

Matt Mullin

Marijuana Use Possibly Linked to Perio Disease

Like tobacco use, cannabis smoking may be associated with periodontal disease, according to a study in the *Journal of American Medical Association*.

A team, led by W. Murray Thomson, PhD, of the Dunedin School of Medicine, Dunedin, New Zealand, conducted a study to determine whether marijuana use is a factor for periodontal disease. Nine hundred and three participants who were born in Dunedin in 1972 and 1973 were assessed periodically. Cannabis use was determined at ages 18, 21, 26, and 32; dental examinations were conducted at ages 26 and 32. In June 2005, the most recent data collection when the participants reached age 32, three drug exposure groups were determined: “no exposure” (293 individuals or 32.3 percent); “some

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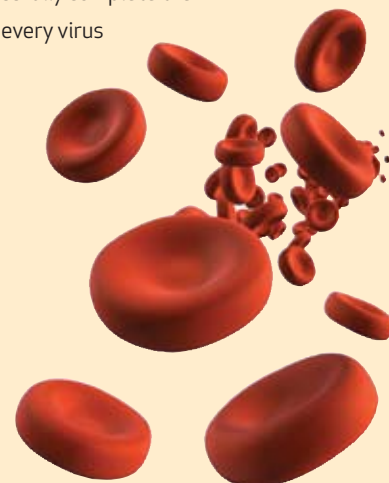
Study Shows ‘Cooperation’ Allows HIV Replication Without Integration

A New York University College of Dentistry AIDS research team has found that weak HIV viruses piggyback onto stronger ones, raising the possibility that the human body may harbor many more HIV viruses capable of replicating and contributing to the development of AIDS than previously thought.

“We’ve observed a new mode of HIV replication that involves cooperative interaction between viruses,” said David N. Levy, PhD, who published his findings today in BioMed Central’s open access journal *Retrovirology*.

It’s widely known that only about one in every 100 HIV viruses can successfully complete the process of integrating its DNA with the DNA of the human cell – a step that every virus must successfully complete before it can reproduce, according to a press release. The study by Levy’s team revealed a mechanism that allows some of the other 99 percent of HIV viruses also to replicate and play a potential role in the development of AIDS.

The team said that HIV functions as a community, with those viruses that successfully integrate with the DNA in human cells rescuing the viruses that fail to integrate by providing them with the proteins they need to reproduce. What’s more, the viruses that were once thought to be lost because they don’t integrate may have an advantage over the others because they can skip several steps in their replication cycle and reproduce faster.





Boost Oral Health Research Dollars, AADR Implores

Dental scientists urged Congress to increase the oral health research budget and to set aside \$1 million a year to fight the early childhood caries described as “particularly common” in Native American communities.

Citing “exciting research under way and the potential to improve oral health,” Marc Heft, DMD, PhD, told a House appropriations panel that additional funds for the National Institute of Dental and Craniofacial Research would advance the use of saliva-based diagnostic tests for oral and other cancers, cardiovascular diseases, and systemic conditions.

Early diagnosis and treatment also are key to “avoidance of the disfiguring surgery that may occur when malignancy is advanced and spread,” Heft testified earlier this year. “NIDCR-funded research has produced a saliva test that can detect

oral cancer, but further clinical studies are needed to produce and validate a diagnostic test with the accuracy required by the Food and Drug Administration.

“Imagine a world where disease can be detected at its earliest possible moment with quick, painless, and noninvasive saliva-based tests,” Heft testified on behalf of the American Association for Dental Research. “Imagine getting results from a test for oral cancer or systemic diseases without a two- or three-day wait, or going to the dentist for a mineral-restoring rinse instead of getting a filling. We would not only improve Americans’ quality of life but save lives and better utilize the valuable resources currently burdening our health care system.”

AAADR testimony also supported an American Dental Association request for \$1 million a year for three years for research and clinical studies on early childhood caries.

Tooth Loss Tied to Self-esteem

With almost 20 million teeth extracted each year, numerous people are left to deal with the psychological effects of a less-than-perfect smile.

H. Asuman Kiyak, PhD, presented a course, “Enhancing the Oral Health and Quality of Life for Partially Edentulous or Fully Edentulous Patients: The Importance of Communication,” during the 56th annual meeting of the Academy of General Dentistry’s last July, where she discussed the post-traumatic effects a patient endures after the loss of a tooth.

