DENTAL TRIBUNE

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Continuing Dental Education 2 mCME Hours

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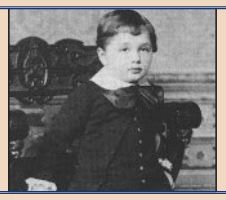

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University of Shrjah Organize the 2nd International Dental Conference

Under the patronage of His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi, Member of the Supreme Council, Ruler of Sharjah, Founder and Supreme President of University of Sharjah, the University held the 2ndSharjah Dental and the 14th EMA International Dental Conference, under the theme of "Redefining Tomorrow's Dentistry" from 14-17 October in the medical campus of the University.

The Faculty organized the conference in cooperation with Emirates Medical Association and Ministry of Health.

The activities included workshops for Implantology and dental restorative materials, and also scientific sessions in different field of dentistry like Evidence based dentistry, Periodontology, Endodontics, Pediatric dentistry and Digital Photography. The conference invites speakers from different part of the world like USA, India, and Lebanon and gulf region.

Its exhibition includes many companies that had latest technologies in dental field and also some institutes like Nicholas and Asp presented their postgraduate programs. And great thanks for Sheikh Hamdan awards for Medical projects played a role in the exhibition.

Part from the activities was scientific poster competition that attract many of dental researches and students to present their researches and awards were there for the best three posters. DT

Voco GmbH, Germany, is back to the UAE

Voco GmbH the research-driven Germany based manufacturer of more than 160 high performance dental materials announces its cooperation with Tigers Medical Equipment LLC for the import, marketing and distribution of Voco – Products in the U.A.E.

Voco-Products are being exported to more than 120 countries worldwide and the product-range includes the following materials: linings, bondings, restoratives, lutings, temporaries, core build-up materials and others. Their quality has been proven by many international awards. Voco GmbH guarantees the highest standard of quality assurance by strict adherence to their quality assurance system which has been continuously updated.

Voco GmbH is currently certified according to EN ISO 9001/EN 13485/ Directive 93/42 EEC.

Now, Voco – products are also available in the UAE with their partner Tigers Medical Equipment LLC

Quality and Service are Voco´s and Tigers Medical´s priorities for the UAE market, in serving the private sector, public institutions and all the Oral healthcare providers in the United Arab of Emirates.

For further information please visit the Voco web-page www.voco.com or contact Tigers Medical directly. DT

Miswaks level toothpaste

LEIPZIG: Dentists at the King Saud University in Riyadh, Saudi Arabia, have found that teeth cleaning sticks or miswaks are as beneficial for oral health as toothpaste. The research identified a total of 19 substances that kill harmful micro-organisms and protect gums. DT

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New health information system in UAE to be connected via an online network by 2011

As the Ministry of Health announced last week, with the implementation of Wareed, the new health information system, hospitals and clinics in the UAE will be connected via an online network by 2011 to improve medical care and ensure patient safety.

This network aims to exchange and access to medical and health information between patients and doctors as well as healthcare peers across the country. Patients can now be treated in the most effective way by having access to their treatment results, updates and follow ups. They can also easily be transferred from one hospital to another within the UAE, even outside of the country thanks to specific agreements between the hospitals. The new system promises to avoid losing data, saving time and money, decreasing the waiting time for medical appointments but most importantly has the ability to provide international medical second opinion.

Although Wareed has a lot of advantages, it has some drawbacks. The main concerns are how to run the system in most efficient way and ensure patient safety while going through the process of implementing the customer centric data system.

At the 3rd annual Healthcare Expansion Congress Mid-East, organized by naseba, e-health application in the region, the importance of information at the point of care, patient safety and cancer management were the hottest issues discussed during the event. The leading solution providers as well as decision makers from the healthcare industry around the globe gathered together to share their experience and find the best solutions to their needs.

Effectiveness in implementation:

Raj Singh, healthcare solutions consultant EMEA, Hitachi Data Systems, said:

'The most effective method of implementing e-Health services for the population of the UAE requires serious consideration to the actual requirements and objectives of the program. Certainly in today's world there exists the technical capability to deliver both clinical and non-clinical application suites to meet and exceed the service level requirements that may be placed upon them.'

The key considerations for such capability should also take into account the medical and clinical practices being adopted, with stated objectives for improved care, workflow processes and the delivery of the best medical care possible. These 'healthcare business-level' objectives can then be translated to technology solution requirements designed and implemented to meet them.

How to ensure patient safety?

'Patient safety is and should continue to be the most important consideration for delivering patient care while implementing the new system. A certain element of risk from human errors always remains but we should certainly be able to address avoidable and often costly mistakes,' noted Raj Singh.

'The reliability of IT health information systems coupled with advances in technologies such as RFID and Finger Vein Biometrics can help improve patient safety quite significantly. The most important consideration for improving patient safety still relies, however, on the healthcare providers who need to ensure they build out the best care practices with correct patient identification throughout their healthcare workflows and processes,' he added.

Kingdom of Saudi Arabia as a role model:

On the second day of the 3rd Annual Healthcare Expansion Congress Mid-East, Dr. Fahad Bin Saleh Al Orifi, the MD Chief Executive Officer of King Faisal Specialist Hospital & Research Center- Riyadh, shared the experience of e-health application in the Kingdom of Saudi Arabia.

Saudi Arabia is the first country in the Middle East region, to have implemented the eICU program, patented by VISICU, which combines early warning software and remote monitoring to connect off-site critical care physicians and nurses to ICU patients at all times.

The eICU Program provides an alternative way to deliver high-quality critical care when specialist resources are limited. The eICU vision is to have centralized intensivist physicians & critical care nurses - round-the-clock in an eICU Center - to help bedside teams watch over their sickest patients and to prioritize and guide interventions. The evidence is growing that eICU Programs are having a proven impact on saving lives, reducing complications as well as the length of patient stays, especially in the countries where people have limited and unequal resources in healthcare services.

'Implementation of e-health services enables the equal distribution to high tertiary care to all citizens of Saudi Arabia, easy accessibility to healthcare services and education through e-health networks, cost effectiveness and efficiency for delivery healthcare by utilizing high sophisticated e-health technology and information, availability of healthcare services within 24h/7 and transmission of all kind of medical and administrative events to as many as participants and attendance could be,' noted Dr. Fahad Bin Saleh Al Orifi.

