

Astra Tech Implant System[®] and OsseoSpeed[®]

Superior marginal bone maintenance



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Introduction

Dental implants to replace missing teeth have become a predictable treatment modality for partially and totally edentulous patients with documented long-term survival rates. Implant success has been defined in relationship to the amount of marginal bone loss (MBL) occurring over time. Marginal bone preservation is an important factor to achieve excellent esthetic results. However, it is a clinical reality that crestal bone resorbs after tooth extraction or tooth loss.

Background

There has been growing interest and skepticism in the influence of surface preparation on the maintenance of marginal bone since the introduction of the first microtextured implants in the early 1990's. In comprehensive systematic review published in the Cochrane Database in 2014, there appeared to be little evidence that the implant design or surface modifications affected the marginal bone maintenance.

New study reaffirms Astra Tech Implant System and OsseoSpeed as superior in marginal bone maintenance*

For the first time, a meta-analysis looks at how three premium brands' implant surfaces influence marginal bone maintenance. According to the study, OsseoSpeed illustrated superior performance, with a statistically significant difference.

Dr. Michael R. Norton, who co-authored the study with statistician Mikael Åström, was compelled to do this meta-analysis for two reasons.

- First, he was surprised that no meta-analysis had evaluated differences in marginal bone loss due to different surface modifications among currently marketed premium brands, although the type of surface might be crucial.
- The second stems from the findings of a published article by Dr. Dirk Duddeck et al., comparing premium implant surfaces to look-alike implants. Their conclusion favors premium implant surfaces as these are free

of foreign materials and backed by reliable clinical documentation. The authors found that copycat implants had impurities such as organic residues and traces of iron or aluminum and, apart from case reports, no clinical documentation.

In the recently published meta-analysis, Dr. Norton points out that the above is likely to affect osseointegration and marginal bone maintenance. This may cause peri-implant infections and compromised function when using low-priced clones.

Astra Tech Implant System and OsseoSpeed[®] perform better among top 3 brands.

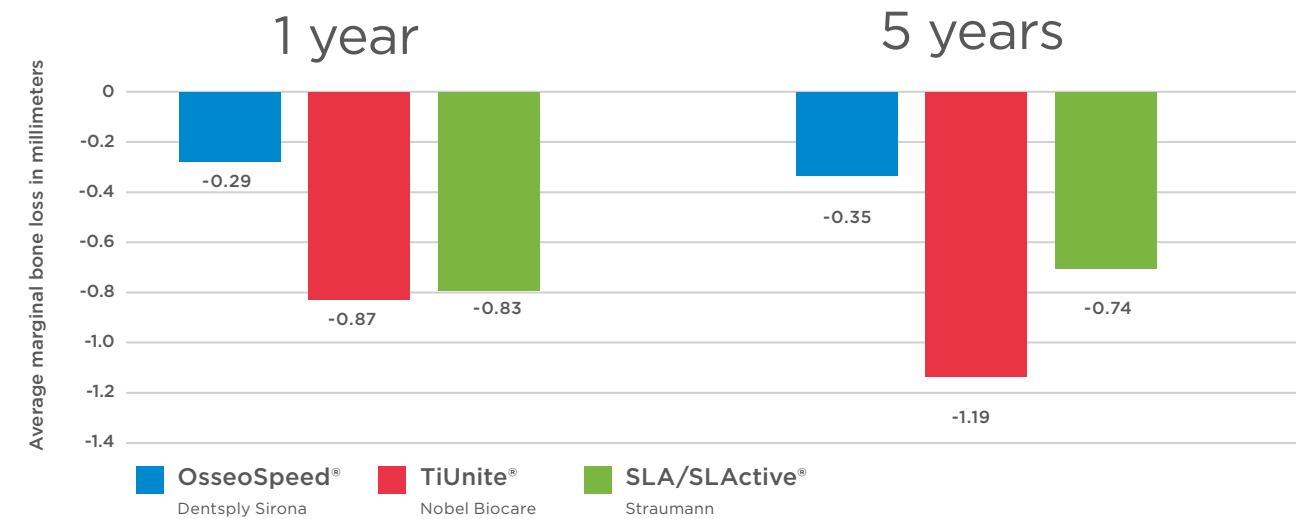
Dr. Norton recognized that premium implants are better at maintaining the bone but wanted to understand if the top 3 premium brands were in fact equal. To answer this, he, and Mikael Åström performed a meta-analysis of the entire body of literature concerning OsseoSpeed (Dentsply Sirona), TiUnite (Nobel), and SLA/SLActive (Straumann).

