

Short implants

Implant placement in the posterior regions can be limited due to physical conditions, e.g. limited vertical bone height due to the expansion of the maxillary sinus or the proximity to the inferior alveolar nerve. Another complicating factor in posterior regions is the general exposure to greater loads than in anterior regions.

Historically, clinical studies have reported on low survival rates for short implants. These studies describe implants with machined surfaces, mostly placed in posterior regions with higher loads and softer bone compared with more anterior regions¹⁻¹¹. More recent clinical studies on short implants with rougher surfaces report survival rates similar to implants in general¹²⁻²². Results from several clinical studies on Astra Tech implants show that the survival rates for shorter implants are similar to longer implants^{14, 23-26} and that there is no correlation between implant length and marginal bone level change¹⁴.

There are several review articles discussing the impact of implant length on the clinical outcome^{10, 11, 30-32}. In an extensive review, Renouard and Nisand concluded that the survival rates for short implants were found to be comparable with those obtained for longer implants placed under similar conditions, when using appropriate surgical technique and implants with a rough surface¹¹.

The Astra Tech short implant, OsseoSpeed™ 4.0 S, has been developed to allow for implant placement in clinical situations where there is limited vertical bone height. It has the same features and surface as the OsseoSpeed™ implants and has a length of 6 mm. In vitro and animal experiments indicate that the OsseoSpeed surface leads to increased bone formation and stronger bone-to-implant bonding at shorter healing times^{27, 28}. This is especially valuable in clinically challenging situations e.g. in situations with a reduced bone quantity. Results from a clinical study comparing OsseoSpeed™ 4.0 S with 11 mm implants in the posterior region indicate that treatment with short implants have equally good results on maintaining marginal bone levels compared to standard length implants²⁹.

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