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Bio-smart dentistry: Is it myth or truth?

Nagy Abdul-Samee Abdul-Hameed

Misr University for Science & Technology, Egypt

Smart materials are those materials having properties which may be altered in a controlled fashion by stimuli, such as stress, temperature, moisture, pH and electric or magnetic fields. Examples include piezoelectric materials, which produce a voltage when stress is applied or vice versa, shape memory alloys or shape memory polymers which are thermo responsive and pH sensitive polymers which swell or shrink as a response to change in pH. Smart behavior occurs when a material can sense some stimulus from its environment and react to it in a useful, reliable, reproducible and usually reversible manner. These properties have a beneficial application in various fields including dentistry. Shape memory alloys, zirconia and smart seal are examples of materials exhibiting a smart behavior in dentistry. There is a strong trend in material science to develop and apply these intelligent materials. These materials would potentially allow new and ground breaking dental therapies with a significantly enhanced clinical outcome of treatments. The numerous applications they have been put to, no wonder tells us that these smart materials hold a real good promise for the future of dentistry. The aim of the presentation is to show how dentists and dentistry made use of these smart materials for benefits of their patients.

Biography

Nagy Abdul-Samee Abdul-Hameed is currently a Professor and Head of Dental Biomaterials, Consultant Prosthodontics and Vice Dean of Graduate Studies & Researches, Faculty of Oral and Dental Medicine at Misr University for Science & Technology, Egypt. He obtained his Bachelor Degree in Dental Sciences from Faculty of Dentistry, Cairo University, in May 1975 and Master Degree in Prosthodontics from Faculty of Dentistry, Alexandria University in December 1980. He also received Doctor of Philosophy in Dental Biomaterials from the same University in April 1985. He worked as a Demonstrator in Prosthodontic and Dental Biomaterials Departments at Faculty of Dentistry, Mansura University and as an Assistant Lecturer, Lecturer and Associate Professor in Dental Biomaterials Department in the same university. He also served as a Consultant Prosthodontic for 12 years at the Dental Center, King Fahad Hospital, Al-Madinah Al-Menawarah, Kingdom of Saudi Arabia. He is an Associate Professor, Professor and Head of Dental Biomaterials, Vice Dean of Graduate Studies & Researches at the Faculty of Oral and Dental Medicine, Misr University for Science & Technology.

nagyabdulsamee@gmail.com

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