

## Histologic and histomorphometric findings from retrieved, immediately occlusally loaded implants in humans.

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### Abstract

**BACKGROUND:** The immediate loading treatment concept can be successfully used in implant dentistry. Bone cells migrate onto the implant surface and establish a stable anchorage on the titanium surface. When implants are loaded immediately after surgery, there is a high long-term success rate of the implant-supported reconstruction. Based on histologic observations from different animal studies, the interface of immediately loaded implants can have a direct bone-to-implant connection without any fibrous tissue formation. Mature bone formation is dependent on the loading period. The aim of this study was to demonstrate a histologic analysis of retrieved, clinically stable immediately loaded implants with different implant designs and surfaces. An objective demonstration of the bone-implant interface was presented for the implant systems used.

**METHODS:** A total of 29 implants with different implant designs and surfaces were retrieved from patients who were treated with implants using an immediate loading protocol and fixed immediate restorations placed the same day after surgery. The loading period was between 2 and 10 months. The bone-implant interface was examined histologically and histomorphometrically.

**RESULTS:** A high bone-to-implant percentage of 66.8% (+/-8.9%) was found in the examined retrieved implants. Some marginal bone resorption was observed in the crestal part of the implants.

**CONCLUSION:** According to the present histologic and histomorphometric evaluation of retrieved, clinically stable implants, immediate occlusal loading can present a high level of bone-to-implant contact in humans.

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