Dear reader,

With new licence partners from Australia & New Zealand, South Korea and Vietnam having joined our publishing network in the last two months, DTI’s reach into the Asia Pacific region has been extended to markets comprising over 50,000 dental professionals. I would like to welcome our new friends on behalf of our worldwide readership and encourage you to follow their future efforts to provide the latest news from dentistry to their respective national dental communities.

We also announce our support to the Center for Advanced Professional Practices, our new partners from Dubai, who did not only recently agree to publish our Middle-East & Africa edition but successfully held their first ever CAD/CAM and computerized dentistry congress for the Asia Pacific region in Singapore. If you want more information about this novel event, please read our review on page 11.

Yours sincerely,
Daniel Zimmermann
Group Editor
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Growing a tooth in the future?

Hopes of growing teeth have been supported by the occurrence of supernumerary teeth in the jaws, as well as fully developed teeth in teratomas. The issue of tooth bioengineering has been taken up again more recently, as scientific breakthroughs in the fields of genetics and developmental biology have led to a completely new level of understanding about how teeth develop. Basically, tooth formation is regulated by a chain of interactions between two different tissues, epithelium and mesenchyme. And importantly, we actually know that the language that cells and tissues use for communication consists of defined signalling molecules.

Currently, the most realistic scenarios for tooth regeneration involve the generation of teeth from stem cells with the capability to form teeth. The technology would be based on traditional experiments that demonstrated more than 40 years ago that proper tooth form when separated epithelial and mesenchymal tissues from mouse embryonic tooth germs are recombined and cultured as transplants.

The question of the origin of cells for human tooth bioengineering is still unanswered. Adult human teeth do contain stem cells but they may not provide a suitable source. Therefore, it is likely that non-dental cells will have to be reprogrammed for the purpose of clinical tooth regeneration. In addition, there are several other remaining challenges such as the issues of tooth size, tooth identity, crown shape, and composition of the mineralized tissues. The creation of functional roots presents perhaps the biggest challenge that needs to be addressed before bioengineering of teeth will be feasible.

Thoughts on CBCT

CBCT is the most significant development in dental imaging during the last 25 years. Concerns have been raised, however, over the radiation doses, which are usually higher than those of conventional dental radiography. Recent reviews indicate that doses from CBCT are typically an order of magnitude greater than those from conventional dental radiography. The health risks from such exposures are also proportionately higher.

The foundations of radiation protection of patients are justification and optimisation. Justification embodies the principle that all exposure to X-rays should give a positive net benefit to the patient. Optimisation is the principle that all exposure should be as low as reasonably achievable. So, where do we go from here?

When we use CBCT, we should never just “press the button” using a standard exposure for everyone, but we should adjust the exposure factors to a level that gives adequate image quality and use the smallest appropriate field of view. These simple steps will reassure our patients that we have their best interests at heart; that is what we really want— isn’t it? [1]

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