

OsseoSpeed® implant surface —more bone more rapidly

What is OsseoSpeed?

OsseoSpeed is a moderately rough implant surface derived from a grit blasted titanium surface (TiOblast) with an additional chemical treatment. The surface characteristics show incorporation of small amounts of fluoride ions into the titanium oxide layer¹⁻⁷, a distinct microscale pattern and a unique topography^{1, 2, 4, 8-12}. Chemical and physical properties of the OsseoSpeed surface have been thoroughly investigated and reported in the scientific literature^{1, 3, 8, 10, 11, 13-21}. The OsseoSpeed implant surface was introduced on the implants in the Astra Tech Implant System in 2004, on DS PrimeTaper Implant System in 2021 and on DS OmniTaper Implant System in 2022.

Extensive scientific evidence

Numerous publications have reported similar²²⁻²⁵ or increased bone formation and stronger bone-implant contact at the OsseoSpeed surface compared to its ancestors (TiOblast and machined titanium surfaces)²⁶⁻³³ at shorter healing times³⁴⁻³⁶. These results are also confirmed through human histology analyses³⁷⁻⁴⁰ and in clinical studies^{41, 42}.

The performance of the OsseoSpeed surface is documented in various experimental models with different focus: *In vivo* models^{6, 43-73} and *In vitro* models^{5, 20, 74-85}. During the early healing, clinical studies* report on unchanged implant stability quotient (ISQ) values and shorter healing times for OsseoSpeed implants^{41, 42, 86-88}. In the long-term follow-up, data on OsseoSpeed implants shows stable or increasing ISQ values⁸⁹⁻⁹¹ and well maintained marginal bone⁹²—in fact, even better maintained marginal bone when compared to major competitors' surfaces⁹².

Improved osseointegration

Factors such as enhanced osteoblast differentiation^{2, 7, 26, 75, 93, 94}, biocompatibility^{15, 95-97} and thrombogenic properties⁸ of the OsseoSpeed surface have been attributed to the improved and more rapid osseointegration^{26-36, 41, 42, 86-88}.

*For information on OsseoSpeed and Astra Tech Implant System in clinical use, please refer to www.dentsplysirona.com/science

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