



Don Hubbig

## Engineering Methods May Work in Dentistry and Medicine

The same approach to building engines may soon be applied by a dentist or physician to assess whether that stress fracture or cracked tooth requires attention.

“People have tiny cracks in their tooth enamel and bone structure all the time; it’s pretty routine,” said Jamie Kruzic, assistant professor of mechanical engineering at Oregon State University. “And in engineering, we’ve been using specialized methods for decades to help us understand things like metal fatigue, the cracks or failures that can develop after repeated, high stress movement of certain components. We believe those findings can be used in medicine, because the stresses and material behavior are fairly similar.”

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### Cosmedent Complete →

Cosmedent introduces Complete, an advanced bonding adhesive. As an advanced system, Complete can be used for all light-cure, dual-cure and self-cure restorations. Cosmedent’s Complete does not employ self-etching primers, which have proven to be less effective than the acid-etch technique.

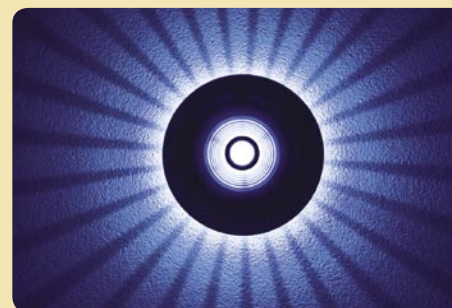


Complete maximizes bond strength, is easy to use, has minimal film thickness and virtually zero sensitivity. The components of the Complete Kit are a light-cure primer/unfilled resin, a dual-cure catalyst, and a light-cure unfilled resin. For more information regarding Complete, call 800-621-6729 or visit [www.cosmedent.com](http://www.cosmedent.com).

## Lights ... Camera ... New Tool for Caries Early Detection

The University of Texas Health Science Center at San Antonio, the University of Iowa, and Indiana University are studying a new tool for the early detection of tooth decay. Supported by a grant from the National Institute of Dental and Craniofacial Research, the Quantitative Light-induced Fluorescence is a small, portable camera that utilizes a blue light to illuminate the teeth and captures images with a yellow filter. QLF may be the ultimate detector of early caries; the fluorescent lighting is directly related to enamel’s mineral content, and lesions can be identified before they progress enough to require invasive dental treatment.

The fluorescence of the light shows decay as dark spots, and a dental mirror on the camera provides uniform light to the area to be recorded. The camera is connected to a computer with software allowing storage and display of the images. While detection of early caries visually or radiographically is extremely difficult, researchers believe dentists will be able to use QLF to detect carious lesions early enough to intervene with noninvasive procedures such as sealants or fluoride. Research continues on this novel, new diagnostic tool.





## Smoking Can Harm the Integrity of Dental Implants

Smokers with dental implants have a higher rate of failure than their nonsmoking counterparts, researchers said in a recent issue of the *Journal of Periodontology*.

Researchers from the University of Murcia in Spain found that smoking is a risk factor with regard to tooth loss and dental implant failure.

“People who smoke are at a greater risk of infection following surgery, and may heal more slowly,” said Dr. Arturo Sanchez Perez, Department of Periodontology at the University of Murcia. “When an implant is placed in a smoker, it is more likely to fail. This means a patient’s smile may be negatively affected, and the potential for more bone loss in the areas surrounding the gums and teeth.”

Smoking negatively impacts the blood flow to the bone and tissues surrounding

the gums and teeth, impairing bone healing. Implant failure occurs because of the inability to integrate with the surrounding bone tissues. Over five years, the study followed 66 patients who received 165 implants. Researchers found that 15.8 percent of implants failed in smokers, compared to 1.4 percent of implants in nonsmokers.

“Tobacco use has been shown to be a risk factor for periodontal diseases, which is the main cause of tooth loss in adults,” said Preston D. Miller, DDS, president of the American Academy of Periodontology. “This research shows that if you want your dental implant to last, you should not smoke. Also, the treating dentist should make sure their patients are aware of this before placing an implant, and emphasize the importance of quitting smoking.”

*“Each issue will deliver information and resources that are difficult to find in general media.”*

DONNA LIGDA

## Newsletter for Patients with Bleeding Disorders

Factor Health Management, a leading provider of personalized health care for bleeding disorders, has developed *The Prophy Dose*, which offers industry news and developments, both on a regional and national scale, for those with the condition.

“Each issue will deliver information and resources that are difficult to find in general media,” said Donna Ligda, Factor Health Management president, of the quarterly newsletter.

