Comments on "Features of Sensorimotor Cortex Altered after Teeth Loss and Subsequent Implants Placement in the Maxilla of Rats"

Xu Liang DENG[1,2]

The study by Xue et al investigated neurological changes within the S1 and M1 areas of the sensorimotor cortex during the process of dental implant osseointegration to shed light on the establishment and development of tactile sensibility of dental implants. They found that tooth extraction resulted in an increase in the number of astrocytes with no change to the number of neurons, and that osseointegration of dental implants reversed such histological changes within the S1 and M1 regions of the sensorimotor cortex. It was thus concluded that astrocytes within the sensorimotor cortex were activated in response to loss of masticatory function after tooth extraction, and that restoration of masticatory function through implant osseointegration could reverse such pathological neurological changes. This study thus paves the way for further research into how ossteointegration and osseoperception of dental implants are affected by the interaction between astrocytes and neurons, and corresponding changes to neuron microstructure within the sensorimotor cortex. Other interesting aspects of this study that can be further explored are how the observed neurological changes within the sensorimotor cortex are associated with detrimental changes that occur within the oral cavity when extracted teeth are not replaced by dental implants. These include alveolar bone loss and the extrusion, tilting and shifting of other teeth into the space left behind by the missing tooth. These could in turn lead to the development of new therapeutic strategies and prophylactic measures to prevent such detrimental changes from occurring within the oral cavity, particularly during the lengthy period between tooth extraction and final osseointegration of dental implants. An even more interesting but speculative topic for further research is the possible role that these observed neurological changes might play in the link between masticatory activity and glucose homeostasis, which may have implications for type II diabetes.

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Xu Liang DENG, DDS, PhD
Professor of Prosthodontics, Researcher of dental materials and tissue engineering at Peking University School and Hospital of Stomatology
Associate Dean of Peking University School and Hospital of Stomatology since 2014

Prof Deng is chair of the NMPA Key Laboratory for Dental Materials, deputy director of the National Engineering Research Center of Oral Biomaterials and Digital Medical Devices and deputy director of the Beijing Laboratory of Biomedical Materials. In 2013, he was inducted as a Young Leading Scientist of Scientific and Technological Innovation of the Chinese Ministry of Science and Technology. In 2014, Deng was awarded funding from the NSFC Distinguished Young Scholars Programme. In 2015, he was inducted as distinguished professor of the Changjiang Scholars Programme. In 2016, he received the Shulan Medical Youth Award and Guanghua Engineering Science and Technology Prize. To date, Prof Deng has authored over 180 publications, and has successfully obtained 28 Chinese patents and a series of Class III medical device registrations.

1 Department of Geriatric Dentistry, Peking University School and Hospital of Stomatology, Beijing, 100081, PR China.
2 National Engineering Research Center of Oral Biomaterials and Digital Medical Devices, NMPA Key Laboratory for Dental Materials, Beijing Laboratory of Biomedical Materials, Peking University School and Hospital of Stomatology, Beijing, 100081, PR China.

Correspondence: Prof Xu Liang DENG, #22 Zhongguancun South Avenue, Haidian District, Beijing, 100081, P.R. China. Tel: 86-10-82195637; Fax: 86-10-82195581. Email: kqdengxuliang@bjmu.edu.cn

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