His message for UAE health authorities was: 'Sharing the regional experience could avoid a lot of hiccups, while running the system and building the right infrastructure for the e-health application. Investing in broad bandwidth will let such applications requiring heavy data exchange possible,' he added.

The Government's point of view:

Mohammed Abd Al Abi, the head of Radiology from the Ministry of Health mentioned that the system of e-health facilitate will enable both patients and doctors across the country to make quick and well-informed decisions as well as ensuring the quality of treatment. At this point, training the staff on the new implementations, upgrading and maintaining the data base are vital factors for the sustainable safety of patients.

The 3rd Annual Healthcare Expansion Congress Middle East is the only event in the industry that is designed to provide deep insights into the most relevant issues affecting the medical community today. In addition it provides the opportunity for healthcare professionals to source the newest solutions for their current and upcoming projects while meeting leading global solution providers.

The 3rd Annual Healthcare Expansion Congress Middle East has become the leading upper level executive congress in the Middle East Healthcare industry. Following the success of its healthcare series, naseba has decided to expand the healthcare series in the Middle East as well as in Europe. DT

Abu Dhabi seeks to privatise some services

The Abu Dhabi government is seeking external investment in the emirate's healthcare system as it looks to privatise some services. Zaid al Siksek, chief executive of the Health Authority Abu Dhabi, said it wants the system to become less dependent on publicly run institutions, which in the past have 'not been as efficient as possible'. He said 50 private firms have filed applications to invest in the emirate's healthcare system, but only four of those are expected to 'move forward'. DT

First Cyberknife system installed in Saudi hospital

US-based Accuray Incorporated has announced that the first CyberKnife Robotic Radiosurgery System in the Kingdom of Saudi Arabia will be installed at King Faisal Specialist Hospital and Research Center in Riyadh. It is the first CyberKnife System to be installed in the Middle East region.

King Faisal Specialist Hospital has the largest cancer treatment facility in the Gulf region. Accuray's CyberKnife System is the first and only robotic radiosurgery system to enable non-invasive treatment of tumors anywhere in the body with sub-millimeter precision, according to a press statement. DT

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Over 28% of Qatar children diabetic

Instances of childhood diabetes in Qatar have more than doubled in the past decade, from 13.7% of under-fives to 28.2%, delegates at the inaugural International Childhood Diabetes and Obesity Conference in Doha were told. Approximately 45% of Qataris are estimated to be obese, which has been linked to increasing instances of diabetes. DT

Oman Healthcare City plans dropped

Kuwait-based Gulf Investment House has announced that it has abandoned plans to develop a $1bn Healthcare City 100 km outside of Muscat, MEED has reported. The company did not say why the plans for the mixed use development, which was to have included medical colleges, hospitals and hotels, were dropped. DT

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Economic fears in the US affect dental care

Visiting a dentist of low priority for many people, new study says

Stock markets around the world plunged in September, Photo: Ioana Drutu/Paul Fleet.

Daniel Zimmermann
DTI

LEIPZIG/WASHINGTON D.C.: With the economy in the United States declining, preventive dental care can be one of the first things to go. The correlation between rising unemployment and a drop in preventive dental care, however, is not necessarily due to people being short of cash, according to a new study appearing in the online edition of *Health Services Research.*

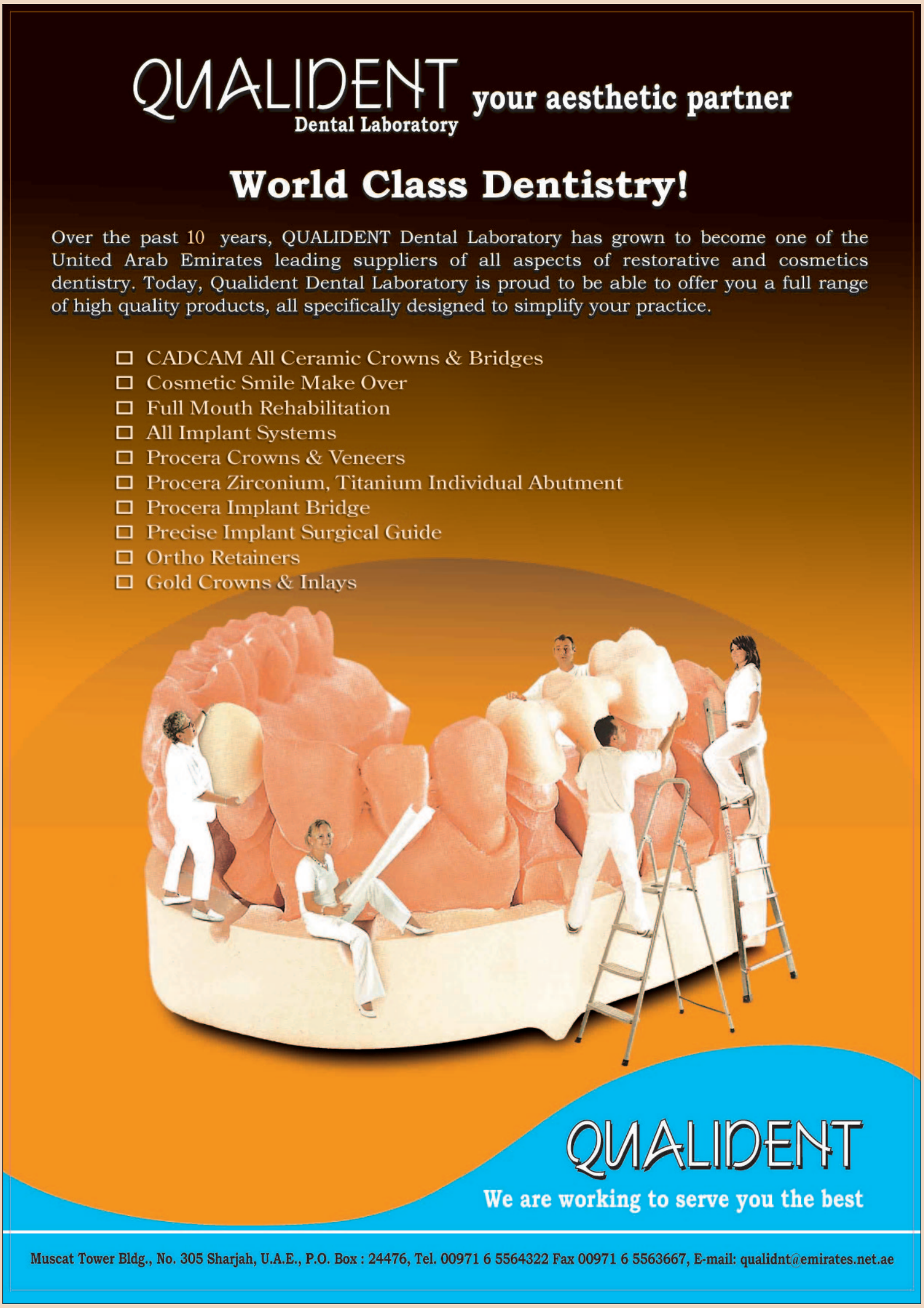
The researchers analysed 10 years of information about visits to dentists' offices in metropolitan Seattle and Spokane from Washington Dental Services the largest dental insurer in the US state, which covers roughly one-third of its residents. They compared this information to unemployment data from the Bureau of Labor Statistics and Washington's Employment Security Department, and ruled out other possible explanations for a correlation.

