinfection on denture base adaption and denture surface roughness" calls into question the validity of this procedure. The study group found the internal adaption on microwaved methyl methacrylates had a sizable decrease of adaption while denture bases immersed in a chloride solution remained dimensionally stable over time. The microwave irradiation at 690 watts for 6 min. probably encouraged a reorganization of the polymer chain and caused the distortion in the resin bases. Microwave energy also modified the surface texture of all groups by increasing surface roughness. While another study showed no decrease in torsional bond strength between hard relines and base resin tested. In any case, continued studies should examine different microwave treatments, protocols on various materials. **Source; Peter T. Pontsa**

Featured Product; Bredent's CompoForm UV

Bredent's CompoForm UV is a light curing composite used for modelling fixation of separated bridges and for quick fabrication of full crowns for the pressible technique, clasps, post and core restorations, maryland bridges and any other type of crown and bridge fabrication. CompoForm UV can be used in conjunction with modelling wax and is very stable. The

UV material has minimal shrinkage and burns out without residue ensuring top quality and precise casting results. CompoForm UV comes packaged with two syringes and various tips. It makes application of the material simple and convenient. **Call Dent-Line of Canada at 1-800-250-5111 to place your order today.**



Bredent's new CompoForm UV is an excellent composite for modelling.

Featured Product; Renfert's New Geo Natural Wax

Geo Natural Wax is used in conjunction with either the Geo Snow White Transparent or Opaque waxes to create a diagnostic wax up for treatment and planning. The aesthetic planning of a dental restoration can be achieved with a realistic outcome. Wax ups with GEO Natural Wax are virtually indistinguishable from artificial teeth under normal lighting. The translucency of the wax and the dentine shade (A2) give the wax an extremely realistic appearance. The GEO Natural is used for the dentine and the GEO Snow White L. Transparent is used for the incisor area. These wax ups reach a completely new level of quality regardless of whether they are on a diagnostic wax up or a master model. The wax covers metal frameworks completely

so that patients can see exactly what their restoration will look like before hand, resulting in a very professional impression. The Geo Natural and the Transparent wax are very ideal for waxing up pressible ceramic restorations (for veneers), since the wax burns out residue free. The GEO Opaque wax has excellent masking properties, even in very thin layers, which is essential when fabricating a wax-up on a metal framework. Opaque waxes should never be used for all porcelain restorations since these waxes contain metal oxides that do not burn out ash free; meaning that the residue remains in the mould and could be seen in the porcelain. **Call for further information at 1-800-250-5111.**



Renfert's Geo Snow White Transparent (499-0201) and Geo Natural (499-0300) are ideal for pressibles or diagnostics.



Use Geo Snow White opaque (499-0101) with Geo Natural for diagnostics.

How the Locking Pin E Creates Overdenture Stability cont'd...



Locking Pin E with assortment kit and the modelling pin.



Locking Pin E; in opened (above) and closed (below) positions.



When required a duraplast retention pin is available for replacement of worn pin.



The locking pin is cold cured into the denture and it can also be retrofitted to an existing case.



The patient will feel a snap when the pin is disengaged from the bar.



The Locking Pin results in a more homogeneous distribution of stress to the terminal abutments.



The bar is perforated with the Diatit-Multidrill 1.5 mm in the predetermined position.



Little space is required by the locking pin. The usual position is in the bicuspid area.

retained prosthesis. The locking pin provided superior load sharing from the ipsilateral edentulous ridge over the clip (retention sleeve) retained denture, taking into consideration the implant arrangement, ridge structure and overall design. Even with available retention options, including plastic and metal retention clips, bars, stud balls and magnets, what if a patient with an implant over denture bar is experiencing "lift off" of the denture? A case in point; a patient favours chewing on one side over the other. The retention sleeve on that side may wear faster allowing it to lose retention over time. It can be replaced to further garner retention but not if the bar is worn as well. These and other factors can contribute to the denture "lifting off" one side when mastication forces are applied to the other side. The Locking Pin E (Bredent) is indicated to alleviate "lift-off" even on a Class III occlusion while providing more uniform stress transfer than that of clip retained prosthesis. The Locking Pin E also prevents lateral movements which often causes sore spots. It can be utilized in a new treatment plan or in a retrofit onto an existing bar. The titanium based pin can be incorporated into the denture acrylic resin. The patient will find the soft resin supported guidance sleeve results in a soft

snap in the closed position and conversely, the snap indicates to the patient that the lock is completely open and that the denture can be removed. In a typical example, we used a Locking Pin E on a mandibular case with four implants placed in areas 33, 43, 46-36. Plastic UCLA castable cylinders were fitted to VSP plastic bars to create a one piece bar. The areas between 33 to 36 and 43-46 were selected for pin placement. The location is prepared with a centre drill, to provide access to the 1.5 Multidrill which is used to drill completely through the bar. The modelling pin is inserted in the bar through the denture wax up. The pin provides the receptacle for the Locking Pin E after the heat curing process. The locking pin is auto cured in to the denture. Conclusion; research among publications indicates that implants placed in the anterior mandible have a better than average success rate of 95%. The locking Pin E provided more uniform stress distribution to the ipsilateral terminal compared to clip retained prosthesis and provided retention security under tested loads. The Locking Pin E also prevents "lift-off" of the prosthesis even in the case of a Class III occlusion. The pin also ensures predictable

*continued on page 4*



This type of treatment plan usually requires a cast framework, however, the locking pin still works in cases with limited space.



