

Researchers looking to fend off deployment related decay

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Army News Service

GREAT LAKES, Ill. – Army researchers at the Dental and Trauma Research Detachment at Great Lakes, Ill., are working to create a product that will help prevent dental decay during deployments.

The researchers are working with a tasteless peptide that helps break up the film which forms on teeth and kills the bacteria that cause oral disease.

Studies show that dental health deteriorates during deployments. One study, undertaken by Maj. Georgia dela Cruz in 2004, showed 3rd Infantry Division Soldiers who deployed to Iraq for six months in 2003 returned home with more than two-and-a-half times the number of cavities they had before deploying.

"The amount of tooth decay that occurred in just six months was overwhelming," said dela Cruz, who treated returning Soldiers at Fort Lewis, Wash., before becoming the public health dental staff officer at the U.S. Army Center for Health Promotion and Preventive Medicine.

Sports drinks, soda, candy and stress all contribute to decay during deployments, but lack of brushing plays into the equation as well, said Col. Dennis Runyan, commander of the research detachment.

"If you've gone a day or two without brushing your teeth and run your tongue over your teeth, you can feel that layer of grunge. It's tough to penetrate," Runyan said. "It's hard to get things down into that biofilm that will actually kill the bacteria."

The peptide's name is a string of consonants – KKVVFKVKFK-NH2 – and is abbreviated KSL. Dr. Kai Leung, has worked with the peptide from the project's inception to determine its killing power and ability to inhibit bacterial growth.

Leung also developed a model that mimics the environment of the mouth, and enlisted the help of lab workers by asking them to donate saliva for his



SAMMY L. WALLACE

From left to right, Spc. Katherine D. Gilmore, Spc. Tara D. Crowe and Pvt. 1st Class Tina M. Campbell offer saliva samples that will be used to test a component in a new anti-plaque gum at the Dental and Trauma Research Detachment at Great Lakes, Ill.

experiments. He's even tested KSL in animal models to make sure that it doesn't affect the intestinal tract like some antibiotics do.

"Just the act of chewing gum in and of itself helps break up the dental biofilm, so you get a mechanical breakup," Runyan said. "Then we have an added ingredient that actually helps kill and control the oral pathogenic bacteria as you chew the gum."

Because gum is already available in MREs, Runyan said it would be a logical step to include the anti-plaque gum in them.

"We give them the sugar-free gum in the same MRE that we give them Skittles. It's like giving an alcoholic antabuse and having him wash it down with a shot of Jack Daniels," he said.

The Combat Feeding Program officials in Natick, Mass., with whom Runyan has spoken to aren't making any promises about including it in MREs just yet.

"They deal with costs. I would say they're interested but guarded until we can give them a good final cost," the colonel said. Leung estimates each piece will cost about a dime or less.

In order to claim the peptide can control and kill plaque bacteria, Army researches must go through the Food and Drug Administration's drug approval process.

Runyan said he hopes the gum will be in clinical trials three to four years from now. He stressed that when the gum is eventually fielded, it shouldn't be seen as a replacement for good oral hygiene.

"The purpose of this gum is not to be a substitute for good flossing and brushing," he said. "This will hold Soldiers over in times when they – because of operations tempo or availability – don't have the time or the inclination to brush or floss."

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