In the Seattle area, for every 10,000 people who lost their jobs, there was a 1.2 per cent decrease in visits to dentists for checkups. The drop was higher in the Spokane area, where the same increase in unemployment was associated with a 5.95 per cent decrease in preventive visits. This is notable as the study looked at people who had dental insurance that covered routine care.

"We see that high community-level unemployment exacts a psychological toll on individuals," said lead study author Brian Quinn. "Even for people who are working, or who have a working partner or spouse, there might be an impact if they're stressed about themselves or their significant others losing their jobs."

Quinn, a program officer for the Robert Wood Johnson Foundation, said the distraction of worrying about not having a job could make dental care drop off a person's radar. "During stressful periods, those things that don't seem as urgent may be ignored," he said.

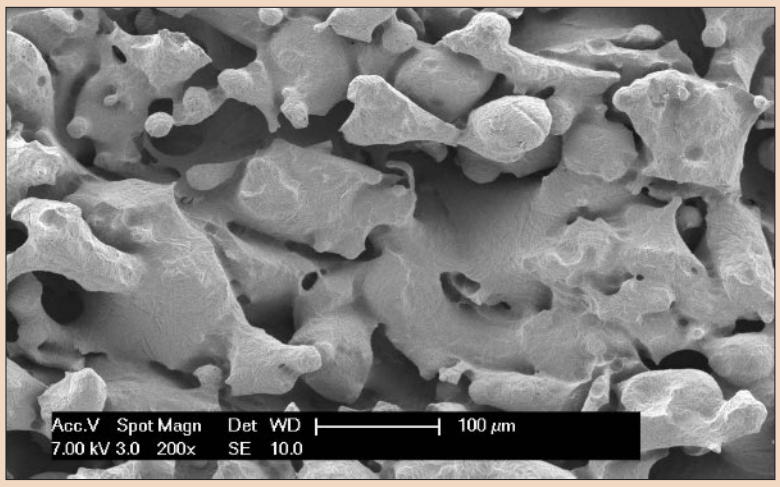
Quinn added that because preventive care is usually cheaper than tooth repairs, dental plan administrators and public health policy makers might want to promote cleaning and checkups during periods of high unemployment. DT



TiXos....a pioneer in the new age of implant

LEADER ITALIA srl, manufacturer of the well known Implus, S-Type and Nano Implants, after four years of researches and studies in vitro and in vivo has started the production of a new range of sintered titanium Implants named "TiXos".

The innovative direct laser fabrication process, exclusive patent by LEADER ITALIA, is a revolutionary manufacturing technique that enables the production of models with precisely defined structure and proportions based on 3D virtual data. The desired model is produced by sintering metal powder nanoparticles in a focused laser beam. The implants are computer designed and the resulting surface is characterized by intercommunicating cavities that interlock with the host bone.



Picture 2: Surface geometry with interconnected cavities and pores

Picture 1: One implant of the new TiXos line

The cavities geometry, 2 to 100 micron, is accurately selected during the project stage. This geometry allows bone penetration deep inside the implant body, creating pits and pores that are colonized by bone cells.

Another exciting feature, demonstrated by the studies carried out at the University of Birmingham by Prof. R. Sammons, is the isoelasticity of the surface, that has a Young module equivalent to the bone one, while the implant core maintains the characteristic Young module of titanium. This feature gives the implant a structure very close to the natural tooth, more similar than any other implant on the market.

In vitro studies carried out by Prof. R. Sammons (University of Birmingham – UK) and by Prof. Papaccio (University of Naples – Italy), researches carried out by Universities in Varese and Chieti (Italy) and clinical-histological trials carried out on animals and humans by University of Sao Paulo (Brazil), have demonstrated the capability of these implants to accelerate bone healing, thus improving a faster osseointegration than other surfaces and allowing a great bone formation (up to 200 micron) inside the isoelastic spongy structure.

The new TiXos implant line is a pioneer in the new age of implant manufacturing, thanks to innovative technologies that allow to obtain particular mechanical and biological features and the possibility to build up custom-made implants for immediate loading and post-extraction, with the precise form of the tooth root, designed starting from patient's CT scan.

