OSSEODENSIFICATION IS A NOVEL IMPLANT PREPARATION TECHNIQUE THAT FACILITATES RIDGE EXPANSION BY COMPACTION AUTOGRAFTING.

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Introduction:

- Osseodensification is a non-excavating implant site preparation technique.
- Creates a densified layer of surrounding bone through compaction autografting while simultaneously plastically expanding the bony ridge at the same time.
- Autografting occurs along the entire length of the osteotomy

Purpose:

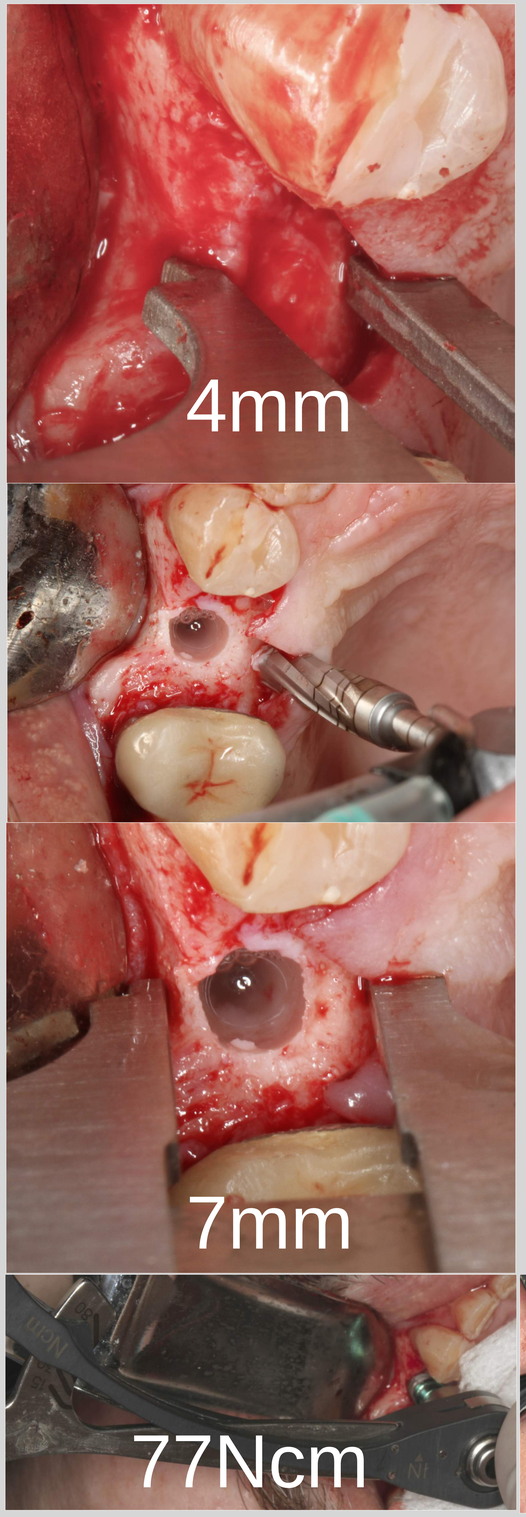
- The purpose of this case series report is to evaluate the amount of ridge expansion achieved with osseodensification as directly measured in millimeters.

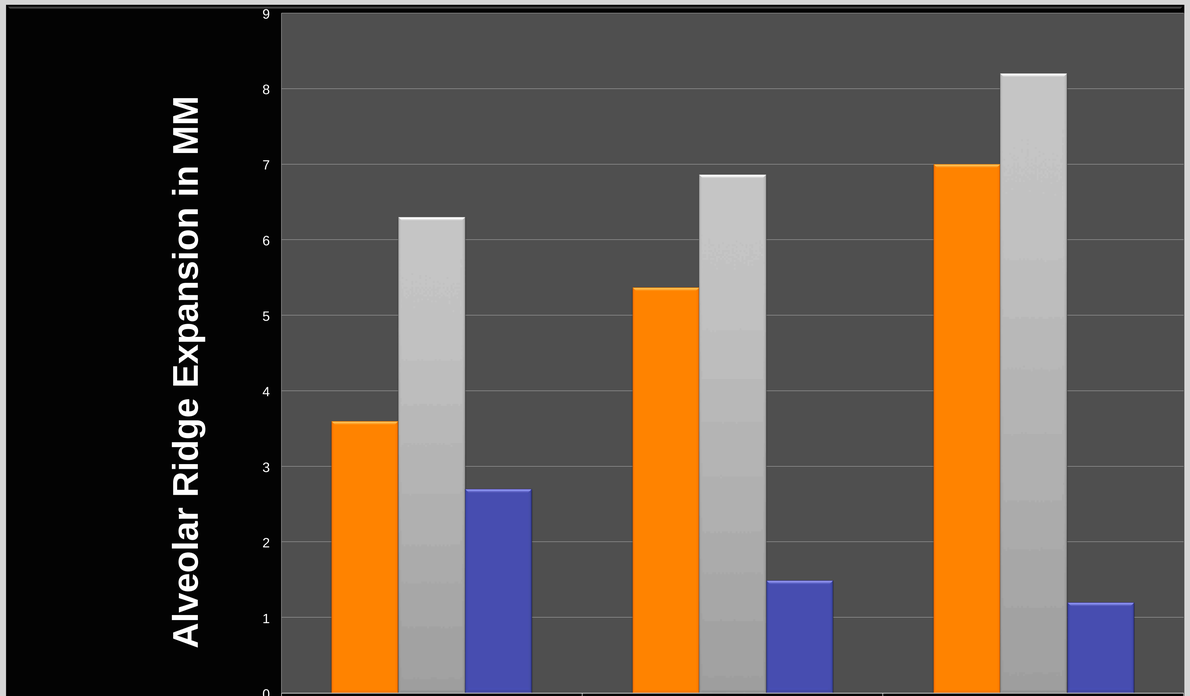
Materials and Methods:

- 28 implants were placed in 21 patients.
- Alveolar ridge widths were broken down into 3 groups;
  - Group 1: 3-4 mm (n=9)
  - Group 2: 5-6 mm (n=12)
  - Group 3: 7-8 mm (n=7)
- Each ridge was measured utilizing bone calipers at two levels, crestal and an apical position (10 mm apical to the crestal measurement) prior to and post osteotomy preparation.
- Post implant placement insertion torque values were registered and ISQ values were documented.

Results:

- 15 implants were placed in the maxilla and 13 in the mandible.
- Crestal expansion showed greater expansion.
- Group 1 showed a **mean ridge expansion of 75%** post osseodensification (3.6 mm → 6.3 mm).
- Group 2 showed a **mean ridge expansion of 27%** post osseodensification (5.37 mm → 6.86 mm).
- Group 3 showed a **mean ridge expansion of 17%** post osseodensification (7.0 mm→ 8.2 mm).
- The average insertion torque was **61Ncm** and ISQ value was **77**.





	Group 1 (3-4mm)	Group 2 (5-6mm)	Group 3 (7-8mm)
Pre Expansion	3.6	5.37	7
Post Expansion	6.3	6.86	8.2
Expansion Value	2.7	1.49	1.2

Conclusions:

Based on the limitations of the present study it can be concluded that:

- Greater bone expansion occurred at the coronal position compared to the apical.
- The greatest percentage of bone expansion was recorded on initially narrower ridges compared to wider ridges.
- All implants placed in this study had optimal primary stability with insertion torque values ≥50 N/cm and ISQ values ≥68.
- Osseodensification is a biomechanical site preparation technique that preserves bone bulk and allows for predictable ridge expansion with enhanced primary stability.