



NOVABONE[®]

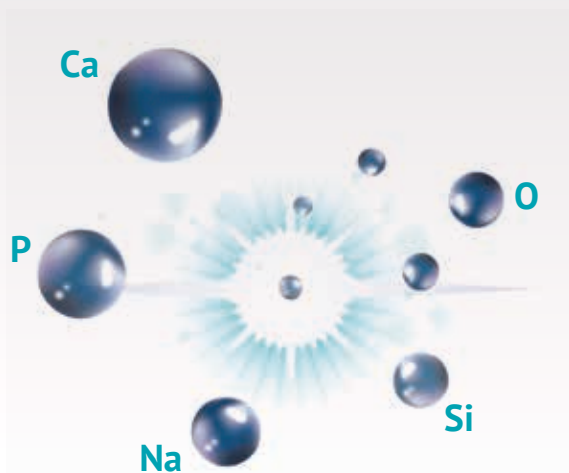
Dental Putty
the synthetic solution to bone regeneration



Uncommon handling, uncompromised results

Unique Formulation

NovaBone® Dental Putty is 100% synthetic and fully resorbable. It is composed of calcium phosphosilicate (CPS) particles in a bimodal size distribution combined with a polyethylene glycol and glycerine binder. The binder improves handling and aids in maintaining the space between the particles, which facilitates revascularization after implantation. The bioactive CPS component makes up 70% of the putty by volume. Upon implantation, the water soluble binder is absorbed within 24 to 72 hours, creating a 3-dimensional porous scaffold that facilitates diffusion of blood and tissue fluids through the matrix. The smaller CPS particles (32-125 μm) are more rapidly resorbed, providing the initial burst of Ca and P ions. Subsequently, the larger particles (90-710 μm) react, and being more resistant to resorption, continue the process of bone regeneration.



Osteostimulative & Osteoconductive

Unlike most synthetic grafts that are only osteoconductive, bioactive NovaBone® Dental Putty also has an “osteostimulative” effect. After implantation, surface reactions result in absorption of the graft material, a controlled release of Si, Ca, and P ions, and concurrent new bone formation. These surface reactions result in an osteostimulative effect, defined as the stimulation of osteoblast proliferation in vitro as evidenced by increased DNA content and elevated osteocalcin and alkaline phosphatase levels. In vitro gene array analysis has confirmed that when human primary osteoblasts are exposed to extracts of CPS, upregulation of several gene families occurs.

Superior Delivery System & Handling

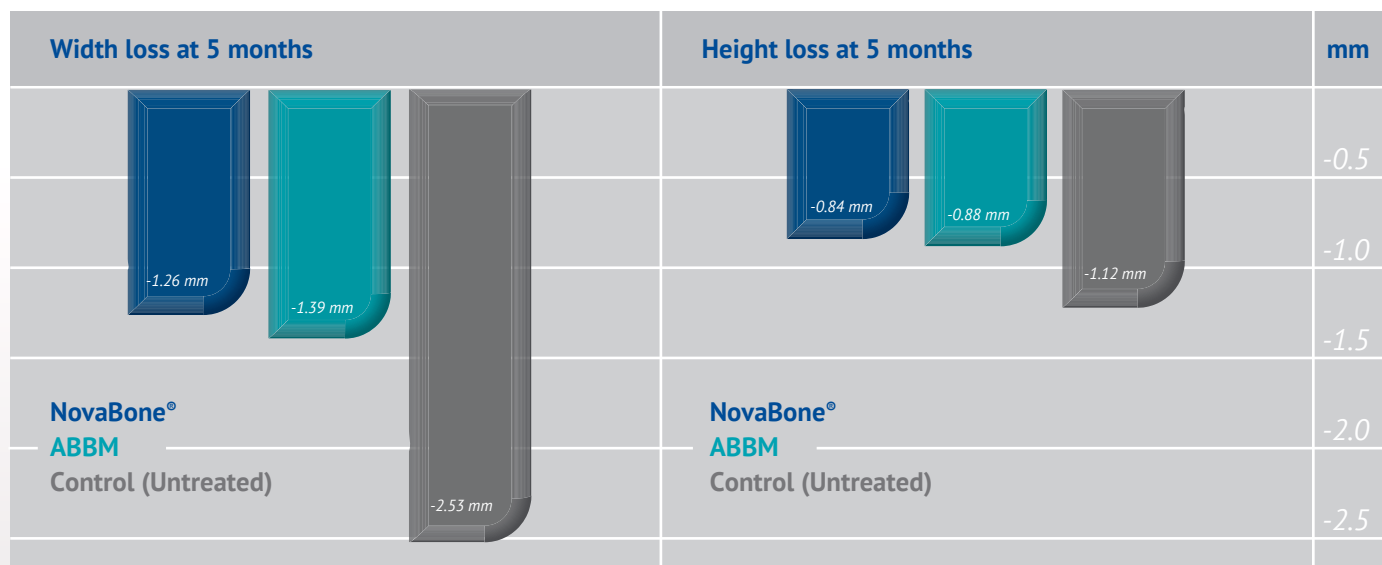
NovaBone® Dental Putty is available in multiple delivery options: trays, pre-filled syringes, and a unique industry-first cartridge delivery system. NovaBone® is the only graft material in the world that is available in disposable uni-dose cartridges. The cartridges simplify dispensing of the graft, especially in hard-to-reach areas, thus facilitating minimally invasive techniques (and hard-to-access defects such as gaps in immediate implant placement and crestal-approach sinus lifts). Cartridges are available in various sizes and are used in conjunction with NovaBone®'s cartridge delivery system; each cartridge holds 0.25 to 0.5 cc's of putty.

