Victims of Pompeii had

Excellent teeth

Two thousand years after Pompeii was buried under the ashes of Mt. Vesuvius, the archaeological site has still kept most of its secrets. The plaster that was used in the early 19th century to fill the voids that the bodies had left in the hardened rock is so dense that today's standard imaging technology cannot distinguish between the thick outer cast and the skeletal pieces inside.


[PICTURE: ©VIACHESLAV LOPATIN]

By using a special multi-layer CT scanner that is able to do just that, the specialists have been able to shed new light on the life and death of the ancient civilisation. Among other things, the scientific tests, which also included laser imaging and DNA sampling, revealed that the city's inhabitants had nearly perfect teeth.

"We discovered the absence of cavities in the teeth. This is very interesting and not that surprising, because we all know about the healthy Mediterranean diet and this has really shown up in the early analyses," said Massimo Osanna, superintendent at the archaeological site.

According to the experts, the lack of sugar in the Pompeian diet and the high levels of fluorine in the air and water near the volcano are all accountable for the perfect state of their teeth. In addition to an excellent oral health, the researchers found that most of the victims still had all their teeth. However, the scans further showed that the teeth wore away, because they were used for cutting, orthodontist Dr Elisa Vanacore said.

Tooth enamel first

Evolved in the skin

Tooth enamel is the hardest substance produced by the human body. Since enamel is one of the four major tissues that make up the teeth and gives them their distinctive shiny white appearance, it comes as a surprise that a study has found that enamel most likely originated from an entirely different part of the body: the skin.


[PICTURE: ©VLADRU]

Unlike humans, who only have teeth in the mouth, certain fish species have little tooth-like scales on the outer surface of the body. In the study, researchers from Uppsala University in Sweden and the Institute of Vertebrate Paleontology and Paleoanthropology in Beijing in China analysed Lepisosteus, an ancient gar fish from North America whose scales are covered with an enamel-like tissue called ganoine. Their findings suggest that enamel in fact first evolved in the skin. Dr Per Ahlberg, Professor of Evolutionary Organismal Biology at Uppsala University, explained: "Psarolepis and Andreolepis are among the earliest bony fishes, so we believe that their lack of tooth enamel is primitive and not a specialisation. It seems that enamel originated in the skin, where we call it ganoine, and only colonised the teeth at a later point."

The study is the first to combine novel palaeontological and genomic data in a single analysis to explore tissue evolution. The results have been published online on 23 September in the *Nature journal* in an article titled "New genomic and fossil data illuminate the origin of enamel".

New pulse laser systems for

A variety of indications



The Lumenis Pulse 100 H, the next generation of the VersaPulse® PowerSuite™ 100 Watt system, is a versatile and enhanced laser solution for the treatment of a wide array of clinical urologic indications including benign prostatic hyperplasia (BPH), stones, tumors or strictures, along with a range of other specialties such as general surgery, ENT, gynecology and pulmonary surgery. As a greatly effective laser system for stones and BPH, the Pulse 100H enables users to perform holmium laser enucleation of the prostate (HoLEP), the gold standard treatment for BPH, and stone dusting™.

The new system features an improved design to enhance patient safety and overall user experience. It offers a robust combination of laser parameters addressing more than 70 types of procedures, an innovative pulse reshape function for improved safety, dual pedals for improved ease of use, a hands-free ready and standby mode for minimizing cost per procedure, and a high energy per pulse of up to 3.5 J with a high repetition rate of up to 50 Hz. In addition to the Pulse 100 H, Lumenis will also be unveiling another key addition to the Lumenis Pulse laser family, the Pulse 50 H laser system. Designed to efficiently address any type or size of stone in lithotripsy, the Pulse 50 H system is a superior comprehensive solution that provides 0.2 J of energy per pulse to minimize migration of even the smallest stone. Furthermore, the Pulse 50 H can be later upgraded to the new Pulse 100 H, allowing physicians to further leverage their investment as they grow their practice.

"The new Pulse 50 H system provides all features to perform modern intra corporeal Holmium laser lithotripsy including a wide range of energy levels and frequencies," said Professor Rassweiler, MD, PhD, Klinikum SLK, Heilbronn, Germany.

