Documentation on MicroThread™
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MicroThread™ – biomechanical bone stimulation

The principles of retention elements in terms of smaller sized minute threads on the implant neck, MicroThread™, was introduced on the Astra Tech Implant System™ as early as 1992 and is one of the important key features of the Astra Tech BioManagement Complex™.

The size and shape of the increased retention elements have been thoroughly investigated [1]. The peak stress values in the bone can be dramatically reduced with optimal design of the minute threads , particularly when combined with a conical implant abutment connection located under the level of the marginal bone [1–4]. It is suggested that the load transfer characteristics of the implant is dependent on the size and design of the implant neck [5–7]. In fact, the optimal load distribution that MicroThread offers counteract marginal bone resorption [8]. A great deal of pre-clinical documentation explores the tissue healing [9–25]. Benefits of MicroThread compared with a smooth neck in terms of established bone-to-implant contact [26, 27] and maintained marginal bone levels are also documented [28–30].

Extensive clinical data (> 80 published articles) clearly shows that the MicroThread on the Astra Tech implant is a safe and predictable choice in the short and long-term perspective. MicroThread preserved the bone better than an implant without MicroThread in a 2-year follow-up study [31], in a 3-year randomized controlled study [32], and when placed immediately into extraction sockets [33]. Further, it does not matter for the bone if the neck portion of the implant is straight or conical [34]. Only one published study on implants with MicroThread vs. without MicroThread showed no difference in terms of 1-year marginal bone evaluation [35]. As reported in prospective studies applying conventional surgical techniques mean marginal bone level changes are small, 0.3 mm after 5–10 years of function [36–42].

MicroThread maintains the marginal bone and offers thereby a good foundation for a long-term esthetic result.

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