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## Ultraviolet photo-functionalization for speed osseointegration

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Osseointegration is a prerequisite of successful implant stability and is by far the most important factor to consider before establishing any further treatment. Biological ageing of titanium is the time-related degradation of the physiochemical properties of the implant surface. Ultraviolet photo-functionalization (PhF) reverses the ageing process, increases the BIC to almost 100% in what is known as super-osseointegration and therefore increases the strength and the primary stability of implants while decreasing the average healing time. PhF regenerates the lost hydrophilicity caused by biological ageing of titanium and converts titanium surfaces from hydrophobic to super-hydrophilic. It also optimizes the electrostatic status of the surface reverting it from electronegative back to the electropositive status found on fresh titanium surfaces. PhF also removes the significant amount of hydrocarbon that unavoidably accumulates on the surface by time leaving more space for cellular attachment. At molecular level it was shown that PhF of titanium surfaces increases protein absorption enhances osteogenic migration and attachment, as well as osteoblastic proliferation and differentiation. Clinically, PhF allows for more treatment options as shorter and thinner implants can be utilized more frequently without any compromise to the treatment outcome. PhF therefore improves prognosis, decreases morbidity and has a significant impact on clinical practice.

## Biography

Yassir Abdelrahman Hag Elkhidir has completed his MDS in Oral Surgery and Implantology in 2014 from Huazhong University of Science and Technology, China. His work on titanium surface modification has resulted in remarkable improvements in the speed and extent of bone regeneration. Currently he is working in the Department of Oral Implantology and Dentofacial Surgery at the First Affiliated Stomatological Hospital of Jinan University in China.

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