Bone Repair provides total bone health in comprehensive, convenient and cost effective packets containing clinically-relevant quantities of microcrystalline hydroxyapatite concentrate (“MCHC”), cholecalciferol (D3) and choline-stabilized orthosilicic acid (“ch-OSA”). While the MCHC contributes to bone’s strength and stiffness; ch-OSA is vital for the synthesis of Type 1 collagen which determines bone’s flexibility and resistance to fracture. In addition, collagen provides “binding sites” for bone calcium.

All 3rd Opinion Inc.® Formulas Meet or Exceed cGMP quality Standards

**Clinical Applications**
- Support Total Bone Health
- Support Bone Strength and Flexibility
- Increase Quantity of Type 1 Collagen in Bone
- Increase Calcium “Binding Sites”

**Discussion**

Calcium is vital to bone health and strength. However, calcium, as well as all bone minerals, must bind to core posts inside the bone. These flexible posts are made from collagen. With age-related loss of collagen, there become fewer and fewer of these bone-calcium binding sites, resulting in a reduction in bone mineral density. What’s more, the loss of bone collagen diminishes bone flexibility, resulting in a greater risk of fracture.

**Collagen-Generating Complex**

Bone Repair contains patented, clinically-tested, choline-stabilized orthosilicic acid (ch-OSA). Ch-OSA links together single chains of amino acids to form collagen strands. The collagen strands create the core-post “binding sites” for calcium and other bone minerals. Oral supplementation of ch-OSA has been studied in chicks, rats, calves and humans.

In a twelve-month, randomized, double-blind, placebo-controlled trial, (n=136 women; T score <1.5), a study group received 6 mg of ch-OSA along with 1000 mg calcium and 800 iu Vitamin D3, while another group received a placebo in addition to the same amounts of calcium and vitamin D3. Upon completion, the study group showed a 19% increase in serum procollagen type 1 N-terminal propeptide (PINP), the most sensitive bone formation marker, an overall positive trend for other bone formation markers (BAP, osteocalcin), and a 2.00% increase in BMD compared to the women taking only placebo, calcium and vitamin D3. Additionally, the ch-OSA group showed no adverse effects.

An earlier study demonstrated that orthosilicic acid directly stimulates collagen type 1 synthesis in human osteoblast-like cells (bone-forming cells) and enhances osteoblastic differentiation. Another OSA study demonstrated that the increase in collagen-responsive bone flexibility resulted in a greater resistance to physical stress.

**Mineral Complex**

MCHC contains 3rd Opinion Inc.®’s micro-crystalline hydroxyapatite concentrate (MCHC), a premium, proprietary, standardized extraction from New Zealand, the country that raises one of the world’s safest, most natural sources of bone. MCHC provides a crystalline calcium and phosphorous matrix in the ideal physiological ratio of 2:1. MCHC delivers bioactive growth factors and type I collagen, amino acids, glycosaminoglycans and a broad range of essential trace elements. During four decades of scientific research on MCHC, numerous studies document the reversal of bone loss at therapeutic levels of supplementation.

**Vitamin D**

Vitamin D in Bone Repair is provided as cholecalciferol, the form in which the vitamin is derived from cholesterol in the body and synthesized by sunlight on the skin. Vitamin D is needed to maintain normal blood levels of calcium and phosphate needed for normal bone metabolism. The active form of vitamin D regulates gene transcription that code for calcium-transporting and bone matrix proteins.
## Supplement Facts

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>%DV* Amount</th>
<th>%DV*</th>
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<tbody>
<tr>
<td>Calcium (as MCHC†)</td>
<td>550 mg 56%</td>
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<td></td>
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<tr>
<td>Vitamin D3 (Cholecalciferol)</td>
<td>2000 IU 500%</td>
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<tr>
<td>MCHC†</td>
<td>2200 mg **</td>
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<tr>
<td>Silicon (as Choline-Stabilized Orthosilicic Acid)</td>
<td>3 mg **</td>
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</table>

*Daily Value.

**Daily Value not established.

### Other Ingredients for MCHC™:
- HPMC (vegetable capsule) and magnesium stearate.

### Other Ingredients for ch-OSA®:
- Microcrystalline cellulose, HPMC (vegetable capsule), and purified water.

### Other Ingredients for D3:
- HPMC (vegetable capsule), microcrystalline cellulose, calcium carbonate, stearic acid, magnesium stearate and silica.

## References


## Cautions

Keep out of reach of children. Take under medical supervision. Consult your healthcare practitioner if you have, or suspect you have any medical condition, are taking prescription drugs, or are pregnant or lactating.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.