SMART DENTAL UPDATES

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you **"SMART DENTAL UPDATES"** which
contains latest and interesting news in the field of Dentistry.

This issue contains

- Correlation between Taste Threshold Sensitivity and MMP-9, Salivary Secretion, BP, and Blood Glucose Levels in Smoking
- Clinical evaluation of a proanthocyanidins-based primer in non-carious cervical lesions
- Importance of Alveolar Ridge Preservation

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

Correlation between Taste Threshold Sensitivity and MMP-9, Salivary Secretion, BP, and Blood Glucose Levels in Smoking

Cigarette smoking damages the taste threshold by a numerous pathway. salivary gland irritation and inflammation cause an increase in salivary secretion at the beginning of cigarette exposure but decreases over time as a long-term effect of smoking. Nicotine and tobacco in cigarettes can stimulate matrix metalloproteinases (MMPs), one of which is MMP-9. An increase in MMP-9 is mainly due to the inflammation caused by cigarettes. This study specifically focused on women since some of the negative effects of smoking may affect women differently in comparison with men due to the differences in anatomy and physiology of both sexes.

Smoking only affected relationship between salt taste threshold and systolic BP.

The correlation between taste threshold sensitivity and MMP-9, salivary secretion, blood pressure, and blood glucose levels in smoking and nonsmoking women were evaluated. This was a cross-sectional study consisting of young adult women aged 18–24 years. Subjects were divided into two groups: the nonsmoking and smoking groups. The sweet taste threshold was not correlated to any of the variables in the study when the data were analyzed based on group division.

Correlation of sweet taste threshold	Smoking ($n = 24$)		Nonsmoking ($n = 49$)		Combined ($n = 73$)	
	r	p	r	p	r	p
(1) Age	−0.297	0.158	0.184	0.206	**0.308**	**0.008**
(2) Salivary volume	−0.006	0.977	0.059	0.689	−0.026	0.830
(3) Salivary pH	0.381	0.067	−0.026	0.857	0.062	0.600
(4) Glucose level	−0.235	0.269	0.164	0.261	**0.238**	**0.043**
(5) Duration of smoking	−0.165	0.441	—	—	—	—
(6) Number cigarettes/day	−0.251	0.236	—	—	—	—
(7) MMP-9	0.037	0.865	−0.250	0.083	**−0.297**	**0.011**

Table: Correlation of the sweet taste threshold with age, MMP-9, salivary secretion, and glucose levels.

Meanwhile, in the combined data of both groups, the sweet taste threshold was correlated with age (r = 0.308, p = 0.008), blood glucose levels (r = 0.238, p = 0.043), and MMP-9 (r = –0.297, p = 0.011) as shown in Table. An increase in the taste threshold indicated a decrease in taste sensitivity. Based on the data analysis from the study, an increase in age and blood glucose levels was associated with a decrease in the sensitivity of taste buds to sweet taste. Meanwhile, there was a decrease in

Correlation of salt taste threshold	Smoking ($n = 24$)		Nonsmoking ($n = 49$)		Combined ($n = 73$)	
	r	p	r	p	r	p
(1) Age	−0.083	0.700	0.233	0.108	0.049	0.683
(2) Salivary volume	0.286	0.176	−0.084	0.568	0.039	0.743
(3) Salivary pH	−0.013	0.951	−0.075	0.607	−0.047	0.694
(4) Systolic	**0.440**	**0.032**	0.246	0.089	**0.260**	**0.026**
(5) Diastolic	0.257	0.226	0.066	0.654	0.104	0.379
(6) Duration of smoking	0.237	0.265	—	—	—	—
(7) Number of cigarette/day	0.039	0.856	—	—	—	—
(8) MMP-9	0.228	0.285	−0.010	0.943	0.094	0.431

Table: Correlation of the salt taste threshold with age, MMP-9, salivary secretion, and blood pressure