“We are making it available online, but also in a print edition for those people who may not have Internet access. In general, the newsletter is

a vehicle for people to stay better informed and better prepared for the future.”

The content covers new patient services, legislative issues, the latest developments in research and trials, manufacturer news and milestones, and resources for medical advisories, for example. It also includes a special section for children’s news and events, and local area chapter news.

Factor Health Management provides health care and resources for comprehensive services in individualized care plans, specialty pharmacy, benefits coordination, education and philanthropic support. Subscription to *The Prophy Dose* is free and available by contacting Christy Argo at [cargo@factorspecialists.com](mailto:cargo@factorspecialists.com) or 443-334-1300, ext. 305.



## UPCOMING MEETINGS

## 2007

May 3-6	CDA Spring Scientific Session, Anaheim, 800-CDA-SMILE (232-7645), cda.org.
May 15-19	American Academy of Cosmetic Dentistry 23rd Annual Scientific Session, Atlanta, 800-543-9220.
June 27-July 1	Academy of General Dentistry Annual Session, San Diego Convention Center, 888-243-3368.
Aug. 22-24	International Society for Breath Odor Research Seventh International Conference, Chicago, Bill Bike, billbike@uic.edu or 312-996-8495.
Sept. 27-30	American Dental Association 148th Annual Session, San Francisco, ada.org.
Nov. 27-Dec. 1	American Academy of Oral and Maxillofacial Radiology 58th Annual Session, Chicago, aaomr.org.

## 2008

May 1-4	CDA Spring Scientific Session, Anaheim, 800-CDA-SMILE (232-7645), cda.org.
Sept. 12-14	CDA Fall Scientific Session, San Francisco, 800-CDA-SMILE (232-7645), cda.org.
Oct. 16-19	American Dental Association 149th Annual Session, San Antonio, Texas, ada.org.

To have an event included on this list of nonprofit association meetings, please send the information to Upcoming Meetings, CDA Journal, 1201 K St., 16th Floor, Sacramento, CA 95814 or fax the information to 916-554-5962.

### Neks Technologies DetecTar Mini

Neks Technologies Inc., a company specializing in developing and manufacturing innovative dental products, announced the launch of DetecTar mini, the first intelligent diagnostic aid to assist clinicians in the accurate detection of subgingival calculus. The DetecTar mini helps dentists, hygienists, and periodontists to locate and diagnose calculus in a minimally invasive manner.

Based on state-of-the-art light emitting diode and fiber optic technologies, the DetecTar mini detects up to three times more calculus than traditional periodontal probes and has been shown to reduce over-detection by 64 percent. For more information, call 800-873-7683.

## Could Lack of ZZZZZZZZZZZs Be Detrimental to Teens' Health?

A professor and a sleep researcher at Harvard Medical School have found that students need plenty of shut-eye because a growth hormone is secreted during sleep. If the youngsters don't sleep enough, their bodies may use calories less efficiently and they may be prone to shorter attention spans.

"When you don't get the hours of sleep your body needs, the hormone ghrelin increases, and studies show it causes you to want to eat more food, especially high-carb foods," said Cherie Calbom, MS, a nutritionist and author of the new book, *Sleep Away the Pounds*.

"In addition, the hormone leptin that controls the appetite goes down. This can cause intense hunger sensations," she said. "One study found that participants with the biggest fluctuation of hormones craved the most fattening foods such as ice cream, cakes, candy, and salty snacks like potato chips." So all this time the inability to conquer cravings or binge eat that has been at-

tributed to one's lack of willpower may really be a hormonal imbalance.

Calbom, and her husband, John Calbom, MA, a behavioral medicine therapist, showed how lack of sleep can cause weight gain and affects the efficient use of calories in their book *Sleep Away the Pounds*.

An estimated one-third of the nation's population snoozes 6.5 or fewer hours nightly, far less than the eight hours many sleep specialists recommended for adults. According to one physician, the number of overtired patients he has seen has soared in the past 25 years since he has been in practice due to families trying "to squeeze 28 hours of living into 24."

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## Safety Cards Show Patients How Unhealthy Relationships Affect Health, Kids

A set of cards may help dental professionals as well as those in the health care field relay to their patients that violent relationships can take a toll on their family life and health.

Available free from the Family Violence Prevention Fund, the cards are discreet and can be placed in exam rooms, waiting rooms, and bathrooms. Information includes safety, safety planning, and specific health problems that can result from the chronic stress that comes with an abusive relationship. The cards also offer women who are in abusive relationships guidance on how to talk with their children, and tips for protecting themselves.

