Smoking linked to hypodontia

By DTI

OTAGO, New Zealand: A study conducted by researchers at the University of Otago has found that women who smoke more than ten cigarettes a day while pregnant may negatively impact the development of their children’s teeth. The study looked at 83 children with hypodontia—defined in the study as the developmental absence of up to five permanent teeth—and compared them with 253 children without the condition. The children’s mothers reported their levels of exposure to active and passive smoking during pregnancy, along with their caffeine and alcohol intake.

Prof. Mauro Farella, who led the research, said that hypodontia was positively linked to cigarette smoking. The study found no association between the condition and drinking alcohol or caffeinated drinks however.

“There was a suggestion of a biological gradient effect with tobacco,” said Farella, who is head of orthodontics at the University of Otago’s Faculty of Dentistry. “The more cigarettes a mother reported smoking during pregnancy, the greater the likelihood was of her child having hypodontia.”

“Though more research is needed to confirm the association we found between maternal smoking and the condition, a plausible explanation is that smoking causes direct damage to neural crest cells in developing embryos,” he explained.

The findings are in line with a growing body of evidence that demonstrates the negative impact smoking while pregnant can have on an unborn baby. Various studies have shown that smoking during pregnancy increases the risk of premature birth, a low birth weight or a stillbirth. The study, titled “Maternal smoking during pregnancy is associated with offspring hypodontia,” was published online on 23 May in the Journal of Dental Research.

Australasiasymposium

MELBOURNE, Australia: For the first time in the Osteology Foundation’s history, Melbourne played host to one of the three Asia-Pacific symposiums in 2017. Themed “Strategies for predictable regeneration—Today and tomorrow”, the scientific programme delved intensively into the current status of knowledge and research in oral tissue regeneration, discussing new trends and techniques in the field.

Held on 2 and 3 June at the Arthur Streeton Auditorium in Melbourne, the two-day event was one of four symposiums taking place over the next 12 months. Other host countries are Japan, China and Russia. In addition to such national events, the non-profit organisation holds its international symposium in the Côte d’Azur in Monaco every three years.

More information can be found at www.osteology.org.

ADX Sydney: New manager

Linda Gaunt, former CEO of Meetings & Events Australia, has been appointed as the Exhibitions Strategy Manager of the Australian Dental Industry Association. She will first be tasked with making the upcoming ADX18 Sydney, Australia’s largest dental exhibition, an event that captures the interest of the entire dental community.

Aesthetics meeting

The Aesthetic Dentistry Society Singapore has announced the launch of a new event focused on the discipline for the Asia-Pacific region. Making its debut in autumn 2018, the Dental Aesthetics Meeting in Asia will be held on 28 and 29 September. The meeting is anticipated with much excitement from the dental industry.

ADX18 Sydney: Australia’s largest dental exhibition, an event that captures the interest of the entire dental community.

Facial features

Researchers in the US have found that genetics that shape dental and thus facial features might also increase the likelihood of specific handedness. In a recently published study, people with slender faces were found to be predominantly left-rather than right-handed. The findings of the study were based on three national health surveys, with a total of 13,536 participants, that were conducted in the US in the 1960s and 1970s. In a review of these, researchers at the University of Washington School of Dentistry found that bilateral retrognathism—the dental marker for a convex facial profile, slender jaws and overbite—was associated with offspring hypodontia. The study, titled “Maternal smoking during pregnancy is associated with offspring hypodontia,” was published online on 23 May in the Journal of Dental Research.
Unique root canal anatomy patterns in Indian population

By DTI

NAVI MUMBAI, India: Provisional findings of an Indian study have suggested that the root canal anatomy of Indians might differ from those of other ethnicities, and hence, they may require adapted care during root canal therapy. The study, which began two years ago, is being jointly conducted by researchers at two local dental colleges, Terna Dental College and the Government Dental College in Mumbai.

Under the supervision of college deans Drs Shishir Singh and Mansingh Pawar, about 20 students involved in the research project have been investigating 5,000 teeth that were provided by dental colleges and hospitals in the region.

The results showed that the anatomy of the mandibular canines and second premolars was more complex than that of teeth from other ethnicities. For example, the investigators found that the extra mesial buccal canal, often seen in European, Thai and Japanese populations, was rare in the Indian maxillary molars examined. In addition, Indian teeth showed root canal anatomy patterns that were different from those seen in American and African teeth. Consequently, the researchers concluded that Indians might require special care during dental treatment in order to ensure treatment success.