“A smile serves as an individual’s most powerful tool,” said Laura Murcko, DMD, AGD spokeswoman. “A great smile can make a great lasting impression, boost a person’s self-esteem and confidence as well as improve their overall health!”

Results from a survey issued to almost 20,000 AGD members recently revealed that more than 86 percent of general dentists reported that social embarrassment is one of the major concerns related to tooth loss, with more than half of these patients avoiding social interaction for that very reason.

“The major impact of tooth loss is on the appearance and social relations component of quality of life because people cannot change their appearance with missing teeth,” Kiyak said, who also noted there are ways patients can learn how to cope with the loss of a tooth. Kiyak encourages patients to:

- Weigh their options with the pros and cons for replacement teeth, or even endodontic treatment to save a “hopeless” tooth.
- Review videos or photos of others who have lost teeth and their current teeth status with removable or implant-supported dentures.
- Review testimonials of others who have undergone single, multiple, total tooth loss and replacement of these teeth with removable or implant-supported dentures, how they have coped with each stage, and how they are functioning orally, systemically, and psychologically with these dentures.



Link Unlikely Between Maternal Folate Intake and Cleft Palate

Previous studies in animals have shown positive direct results of a link between a decreased occurrence of cleft lip and/or cleft palate and the maternal intake of multivitamin supplements containing folate. In humans, however, the studies are less clear-cut. It's harder to distinguish the effects of a specific nutrient, which are generally entwined with the effects of other nutrients.

Additionally, other previous studies display design flaws such as insufficient sample size and lack of randomized sampling to have statistical significance. Studies in California and Norway reported a weak correlation in mothers who reported taking no supplements before becoming pregnant and then started taking supplements (Norway), or those who ate fortified cereal (California) during their first trimester, according to an article in *The Cleft Palate — Craniofacial Journal*. However, other studies show no change in orofacial cleft prevalence before and after the introduction of cereal fortification (Canada, Texas), or with/without use of supplements).

Cleft lip and palate are the most frequently occurring birth defects in the United States, affecting almost 7,000 children annually, or 1 in every 600 newborns.

In an issue of *The Cleft Palate — Craniofacial Journal*, a new study reports that the link between periconceptual folate intake and cleft palate or cleft lip may be weaker than previously thought. Little et al. used various measures of folate status and detailed assessments of confounding factors and found no correlation between prevalence of orofacial cleft and dietary or supplemental folic acid.



New Hydrogel Systems Developed For Dentin Regeneration

More than 20 million dental restorations are placed each year in the United States alone. As such, there exists a critical need for better biologic therapeutics to restore the damaged dentin-pulp complex to its original function and form. Progress in this area, however, has been slow compared to other fields of regenerative medicine.

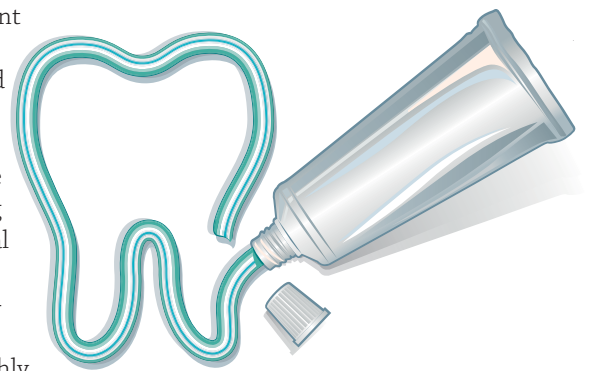
At the 86th General Session of the International Association for Dental Research, a team of investigators from Baylor College of Dentistry in Dallas, the University of Regensburg in Germany, and Rice University in Houston, presented its preliminary data describing the results of studies on hydrogels made of peptide amphiphiles, where a short peptide sequence is attached to a fatty acid, providing the driving force for self-assembly, according to a press release provided by the International & American Association for Dental Research.

The work takes advantage on previously untested material with new properties for the regeneration of the dentin-pulp complex. The results, researchers opined,

will provide the foundation for developing multidomain peptide scaffolds as novel therapeutics for the regeneration of the dentin-pulp complex.

The researchers applied a different design concept, where the self-assembly of peptide chains is achieved without attaching a hydrophobic tail. Based on their design, the chains can include bioactive peptide sequences for cell adhesion, binding of growth factors, or other biological molecules with therapeutic potential, the authors reported. Additionally, they said multidomain peptide hydrogels represent a novel and highly versatile material offering a higher degree of control over nanofiber architecture and better chemical functionality.