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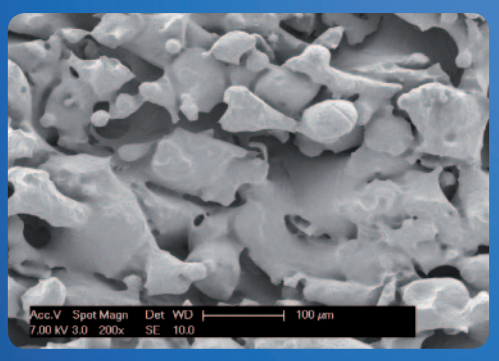
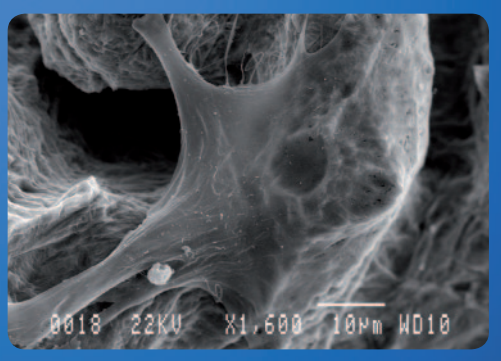
TiXos
LST Laser Sintered Titanium

The new LEADING surface

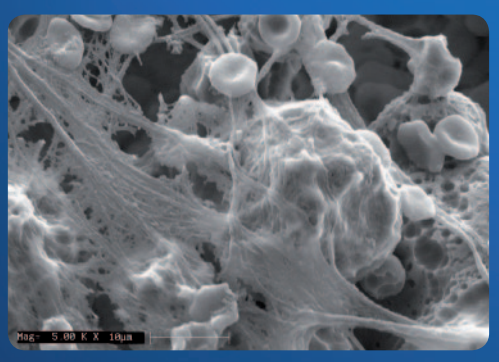
Predetermined geometry of the surface
Interconnected cavities and pores
Innovative production process:
computer designed, laser created implant



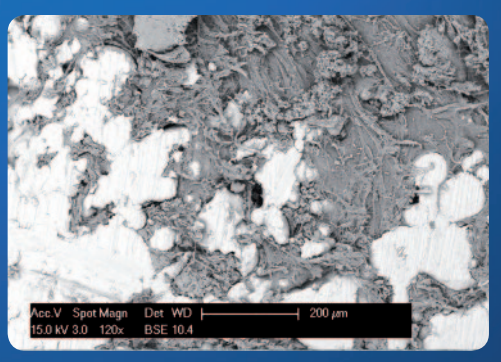
High adherence and cells activity



Immediate 3D organization of fibrin network



High porosity of surface
Fast bone growth (dark) inside cavities and pores of sintered titanium surface (clear)



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Approaches for Prevention & Control of Dental Erosion

The article has been accredited by Health Authority - Abu Dhabi as having educational content and is acceptable for up to 2 (Category 1) credit hours. Credit may be claimed for one year from the date of subscription (20 CME hours per year).

Bennett T. Amaechi, USA

In light of increasing reports of the incidence and prevalence of dental erosion, it is now necessary that dental practitioners are familiar with the etiological and predisposing factors of dental erosion, as well as the possible ways of its prevention and control.

It may be easier to gain patients' compliance with the advice of administering a remineralizing agent immediately following an acidic challenge to enhance rapid remineralization of the softened tooth surface as well as serve as a mouth refresher, or alternatively, a neutralizing solution to buffer the acidic oral environment. Effective counseling on erosion preventive regimes should involve all healthcare personnel, dentists, doctors, pharmacists, nurses/hygienists and clinical psychologists.

Dental erosion, otherwise known as erosive tooth wear, is the loss of dental hard tissue either through chemical etching and dissolution by acids of non-bacterial origin or by chelation. The incidence and prevalence of dental erosion is increasingly being reported.[1] This is evident from prevalence studies conducted in different parts of the world, which showed the percentage of individuals affected by erosion (Table 1) among various age groups.[2–6] This has prompted a series of research on the possible approach for prevention and control of dental erosion[7,8], while its management is now an area of clinical practice that is undoubtedly expanding.[9]

This article describes an overview of the up-to-date information on the factors that may predispose individuals to the risk of dental erosion, and the possible strategies to prevent and control the development of this disorder.

Predisposing Conditions

An important step towards prevention of dental erosion should be the identification of those individuals who are at risk of dental erosion. Evidence based on case reports, clinical trials, epidemiological, cohort, animal, *in vitro* and *in vivo* studies have described acids that could cause dental erosion as originating from gastric, dietary or environmental sources. Based on this fact, certain factors, classified as either intrinsic or extrinsic, have been identified as the predictors of susceptibility to dental erosion.

Dental erosion due to *intrinsic factors* is caused by gastric acid reaching the oral cavity and the teeth, and acting regularly on the dental hard tissues over a period of several years. This may be the result of chronic vomiting, persistent regurgitation or rumination. The acidity of the gastric juice ranges from pH 1 to 3, so it is conceivable that regurgitation or vomiting into the mouth might result in marked tooth destruction in the form of erosion.

Conditions that are associated with chronic vomiting or regurgitation and therefore can predispose an individual to the risk of erosion are: 1) certain medical conditions[10] such as bulimia nervosa, gastro-esophageal reflux disease (GERD), cyclic vomiting syndrome (CVS), psychogenic vomiting syndrome, pregnancy-induced vomiting, and (2) lifestyles[11] such as chronic alcoholism and binge drinking.

Extrinsic factors that can predispose an individual to the risk of dental erosion have been grouped under the headings of dietary, occupational, medications and lifestyle.

Misuse of acidic dietary products: Acidic fruits, fruit juices, drinks and beverages have been shown to have a very high level of titratable acids (high H^+) and low pH, which is detrimental to the teeth. Frequent and prolonged ingestion of these food substances—as is the case with habitual drinking, dieting with citrus fruits and fruit juices, drinking during strenuous sporting activities, bed-time use in reservoir feeders, and use in baby bottle feeding as a comforter—have been reported as predisposing individuals to the risk of dental erosion.[12,13] These practices would lower the pH of the oral fluids for a prolonged period, thus exposing the teeth to a prolonged period of acidic challenge with consequent etching and dissolution. Bed-time baby bottle feeding and GERD are likely to be more destructive due to a decrease in salivary flow during sleep.

Dietary sources of acids that can cause dental erosion are: citrus fruits and fruit juices, other acidic fruits/juices, carbonated beverages, acidic sports drinks, acidic fruit-flavoured candies (eg, Lucas paste, Lucas powder, chamoy paste), wines, cider, salad dressing, vinegar conserves and acidic herbal teas.