NovaBone® Dental Putty significantly simplifies bone graft handling and delivery. It is ready to use and extremely user friendly. It is pre-mixed, cohesive, moldable, and adaptable. NovaBone® Dental Putty is stable at room temperature, does not require refrigeration, has a 4-year shelf-life, and appears radiodense on radiographs.

More than 50 scientific publications

NovaBone® Dental Putty - Socket Preservation

In a blinded randomized controlled trial comparing dimensional changes at 5 months following socket preservation using NovaBone® Dental Putty or anorganic bovine bone mineral (ABBM), both groups showed a statistically significant reduction in ridge width loss. NovaBone® treated sites showed comparable results to sites treated with ABBM in both width and height changes.¹



Kotsakis GA, et al. A randomized, blinded, controlled clinical study of particulate anorganic bovine bone mineral and calcium phosphosilicate putty bone substitutes for socket preservation. *Int J Oral Maxillofac Implants.* 2014 Jan-Feb;29(1):141-51.

NovaBone® Dental Putty Histomorphometry

In four separate studies, histomorphometric evaluation of cores taken from extraction sockets grafted with NovaBone® Dental Putty showed vital bone regeneration and significant graft resorption.^{2,3,4,5}

	Number of Sites	Average Re-Entry Time	Mean Vital Bone Content	Mean Residual Graft
2015 Lanka et al. ²	N = 10	4.9 months	47.15%	17.4%
2014 Kotsakis et al. ³	N = 17	5.7 months	31.76%	11.47%
2012 Lanka et al. ⁴	N = 20	4.9 months	49.57%	4.3%
2011 Gonshor et al. ⁵	N = 22	5.4 months	48.2%	2.4%

1. Kotsakis GA, et al. A randomized, blinded, controlled clinical study of particulate anorganic bovine bone mineral and calcium phosphosilicate putty bone substitutes for socket preservation. *Int J Oral Maxillofac Implants.* 2014 Jan-Feb;29(1):141-51. 2. Lanka M, et al. Alveolar ridge preservation with the socket-plug technique utilizing an alloplastic putty bone substitute or a particulate xenograft: a histological pilot study. *J Oral Implantol.* 2015 Apr;41(2):178-83. 3. Kotsakis GA, et al. Histomorphometric evaluation of a calcium-phosphosilicate putty bone substitute in extraction sockets. *Int J Periodontics Restorative Dent.* 2014 Mar-Apr;34(2):233-9. 4. Lanka M, et al. Socket grafting with calcium phosphosilicate alloplast putty: a histomorphometric evaluation. *Compend Contin Educ Dent.* 2012 Sep;33(8):e109-15. 5. Gonshor A, et al. Histologic and Clinical Evaluation of a Bioactive Calcium Phosphosilicate Bone Graft Material in Postextraction Alveolar Sockets. *Int J Oral Imp and Clin Res.* 2011;2(2): 79-84.

The synthetic solution to bone regeneration

NovaBone® Dental Putty increases productivity with its ease of use and handling characteristics.

Feature

- ▶ Osteostimulation
- ▶ Best In-Class Delivery System
- ▶ Retention & Adaptability
- ▶ Extended Cartridge Tip

Benefit

Stimulation of osteoblast proliferation in vitro as evidenced by increased DNA content and elevated osteocalcin and alkaline phosphate levels.

Quickly dispense uni-dose cartridges using cartridge applicator gun; also available in a syringe or tray.

Pre-mixed, cohesive, moldable, and adaptable.

Facilitates minimally invasive techniques in hard-to-reach areas, such as crestal-approach sinus lifts.

NovaBone® Putty in Cartridges

0.25 cc | NA4640 (4 per box)

0.5 cc | NA3620 (2 per box)

0.5 cc | NA3660 (6 per box)

NovaBone® Putty in Syringes

0.5 cc | NA1610 (1 per box)

1.0 cc | NA1611 (1 per box)

2.0 cc | NA1612 (1 per box)

Cartridge Applicator Gun

| NA4600 (Fits all cartridges)

NovaBone® Morsels

1.3 cc | EU0820 (2 per box)

