

SuperSplint® Prefabricated Immediate Implant-Splinting System

IMMEDIATE IMPLANT SPLINTING SUPERSTRUCTURE for EXISTING DENTURE: A FIVE-YEAR STUDY

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Abstract

Many denture wearers experience discomfort and speech difficulty due to ill fitting dentures caused by progressive bone loss. Unfortunately, the cost of implants with fixed or removable prostheses is often prohibitive to many. This presentation introduces a universal prefabricated superstructure and abutment mechanism for immediate implant splinting that eliminates clinical impressions and expensive gold castings, providing therapy for under \$350.00.

Designed for use with osteocompressive immediate-load implants, this chairside implant-splinting prosthesis utilizes the patient's existing denture for one-visit surgery and restoration. This presentation will feature one clinical case, from diagnosis to step-by-step immediate-load implant placement, and the components for day-of-surgery procedure installation of the immediate chairside implant-splinting prosthetic system.

Material and Method

In a five-year study, three implant-splinting gold bar superstructures of noble alloys were formulated, tested, and clinically studied for size, quality and prosthetic function in conjunction with three abutment types having coupling geometry up to 65° trajectory. In this study, involving 32 patients at four sites, we evaluated these immediate chairside procedures using superstructures and abutment assembly systems to support existing lower dentures. All implants were loaded the day of surgery using the science of osteocompression.¹⁻⁴

Twelve patients received conventional Ackermann-like gold bars having elastic modulus greater than bone, with and without gold clips. Six of these patients had morse tapered abutments with a mesial distal hole to receive a gold bar secured by occlusal screws (Type A). Six received morse tapered abutments with two prongs for crimping the gold bar in place (no occlusal screw)(Type B).

Twenty patients received Type C prosthetic modality, a thinner gold bar, fully annealed, with elastic modulus lower than bone. The morse tapered abutment secured this gold bar with a threaded occlusal screw cap. The clinical advantage of Type C modality permitted disassembly for clinical examination of implants, treatment and/or implant retrofitting. Immediately following implant placement, all dentures were soft relined at implant areas only, and placed into immediate function.

Conclusion

Type C prosthetic implant splinting modality was more user friendly and cost effective in clinical application than A and B. The fully annealed gold bar with coupling abutments resolved parallel issues, dynamic implant moment force overload, and functions as a suspension bridge cable assembly to flex with mandibular demands, preventing class II cantilever implant exfoliation.

¹Valen M and Locante WM: LaminOss® Immediate-Load Implants: Part I - Introducing Osteocompression in Dentistry.

J Oral Implantology, 26(3):177-184,2000

²Block CM, Tillmanns HWS, Meffert RM, and Zablotzky MH: Histologic evaluation the LaminOss® osteocompressive dental screw: A pilot study.

Compendium, 18(7):676-685, 1997

³Otter MW, Palmieri VR, and Cochran GVB: Transcortical streaming potentials are generated by circulatory pressure gradients in living canine tibia.

J Orthopaedic Restoration, 8:119-126, 1990

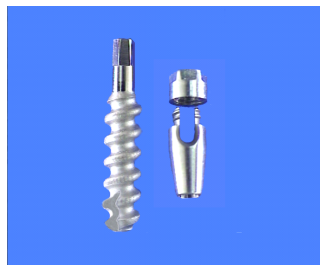
⁴Salzstein RA and Pollack SR: Electromechanical potentials in cortical Bone-II. Experimental analysis.

J Biomechanics, 20(3):271-280, 1987

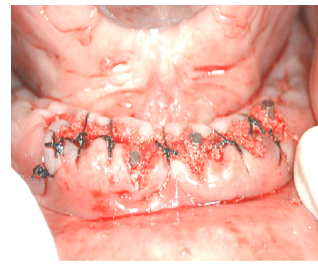
SuperSplint® Prefabricated Immediate Implant-Splinting System



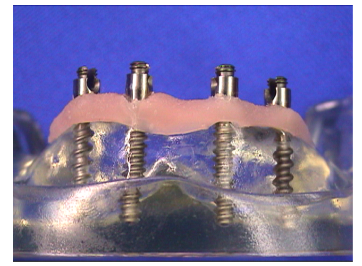
1 Cut lingual window from second bicuspid left to right; mark implant sites.



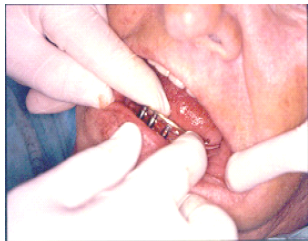
2 LaminOss® implant and SuperSplint® Morse-tapered abutment with removable cap.



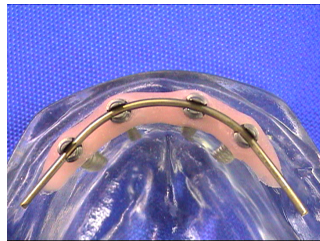
3 Implant in place, grafted with OsteoGen® inferiorly and superiorly.



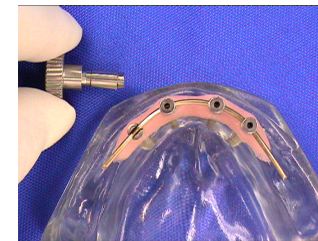
4 Rotate abutments mesio-distally, aligning slots to receive gold bar.



5 Place gold bar securely into abutment slots.



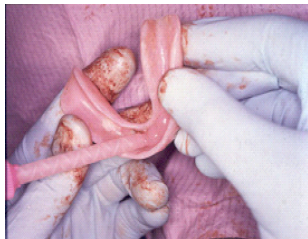
6 Gold bar is metallurgically designed to accommodate abutments that are not parallel.



7 Screw occlusal abutment caps into place using the THUMBSCREW DRIVER.



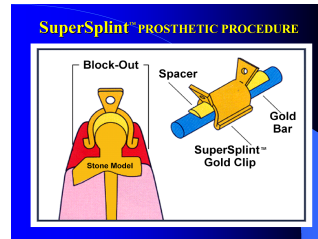
8 Abutments are ready to be tapped into place using the ABUTMENT SEATING instrument and surgical mallet.



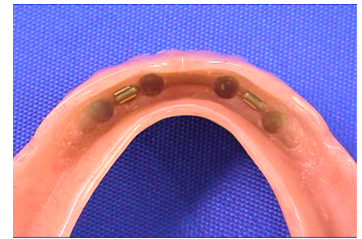
9 Soft reline denture in the implant areas only.



10 Remove any excess reline material, especially under the gold bar.



11 Provide your laboratory technician with written instructions.



12 Gold clips may be added approximately six months after surgery.

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