The following outlines key findings of the meta-analysis study.

OsseoSpeed performs significantly better – and offers higher predictability

- OsseoSpeed had, on average, the least marginal bone loss in both 1-year (-0.29 mm) and 5-year (-0.35 mm) follow-ups.
- There was a statistically significant difference between OsseoSpeed and TiUnite and SLA/SLActive in both 1-year and 5-year follow-ups.
- In the 5-year follow-up, there was no statistically significant difference between TiUnite and SLA/SLActive. (fig. 1)

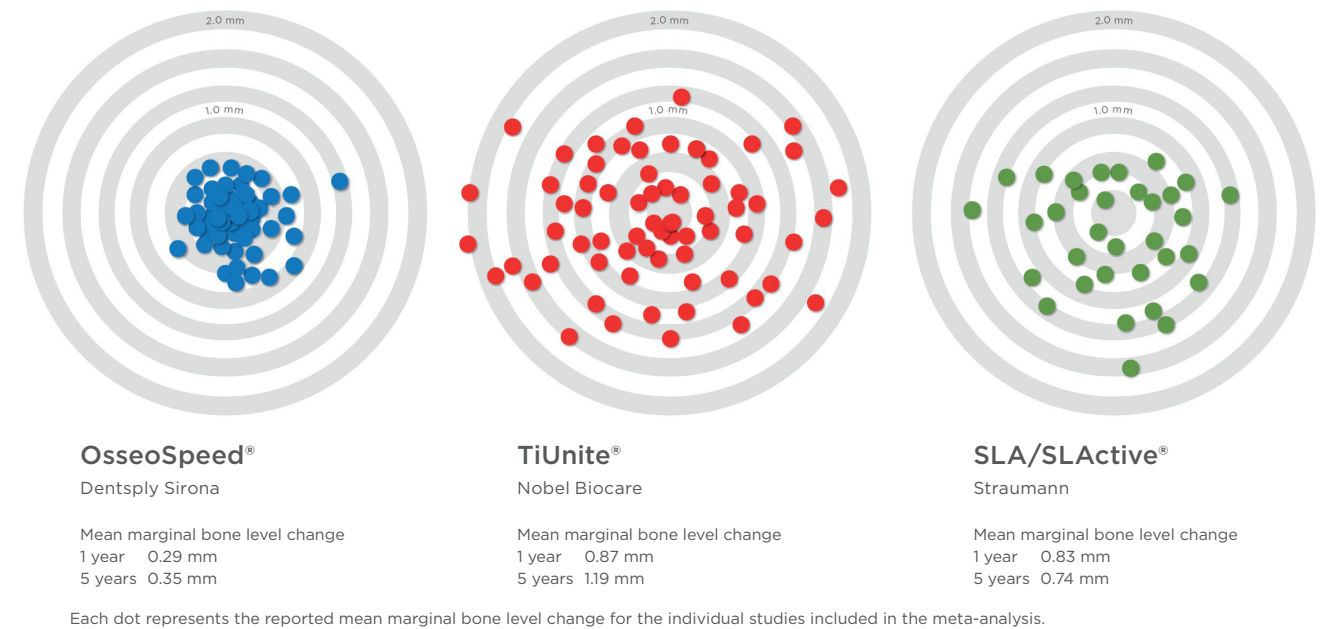
(fig. 1)



Highest predictability with OsseoSpeed

The OsseoSpeed surface, a key feature of the Astra Tech Implant System, outperforms other premium surfaces in a new meta-analysis, demonstrating significantly better marginal bone maintenance.

- OsseoSpeed offers more predictable outcomes with less variation around the mean and less spread.



Conclusion

In the study's conclusion, Dr. Norton and Mikael Åström state that OsseoSpeed demonstrates superior marginal bone levels—which is vital to achieving the best possible functional, biologic and esthetic outcomes over the long term.

“All three have remarkably little bone loss; however, the facts are the facts. We did the statistical analysis on a prospective basis, in other words, we did not know what the outcome would be. It shows a statistically significant difference between the amount of bone loss, and OsseoSpeed is the best of the lot”, says Michael Norton.

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