A buccal hole can be drilled into the denture to provide the patient with easier removal by utilizing a pin to push it through.



## dent-line of canada

1170, 4th Line,  
Adjala, R.R. # 1  
Loretto, Ontario,  
LOG 1L0

PHONE:  
1-800-250-5111  
Or  
519-942-9315

FAX:  
519-942-8150

EMAIL:  
Info@dent-line.com

We're on the Web!  
See us at:  
[www.dent-line.com](http://www.dent-line.com)

### About Our Organization...

The Dent-Liner; Vol. 11 No. 4  
Publisher; Peter T. Pontsa RDT  
Editor; A. van Breemen, BA

Subscription Rates:  
Canada 1 Year \$ 6.00  
USA 1 Year \$ 8.00  
International 1 Year \$16.00

Continuing education credits apply for a review of this newsletter. For details contact the Quality Assurance committee in your jurisdiction.

Receipt of the dent-liner implies consent under the P.I.E.D.A. unless you advise dent-line of canada either orally or in writing that you wish not to receive this newsletter.

## How the Locking Pin E Creates Overdenture Stability cont'd...

stability and retention which results in a prosthesis with superior function and comfort for the patient through reliable pre-manufactured components in a well laid out treatment plan.

**Source; Peter T. Pontsa, RDT**

### Materials List:

Locking Pin E	44000652	PiKuPlast Resin	54000173
Centre Drill	33000660	VSP Bars	43006940
Multi Drill	33000730	Modelling Pin	44000565
Milling & Drilling Oil	55000008		

### References:

(1) Doun Doulakis J.H., Eckert S.E., Lindquist C.C., Jeffcoat M.K.; "The implant-supported overdenture as an alternative to the complete mandibular denture". J. AM Dent. Ass. Vol. 134, No. 11, 2003; 1455-58.

(2) Sadowsky S.J., Caputo A.A.; "Stress transfer of four mandibular implant overdenture cantilever designs" /

Journal of Prosthetic Dentistry, Vol. 92, Issue 4, Oct 2004, 328-336.

(3) Thomson J.M.; "The McGill Consensus Statement on Overdentures: Mandibular two implant overdentures as a first choice standard of care for edentulous patients". Eur. J. Prosthodontic Restor. Dent. 2002; 10(3):95-6.

(4) Tawsc-Smith A., Perio C., Payne A.G., Kumara R., Thomson W.H.; "One stage operative procedure using two different implant systems: a prospective study on implant overdentures in the edentulous mandible".

(5) Moberg L.E., Kondell P.A., Saguling G.B., Bolin A., Hemidahl A., Gynther G.W.; "Brankemark System and ITI Dental Implant system for treatment of mandibular edentulism; a comparative randomized study" - 3 year follow-up "Clinical Oral Implants" Res. 2001; 12:450-61.

(6) Pontsa P.T.; "Locking Pin Snap System". Dent-liner 2004; Spring Vol. 8 Issue 2, page 1 & 4.

## Trade News: BC Dental Convention

On Saturday September 29th, Dent-Line of Canada Inc. sponsored the seminar "Attachments for Removable & Retrievable Prosthetics" at the 25th Annual conference for Dental Technicians' Association of British Columbia which was held at the Best Western Vancouver Airport Hotel and Convention Centre. We would like to thank all the dental technicians who attended our seminar. Also present was Mr. Rainer Christiansen from the Bredent Head Office in Germany who enjoyed speaking with participants after the seminar.



## Trade Show News: Donation to College Edouard Monpetit

Dent-Line of Canada Inc. and Renfert USA are pleased to announce a donation for the Dental Technology Program at College Edouard Monpetit on Friday October 25th. Peter T. Pontsa, RDT, president and Angela van Breemen, BA, vice-president donated three Renfert Waxlectric II's. On hand as representatives of the school to receive the donation were Émilie Brulé, the dental technology program coordinator and Mr. Raymond Haché Enthusiastic College Edouard Monpetit students look on as the waxlectric #2 units are donated. Dent-Line and Renfert feel proud to be able to improve the quality of education through these donations.



Pictured above, Professor Émilie Brulé, the dental technology program co-ordinator stands next to Peter T. Pontsa, (centre) with Professor Raymond Haché at the far right with his students.

## Special Announcement: 6th Annual Dent-Line Award

Dent-Line of Canada Inc. is pleased to announce that Mr. Kenneth M. Chizick, RDT, CDT is the recipient of the 6th Annual Dent-Line Achievement Award which was presented to him on October 26th, 2007 at the 7th Annual Denttechnica of Québec Conference. Mr. Chizick was recognized for his contributions to dental education and to the profession in general. On behalf of Dent-Line of Canada Inc., Peter T. Pontsa, RDT and Angela van Breemen, BA presented the award to him. Mr. Chizick is well known for his teaching and the detailed research that he carries out at the University of Manitoba.



Pictured above, Peter T. Pontsa, RDT (left) and Angela van Breemen, BA (centre) were delighted to present the award to Mr. Ken Chizick, RDT, CDT, shown far right.