

A Prospective, Multicenter, Randomized-Controlled Five-Year Study Of Hybrid And Fully-Etched Implants For The Incidence Of Peri-Implantitis: A Review And Commentary

By Dr. Richard Lazzara, DMD, MScD

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Test Implant



Full Osseotite Surface

Control Implant



Hybrid Osseotite Surface

Article Summary

This prospective randomized-controlled study was designed to assess the incidence of peri-implantitis for Full Osseotite[®] Surfaced Implants (FOSS) as compared to hybrid-Osseotite Surfaced Implants.

Study implants: FOSS “test” implants and hybrid-Osseotite “control” implants, were placed in a single-stage approach with the seating surface

level with the crestal margin of the alveolar bone. The implants were allowed to heal for two months and were then provisionalized. All implants were placed in a single-stage protocol with healing abutments. Prostheses were placed at eight weeks post-implant placement.

Follow-up evaluations included Sulcus Bleeding Index scores (SBI), probing for suppuration, assessments for mobility and periapical radiographs to identify radiolucencies and crestal bone levels.

One hundred and twelve patients were enrolled and 165 test and 139 control implants were placed supporting 127 prostheses. No substantial differences in mucosal health outcomes between test and control groups were observed throughout the five-year follow-up. For both groups, the bleeding-on-probing scores were no different. There was one case of peri-implantitis reported over the five years of observation and this was for a hybrid implant.

Radiographic analysis of crestal bone regression showed that the mean change from baseline (provisionalization) was less for test implants in comparison to control implants (P<.01).

The results of this five-year study showed no increased risk in adverse soft-tissue outcomes or peri-implantitis for FOSS test implants versus the controlled hybrid-Osseotite Implants.

Sulcus Bleeding Index

		Hybrid Control (%)	FOSS Test (%)
SBI Scores	0	83.5	84.3
	1	13.6	13.1
	2	2.6	2.4
	3	0.3	0.2

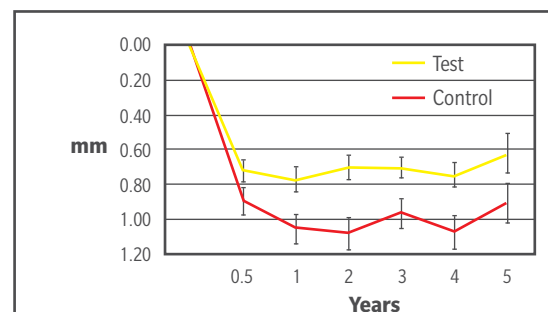
84% of all SBI scores were “0” (absence of bleeding) and 13% of scores were “1” - isolated bleeding spot for both FOSS and hybrid implants.

Probing Depth Scores (Number Of Sites Probed)

		Hybrid Control (%)	FOSS Test (%)
Probing Depths: Change From Baseline	0 ≤ 1	147	119
	1.1 ≤ 3	36	35
	3.1 ≤ 5	0	0
	> 5	0	0

No implant (test or control) showed changes in probing depths greater than 3.0 mm.

FOSS Regressive Bone Remodeling



FOSS Implants averaged less bone recession vs. hybrid implants over the five year follow-up period.



Richard Lazzara, DMD, MScD
Shares His Thoughts on the Clinical Relevance of This Study

As more and more implants are placed, one might expect to see an increase in the number of complications for a variety

of reasons. These complications can be mechanical or physiological. Recently, there seems to be a lot of discussion about peri-implant disease and bone loss around implants. The incidence of peri-implantitis has been reported to be as high as 14%.¹ Because peri-implantitis may lead to progressive bone loss and is difficult to treat, it often leads to implant failure. Implants with a roughened collar surface are perceived to be at a higher risk for periimplantitis and other mucosal complications.

Of particular concern, is the introduction of a variety of surface technologies developed in an effort to improve bone support for the prosthesis. Biomet 3i has been concerned about surface topography and its effect on long term dental implant success since the *Osseotite* Surface was first introduced in 1995 and that was the reason that the hybrid design was incorporated into the initial implant.

The prospective, multicenter, randomized-controlled fiveyear study of hybrid and fully-etched *Osseotite* Implants (FOSS) was conducted to determine whether there was any difference in the incidence of peri-implantitis between the two surface designs, FOSS and hybrid *Osseotite*. With over five years of post-loading evaluations, there was one declaration of peri-implantitis associated with a hybrid implant. Clinical probing and radiographic assessments did not reveal differences between groups in mucosal health outcomes or other signs of peri-implantitis.

Conclusion

In this randomized-controlled study, there was no increased incidence of peri-implantitis for FOSS Implants in comparison to hybrid *Osseotite* Implants.²

These findings are consistant with previous studies where it was shown that the *Osseotite* Implant Surface had no difference in soft tissue response than a machined surface.^{3,4}

As clinicians, we must consider numerous factors in deciding on treatment options for our patients. For dental implants, a combination of good osseous fixation

properties and a low risk for peri-implantitis is desired. The *Osseotite* Surface has more than a decade of clinical use and evidence based research to support its efficacy.⁵⁻¹² In this study, implants designed with the *Osseotite* Surface did not adversely affect mucosal health or increase the risk of peri-implantitis.

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