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# The Dent-Liner™

*A Bulletin Dealing With Issues For Dental Health Professionals*

Peter T. Pontsa, RDT has over 40 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. He is also pleased to be involved as co-publisher of Spectrum Denturism.

## Wear Studies on Plastic and Metal Attachments

When choosing attachments for certain cases the bio mechanical implications such as loading and force distribution on to roots and implants should be considered . The best retention method (rigid or stress breaking) and the best retention device for over denture connection (single anchors or bar splints) should also be investigated. Studies indicate that the retention choice be selected according to the specific clinical and individual needs of the patient. It has been noted that preservation of root structure can prevent or at least delay ridge atrophy. Over denture literature describes the concepts back to Dr. Ledger of the U.K. 1856. A further study by M.Wichmann, and W. Kunze compares the wear of prefabricated precision and semi precision attachments. The aim of this laboratory study was to measure the effect on the forces required to engage and disengage prefabricated attachments. Five different types or prefabricated attachments were selected for testing; three semi precision attachments, namely Bredent SG, Mini SG and Preci Vertix which had removable plastic retention inserts and two typical precision attachments which consisted of all metal female and male components. Five specimens of each type were exposed to continuous stress of 10,000 cycles of engaging and disengaging using an axial line of draw. The retentive forces were measured simultaneously at each loading cycle. A solution representing the electrolyte component of saliva was flowing over the female and male components to remove the abraded material. During the first 1,000 loading cycles the retentive force of the typical all metal attachments decreased from an initial 7 Newtons to 4 and 3 Newtons respectively. During the next 9,000 loading cycles the retentive forces decreased steadily to a mean value of 3 Newtons. The attachments with metallic surfaces showed a rapid loss of friction of approximately 60% to 70%. After forced activation of a retentive force between 15 and 20 Newtons, the same rapid loss of friction occurred. By comparison, all attachments with plastic female inserts showed practically no decrease in retentive force during 10,000 and respectfully 5,000 loading cycles of separating and joining movements. Depending on the type of plastic

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## Why do we Have Medical Device Regulations?

The Medical Device Regulations have been established under the authority of the Food and Drugs Act and apply to all medical devices imported or sold in Canada. The Therapeutic Products Directorate (TPD) has the regulatory responsibility for medical devices. The Medical Device Regulations set out the requirements governing the sale, importation and advertisement of medical devices in Canada. The level of regulatory security to be applied in these areas is based on risk management principals that use a rule based system to classify medical devises into four classes with Class 1 being the lowest risk and Class 4 the highest. With the intent to ensure safety and effectiveness of devices sold in Canada, Part 1, section 26 of the Medical Device Regulations prohibits the importation or sale of class 2, 3 or 4 medical devices unless the manufacturer holds a license for that device. However, the initial requirements of a distributor in Canada is the issuance of an Establishment License. This is the first step to compliance. This license allows a company the right to import, sell and distribute medical devices such as the Bredent attachments. Part 44 Section 1 of the regulation states “No person shall import or sell a medical device unless the person holds an establishment license.” The next step is to make applications for the various medical devices that one intends to distribute. Normally a device license is not required for a Class 1, however, Class 2, 3 and 4 do require one. A Class 2 licence refers to a device that stays in the body, in the case of the dental profession, this means, the mouth, for less than 30 days.

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***Special Interest Articles:***



***Individual Highlights:***

## Wear Studies on Plastic and Metal Attachments cont'd...

insert the retentive force was between 2 and 30 Newtons. Bredent uses a more durable polyethylene plastic which is different than the nylon material that most manufactures use. In conclusion the conventional all metal attachments showed significant wear and an extensive loss of retention. In contrast to this, attachments with plastic inserts showed only negligible amounts of wear and the most consistent retentive force. Furthermore the study concluded that wear-induced loss of retention in attachment-retained dentures poses a major clinical problem. Most prefabricated all metal precision attachments can be activated to restore wear-induced loss of friction. This is achieved by design elements such as resilient metal tongues, partially or completely slotted male components and set screws. The aim of this comparative study was to assess the wear behavior of different prefabricated attachments and the effectiveness of activation in restoring wear-induced loss of friction and retention. At baseline, each attachment was activated to have a retentive force of 7 Newton's in each of the four consecutive cycles. The attachments with plastic inserts by contrast showed only negligible reductions in the required engaging / disengaging forces even after 10000 wear cycles. Although there was only little loss of friction in the attachments with plastic inserts, activation or replacement of the plastic insert was effective to restore friction to the level present in the beginning of each load cycle. In a 2010 publication of Oral Rehabilitation a study entitled "Evaluation of Retentive Characteristics of Semi Precision Attachments" compared Bredent's Vario Kugel Snap, Vario Soft 3, the Strategy OT a polymer to metal attachment and ASC-52 an all metal attachment. Tests were performed using a cyclic axial loading device. After 3,000 cycles, the polymer attachments were examined under a scanning electron microscope. The ASC-52 metal to metal attachment with stood 8,000 cycles. The attachment with metal to metal type friction exhibits the highest wear resistance (simulated up to 8 years of usage) compared to polymetric inserts attachments with up to three years. The study also mentions that all attachments exhibited wear of the metal patrix that can minimize the chance of re-activation in the long run. Although the first study proved that the plastic attachment was better than the