“Health care providers can do so much to help victims of violence when they seek routine or emergency care of all kinds,” said Debbie Lee, Family Violence Prevention Fund managing director for health.

“We are making it easy to help by giving providers safety cards to place in waiting areas, exam rooms or restrooms — or give directly to patients. Perhaps most importantly, health care providers who distribute these patient safety cards are sending a powerful message that women facing violence are not alone, and that help is available.”

In 2004, there were more than 625,000 intimate partner victimizations and, on average, more than three women a day were murdered by their husbands or boyfriends, according to the Bureau of Justice Statistics. Health care costs of intimate partner rape, physical assault and stalking totals \$5.8 billion each year, nearly \$4.1 billion of which is for direct medical and mental health care services, reported the Centers for Disease Control and Prevention.

Free materials and resources, including assessment guidelines, are available to providers; call 888-RX-ABUSE or go to the Web site [www.endabuse.org/health](http://www.endabuse.org/health).

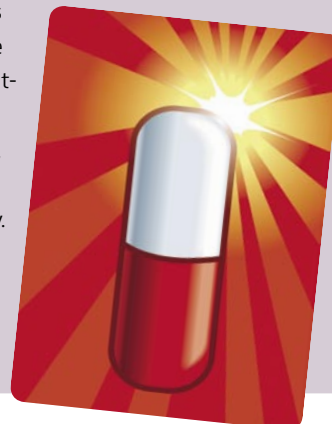
*To be nobody-but-yourself —  
in a world which is doing  
its best, night and day,  
to make you everybody else —  
means to fight the hardest  
battle which any human being  
can fight; and never stop fighting.*

E. E. CUMMINGS

## Gobbling Up Technology

What it may lack in flavor, it appears to make up in innovation. The SmartPill, a tiny diagnostic capsule, has been developed, according to an article in the January-March issue of the *Journal of the Philadelphia County Dental Society*.

The small capsule contains minute diagnostic hardware to monitor pH, pressure, and the hardware's progression through the digestive tract. It currently is used exclusively to diagnose gastroparesis, a condition in which the stomach empties slowly. The \$500 device, which is disposable, won FDA approval in 2006.



The SmartPill travels through the body, sending signals to a wireless receiver worn around the patient's neck. After a couple of days, when the capsule is passed from the body, the patient brings the receiver back to the doctor's office, where the data is downloaded and analyzed. There is no need to retrieve the capsule.

The current and most common method for diagnosing gastroparesis is a nuclear medicine test, which requires a patient to eat a meal laced with a small amount of radioactive material and stay at a hospital while the food's progress is monitored.

## Honors and Awards

The Council for Advancement and Support of Education District VII honored the **University of the Pacific, Arthur A. Dugoni School of Dentistry** with its 2006 Silver Medal Award for Photography Series during the organization's annual conference at the Millennium Biltmore Hotel in Los Angeles on Dec. 8.

CASE District VII's Awards of Excellence honor educational institutions in the Western United States — Arizona, California, Hawaii, Nevada and Utah — for innovative and effective programs in alumni relations, advancement services, communications, marketing

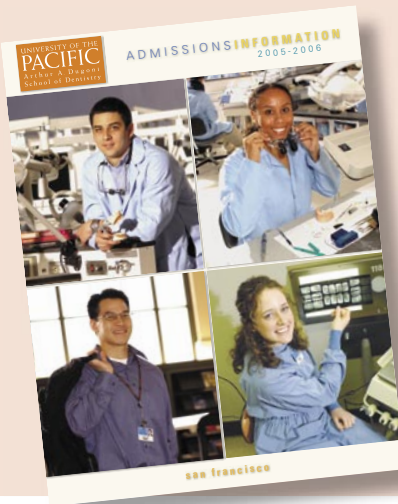
and fundraising. Judges in the Photography Series category selected the dental school's admissions brochure to receive a silver medal for its quality and creativity, and for successfully meeting the institution's goals.

Joan Yokom, director of the division of design and photo services, credits Pacific photographer **Jon Draper** for his unique perspective in creating the photos for the brochure. Draper has a master of fine arts degree from the prestigious Cranbrook Academy of Art and has worked at the dental school for 15 years.

**Carol Gomez Summerhays, DDS**, was recently honored with the Academy of General Dentistry's Lifelong Learning and Service Recognition Award. Summerhays completed 1,600 hours of continuing education in the 16 disciplines of dentistry, including 550 hours solely to hands-on techniques and skills, as well as donating more than 100 hours of service to the community to receive this recognition. She currently is vice president of the California Dental Association.