Explaining the tooth preparation process, Singh said that the teeth are cleaned and disinfected before the root canals are accessed and dyed is injected into them. After drying and decalcification, the specimens are dehydrated in ascending concentrations of methanol, Singh told The Times of India. “The students study the specimens under special halogen lighting and the root canal anatomy is classified using internationally accepted classifications,” Singh explained regarding the research method.

The study is ongoing and the researchers hope to make further findings, Singh said.

Neanderthal used natural analgesics, calculus shows

By DTI

ADELAIDE, Australia/LIVERPOOL, UK: Ancient DNA in the calcified dental plaque of Neanderthals—the nearest extinct relative to humans—has provided new insights into their behaviour, diet and evolutionary history. An international team of researchers has analysed 42,000- to 50,000-year-old dental plaque DNA samples from four Neanderthal individuals found at cave sites in Belgium and Spain. The findings revealed the complexity of Neanderthal behaviour, including knowledge of plant-based medication and dietary differences.

According to the researchers, DNA preserved in the dental plaque of Neanderthals is a notable source of information about the behaviour and health of ancient hominins specimens. From analysing the dental plaque DNA samples, the researchers learnt that the Neanderthals from the cave sites of Spy in Belgium consumed woolly rhinoceros, European wild sheep and wild mushrooms. In contrast, those from El Sidrón cave in Spain appeared to have a vegetarian diet, including moss, mushrooms, pine nuts and tree bark, but no evidence of meat was found. These findings demonstrate that these two groups had very different diets.

“Dental plaque traps microorganisms that lived in the mouth and pathogensof the respiratory and gastrointestinal tract, as well as bits of food stuck in the teeth—preserving the DNA for thousands of years,” said lead author Dr Laura Weyrich, Australian Research Council Future Early Career Research Fellow at the Australian Centre for Ancient DNA (ACAD) of the University of Adelaide.

She added, “One of the most surprising finds, however, was in a Neanderthal from El Sidrón, who suffered from a dental abscess visible on the jawbone. The plaque showed that he also had an intestinal parasite that causes acute diarrhoea, so clearly he was quite sick. He was eating poplar, which contains the pain killer salicylic acid (the active ingredient of aspirin), and we could also detect a natural antibacterial mould (Penicillium) not seen in the other specimens.”

Furthermore, dietary differences were associated with a general shift in the oral microbiota, suggesting that meat consumption contributed to substantial variation in this regard. “Not only can we now access direct evidence of what our ancestors were eating, but differences in diet and lifestyle also seem to be reflected in the commensal bacteria that lived in the mouths of both Neanderthals and modern humans,” said co-author Prof Keith Dobney, from the University of Liverpool. “Major changes in what we eat have, however, significantly altered the balance of these microbial communities over thousands of years, which in turn continue to have fundamental consequences for our own health and well-being.”

The study, titled “Neanderthal behaviour, diet, and disease inferred from ancient DNA in dental calculus,” was published on 20 April in the Nature journal. It was conducted by ACAD in collaboration with the University of Liverpool in the UK.
Australia: Royal Flying Doctor Service receives funding boost

By DTI

CAIRNS, Australia: The Royal Flying Doctor Service of Australia (RFDS) has long provided much-needed medical assistance to many of the expansive country’s most remote communities. Dr David Gillespie, Assistant Minister for Health, has announced that the Australian federal government will commit A$11 million in funding to the not-for-profit organisation so that it can continue to offer dental services to these regions.

Established in 1928 by Rev John Flynn, the RFDS utilises its fleet of 66 aircraft to offer both emergency and essential health care to Australian residents who are unable to access these services via more common modes of transport. It is funded through a combination of donations and financial support from the Australian government’s RFDS programme. It holds an important place in Australia’s medical services sector and was described by former Prime Minister Sir Robert Menzies as ‘perhaps the single greatest contribution to the effective settlement of the far distant country that we have witnessed in our time’.

“The Royal Flying Doctor Service is well-placed to provide these essential mobile outreach dental services in rural and remote Australia,” said Gillespie in a statement. “Today we deliver on our election commitment to ensure people outside our major cities have better access to high-quality dental services.”

Martin Laverty, CEO of RFDS, welcomed the funding and took the opportunity to highlight the disparity in dentist numbers between urban and remote areas.