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## Featured Product: Twister from Renfert

Twister

Twister Evolution

The newly designed Twister and Twister Evolution also come in a Venturi model that hooks up to a compressor. The compact Twister vacuum mixer can be employed for all conventional casting and modelling materials used in the dental laboratory. All mixing parameters are quickly and easily input. The high performance motor and high quality vacuum pump guarantee homongenous and bubble-free mixing results for all dental plasters gypsums, investment or silicone. The main mixing sequence involves a new performance motor that effortlessly maintains the programmed mixing speed for every material. The standard unit is designed for wall mounting, while an optionally available stand unit turns the unit into a bench top device. The Twister Evolution has over 100 individually programmable mixing programs and are distinguished by their intuitive operation. The advantage is an absolute reproduceability of all mixing results at the touch of a button. The motor has an exceptionally high torque which allows it to mix very large quantities without a problem. For details, call 1-800-250-5111.

## Featured Product: Bredent Easy Snap E


Bredent's new and improved Easy Snap E System Part No. 4400N652

Bredent has introduced the Easy Snap E and it's replacing the Locking Pin E. The Easy Snap E has improved as the inter workings have been upgraded and the whole pin has been changed for the better. The older pin had a titanium cross hatched design. It is now replaced with cylindrical grooves that encircle the housing. It has also been anodized in a red colour for easier integration into pink acrylic. The Easy Snap E is easily inserted into dentures and partial dentures, and can be bonded into implant supported crowns and bridges using DTK dual cure adhesive (54000106). It can also be picked up in the mouth with Qu-Resin pink (54001161) which cures in 3 minutes. The pin can be used in existing cases where the initial retention has failed or in new cases where denture lift-off could be a problem. The soft resin supported guidance results in a soft snap of the locking pin when the locking pin is in the closed position. Upon opening the snap indicates to the patient that the lock is completely open and the denture can be removed. Call today at 1-800-250-5111 for more information.

# Why do we have Medical Device Regulations? ...cont'd


B 43005350 VKS-OC-UNI 2.2. mm
10pc. Kit includes 2 each of green, yellow, red OC matrices, 2 blockout discs and 2 universal males


B 43005520 Root Caps Kit 2.2 mm
12pc. Kit contains 2 each of green, yellow, red OC matrices, 2 blockout discs, 2 universal males and 2 metal housings.


B 43005360 VKS-SG 2.2 mm
8 pc. Kit includes 2 each of green, yellow, red SG matrices, 2 SG males.


B 43006720 VKS-Uni 1.7 mm
10pc. Kit includes 2 each of green, yellow, red, 2 blockout discs and 2 uni males


B 43006780 VKS-OC 1.7 mm
12 pc. Kit includes 2 each of green, yellow, red matrices, 2 blockout discs, 2 universal males and 2 metal housings.


B 43006630 VKS-SG 1.7 mm
8 pc. Kit includes 2 each of green, yellow, red SG matrices, 2 SG males.

This includes any oral therapy appliance such as dentures and partial dentures etc... Class 3 and 4 are usually over 30 days and require a more stringent application process called a pre-market review. Dent-line has had its medical device licenses from 1999, however with the expansion of the attachment line we recently revised all of the licenses. We worked along side a device consultant who helped us navigate through the process. At the moment Dent-line holds 27 medical device licenses.

The issue of broken packs of attachments and why Dent-line cannot continue to do so is in the Regulations under labelling requirements. Part 21 Section 1 "No person shall import or sell a medical device unless the device has a label that sets out the following information: (a) the name of the device (b) the name and address of the manufacturer (c) the identifier of the device including the identifier of any medical device that is part of a system, test kit, medical device group, medical devise family or medical device group family. (d) in the case of a class 3 or 4 device, the control number (e) if the contents are not readily apparent an indication of what the package contains expressed in terms appropriate to the device. (f) the word "sterile" if the manufacturer intends the device to be sold in a sterile condition (g) the expiry date of the device, if the device has one (h) unless self evident to the intended users the medical condition purposes and uses for which the device is manufactured sold or represented (i) the directions of use (j) any special storage conditions. Under the regulations it is impossible to uphold these requirements when opening up packages that already conform to the Medical Device Regulations. That is why this practice is being stopped as we conform to the regulations set out through Health Canada. However we will be reintroducing the various mini assortments which gives a better selection of the various retentions and male components. Instead of a package of eight female retentive elements that are all the same there is an option of 2 each of green, yellow, and red along with males and housings depending on whether you are servicing an old restoration or making a new one. These mini assortment kits are a great alternative to ordering full packs. The parallel mandrel and insertion pin are sold separately, however, but if required, introductory assortment kits are also available which include all the tools necesssary.