Use of acidic medicaments: These medicaments, when prescribed for frequent use over a long period of time, predispose teeth to dental erosion.[12,14] The following acidic medicaments may have erosive potential: ascorbic acid (vitamin C), acetylsalicylic acid (aspirin), liquid hydrochloric acid, iron tonics, acidic saliva stimulants/substitutes, and products with calcium-chelating properties.

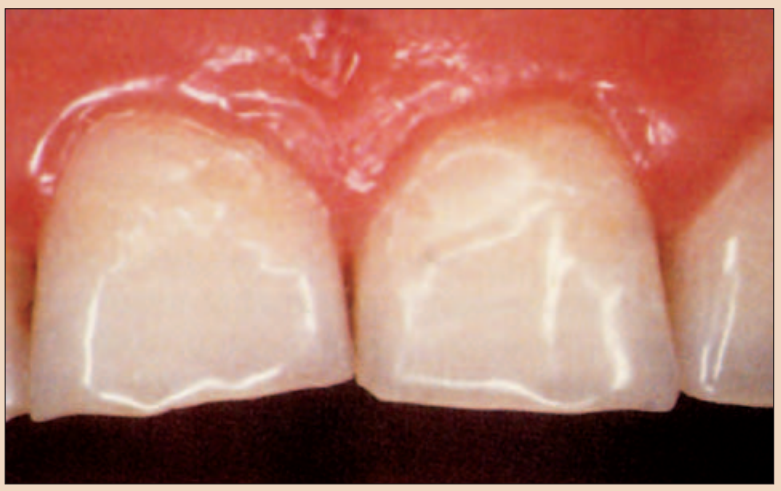

Fig. 1: Facial erosion with smooth and shiny appearance. Courtesy: Adrian Lussi, Univ. Bern, Switzerland.

Occupation: Dental erosion has been reported among individuals who are directly exposed to acid fumes or aerosols in their places of work. This includes workers in battery factories, galvanizing factories and fertilizer industries. Competitive swimmers in poorly-maintained gas-chlorinated swimming pools and professional wine tasters have also been associated with dental erosion.[12,15–17]

Life style: Involvement in some habits or lifestyles can predispose an individual to the risk of dental erosion. Certain illegal designer drugs such as cocaine and ecstasy are associated with excessive consumption of acidic beverages due to its side-effects of dehydration and hyposalivation.[18]

Age (years)	% affected	Evidence
1–4	20	UK Toddlers Survey, 1994[2]
4–5	38	Millward et al. 1994[5]
5–6	52	UK Child Dental Health Survey, 1993[4]
11	25	UK Child Dental Health Survey, 1993[4]
11–14	57	Bartlett et al. 1998[5]
26–30	30	Lussi et al. 1991[6]
45–50	42.6	Lussi et al. 1991[6]

Table 1: Summary of prevalence studies of dental erosion.

Dental erosion has been reported to be common among lactovegetarians due to the associated hyposalivation and high consumption of low-pH foodstuffs combined with the abrasive effect of the coarse fresh food.[19] Frequent tooth brushing with abrasive dentifrice as practiced by some health/aesthetic-conscious individuals may render the tooth surface more susceptible to erosion due to its effect of removing the more protective highly mineralized outer layer of enamel surface.[20]

Guidelines for Prevention & Control

The conditions discussed above as predisposing individuals to the risk of dental erosion highlight the fact that individuals who are susceptible to dental erosion have either psychological or habitual or professional inclination to the factors predisposing them to the disorder. This would obviously pose difficulty in obtaining full compliance with preventive advice, even when the causative factor is identified. However, if implemented, the following steps may prevent occurrence, limit the damage, modify habit or protect the remaining tooth tissue.

Step 1: Early diagnosis

Patients can barely detect early enamel erosion due to its smooth and shiny appearance (Fig. 1). Even when detected they rarely seek treatment until it gets to an advanced stage, when it either becomes symptomatic (sensitivity) or affects the esthetics of their teeth. The responsibility of early detection and treatment therefore falls on dental professionals.

Once dental erosion is detected, there is a need for a full case history, which should include dietary history, medical history, dental hygiene habits and social (lifestyle) history. This would establish the etiological factor and help in development of individualized counseling. Following diagnosis of an early lesion or the patient's susceptibility, the following recommendations may be considered as a "damage-limiting" policy as well as a preventive policy.

Step 2: Record the clinical situation

The severity and extent of the wear must be recorded to establish the clinical baseline so that progression can be detected, and the effects of preventive measures assured. For this, the following techniques are useful.

- The *Silicone Index*, described by Shaw et al. [21], in which a silicone putty impression of the teeth is taken in a sectional tray, is one of the easiest and most useful methods of monitoring tooth wear.
- The *Tooth Wear Index* of Smith and Knight[22], which records the degree of wear on all tooth surfaces, allows monitoring of the effectiveness of preventive measures.
- *Serial (reference) impression casts* or study models recommended by Wickens[7] can be used at follow-up visits for macroscopic comparison with the teeth to monitor wear.
- *Clinical photographs* are obviously useful for monitoring wear, but the dexterity of the photographer and ambient conditions such as light reflections affect the quality of the product.

Step 3: Treatment of the underlying medical disorders and diseases

Some patients may not be aware of their underlying medical condition, but in search of treatment for the deteriorating condition of their teeth, the dentist may be the first healthcare personnel to observe the underlying medical disorder.[23,24] Others may not recognize their condition as a disorder, especially with anorexia/bulimia patients, and hence would not seek medical attention until it starts affecting the aesthetics, function or comfort of their teeth. Patients should be referred to the appropriate specialist (doctor or

clinical psychologist) for proper treatment of the condition.

Step 4. Preventive measures

a. Use of a remineralizing agent or neutralizing agent.

