

# Clear mission for ceramic implants

## IAOCI World Congress 2017 in Miami

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From 16 to 18 February, the International Academy of Ceramic Implants (IAOCI) invited participants to its 6<sup>th</sup> International Annual Congress in Miami, Florida. Providing a range of expert speakers, the three-day symposium enabled nearly 100 participants from all parts of the world to deepen their knowledge regarding the basics as well as further possibilities of ceramic implantology.

In his opening words to the 6<sup>th</sup> IAOCI World Congress on 17 February and speaking in front of a large audience, founder and President of IAOCI, Dr Sammy Noubissi, referred to the fact that "in 2011, when the International Academy of Ceramic Implants held its first annual congress, 25 people, including members of the exhibiting companies, participated in the event". Dr Noubissi was clearly proud to present the international auditorium with a similarly international as well as renowned team of excellent expert speakers. The focus

of this year's congress were implants made of zirconium dioxide which aim to reach the capability of titanium implants. However, before this can be achieved numerous long-term studies and case numbers must show reliable results and convincing outcomes to firmly establish and underpin this claim. With this in mind, the IAOCI has set itself the task, to compile and assemble the required data in regular panels, such as the one in Miami, Florida. Hence, participants of the 6<sup>th</sup> IAOCI World Congress discussed in great detail material specific data, surface texture, prosthetic possibilities as well as the biological characteristics of ceramic implants which must be measured against those of their implant siblings made of titanium.

Ceramic implants have a seemingly clear mission: They are set out to make peri-implant inflammation less likely and reach better aesthetic results in, for example, the an-

terior region than their titanium counterparts. In fact, implants made of titanium are more and more suspected to accelerate inflammatory processes in certain cases, or to even initiate inflammation. A few years ago and in a rather dramatic way, such cases were referred to as titanium allergy. Nowadays it is simply described as a hypersensitivity or intolerance to titanium. However, today's knowledge also include that fact that, due to abrasion and corrosion, small titanium particles can become detached from the implant surface and cause intolerances. Aspects of this phenomenon were extensively outlined by such speakers as Volker von Baer, Dr Daniel Olmedo and Dr Elisabeth Jacobi-Gresser in their respective lectures. Furthermore, Dr Jacobi-Gresser and colleagues strongly recommend a patient risk assessment prior to an implant therapy in order to filter out those patients who might develop an intolerance due to titanium debris. "There is an individual and/or genetic predisposition of certain patients to inflammatory reactions caused by titanium particles which could jeopardise an implant therapy's long-term success," said Dr. Jacobi-Gresser. For those identified as risk patients, treatment options with implants made of zirconium dioxide are, according to expert opinions, particularly suitable.

In addition to their immunological compatibility, osseointegrative properties are a decisive aspect of the application of ceramic implants, highlighted Dr Richard J Miron in his speech. Thus, he pointed out that the osseous integration of titanium implants was improved and accelerated by specific modifications in their surface (mainly by sandblasting and etching). Recently, similar procedures have become available for the manufacturers of ceramic implants, adding an improved osseointegration to their advantageous effect on soft tissue regeneration. Moreover, Dr Jens Fischer described in his speech how the diameter of ceramic implants plays an important role in their application. According to Dr Fischer, a recently published study implies that implants made of zirconium dioxide should not feature a diameter smaller than 4.0mm as this would disproportionately increase the risk of fracture.

In his speech on the phenomenon of low-temperature degradation (LTD) in the humid milieu, Dr Jerome Chevalier illustrated that we still need to do some homework on ceramic implants. In certain zirconium dioxide implants, this milieu may lead to a loss of stiffness and stability due to the transition of the chemical phase from tetragonal to monocline. Dr Chevalier added that further efforts in materials research will be necessary in order to further evaluate this phenomenon.

Dr Jaafar Mouhyi added another aspect in his speech on Saturday: Not only do the material features of the implant surface, the physical properties of the implant body and its design affect possible peri-implant complications, but implant positioning is another important factor. If a functional prosthetic restoration cannot be achieved due to a



Fig. 1



Fig. 2

**Fig. 1:** From left: Dr Jens Tartsch, Prof. Dr Sami Sandhaus, Dr Sammy Noubissi (IAOCI founder and President). **Fig. 2:** More than 100 participants attended the IAOCI congress in Miami.

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disadvantageous implant position, this could be the starting point of peri-implant inflammations, states Dr Mouhyi. However, ceramic-implant manufacturers have recently found a way to prosthetically adjust incorrect implant positioning to some extent: Dr Jens Tartsch and Dr Jochen Mellinghoff, M.Sc., discussed the prosthetic flexibility and advanced prosthetic applications of screwed two-piece zirconium dioxide implants.

In conclusion, the congress makers behind the 6<sup>th</sup> IAOCI World Congress must be complemented for giving the topic "ceramic implants" a rare but broad basis for discussion. However, further investigations and symposia of this calibre will be necessary in order to establish zirconium dioxide as a fully adequate alternative to titanium implants. As predicted, there were even more ceramic implant manufacturers after the last International Dental Show in Cologne, Germany,—good prospects for patients who wish to be provided with a metal-free implant-based restoration.

The 7<sup>th</sup> IAOCI World Congress will be held in California, USA, from 15 to 17 February 2018. For more information please visit: [www.iaoci.com](http://www.iaoci.com).