Carol Gomez Summerhays, DDS



### Cosmedent KWIK Tray Adhesive →

For dentists who are tired of waiting for their tray adhesive to dry, Cosmedent introduces KWIK, a fast-drying tray adhesive that dries in less than a minute. When it dries, the material is nonsticky, yet has formed a tenacious bond to the impression material to ensure an accurate impression. KWIK Tray Adhesive is for use with addition silicon



materials only. For more information regarding KWIK, call 800-621-6729 or visit [www.cosmedent.com](http://www.cosmedent.com).

## Kellogg, ADA Management Program Accepting Registration

The American Dental Association and Northwestern University's Kellogg School of Management have announced the opening of registration for the ADA/Kellogg Executive Management Program for Dentists.

The executive program is specially designed for dentists seeking to broaden their management knowledge from one of the nation's premier business schools.

With content based on the core curriculum of matriculating Kellogg MBA students, study areas include business strategy, organizational leadership, marketing, finance, accounting, economics, quantitative methods, and information systems. The deadline to register is May 31.

Offered jointly for the third consecutive year, the program consists of three sessions conducted at Northwestern's Chicago campus. The sessions, separated by seven-week intervals, are set for July 20-25, September 15-20, and November 1-5. Upon completion, participants receive a Northwestern University Kellogg School of Management certificate and continuing education hours.

Class size is limited. Application materials and the program details are available at <http://www.ada.org/goto/kellogg> or by contacting Connie Paslaski at [paslaskic@ada.org](mailto:paslaskic@ada.org) or 312-440-3541.





## LEADER, CONTINUED FROM 313

Bioengineers at OSU say there is promise that “Kitagawa-Takahashi diagrams,” a long-time method used for helping to explain whether or not a tiny crack is going to eventually cause catastrophic failure, may have applications in medicine.

In the *Journal of Biomedical Materials Research*, Kruzic and colleagues at the University of California, Berkeley, outlined how engineering concepts may be relevant to the human anatomy.

“When we can tell a dentist exactly what type of tooth crack is most apt to get worse and needs preventive treatment, and which doesn’t, that could improve patient care and save money,” Kruzic said. “We have 3-D imaging of teeth that

is being improved every year. We could utilize these tools better in dentistry and orthopedics if we understood what the images were telling us.”

Researchers looked at initial crack sizes in bones and teeth, and are trying to develop predictive tools about which ones will grow and which will be innocuous. Engineers already do this with some accuracy when it comes to building or maintaining the engine of a jet airplane, but when it comes to human health, the science is still in its infancy.

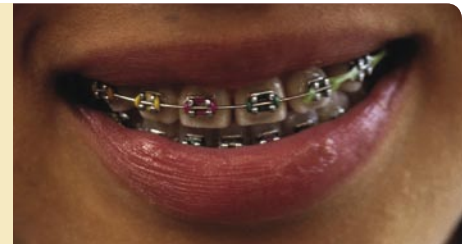
“This work still has a ways to go before we can make definitive predictions for medicine,” Kruzic said. “But in theory it should work, and it will be an exciting advance.”

*The coating is made from a calcium phosphate base that releases zinc — a frequent ingredient in toothpaste and mouthwash — onto braces and surrounding teeth.*

### Study of Innovative Coating May Help Stem Plaque Growth

Early tests on a new coating for orthodontic brackets and wires suggest it could inhibit plaque growth and decalcification common in patients wearing fixed appliances without decreasing the bond strength between brackets and teeth.

Researchers at New York University College of Dentistry have observed minimal plaque and calculus formation on teeth surrounding the coated braces and no significant difference in bond strength between coated and uncoated braces during their two-year in vitro study. The coating is made from a calcium phosphate base that releases zinc — a frequent ingredient in toothpaste and mouthwash — onto braces and surrounding teeth. Zinc inhibits the growth of acid-producing bacteria that demineralize teeth and minimizes dental



calculus formation.

The coating, which would not require approval by the Federal Drug Administration, would not be expensive to produce and could be available to market pending patent approval and further testing in patients.

It is believed this is the first time that such a calcium phosphate coating has been studied. Efforts to stem plaque and calculus formation in orthodontic patients with other methods, such as applying fluoride-releasing tooth varnishes or performing laser therapy around brackets, have had limited success and have diminished bond strength in some cases.