It is a common practice among individuals to refresh their mouth by toothbrushing with dentifrice after an acidic challenge, such vomiting or regurgitation, as is the case with an eating disorder or chronic alcoholism. Bearing in mind that demineralization of tooth surface by acidic challenge decreases its wear-resistance, thus rendering it more susceptible to abrasion[25], some clinicians discourage toothbrushing after an acidic challenge, but advise the use of the time-delay technique (such as allowing at least 60 minutes before brushing) to achieve remineralization by saliva alone.[26–28]

Although over time softened enamel surface can be remineralized with exposure to saliva[29,27,30], it has been demonstrated that enamel surface softened by an erosive agent may be worn by abrasion from the surrounding oral soft tissues (eg, the tongue)[31] and through mastication[31–35] before it can be remineralized by saliva. Moreover, it is not feasible to obtain patients' compliance with the time-delay technique without provision for an alternative mouth refresher. It would be more acceptable, practicable and compliance-friendly that following an acidic challenge, a remineralizing agent is administered immediately to enhance rapid remineralization of the demineralized tooth surface and also serve as a mouth refresher.

Considering the poor salivary flow and hence poor protection against acidic dissolution while sleeping, it may be advisable for individuals suffering from GERD to use a remineralizing agent upon arising from sleep. Graubart et al.[36] have shown that a 4-minute pre-treatment of an acid-etched enamel surface with 2% sodium fluoride significantly reduced the solubility of the enamel surface, while the application of sodium fluoride solutions immediately before toothbrushing significantly reduced abrasion of eroded dentine.[37] The remineralization would go further to confer a greater resistance to subsequent acid attack on the affected tooth surfaces.[28,37,38]

It has been reported that highly concentrated fluoride applications are able to increase abrasion resistance and decrease the development of erosions in enamel and dentin.[39] Immediate administration of a remineralizing agent can be achieved by the following means. The use of fluoride mouth rinses, fluoride tablets and fluoride lozenge[39–43] could be useful for erosion with their dual functions of direct fluoride provision and stimulation of salivary flow. Increased salivary flow provides calcium and phosphate as well as an alkaline or neutral environment necessary for remineralization; the buffering capacity and bicarbonate content of stimulated saliva is higher than that of unstimulated saliva.[39] Use of diary products (eg, fresh milk) has been shown to reharden softened tooth surface.[44]

An alkali can be used as an alternative to a remineralizing agent—eg, sugar-free antacid tablets or a pinch of sodium bicarbonate or baking soda dissolved in some water may be used to neutralize the acidic oral fluid following exposure to acidic challenge.[45]

b. Change of condition/method of drinking.

The temperature of an acidic drink influences its erosive potential; taking the drink ice-cold reduces its erosive effect.[13,46] Drinking with a straw reduces the contact of the teeth by the erosive agent and enhances rapid clearance of the agent from the oral cavity.[47,48] The drink should be swallowed quickly and not sipped slowly or "swished" around the mouth.

c. Use of protective devices.

Insertion of a close fitting occlusal guard at high risk times such as during sleeping (for GERD patients), swimming in poorly maintained swimming pool (for professional swimmers) or voluntary vomiting (for anorexia/bulimia patients) may be considered. Application of alkali, such as milk of magnesia, to the fitting surface of the guard to neutralize any acid pooling underneath the appliance or a neutral fluoride gel, can as well be used for this purpose.[49]

d. Use of modified dietary and medicinal products.

The properties of food and beverages that determine their erosive potential includes pH, titratable acid (total acid level), type of acid (pKa), calcium, phosphate and fluoride concentration, calcium chelating properties, adherence to tooth surface and saliva stimulating properties.[12] The composition of some acidic dietary products has been modified with respect to these properties with the aim of reducing their erosive potential.[50–52] This should be considered while advising individuals on the use of some dietary and medicinal products.

Step 5. Health education

Dental professionals should be as proactive as they are with dental caries in health education relating to the prevention of dental erosion. The public and patients should be informed of the dental implications of the predisposing factors discussed above: how to prevent or minimize the problems and the importance of full compliance with the preventive advice. In addition, patients should be advised on how to prevent or minimize the problems and the importance of full compliance with preventive policies.

There is a need for the dental profession to work closely with medical colleagues to alert them of the dental consequences of certain medications and medical conditions, and how to minimize them.[53] This would enable the information on preventive regimes to be passed to the patients at an early stage, before the damage is done.

Pharmacologists, on the other hand, should be urged to include in the list of side-effects the potential dental consequences of some medications when used under certain conditions (eg, frequent and prolonged use) and how to minimize such side-effects (eg, rinsing with remineralizing agent while using the medication). Patients with disorders or prescriptions that may predispose them to erosion should be advised by all healthcare personnel involved in their management (doctor, clinical psychologist and pharmacist) to visit their dentist for regular dental examinations. This would enable early detection of dental erosion and appropriate management could be instituted immediately.

Counseling should be individualized and relate to the observed etiological factor. However, the following key points may be considered as a guide:

- The hazard of brushing immediately following an acidic challenge should be stressed, and advice given for the use of either remineralizing or neutralizing agents or a dairy product (milk) as an alternative to brushing.
- The need for a change of attitude towards acidic dietary drinks and fruits should be explained. The consequences of frequent and prolonged intake of these foodstuffs should be explained and advice given on the importance of reduction in amount and frequency.
- The intake of acidic foods or drinks as the last thing before bed should be avoided.
- The practice of continuous or bedtime baby bottle feeding with baby fruit juices as a means of comforting a child should be discouraged, along with an explanation on dental consequences.
- Advice should be given on health and safety in the work environment with the aim of preventing erosion. Use of a protective dental guard while on duty may be advised.
- High-risk individuals may be urged to change their oral hygiene procedure; using a low abrasion toothbrush with a high fluoride- or bicarbonate-containing but low-abrasive toothpaste.

Step 6. Treatment of sensitivity and protection of eroded surfaces

This will keep the patient comfortable, which helps compliance, but equally importantly, one can encourage remineralization, and increase resistance to acids at the same time. Helpful methods include: periodic professional application of fluoride varnish or gel can increase the resistance of the tissue to further erosive attack.[39,41,54,55] Eroded enamel surface presents an increased surface-reactive area, and topically applied fluoride has been shown to accumulate in the demineralized lesions.[39] Regular use of remineralizing agents (eg, fluoride mouth rinses) should be recommended for all individuals susceptible to dental erosion.

The following restorative interventions may be considered for protection of the eroded tooth tissue from further erosive damage and to improve appearance: porcelain veneers[56], dentine bonding agents[57,58], adhesively retained resins[9] and fluoride sealants.