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


B 43005320 VKS-OC 2.2 mm
Assortment contains 2 each of green, yellow and red OC matrices, 2 metal housings, 2 universal males, 2 blockout discs, 1 insertion pin and 1 parallel mandrel.


B 43005330 VKS-SG 2.2 mm
Assortment contains 2 each of green, yellow and red SG matrices, 2 SG males, 1 insertion pin and 1 parallel mandrel.

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**About Our Organization...**

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# Wear Studies on Plastic and Metal Attachments cont'd...

all metal one, the second study did not take into account that Bredent had indeed addressed both concerns with which the 2010 study takes issue. This study did not mention that by changing the Bredent plastic insert that the initial retention would be reestablished; thus lengthening the life of the prothesis significantly. This is not the case with the metal one (ASC-52) since a costly reworking of the entire case would be required in this instance. Since Bredent recognizes that the metal male will wear over time, they increased the retention levels of the female inserts from 3 to 10 in order to prolong the life of the restoration. In addition, there is a reworking kit that will allow the Dentist to redo the male attachment in the mouth. Finally, the exchangeable stud attachment was developed so that when the male part wore out it could be removed with a screwdriver and replaced with a new stud, thus providing the initial retention level needed without destroying the restoration. All studies should be scrutinized for imbalanced results and conclusions, however when properly presented with all the evidence it can lead to clear and significant outcomes.

***Source: Peter T. Pontsa, R.D.T.***

**References;**

**1 Holst S., Blatz M. B., Eitner S., Wichmann M. Int J Prosthodont. "In vitro wear of different material combinations of intracoronal precision attachments"; 2006 Jul-Aug; 19(4):330-2.**

**2 M.Wichmann, W. Kunze, "Wear Study of Attachments" Jour Prosth ,12; 404-9, 1999**

**3 W. Hedzelek, S. Rzatowski, B. Czarnecka, "Evaluation of the retentive characteristics of semi-precision extracoronal attachments" Jour Oral Rehabilitation online publication Sept.15 2010**

# Announcements:

On our annual pilgrimage to Collège Édouard-Monpetit, Angela van Breeman, BA and Peter T. Pontsa, RDT were welcomed to the college's brand new dental technology facilities. Emilie Brulé, the program co-ordinator kindly gave us a tour of the new labs and new equipment. We were greeted by happy and enthusiastic students wherever we went. During the visit Peter and Angela presented the school with the Renfert Milo Pro Arch trimming machine. The facility and students milled around us and refreshments were served during the presentation ceremony. both Dent-Line and Renfert appreciate that learning dental technology should be a great experience and which can be best accomplished by working with the best equipment.

# Announcements:

The up coming (2011) year will be a banner year for Dent-Line of Canada as it will be twenty years that the company has been serving dental health professionals throughout Canada. Peter T. Pontsa, RDT and Angela van Breeman, BA the principal owners of Dent-Line of Canada have been donating equipment to various dental technology programs in schools across Canada. They have also sponsored many activities as well as providing continuing education through articles and seminars, that Peter T. Pontsa has created and presented. Dent-Line's focus will be to continue doing what it does best in service and warranty issues as well as donations, and continuing education. We have spent two years updating all of our medical device licensing with Health Canada and we now hold 27 medical device licences comprising many products. Also Dent-Line follows the Dental Industry Association Guidelines which require all electronic equipment to be certified for use in Canada by the Electrical Safety Board. This ensures that equipment is compliant so there should be no issues with your insurance company should disaster ever strike your facilities. Dent-Line has been complemented many times by our clients for the wonderful service and our cheerful telephone people. We are glad to have been able to serve you all for the last twenty years and look forward to a mutually rewarding future from 2011 and onward.

# Trade Show News:

In the up coming year 2011 Dent-Line of Canada will be sponsoring a seminar called "Sleep Apnea Recognition Diagnosis, and Treatment". Presented by Peter T. Pontsa, RDT. We will be attending the Journée Dentaire in Montreal, Dent Tech West in Edmonton, the Pacific Western Dental Conference in Vancouver, and Technorama in Toronto. Sleep Apnea is fast becoming an area of vast interest, and to keep up to date we encourage all dental health professionals to attend any one of these venues and catch Peter T. Pontsa's, RDT presentation on Sleep Apnea. Peter spent three days at the Las Vegas Institute for Dental Studies in preparation for developing this seminar and we believe it is very informative on the subject.