



Journal of Prosthodontics Dentistry
An Official Publication of Bureau for Health & Education Status Upliftment
 (Constitutionally Entitled As Health-Education, Bureau)

Role of Biomimetics In Implant Dentistry

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ABSTRACT

In the field of Dental Implantology, novel techniques and implant designs are being sought to improve the regeneration of dense calcified tissue. Titanium, because of its excellent physical properties along with biocompatibility has been widely used as dental implant material. However, it's Young's modulus of elasticity is higher than that of mineralized tissue. Greater stiffness of Titanium implants leads to improper mechanical loading over surrounding bone tissue which in turn results in bone resorption, implant loosening and ultimately implant failure. To enhance the osteoinductive properties of titanium, numerous attempts have been made, which include modifications in surface properties or coating the surface with a layer of calcium phosphate. The use of coatings with similar composition to that of bone under physiological condition of temperature and pH is a beneficial strategy to accelerate osseointegration during the earliest cicatrization phase. As a result, a novel research field has now emerged in implant dentistry - **Biomimetics – an Addition of bioactive agents onto the Titanium implant surface**, allowing the clinicians to overcome many challenging clinical scenarios.

Keywords: implant, biomimetics, osseointegration, titanium, implant dentistry.

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Website: http://heb-nic.in/jopd	
Received on 25/02/2021	
Accepted on 04/03/2021 © HEB All rights reserved	