Bio-Emulation movement continues to grow

By DTI

BERLIN, Germany: On 4 and 5 July, the 2015 Bio-Emulation Colloquium was held in Berlin in Germany. The event, which was organised by the Dental Tribune International team in close collaboration with the Bio-Emulation Group, attracted more than twice the number of participants compared with last year. Overall, more than 300 dentists and dental technicians attended the extensive programme on biomimetics in dentistry, including 16 lectures and 13 workshops.

After the successful premiere of the Bio-Emulation Colloquium last year in Santorini in Greece, this year’s meeting was held under the theme “Bio-Emulation Colloquium 360°”. Key opinion leaders in adhesive and restorative dentistry educated the participants on methods and techniques to achieve high aesthetic standards and emulate nature using a histotaxonomical approach.

During the sessions, particularly the workshops, attendees had the opportunity to learn more about the mechanical and optical properties of natural teeth and gain knowledge on using existing techniques and materials. A considerable number of workshops were fully booked, for instance, Dr Pascal Magne’s session on dental morpology function and aesthetics was among the most requested.

Over 45 per cent of attendees who took part in a representative evaluation survey said that they would definitely recommend the event to others. They were most satisfied with the choice of speakers and topics in particular.

Many of the participants took advantage of the networking opportunities offered on the two evenings of the meeting. Each day,ment and Technology, a historical site in the centre of Berlin, next to the office of the German Ministry of Foreign Affairs. The building, which has landmark status today, was once the state council building of the former German Democratic Republic. After a lavish refurbishment in 2004 and 2005, it was transformed into the current private business school.

The participants further underestimated the expertise needed to place an implant. However, they were deterred from seeking dental implant treatment by the high costs, invasiveness of the procedure, risks and possible complications.

Overall, the study found that the public is exposed to information on dental implants to restore patients’ appearance, function and quality of life to absolute normality. “They regarded dental implants as a panacea for all cases of missing teeth,” the scientists stated.

The participants further underestimated the expertise needed to carry out the clinical procedures to place an implant. However, they were deterred from seeking dental implant treatment by the high costs, invasiveness of the procedure, risks and possible complications.

Overall, the study found that the public is exposed to information on dental implants. Such perceptions may shape their care-seeking behaviour and decision-making processes in one way or another, the researchers said.

“The views and experiences gathered in this qualitative study could assist clinicians to better understand the public’s perspectives, facilitate constructive patient–dentist communication, and contribute to the creation of positive clinical experiences in implant dentistry,” they concluded.

The study, titled “Public perceptions of dental implants: A qualitative study”, was published online on 8 May in the Journal of Dentistry.
“Xylitol is here to stay”
An interview with Professor Emeritus Kauko K. Mäkinen, Finland

During the early 1970’s, xylitol and other natural sweeteners were extensively tested in Finland as potential replacements for sugar. The series of over 20 research reports, published together in Acta Odontologica Scandinavica in 1979, became collectively known as the “Turku Sugar Studies.” Approaching the 40th anniversary of the publication, Dental Tribune had the opportunity to speak with Professor Emeritus Kauko K. Mäkinen, who led the original Turku research together with Arje Scheinin, K. Mäkinen, who led the original Turku studies of xylitol in the seventies—studies of xylitol in the seventies— noted his efforts and programs, xylitol acting as a part of the whole.

Dental Tribune: Prof. Mäkinen, you were involved in the first extensive studies of xylitol in the seventies—how far has the sweetener come since then?

Prof. Emeritus Kauko K. Mäkinen: The awareness of xylitol among consumers and healthcare professionals has increased significantly since the early 1970’s. However, knowledge about xylitol is not equally distributed across the world. Although awareness may approach 100 per cent in Finland, the situation is different in other countries and the level of awareness depends on the level of dental and medical education in each country.

As you mentioned, in Finland, xylitol seems to be a part of daily life. Xylitol is indeed known by virtually all Finns and is also used by most people in Finland on a daily basis. Parents and grandparents have adopted a habit of buying xylitol gum, pastilles or lozenges for their children and grandchildren. At many day-care centres, children learn to use xylitol after lunch.

In Germany, for example, you can buy xylitol as a sweetener and it is also added in gum, but it is not widely known to the public as a mainstream product. Why do you think there is such a difference in “popularity”? You are right about the situation in Germany. I cannot help but wonder why this could be, since xylitol was discovered by German chemists and its medical use in infusions was first known by German physicians. It is possible that German dentists do not value early caries prevention as much as the dentists and the authorities do in Scandinavia. One would need a strong and committed distributor and an official endorsement from the German Dental Association.

When you did your research for the Turku studies, did you expect to find xylitol to be so beneficial, especially for oral health?

We did not anticipate the magnitude of this preventative effect. We considered it a welcome surprise. Later, of course, after learning how xylitol works and after we learned to understand the chemical mechanisms involved, we started to regard the findings as natural and expected.

Is there a measurable impact on caries levels and dental health that can be attributed to xylitol?

We cannot give any figures of the effect of xylitol in caries incidence in the above instances. Overall caries prevention takes place as a result of multi-faceted efforts and programs, xylitol being a part of the whole. It is impossible to differentiate between the effect of each individual preventative measure since all of them are in action simultaneously, such as tooth brushing, the use of fluorides, the application of sealants, etc.

Are there any known side effects?

Regular consumers who use xylitol for dental purposes have no side effects. If somebody accidentally consumes larger single doses, for example, 20–30 grams, some individuals may have transient diarrhoea. However, sorbitol, mannitol and common milk sugar causes much more severe symptoms. Of course, small children must use xylitol gum under parental guidance.

Do you think xylitol could be playing a greater role in the future, maybe in developing countries?

Xylitol is here to stay. We are already using xylitol in developing countries. Vietnam is one example and, in thinking, it is still a developing country. Xylitol is currently being used in hundreds of dental, medical, cosmetic and other products all over the world. Its popularity is increasing steadily, but not abruptly.

Thank you very much for the interview.

The caries preventative effects of xylitol that were reported in the literature are based on clinical trials. Xylitol does, however, significantly increase the efficacy of overall caries prevention, provided that the use of xylitol is habitual and is based on the consumption of sufficiently-large daily amounts that are taken at least three to five times a day.

Do you have any data on how much xylitol is consumed in Finland or worldwide?

These figures are possessed by xylitol manufacturers and they do not provide any production-related information to us. However, the annual production worldwide must be tens of thousands of tons since xylitol is produced in China, Russia and other countries. The first xylitol plant in the world was in Finland and was sold to DuPont a few years ago. When production started in Finland in the 1970’s, 3,000 to 5,000 tons were made during the first few years, but overall production is by far much larger now.

How should the sweetener be used in daily life?

My current recommendation is about 7–10 grams per day, evenly distributed throughout the day. The first dose in the morning, the last after oral hygiene at bedtime. Always after meals and sugary snacks. Use it about three to five times a day. Use two pellets, one or one stick of gum but the gum must be 100 % xylitol. One may “tolerate” some maltitol in it, but no sorbitol, unless the sorbitol amount is very small (<5 %). Some companies use only 5–10 % xylitol and call their product “a xylitol gum”, which is false.

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