NovaBone® Dental Putty

the synthetic solution to bone regeneration

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.

The synthetic solution to bone regeneration. NovaBone® Dental Putty increases productivity with its ease of use and handling characteristics.

### Cartridge System
- **0.5 cc Cartridges x 2**: NA3620
- **0.5 cc Cartridges x 4**: NA3640
- **0.25 cc Cartridges x 4**: NA4640

### Cartridge Applicator Gun
- **NA4600**

### Syringe
- **0.5cc Syringe**: NA1610
- **1.0cc Syringe**: NA1611
- **2.0cc Syringe**: NA1612

### Tray
- **0.5cc Tray x 6**: NA0660
- **0.5cc Tray x 1**: NA0610

osteogenics.com | 888.796.1923
**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.
**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

<table>
<thead>
<tr>
<th>Width loss at 5 months</th>
<th>Height loss at 5 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>NovaBone® Dental Putty</td>
<td>NovaBone® Dental Putty</td>
</tr>
<tr>
<td>ABBM</td>
<td>Control (Untreated)</td>
</tr>
<tr>
<td>-1.26 mm</td>
<td>-0.84 mm</td>
</tr>
<tr>
<td>-1.39 mm</td>
<td>-0.88 mm</td>
</tr>
<tr>
<td>-2.53 mm</td>
<td>-1.12 mm</td>
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</tbody>
</table>


**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.²³⁴⁵

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Sites</th>
<th>Average Re-Entry Time</th>
<th>Mean Vital Bone Content</th>
<th>Mean Residual Graft</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Lanka et al.²</td>
<td>N = 10</td>
<td>4.9 months</td>
<td>47.15%</td>
</tr>
<tr>
<td>2014</td>
<td>Kotsakis et al.³</td>
<td>N = 17</td>
<td>5.7 months</td>
<td>31.76%</td>
</tr>
<tr>
<td>2012</td>
<td>Lanka et al.⁴</td>
<td>N = 20</td>
<td>4.9 months</td>
<td>49.57%</td>
</tr>
<tr>
<td>2011</td>
<td>Gonshor et al.⁵</td>
<td>N = 22</td>
<td>5.4 months</td>
<td>48.2%</td>
</tr>
</tbody>
</table>

The synthetic solution to bone regeneration.

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<table>
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<tr>
<th>Feature</th>
<th>Benefit</th>
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<tr>
<td>Osteostimulation</td>
<td>Stimulation of osteoblast proliferation in vitro as evidenced by increased DNA content and elevated osteocalcin and alkaline phosphate levels.</td>
</tr>
<tr>
<td>Best In-Class Delivery System</td>
<td>Quickly dispense uni-dose cartridges using cartridge applicator gun; also available in a syringe or tray.</td>
</tr>
<tr>
<td>Retention &amp; Adaptability</td>
<td>Pre-mixed, cohesive, moldable, and adaptable.</td>
</tr>
<tr>
<td>Extended Cartridge Tip</td>
<td>Facilitates minimally invasive techniques in hard-to-reach areas, such as crestal-approach sinus lifts.</td>
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