The purpose of this study was to measure the distance from the implant-abutment connection (IC) to the first bone to implant contact (FBIC) on both immediately loaded stabilized and conventionally loaded locking taper implants.

Materials and Methods

• 16 Locking-taper implants (Bicon, Boston, MA)
• 8 patients (7 women)
• Mean age of 58.2 years
• 13 implants placed in the maxilla and 3 in the mandible, 12 on posterior areas, 4 on anterior areas.
• 11 implants were stabilized by splinting to adjacent teeth and loaded the same day as implant placement
• 5 implants were loaded 3 months after placement.
• Standardized periapical x-rays were obtained of the day of implant placement, crown insertion and on a recall appointment.
• All implants were restored with Integrated Abutment Crowns (A polyceramic material chemically bonded directly to the implant abutment)

Immediate Loading-Stabilization Technique

• Implant placement with conventional procedures
• Place the acrylic temporary sleeve onto the selected abutment and the abutment inside the implant well (with finger pressure only).
• Place temporary material into the vacuum-formed template and insert template over acrylic sleeves and strut intraorally to form the transitional prosthesis.
• Remove template, finish it and polish it.
• Bond transitional prosthesis to adjacent teeth for enhanced stability.
Bone Levels around Immediately Loaded-Stabilized vs. Conventionally Loaded Locking-taper Implants

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Immediate Loading-Stabilization Technique
Results

• The average distance between the implant abutment connection and the first bone-to-implant contact for immediately loaded-stabilized locking taper implants at crown insertion was 0.81mm and 1.01mm for conventionally loaded. Slightly higher bone loss was observed on conventionally loaded locking-taper implants from the day of implant placement to the day of insertion of the final restoration.

• The average distance between the implant abutment connection and the first bone-to-implant contact for immediately loaded-stabilized locking taper implants at the recall appointment was 1.06mm and 0.81mm for conventionally loaded. Slightly higher bone loss was observed on immediately loaded locking-taper implants from the day of insertion of the final restoration to the recall appointment.

Conclusion

• The IC-FBIC distance for locking taper implants is less than what has been documented for conventional screw-retained implants. It is hypothesized that the locking taper connection provides for an environment that leads to the preservation of the bone around it.

• More studies are necessary to evaluate the differences between the bone loss around immediately stabilized and conventionally loaded locking taper implants.

Calibration of the X-Rays

In order to obtain accurate measurements, the digital x-rays were calibrated by:
1- the use of the paralleling technique
2- the Digora® for Windows 2.1™ software using the distance measurement method of calibration (since the exact length/width of the implants is known)