

# Strontium

- Provides Musculoskeletal Support\*
- Increases Skeletal Strength and Helps Maintain Bone Density\*
- Provides Bone Support\*

**Strontium is a mineral that is similar physical and chemical properties to calcium. Research has shown strontium provides bone support through its ability to increase the formation of osteoblasts (cells that build up bone) and slow down the formation of osteoclasts (cells that break down bone tissue) helping to maintain healthy bone density. As a result, strontium imparts a balancing effect on the osteoblastic-osteoclastic ratio and boosts skeletal strength via two different mechanisms. Strontium's ability to strengthen both the bone matrix and skeletal density makes it an important part of any bone-building regimen.**

## Overview

Bone is the rigid structure that makes up our skeleton, but is actually an active, living organ that is constantly being built up and broken down by osteoblasts and osteoclasts. Aging, genetic predisposition, lifestyle factors, and co-morbidities can alter the balance between breakdown and building of new bone structure, bone strength, and flexibility. Mineral balance is one nutritional factor that is essential to bone. Strontium is a trace mineral that may help contribute to bone integrity, increasing BMD when bone anabolic processes are impaired by hormonal imbalance, aging, genes, or behaviors such as smoking, drinking carbonated beverages, or excessive alcohol intake. Strontium is abundant in nature and occurs naturally in sea water and in soil. Good plant sources include cabbage, parsley, grapefruit, nuts, asparagus, onion, carrot, tomato, dandelion, oranges, and cucumber. Though not considered an essential nutrient, early research suggested that strontium levels in water may be inversely related to the incidence of dental caries and that it may help control processes of bone resorption.<sup>1</sup>

## Bone and Skeletal Health\*

A growing body of research highlights the benefits of strontium in skeletal health. A head-to-head study comparing SrC to strontium ranelate (SrR) in rats found both forms deliver equivalent amounts of elemental strontium. In the study, equivalent doses of both forms of strontium or placebo were given and assimilation into bone was compared for 19 weeks and followed for another eight

weeks. The study confirmed the equivalent delivery of SrC into bone compared to SrR and potential of SrC to support bone structure.<sup>2</sup>

Recent case studies demonstrate SrC adequately supports BMD in older women. The Journal of Nutritional Health & Food Science reported three cases of older women who took SrC on their own and saw bone density supported. In these cases, the subjects chose to discontinue traditional therapies.<sup>3</sup> Another unique case was published of a woman who decided to take SrC and allow researchers at McMaster University to follow her bone strontium levels for nearly three years. The subject was 68 years old and had no history of supplementing strontium in any form prior to the study. The patient supplemented with two doses of SrC, which provided 680 mg of strontium per day. Researchers measured the changes in strontium levels in her finger and ankle bones. Not only did her bone strontium levels statistically increase after just five days, but it continued to increase until it reached a plateau after one year.<sup>4</sup> A 2014 clinical trial published in Bone recruited 10 female volunteers who also self-supplemented with 680 mg of strontium per day and found similar results upon evaluation.<sup>5</sup>

Two recent clinical studies also demonstrate that SrC supports BMD and bone quality biomarkers. The COMB Study offered female patients in need of bone support a micronutrient protocol; these patients had refused or failed to respond to past treatments. After 12 months of consecutive supplemental micronutrient therapy with a combination that included vitamin D3, vitamin K2, SrC, magnesium and docosahexaenoic acid (DHA), repeat bone densitometry was performed. The results showed that bone was supported in the hip, spine, and femoral neck sites. Benefits were found in the group taking the micronutrient protocol.<sup>6</sup> The MOTS Study was a one-year, double-blind, placebo-controlled trial that assessed the effects of nightly melatonin, SrC, vitamin D3 and vitamin K2 (MK-7) (MSDK) on BMD and quality of life in women ages 49-75. Compared to placebo, MSDK supported BMD in the lumbar spine and femoral neck and supported bone biomarkers. This demonstrates improved bone quality and collagen preservation. Quality of life scores, osteoblast activity, and osteoclast activity were also found to be supported.<sup>6</sup>

**\*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.**

## Strontium Safety\*

Past risk analysis studies of SrR have suggested precaution. A recent 2014 review in Expert Opinion on Drug Safety concluded good tolerability and safety profiles in long-term studies.<sup>8,9</sup> Further, the safety and side effects reported in the PREVOS, STRATOS, TROPOS and SOTI trials do not indicate any adverse events with long-term strontium use.

## Directions

1 capsule two times per day or as recommended by your health care professional. For maximum absorption, do not consume with calcium supplements.

## Does Not Contain

Gluten, corn, yeast, artificial colors and flavors.

## Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts <sup>v2</sup>		
Serving Size 1 Capsule		
Servings Per Container 60		
	Amount Per Serving	% Daily Value
Strontium (from 950 mg of Strontium Citrate)	300 mg	*

\* Daily Value not established

Other Ingredients: Hypromellose (Natural Vegetable Capsule), Magnesium Stearate, and Stearic Acid.

## References

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3. Mirza FS, Azim S, Bhargava A (2016) Change in Bone Mineral Density with Strontium Citrate: An Illusion or Reality. *J Nutrition Health Food Sci* 4(3): 1-3.
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