

3rd Euro Congress and Expo on

Dental & Oral Health

June 16-18, 2015 Alicante, Spain

The basis of tactile osseoperception after tooth replacement by a bone-anchored implant

Pascale Habre-Hallage
Saint-Joseph University, Lebanon

The periodontal ligament, that connects the root of the tooth to the jaw bone, contains many mechanoreceptors that encode tooth load when subjects contact and gently manipulate food with the teeth. Tooth loss will remove these receptors and reduce the intra-oral neural input to the brain.

The rehabilitation of edentulism by means of endosseous implants leads to an improvement in the sensory and motor functions but fail to reach the same level of sensitivity as dentate subjects. Patients with a lower limb prosthesis anchored by a percutaneous osseointegrated implant reported that this allowed them to feel the kind of soil they walked on. This sensory improvement coined 'osseoperception' was defined as a perception of external stimuli transmitted via the implant through the bone by activation of receptors located in the peri-implant environment, the periosteum, the skin, the muscles and/or the joints. Hence, it remains uncertain whether this improvement can be ascribed to neural endings in the implant-bone interface itself or to intraosseous neural endings ('osseoreceptors') located further either in the bone marrow or above in the periosteum.

Histological, neurophysiological and psychophysical evidence of osseoperception is available. Yet, from the current evidence it remains unclear whether an altered innervation (from periodontal to peri-implant) may have changed the tactile function of implant-rehabilitated sites.

The identification of the possible sensorimotor cortical adaptive processes that may be associated with the loss of teeth and their replacement by endosseous implants has been also explored by functional magnetic resonance imaging (fMRI).

This presentation will describe, at a cortical level, the basis of tactile osseoperception after tooth replacement by a bone-anchored implant. It will also elucidate other neurophysiological aspects of oral implants, such as their reflex function, and point out their clinical meaning.

Biography

Pascale Habre was born on June 25th 1969 in Mansourieh, Lebanon. She is married and has two boys (twins) of 10 years old. In 1993, she graduated as a dentist at Saint-Joseph University in Beirut. Afterwards, she received a scholarship from the French Government to continue her postgraduate training in Paris. She spent five years in Paris where she had many diplomas. In 1995 she obtained a Postgraduate Certificate in Prosthodontics CESB at Université Paris 7 France and a Certificate in Biological and Medical Sciences (MSBM) at Université Paris 5, France. In 1997, she obtained a Master in Neurosciences from Université Paris 6, France and a University Diploma in Surgical and Prosthetic Implantology (DUICP) from Université Paris 7, France. Shortly after, she was recruited by Saint-Joseph University in Beirut where she has been teaching since September 1998 in the department of Prosthodontics. She gives many lectures to the under-graduate and post-graduate students at the Dental school at Saint-Joseph University. In 2003, she enrolled in the Doctor of Medical Science at the Katholieke Universiteit Leuven (KUL). From 2007 to 2009 she had the opportunity to explore osseoperception by the use of the functional Magnetic Resonance Imaging at Saint-Luc University Hospital in Brussels (Université Catholique de Louvain; UCL). In June 2011, She received her PhD in Biomedical Sciences from (KUL). Currently, she is the director of the masters Program of Prosthodontics at Saint-Joseph University in Beirut and has a private practice limited to prosthodontics and implant rehabilitation.

phabre@hotmail.com