Pregnancy: Majority avoids

Dental check-ups



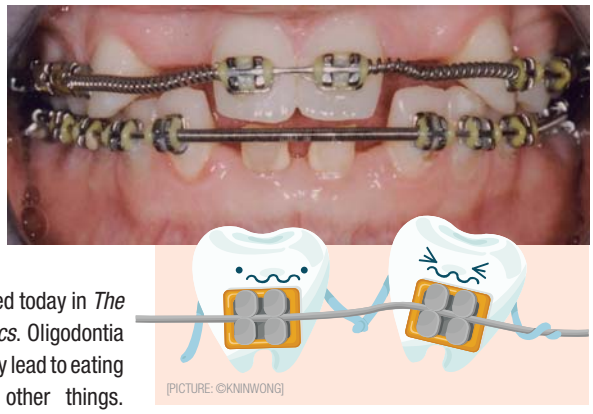
[PICTURE: ©ELENA VASILCHENKO]

In order to gain insights into women's dental visiting patterns and knowledge about the impact of oral health on their own and their babies' well-being, Cigna Corp., a global health service company, conducted an online survey in August among 801 pregnant women and new mothers aged 21–45. Only 55 per cent of the survey participants rated their oral health as very good or excellent, and 76 per cent reported oral health problems during pregnancy, including bleeding gingivae, increased tooth sensitivity and tooth pain. However, only 43 per cent of pregnant women stated that they had gone for dental check-ups during pregnancy, and 36 per cent said that they had not seen a dentist for more than a year. Overall, 33 per cent of women surveyed said that they had skipped dental checkups during pregnancy because they were concerned it would be too expensive.

In addition, the survey indicated that targeted interventions by medical professionals could significantly improve the oral health habits of pregnant women and new mothers. With regard to the daily oral hygiene habits of new mothers, the investigators found that 36 per cent have brushed and flossed less frequently since delivery, 67 per cent of whom stated that they do not have time to keep up on their hygiene. The full report can be accessed and downloaded at www.cigna.com.

UMC Utrecht discovers genetic

Cause of disturbed dental development



[PICTURE: ©KNINWONG]

Researchers at University Medical Center (UMC) Utrecht have identified a gene that may cause oligodontia, the agenesis of six or more teeth. The discovery of the so-called LPR6 gene makes it possible to diagnose patients more effectively, provide them with better information and develop customized treatment. The results were published today in *The American Journal of Human Genetics*. Oligodontia greatly impacts quality of life and may lead to eating and speaking problems, among other things. Dr Marijn Créton, dentist and maxillofacial prosthetist at the Department of Oral and Maxillofacial Surgery and Special Dental Care at UMC Utrecht, ensures—in consultation with patients—that ultimately they have a good set of teeth both at a young and adult age. This requires a treatment of many years, during which patients are treated by a dentist, oral surgeon and orthodontist. "Moreover, adolescents with oligodontia often have psychosocial issues," says Créton. "Missing many teeth is conspicuous. Children, teenagers and young adults are sometimes bullied and regularly experience feelings of low self-esteem and shame."

Reference: Massink MPG, Créton MA, Spanevello F, et al. Loss-of-Function Mutations in the WNT co-receptor LRP6 Cause Autosomal-Dominant Oligodontia, The American Journal of Human Genetics, in press 2015.

Water pipe smoking can lead to

Serious oral conditions

According to the Centers for Disease Control and Prevention, 2.3 million Americans smoke tobacco from pipes, many of whom smoke water pipes, believing it is less harmful than cigarettes. A recent study, however, has shown that water pipe smoking is also associated with various head and neck conditions, including periodontal disease and oral cancer.



[PICTURE: ©ROMAN RYBALEOV]

In the study, researchers at Rutgers, The State University of New Jersey, reviewed 20 published articles to identify potential health effects of water pipe smoking on the head and neck region. According to the World Health Organization, water pipe smoking sessions may expose the smoker to more smoke over a longer period than occurs when smoking a cigarette. Water pipe smokers may therefore inhale the equivalent of 100 or more cigarettes during one session, depending on the duration and number of puffs in a smoking session.

The study, titled "Association between tobacco waterpipe smoking and head and neck conditions," was published in the October issue of the *Journal of the American Dental Association*.