The researchers said the overarching goal is to utilize these multidomain peptides as a biomimetic scaffold along with dental stem cell therapy to provide a natural 3-D environment that can control and direct the differentiation and function of dental stem cells for the targeted regeneration of the dentin-pulp complex.





Tomography and Software Assist in Placement and Positioning of Dentures

An increasing number of edentulous patients have undergone successful implant-supported fixed restorations since the use of technology assists in identifying the best position and placement, according to a new study published in the *Journal of Oral Implantology*.

Even though various types of dentures are available as treatment, most patients want to avoid having removable prostheses because they want to experience the improved esthetics, speech, and comfort permanent dentures can offer.

In one case report, a man had been given one of three options for treatment of his maxillary and mandibular edentulism. He selected receiving implant-supported fixed-partial dentures as the best way to address his chief complaints of poor appearance and reduced function.

Dental planning software had been used to determine the best placement of the implants. Computed tomography was used to identify the best position of the dentures. Computed tomography has the ability to estimate the available bone, which is necessary to determine the implants' best position, angulation, and length. Dental planning software then used the scans obtained to fine tune the treatment plan.

Since the authors of the study carefully listened to the concerns of the patient and took the time to perform such detailed presurgical planning through computed tomography and the application of dental planning software, any issues that may have been encountered during the procedure were minimized.

To view the entire study, go to <http://www.allenpress.com/pdf/orim-34-03-161-168.pdf>.

I cannot
give you the
formula for success,
but I can give you
the formula
for failure — which is:
Try to please everybody.

HERBERT BAYARD SWOPE

UPCOMING MEETINGS

2008

Oct. 16-19	American Dental Association 149th Annual Session, San Antonio, Texas, ada.org .
Oct. 25-29	American Public Health Association Oral Health Section's annual meeting and exposition, San Diego, www.apha.org/meetings .
Nov. 2-8	United States Dental Tennis Association Fall meeting, Palm Desert, dentaltennis.org .
Nov. 13-15	Hispanic Dental Association's 16th annual meeting, Carefree, Ariz, hdassoc.org .

2009

May 14-17	CDA Spring Scientific Session, Anaheim, 800-CDA-SMILE (232-7645), cda.org .
Sept. 12-13	CDA Fall Scientific Session, San Francisco, 800-CDA-SMILE (232-7645), cda.org .
Oct. 1-4	American Dental Association 150th Annual Session, Honolulu, Hawaii, ada.org .
Nov. 8-14	United States Dental Tennis Association Fall meeting, Scottsdale, Ariz., dentaltennis.org .

To have an event included on this list of nonprofit association continuing education 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.

Dr. Samuel D. Harris National Museum of Dentistry on the Go

The National Museum of Dentistry will offer a special preview of its “Your Spitting Image” traveling exhibition Oct. 16-18 during the ADA’s Annual Session in San Antonio. The mobile exhibit will begin touring museums across the country in 2009.

The museum, which celebrated its 12th anniversary last summer, opened three new exhibitions this year: “Marvelous Mouth,” the first exhibit at the museum to focus on orthodontics; the “Modern Dental Office,” which features the latest dental technology available; and the new “Brush, Floss, Rinse” component to the “Your Spitting Image” exhibition that explores the connection between the body and mouth.

“We are excited that National Museum of Dentistry programs such as MouthPower Online and our traveling exhibitions are making an impact on communities nationwide,” said Rosemary Fetter, executive director of the museum. “The museum fills an important role to educate the public about the importance of good oral health to overall health.”

The exhibitions and programs have been making an impact on site, online, and across the country. This year, the museum’s accomplishments included

- partnering with the University of Maryland Dental School and the Maryland State Dental Association to host a Give Kids a Smile event. Nearly 100 Baltimore City children came to the museum for with a hands-on exploration of the MouthPower oral health education program and free dental screenings; and
- launching a new oral health program for seniors called “Your Marvelous Mouth: The New Frontier of Oral Longevity.” It was created in partnership with the Elderhostel program and supports the ADA’s Oral Longevity initiative to explore oral health care issues those over the age of 55 face.

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exposure” (428; 47.4 percent); and “high exposure” (182; 20.2 percent). “Some exposure” was defined as an average of 1 to 40 incidents of use reported during the years assessed, and “high exposure” was considered an average of 41-plus occasions of use during those years.