Step 7. Establish continued care

Failure to monitor the patient may result in a relapse of the condition, therefore it is essential that a continuing care regime matched to the patient's requirements should be established in order to check patient compliance, monitor wear, reinforce advice and for encouragement to maintain changed behavior. The teeth must be checked for wear against the reference casts, the photographs and the silicone index. DT

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Mission of Mercy for free dental care

MITCHELL USA — A mad dash began before sunrise on Friday as several hundred people, some of whom had been standing in line since 3 a.m. or earlier, raced to position themselves to get to the front of the line for free dental care.

Mission of Mercy, which is sponsored by the Nebraska Dental Association, Nebraska Dental Foundation, numerous private individuals and various community organizations, is designed to provide free dental care for all who seek it.

Nearly 80 dentists from across Nebraska began arriving early Friday and were greeted by a Scotts Bluff County Events Center filled with folding chairs; rows of dental chairs; special areas for surgery and sterilized equipment; and volunteers, volunteers and more volunteers.

By about 10 a.m., entry was cut off, as about 700 people had entered the system and were patiently waiting. About 150 people had to be turned away but were told to come back early Saturday so they could get care. At one point during the middle of the morning, there were 100 people waiting for oral surgery.

"Amazing" was one of the words heard throughout the morning.

"It's amazing how many volunteers are here," said Kristen Ryan of Central City, who, with the help of dental assistant Tracy Flock of Torrington, Wyo., provided front-line evaluations for patients before they were assigned to a specialty area.

"We are really blessed to have the skill and knowledge in our state to provide this type of service," Ryan said.

The scope of the free dental clinic was expected to reach into eastern Wyoming, South Dakota and Colorado as people found out that free dental care was available.

As he sat in one of the sections waiting for a root canal, an individual from Kansas City, Mo., who only wanted to be identified as "Mark," said he was working in North Platte and saw the information on the computer and decided to drive to Mitchell.

He said he arrived in town on Thursday and was going to sleep in his car in order to get a prime space in line but was told he could not park on the fairgrounds.

Mark didn't mind and waited in line outside of the fairground gates.

"I can't say enough about this," he said. "So many people today don't have dental insurance."

Sitting next to Mark was Jessica Peterson of Morrill, who said she got in line at 3 a.m. She said she and family members ran as fast as they could to get a good spot in line.

"It was absolutely crazy," she said.

As she warmed her hands over a hot grill being used by local Kiwanis members to cook pancakes for those standing in line, Lisa Lilly said she was appreciative of the Mission of Mercy.

"I can't afford both dental care and tuition," said Lilly, who is in the nursing program at Western Nebraska Community College.

"I'm just very excited that this is available."

George Schlothauer, one of the local event coordinators, said that by 8 a.m. the event was going quite well.

He said most of the people who were first in line were in need of extractions.

Some dentists would be able to see as many as 30 patients during the day, Schlothauer said, while others who were doing more specialized work like paediatric dentists might only be able to see 15 patients.

"We can see a lot of patients," said Schlothauer, who, despite promoting the event throughout the community for the past year, seemed to marvel at the efficiencies of the volunteers and professionals who made the system work.

Not all activity was based in the Events Center, as Soroptimist International and a variety of volunteers provided child care in a nearby building.

Radiology students from Regional West Medical Center pitched in to help adult volunteers and National Honor Society and Future Business Leaders of America students from Mitchell High School.

Outside of the center, Kiwanis members from Mitchell, Scottsbluff and Gering were busy flipping flapjacks to give those standing in line a chance to have a free breakfast.

"This is a wonderful thing to do," said a shivering woman as she patiently waited in line. "Do you suppose they can fix my teeth?" DT

UK scientists find new oral species

LEIPZIG: According to a BBC report, researchers at the King's College London have discovered a yet unknown bacteria in the oral cavity. The new species was found in healthy tissue as well as oral cancer cells and belongs to the Prevotella family which was previously linked to gum disease and infections in other parts of the human body. The finding may help scientists to understand the changes in bacterial activity that lead to oral problems and give a broader picture of the causation of these, the report said.

The healthy human mouth is inhabited by 700–900 different species of bacteria. Tooth decay and gum disease are the most common bacterial oral diseases and scientists have linked them to changes in the microbial 'flora' found in the mouth. Other research states that they also promote a number of systematic diseases, such as low birth weight babies, diabetes, arterial sclerosis or pulmonary disease. DT

Infertility by gum disease

LEIPZIG: Infertile men are more likely to suffer from chronic gum infections than those with healthy sperm. After studying 56 men who came to a fertility lab for sperm analysis, Israeli researchers found that more than 80 per cent had some form of parodontitis. DT

Predictable composite shrinkage may refine material selection

LEIPZIG: Researchers at the Fraunhofer Institute for Mechanics of Materials in Freiburg, Germany, have successfully managed to simulate the process of shrinkage and consequent microleakage in dental composites. Their findings may eventually allow clinicians to select appropriate restorative material based on the shape of the cavity to be filled. Until now, tension in dental fillings could only be measured selectively. The precise course of tension development, however, has never been observed.

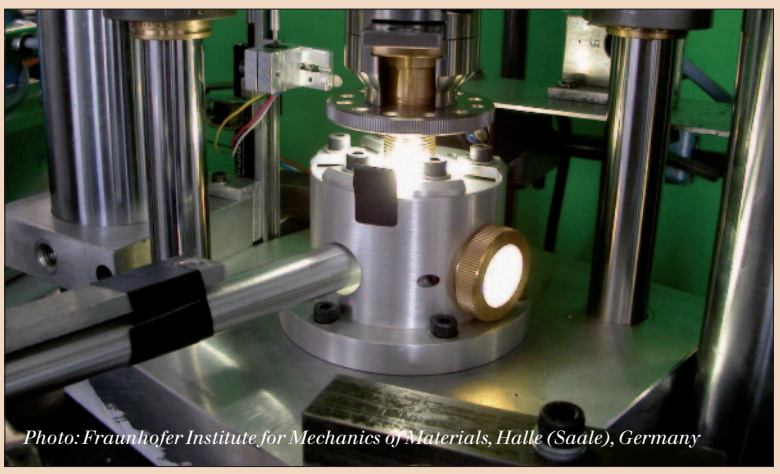

Photo: Fraunhofer Institute for Mechanics of Materials, Halle (Saale), Germany

For their tests, the researchers reduced different dental fillings into thousands of small particles and calculated how each element affects its neighbouring element. In addition, experimental parameters were incorporated into the individual elements. "We were using a standard geometry to find out how each material reacts to the stresses that occur when the volume shrinks, and how the flow capability of the material changes as it hardens," said Dr Christof Koplin, a research assistant at the Institute. The tension occurring in the material varied widely by a factor of up to ten, particularly at the edges, he added. DT