“There are only one-third the dentists in remote areas, with 72 dentists per 100,000 people in major cities, and less than 23 per 100,000 people in remote areas,” said Laverty. “When people from remote areas visit the dentist, they are more likely to require acute intervention—1 in 3 had a tooth extraction in a year, compared with less than 1 in 10 in metropolitan areas.”

“This funding from the Federal Government will enable the Flying Doctor to expand its dental outreach programme to start tackling the disparity that exists between city and the bush—and for that we are very, very thankful,” he added.

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The Royal Flying Doctor Service provides emergency and essential health care to many of Australia’s remote communities.
“The world is becoming a noisier place, so protection and prevention are essential”

An interview with Dr Sam Shamardi, developer of noise reduction dental earplugs

By Kristin Hübner, DTI

Although noise exposure in dentistry may appear to be minimal, the potential for noise-induced hearing loss is an issue in the field. Various studies have shown that a significant number of dental professionals are affected each year. Aiming to address this matter is US dentist Dr Sam Shamardi, who developed noise reduction earplugs especially designed for use in the dental office. He recently introduced the product, first launched in 2014, for short exposure, among other factors. Thus, extreme noise exposure, which usually identify with the high-pitched shrieks from the suction, can truly drive one nuts. I also noticed how many of my colleagues complained of tinnitus symptoms and hearing difficulties, and I knew there was a serious problem that was not being recognised.

“Dentistry is known as the field of prevention, yet when it comes to protecting our hearing, we have completely ignored our motto.”

Dr Shamardi, what sounds in the dental office are damaging to hearing?

All of them! We as dental professionals are exposed to constant dangerous levels of noise that have a long-term, permanent effect on our hearing. Most usually identify with the high-speed handpiece, but high-speed suction, ultrasonic instruments and cleaners, laboratory machines and model trimmers all cause damage.

Sounds that are 85 dB and above result in hearing damage and are directly related to the duration and frequency of exposure, among other factors. Thus, extreme noise exposure for short periods can be as damaging as mild exposure for prolonged periods. Considering that dental professionals’ average careers are 35 years long and typically 40 hours a week, our exposure time spent in this chronic noise environment is substantial.

The dental literature shows values for dental equipment that clearly exceed 85 dB and in many cases even 100 dB. Noise standards further illustrate that, at these ranges, as little as 15 minutes per 2 hours of exposure daily can lead to permanent damage; thus, it is no surprise that we all know colleagues with hearing issues as a result.

Is it important to protect one’s ears at all times or just during noisy procedures?

It is always best to protect oneself at all times, do we wear gloves, masks, gowns and loupes during major procedures only or for all examinations and routine treatments?

Certainly, some procedures will have a greater noise output and exposure than others, but a dental office is in a constant state of action and there is always something noisy going on in another room even if one is not involved in a noisy procedure oneself.

You developed the DI-15 earplugs. How do they work?

The DI-15 is a high-fidelity electronic earplug in-ear technology to create the DI-15 earplugs. It utilises patented advanced technology in a tiny microchip that provides protection against all damaging sounds in the dental environment, as needed, while still allowing for 100 percent clear hearing. Thus, one’s ability to communicate clearly with patients and staff is not compromised, and hearing damage is prevented.

What do users report about the comfort of the earplugs—does one have to get used to them?

Our users have had no issues wearing them, and the comfort and function of the DI-15 earned top marks in an extensive two-year American Dental Association Professional Product Review paper.

DI-15 earplugs are extremely comfortable because they come standard with six different pairs of tips and thus can accommodate any ear. In addition, for those with unique canals or who prefer a custom fit, our product can be customised via an ear mould from an audiologist and a custom sleeve made by a laboratory. All requirements are covered!

Getting used to wearing earplugs reminds me of the initial adjustment to wearing loupes; at first, I noticed them and had a brief period of adaptation, but now I do not notice they are there, yet can instantly feel the difference when I am not wearing them. The earplugs are small and fit comfortably within one’s ears, so even my patients do not notice I am wearing anything unless I show them.

Thank you very much for the interview.

By Kristin Hübner, DTI

The DI-15 high-fidelity electronic earplugs can be ordered worldwide at a cost of USD50, including a hard travelling case, all tips and accessories and a pack of ten batteries. More information can be found at www.dentalinnovations.net.

Dr Sam Shamardi is a periodontic specialist at Boston Center for Oral Health and a part-time clinical instructor at the Harvard School of Dental Medicine, both in the US.

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