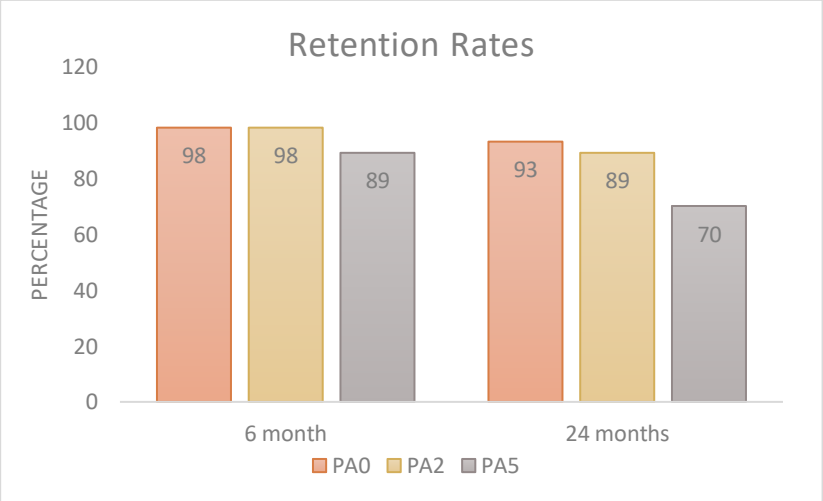
MMP-9 levels along with a decrease in sweet taste sensitivity. The sweet taste threshold in women was found to correlate with age, blood glucose levels, and MMP-9 levels. Smoking only affected the relationship between the salt taste threshold and systolic blood pressure, where smoking can cause an increase in the salt taste threshold, thus increasing systolic blood pressure. However, both sweet and salt taste thresholds were not statistically correlated with salivary secretion.

Source: Tjahajawati S *et al. Intl. J Dentistry.* 2020; Article ID 4178674, 5 pages. https://doi.org/10.1155/2020/4178674

Clinical evaluation of a proanthocyanidins-based primer in non-carious cervical lesions

A double-blind randomized clinical trial was conducted to evaluate the pre-treatment with proanthocyanidins (PA) from grape seed extract on the clinical behavior of a simplified etch-and-rinse adhesive placed in non-carious cervical lesions (NCCLs) over 6- and 24-months. A total of 135 restorations were randomly inserted in 45 subjects. The NCCLs were etched with 37 % phosphoric acid for 15 s and distributed into 3 groups: Control (PA0) - adhesive ExciTE F applied as per the manufacturer's recommendations; PA2 and PA5 groups – 2 wt% and 5 wt% PA solution, respectively, were applied for 60 s and washed for 30 s prior to application of the adhesive. The resin composite was placed incrementally and light-cured. The restorations were evaluated at baseline, 6 months (6 m) and 24 months (24 m) using both the FDI and USPHS criteria. Statistical analyses were carried out using Friedman repeated-measures analysis of variance by rank and the Wilcoxon test ($\alpha = 0.05$). The retention rates were 98 % (PA0), 98 % (PA2) and 83 % (PA5) after 6 m and 93 % (PA0), 89 % (PA2) and 70 % (PA5) after 24 m. Only PA5 resulted in a significant lower retention rate at 6 m and at 24 m compared with that of baseline ($p = 0.03$). All groups resulted in a significantly worse marginal adaptation and marginal staining for

The application of PA as a primer did not result in clinical advantages after 24 months



the FDI criteria when the baseline vs. the 24 m recall data were compared. These differences were considered clinically acceptable under the FDI criteria.

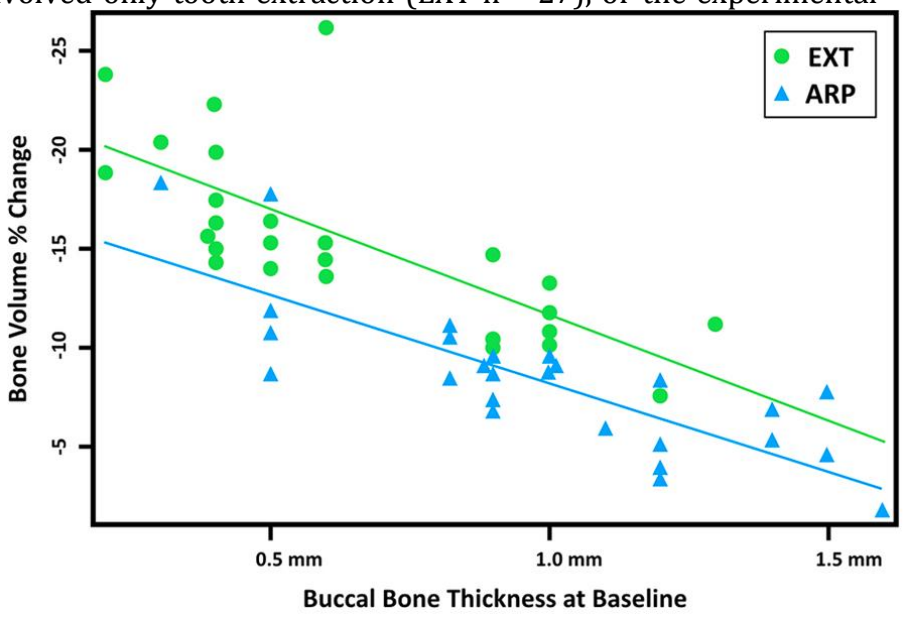
The application of PA as a primer did not result in clinical advantages after 24 m of clinical service, regardless of the concentration used. It has been reported that PA, a collagen crosslinking agent, increases the durability of the dentin-resin interface. However, no effects were found clinically after 24 months.

