Search

Home   Nation   World   China   Business   Opinion   Science   Technology   Arts & Entertainment   Health   Life   Sports   **Print Edition**

Dental Science Reveals High-Tech Ways to ID Disaster Victims

By Michael Dabney

Created: Nov 21, 2010
Last Updated: Nov 21, 2010

Facebook   Digg   StumbleUpon   Twitter   TEXT SIZE — + PRINT   EMAIL   FEEDBACK

Related articles: Science > Inspiring Discoveries

DNA ALTERNATIVE: Dental patterns can quicken the time and accuracy of identifying victims of mass disasters (Photos.com)

Recent research in forensic medicine and radiology is yielding enhanced high-tech methods in dental science that stand to greatly improve the accuracy and the time it takes for deceased victims of mass disasters to be properly identified.

Two primary advances—one emanating from Spain and the other from Japan—are especially being touted as effective.

The painstaking and often grueling work of identifying victims following such mass disasters as plane crashes, earthquakes, tsunamis, or acts of terrorism frequently involves forensic experts comparing each victim's records with scores of dental records. The process can take weeks or months, and errors can occur.

Researchers at the University of Granada in Spain, reporting this year in the journal Forensic Science International, have demonstrated, through a special method they created, that a person's teeth (or dental) patterns can serve as a reliable source in proving identity of victims, indicating that no two people have the same teeth patterns.

The Granada scientists found that this method has the same degree of reliability as DNA testing—the technique that forensic law enforcement professionals use to reveal the identity of dead bodies.

The research team headed by Stella Martín de las Heras, a professor of Legal and Forensic Medicine at the University of Granada, reached the conclusion after studying the dental patterns of more than 3,000 people.

Related Articles

- Natalee Holloway Case: Dental Records Requested
- Root Canal Dangers, Part 1

"There is sufficient dental diversity between people to enable a scientifically based human identification method to be developed for forensic purposes," says Dr. Martín de las Heras in a news release by the Spanish Foundation on Science and Technology describing the study.

The research findings were determined by conducting a statistical analysis of 3,166 full and partial sets of teeth based on data found in the three most recent National Surveys of Oral Health (1993, 2000, and 2005). From this data, the team formed the "conditioned dental diversity" cases that made up the nucleus of their study.

The team eliminated cases in which people had all their teeth "present and healthy" or in which people had not a single tooth in their mouth, since these were of no use for identification purposes.

The results of the study indicate variability values of 0.999 (on a scale of 0 to 1), "which is comparable to the rates for a scientifically based identification method such as mitochondrial DNA," reports Dr. Martín de las Heras.

In using the results of the study to identify victims of a mass disaster, forensic experts would compare the victim's post-mortem dental pattern with the dental data of the person's life. This information is often provided by dentists, although physicians and family members can also sometimes supply it. Dr. Martin de las Heras and her team have also developed software to help in comparison and identification of dental patterns.

In related research in 2007, radiologists in Japan reported on developing an automated dental x-ray matching system that can identify victims of mass disaster in minutes through dental information.

"Families waiting to hear news regarding loved ones experience trauma while waiting for the identification process to resolve," said Eiko Kosuge, D.D.S., dentist and radiologist in the Department of Oral and Maxillofacial Radiology at Kanagawa Dental College in Japan, in a press release issued by the Radiological Society of North America on the image-matching technique that he and his colleagues developed.

"With this new system, we can drastically cut the time and improve the accuracy of this process to help alleviate some of the emotional stress that occurs in the case of a mass disaster," said Dr. Kosuge. She says the system can reduce the amount of work required for identification by up to 95 percent.

The procedure uses a highly accurate image-matching technique called Phase-Only Correlation (POC), which

Latest News from The Epoch Times

- GM Shares End First Week of Trading With a Bang
- Please Throw Away Those Old Shoes!
- The Government has Four Days to Convince Senate to Support NBN
- Credit Unions and Building Societies to Play Stronger Role
- Finals Action Still a Possibility for Sydney FC

A Taste of Tang