Bad lifestyle drives bad breath

Lynn Bradshaw
Dental Chronicle, Canada

TORONTO: New research from Israel suggests that a high body mass index and alcohol consumption are associated with bad breath or halitosis. The study, led by Prof. Mel Rosenberg from the department of human microbiology and the Maurice and Gabriela Goldschleger School of Dental Medicine, Sackler Faculty of Medicine at Tel Aviv University, included a sample of 88 adults of varying weights and heights. The study subjects underwent a routine medical check-up, and agreed to complete a questionnaire involving 38 queries that covered general and oral health, dietary habits, as well as a self-assessment of their own oral malodour levels.

Other odour assessments included odour judge scores, volatile sulphide levels (via Halimeter evaluation) and salivary b-galactosidase. The results of the questionnaire produced nine responses that were significantly associated with odour judge scores including questions on alcohol intake and BMI. Predictions of odour judge scores based on these nine responses yielded R = 0.601; when introduced together with Halimeter and b-galactosidase scores, the correlation increased to R = 0.843, suggesting that alcohol intake and BMI may be factors that help predict oral malodour.

"The finding on alcohol and bad breath was not surprising because the anecdotal evidence was already there," says Prof. Rosenberg. "However, the finding that correlated obesity to bad breath was unanticipated." Prof. Rosenberg concluded from the data that overweight patients were more likely to have foul-smelling breath. "This finding should hold for the general public," he said, further adding that scientific evidence as to why this is the case is unclear, and additional evidence is required. "We have no idea of the potential causes, and we really do not know how to interpret the results," he added.

The connection between obesity and bad breath could be caused by several factors, Prof. Rosenberg said. He hypothesises that obese people may have a diet that promotes dry mouth. "We have certainly opened a window of questioning here," Prof. Rosenberg said. DT

Medical tourism a new option for patients in the US

NEW YORK: According to reports by the Wall Street Journal, more and more insurers and employers in the United States are offering people to seek medical or dental treatment abroad. In an effort to control costs, a handful of health care plans are beginning to cover treatment overseas for heart surgery, hip and knee replacements and other major surgical procedures, the newspaper states. Until recently, most Americans who travelled abroad for medical care were uninsured, or were seeking procedures not covered by insurance. But despite the travel costs, countries like Singapore or Costa Rica have become attractive destinations for medical tourism because doctors there often charge less than 10 per cent of the treatment costs in the United States.

As a reaction to these developments, the American Medical Association has recently unveiled its first set of medical-tourism guidelines to US state lawmakers, suggesting them as model legislation. The guidelines would require that travel be voluntary, and that financial incentives not limit patients' alternatives. They also would require patients to be advised of the medical and legal risks, and that provisions be made for follow-up care at home.

Health practitioners in the US remain concerned about such issues as the safety of blood supplies for transfusions and tissue for bone grafts in foreign countries. Long-distance travel also poses special risks to patients, including blood clots from airplane flights and lack of legal recourse for negligence and malpractice, critics say. DT

Leeds fights fear factor

Penny Palmer
DT United Kingdom

LONDON: Leeds Dental Institute, ranked the top school in the UK for dentistry, is currently looking at better ways to improve dental treatment and take the fear factor out of the patient experience at the dentist. Professor Jennifer Kirkham, research director, said the laboratory was looking for safe new ways to control plaque which do not rely on toothpaste.

"We see patients in the clinic who are not able to brush effectively because the shape of the mouth may not allow sufficient access, the patient could be disabled or just not a proficient brusher", she explains. "One of the new treatments makes use of a readily available compound in an innovative way to control plaque formation, using photo dynamic therapy (PDT). The patient uses a mouth wash containing an anti-bacterial agent which is activated by bright light and results in plaque destruction. This is trialled in the clinic and patient feedback helps researchers identify where further modifications are needed."

Another research project could transform the approach to filling teeth forever, Professor Kirkham explains.

"We have developed a method for Filling without Drilling, which uses a low viscosity protein based fluid which is painted onto the teeth where it infiltrates into the pores. Once inside the pores, the fluid solidifies, to become a gel which then attracts calcium to rebuild the tooth mineral, bringing about a natural repair, without the pain or discomfort usually associated with a traditional drilling procedure."

A recent US$1.9 million investment by the University of Leeds is set to bring the new Dental Clinic and Translational Research Unit to the forefront of global research and development in oral health by linking the laboratory activity directly to the needs of patients treated in the clinic. The flagship centre for dental research and clinical practice, the first of its kind in the UK, opens at the Leeds Dental Institute in January 2009. DT

X-Ray analysis identifies caries progression

KAVARAIPETTAI, India: Researchers at the RMK Engineering College in Tamil Nadu, India, have developed an X-ray image analysis technique that may automatically identify the different stages of dental caries. The technique reveals the pixel intensities at different X-ray wavelengths, much like the histogram analysis of images by a high-specification digital camera, and could be very useful in diagnosing and managing dental decay at its earliest stages.

R. Siva Kumar, head researcher of the RMK Department of Electronics and Communication Engineering, explained that the software reveals that the X-ray histogram and spectrum are very different depending on whether the teeth X-rayed are normal or exhibiting the early stages of caries. The researchers found that in the X-ray histogram, the pixel intensities are concentrated in different ranges depending on the degree of decay.

Caries is the most common chronic childhood disease, being at least five times more common than asthma. It is the primary cause of tooth loss in children, while between a third and two thirds of people over 50 years depending on the country experience caries too. Detecting caries in the early stages of development is important for saving affected teeth and avoiding the possibility of tooth loss and invasive surgery at later stages. DT