Source: de souza LC et al. *J Dentistry* 2020 March. 103325. [online ahead of print]. https://doi.org/10.1016/j.jdent.2020.103325

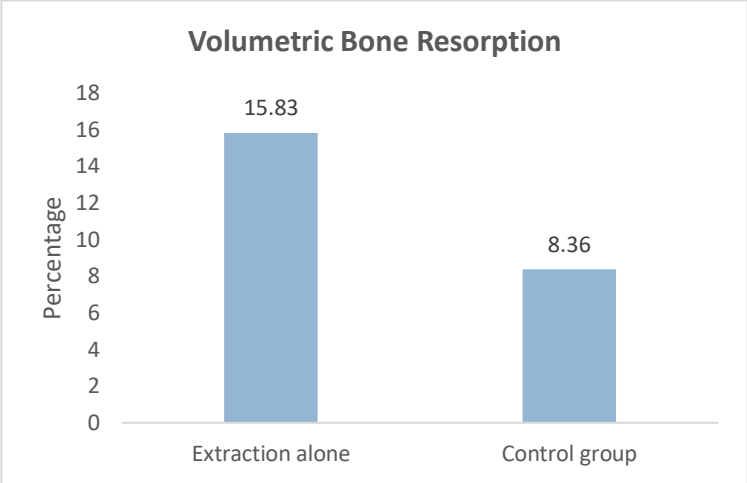
Importance of Alveolar Ridge Preservation

Alveolar ridge preservation (ARP) therapy is commonly indicated to prevent extensive alveolar ridge resorption after complete or partial tooth extraction, either as part of immediate implant placement interventions or to reduce the need for ancillary ridge augmentation prior to or at the time of delayed implant placement. The primary aim of this RCT was to evaluate the efficacy of ARP therapy consisting of a combination of socket grafting with a particulate allograft material and socket sealing with a nonabsorbable dense polytetrafluoroethylene (dPTFE) membrane following tooth extraction, as compared with unassisted socket healing on the basis of a panel of clinical, linear, volumetric, implant-related, and patient-reported outcomes. A secondary objective of this study was to evaluate the effect that local phenotypic factors play in the volumetric reduction of the alveolar ridge, whether ARP therapy is performed or not.

A total of 53 subjects completed the study. Subjects were randomized into either the control group, which involved only tooth extraction (EXT n = 27), or the experimental group, which received ARP using a combination of socket grafting with a particulate bone allograft and socket sealing with a nonabsorbable membrane (dPTFE) following tooth extraction (ARP n = 26). A set of clinical, linear, volumetric, implant-related, and



patient-reported outcomes were assessed during a 14-wk healing period. All linear bone assessments (horizontal, midbuccal, and midlingual reduction) revealed that ARP is superior to EXT. Likewise, volumetric bone resorption was significantly higher in the control group (mean ± SD: EXT = −15.83% ± 4.48%, ARP = −8.36% ± 3.81%, P < 0.0001).



Linear regression analyses revealed that baseline buccal bone thickness is a strong predictor of alveolar bone resorption in both groups. Interestingly, no significant differences in terms of soft tissue contour change were observed between groups. Additional bone augmentation to facilitate implant placement in a prosthetically acceptable position was deemed necessary in 48.1% of the EXT sites and only 11.5% of the ARP sites (P < 0.004). Assessment of perceived postoperative discomfort at each follow-up visit revealed a progressive decrease over time, which was comparable between groups. Although some extent of alveolar ridge remodeling occurred in both groups, ARP therapy was superior to EXT as it was more efficacious in the maintenance of alveolar bone and reduced the estimated need for additional bone augmentation at the time of implant placement