Tobacco smoking has strongly been associated with periodontal disease, but there was no interaction between cannabis use and tobacco smoking in predicting the condition’s occurrence.

“The study’s demonstration of a strong association between cannabis use and periodontitis experience by age 32 years indicates that long-term smoking of cannabis is detrimental to the periodontal tissues and that public health measures to reduce the prevalence of cannabis smoking may have periodontal benefits for the population,” wrote the authors.

Two hundred sixty-five participants (29.3 percent) at age 32 had one or more sites with 4 mm or greater periodontal combined attachment loss, and 111 participants (12.3 percent) had one or more sites with 5 mm or greater combined attachment loss. New attachment loss

between the ages of 26 and 32 years in the none, some, and high cannabis exposure groups was 6.5 percent, 11.2 percent, and 23.6 percent, respectively, according to the study.

“Although definitively establishing the periodontal effects of exposure to cannabis smoke should await confirmation in other populations and settings, health promoters and dental and medical practitioners should take steps to raise awareness of the strong probability that regular cannabis users may be doing damage to the tissues that support their teeth,” they said.

After controlling for tobacco use (measured in pack-years), gender, dental plaque, and irregular use of dental services were compared with those who had never smoked marijuana. Individuals in the highest exposure group for the drug had a 60 percent increased risk for having one or more sites with 4 mm or greater combined attachment loss, a 3.1 times greater risk for having one or more sites with 5 mm or greater CAL, and a 2.2 times increased risk for having new attachment loss, according to the study.



“Dental and medical practitioners should take steps to raise awareness of the strong probability that regular cannabis users may be doing damage to the tissues that support their teeth.”

Method Developed to Control Growth Rate of Replacement Tissue

University of Michigan researchers have developed a way to control the growth rate of replacement tissue and the formation of new blood vessels, solving the problems of growing replacement tissue to treat trauma and injuries.

William Giannobile, DDS, MS, DMSc, a professor at the University of Michigan School of Dentistry and College of Engineering, said the procedure could be used in bone grafts, tissue replacement, dental procedures or for diabetics or elderly patients who experience wound healing problems.

“If you have such a large defect that your body can’t completely heal, this is a way to augment and dose a natural wound healing protein,” said Giannobile, who coauthored the paper with Peter Ma, MS, PhD, a university professor with appointments in engineering and dentistry, and principal investigator on the National Institutes of Health project.

Researchers put platelet-derived growth factor into nanoparticles and then attached them to a lattice-like, biodegradable scaffold, according to a press release. In experiments, the growth factor recruited cells that stimulate the body’s own machinery responsible for healing, said Ma, whose lab developed the scaffold and the nanoparticles. As the tissue grew, it crawled into the scaffold, which eventually dissolved.

“Growth factor is typically dumped in and releases over a period of hours,” said Giannobile, who also directs the Michigan Center for Oral Health Research. “With certain wounds you might want a lot (of growth factor) in the beginning, and with others you might want a little released over a longer period of time. We’ve basically found a way to dial up or dial down the release rate of these growth factors.”

Giannobile said the next step is to evaluate a broader range of wounds, followed by early-stage human studies.



ADA Refreshes ‘OralLongevity’ Web Site

The American Dental Association has spruced up its OralLongevity Web site that features improved navigation and new content that further increases awareness among older Americans to maintain good oral health for their lifetime.

The Web site, www.orallongevity.ada.org, now is arranged in three well-defined areas:

- “OralLongevity” landing page with an overview of the program objectives and information tools,
- “Resources for Dental Professionals” to raise awareness of the special oral needs of an aging population, and
- “Resources for Consumers” to empower seniors to take control of their oral health.

The Web site also offers materials to help dentists educate other health professionals, older adult patients, and caregivers about the importance of oral health. These online resources, which may be downloaded and duplicated directly, include:

- commonly asked questions and answers for patients,
- program outlines for presenting the DVD to health professionals, patients, or caregivers,
- post-test for consumers,
- sample press releases to publicize OralLongevity outreach activity, and
- clinical articles from other dental publications.

Visitors in the “Consumer Resources” section will find tips for taking care of their teeth, pointers on making the most of visiting the dentist, and a discussion of the connection between oral health and overall health. The link, “Find an ADA Member Dentist” also is located here.

