

OUTCOMES OF IMMEDIATE VERSUS EARLY IMPLANT LOADING IN PARTIALLY EDENTULOUS PATIENTS: 12-YEAR REPORT FROM A MULTICENTRE RANDOMIZED CONTROLLED TRIAL



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PURPOSE. To compare implant failure, complication rates and radiographic bone level changes of immediately- versus early-loaded non-occlusal dental implants in partially edentulous patients after 12 years of function.

MATERIALS AND METHODS. 80 partially edentulous patients requiring dual-implant-supported restorations were enrolled in this trial at five dental clinics. They were randomized into two equal groups (n=40) in order to receive implants loaded either immediately and non-occlusally (test group) or early (control group). To be included in the study, implants had to be inserted with torque ≥ 30 Ncm. Patients in the test group received immediately-loaded non-occlusal provisional restorations, while in the control group, healing abutments were attached and implants were left to heal unsubmerged. Definitive prostheses with full occlusal contact were fitted 2 months after surgery. The outcomes considered were implant failures, complications, and radiographic bone level changes.

RESULTS. Eighty-one implants were immediately loaded and 80 were early loaded. Twenty-five patients were lost before completion of the 12-year follow up: fourteen patients from the test group versus 11 patients from the control group. Two implants failed in the same patient from the control group. Four complications occurred in the test group and five complications occurred in the control group. There were no statistically significant differences between groups in terms of implant failures (patient level, 1/29 vs. 0/26, 3.4% vs. 0%, difference 3.4%; 95% CI: -0.5;7.3; P = 0.339) or complications (patient level, 4/26 vs. 5/29, 15.4% vs. 17.2%, difference 1.8%; 95% CI: -1.7;5.3; P = 0.853).

After 12 years, patients in the test group had lost an average of 1.41 mm (95% CI: 0.67, 2.05) of peri-implant bone versus 1.62 mm (95% CI: 0.96, 2.28) in patients from the control group. There were no statistically significant differences between immediate and early loading strategies in terms of peri-implant bone level changes (difference 0.21 mm; 95% CI -0.42, 0.84; P = 0.45). There were no statistically significant differences in clinical outcomes among centres.

CONCLUSIONS. Once adequate primary stability is achieved, no statistically significant difference in the outcomes considered was observed between immediately- and early-loaded implants up to 12 years after loading.

CONFLICT OF INTEREST STATEMENT

Tommaso Grandi serves as consultant for J Dental Care, Modena, Italy. However, this study was completely self-financed, and no funding was sought or obtained, not even in the form of free material.