Yttrium stabilized zirconia

The zirconia abutments ZirDesign and ATLANTIS Zirconia are made of yttrium-stabilized zirconium oxide (zirconia). Several positive characteristics of zirconia, such as biocompatibility, color and mechanical properties, make the material suitable for use in modern dentistry.

Mechanical properties of zirconia in general have been extensively investigated in the scientific literature and zirconia clearly measures up to its equivalent made of other materials. For dental applications and particularly for implant abutments, mechanical tests have been performed with promising results, both in the laboratory and in the clinical situation, although one study shows higher tendency for wear for zirconia abutments compared to abutments in titanium.

The biocompatibility of zirconia in general has been extensively evaluated. No local or systemic adverse reactions or cytotoxic effects were found correlating to the zirconia material. In vivo bone response to zirconia and inflammation adjacent to the zirconia material have been analyzed, showing good biological results. Moreover, it has been shown in several studies that neither bacteria nor pathogens seem to adhere to zirconia to the same extent as to other materials. In one study, however, the adherence of bacteria was shown to be similar for both titanium and zirconia.

In humans, zirconia abutments in general offer sufficient stability and reveal good clinical result after up to 4 years in function. Good esthetic results with zirconia abutments, including ATLANTIS, are further documented in several clinical reports. In summary, yttrium stabilized zirconia abutments cope well with the masticatory forces, oral biology and esthetic demands in implant treatment.

For more information about the clinical use of the Atlantis abutment, please read the Atlantis Scientific Review www.dentsplyimplants.com


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