

Terry Talks Nutrition



Compliments of Terry... Naturally

Key Words

Silica, bones, teeth, hair, nails, fingernails, toenails, beauty, dental implants, fractures, osteoporosis, osteopenia, calcium, ligaments, tendons, brain function, arteries, collagen, Alzheimer's disease, aluminum, horsetail, horse tail, *Equisetum arvense*

Two quotes I have heard all my life regarding beauty are: "Beauty is in the eye of the beholder" and "Pretty is as pretty does," meaning ugly actions render even a *beautiful* person unattractive. I agree with this folk wisdom! But a big topic for debate is the *definition* of human physical beauty in the first place. I would suggest to you that many elements of what we consider "beauty" are in fact external indicators of health status. Just think of how we view thick, lustrous hair compared to thin, dull hair, or clear, well-toned skin vs. dry, irritated skin, or even strong, well-formed fingernails as opposed to misshaped, cracked nails. In each case, the ideal of beauty is also the *healthier* ÷ of the two choices.

In this issue of *Terry Talks Nutrition*, we are going to look at an element that can improve bone health, tendon strength, and even help to prevent dementia. And that element also contributes to radiant skin, hair and nails. What is this miracle mineral? Silica!

Silica

Silica is a crucial trace mineral found in bones and fast growing tissues like hair, skin, and fingernails, which are especially dependent on silica for strength and resilience. It's also a major building block of collagen, which helps keep skin supple and blood vessels strong.

As part of the aging process, the body in general, and the bones specifically, undergo a steady loss of minerals. Some of these minerals are well known, like calcium, magnesium, and potassium. But silica is lost at an even *greater* rate than these other essential minerals.

How Silica Strengthens Bones, Firms Skin and Enhances Beauty!

Although small amounts of Silica are found throughout the body, the highest concentrations occur in connective tissues, such as nails, skin, hair and teeth.

| | |
|--------------|-------|
| Nails | 19% |
| Skin | 6.25% |
| Hair | 6% |
| Tooth Enamel | 6% |

Silica in the Diet

Unfortunately, the absorption of silica from dietary sources is very limited, due to insoluble and fibrous components. For examples, bananas contain a significant amount of silica. However, *less than 2%* of this silica is absorbed in the gastrointestinal tract during digestion, which is negligible. Consumption of **50 bananas** would equal only about 8 mg of **absorbed** silica!

Furthermore, the removal of unrefined food from the daily diet has eliminated important sources of silica, which is most prevalent in the fiber portions of grains and the skins of fruits and vegetables, which are often peeled before consuming. Due to this combination of factors, a great many people do not attain optimal levels of silica.

There is one surprising source of silica in the diet: unfiltered beer! These are the artisan-made microbrews that do not have all the healthy substances filtered out during processing.

How Much Silica?

While no official requirement has been set, it is generally suggested that 10-25 mg daily are necessary to prevent deficiency, while intakes of 30-40 mg daily or more have been associated with more significant benefits for bone formation and hair/nail appearance. In cases of healing bone fractures or addressing bone mineral density in osteoporosis, about 60 mg a day has been used for optimal results.

Five Ways Silica is Important to Your Health

First, it is crucially important to healthy connective tissue by ensuring the interconnection of two important components: collagen and proteoglycans. Collagen is the *main protein* present in humans, and is very abundant in connective tissue. Collagen is necessary for healthy **bones, skin, tendons, ligaments, teeth, hair, and nails.**



Proteoglycans are major components of the space that occurs between cells and, in forming links with collagen, makes collagen-rich structures stronger and more resilient. Therefore, supporting and strengthening this natural process results in stronger and more flexible hair and nails; firmer, less wrinkled skin; strong, healthy bones; more flexible ligaments and tendons; and improvement in the natural cushioning mechanisms in the joints.

Proteoglycans also can bind water like a super sponge, which allows for superior hydration in tissues containing collagen. This manifests itself as healthier looking skin and nails, as water content is associated with skin moisture and reflection of light—important elements in skin luminosity.

Second, silica reduces peroxidation in the body. OK, but what is "peroxidation"? Lipid peroxidation is a form of oxidation in which cell membranes are damaged if this process is not stopped quickly enough. The end products of lipid peroxidation can be both damaging to DNA and carcinogenic. Therefore, it is *very* important to have enough silica circulating in the body, as this mineral can stop dangerous lipid peroxidation reactions in their tracks!

Third, increased silica intake may support healthy aging brain function. One study examined individuals whose drinking water had higher levels of silica. They found that for every 10 mg increase of silica intake, there was an 11% decrease in dementia risk! One rationale for this activity is that silica can actually *displace* aluminum from the brain.

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2625 Development Dr., Suite 40
Green Bay, WI 54311
Hwy 172 at GV • 920-965-1002
www.TerryNaturally.com

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Fourth, bio-active silica is an important constituent of the arterial wall. Silica is necessary for the body's creation and maintenance of elastin fibers, which in turn contribute to the strength, flexibility and resilience of the artery wall. Strong, flexible arteries reduce heart disease and stroke risk, as well as reducing small ruptured blood vessels that contribute to spider veins visible on the surface of the skin, and even varicose veins.

Fifth, bio-active silica supports healthy immune system function by activating macrophages (white blood cells involved in the elimination of cellular debris and pathogens). Conversely, it has been shown that crystallized silica (whether mineral or synthetic) actually binds to hydroxyl free radicals that are downright *toxic* to certain white blood cells. This helps to demonstrate the superiority of botanical, bio-active silica with natural bonds to companion plant flavonoids over mineral or synthetic forms of silica.

What is the Difference Between Silica and Bio-active Silica?

Silica is a mineral that can be obtained from plant sources, mineral sources, or be synthetically created. The form of silica in plants has *higher* levels of bioactivity than all other forms. The highest silica-content edible source of silica comes from the common horsetail (*Equisetum arvense*) stem, which is about 80% silica.

Bio-active is not a company or a brand name. It is a type of plant-based silica, which is improved upon over *plain* silica by preserving the natural bonds to bioflavonoids, plant acids, and phenols extracted from horsetail. Because the silica in horsetail is bound to other substances in the plant in a complex manner, the absorption and activity of this vital mineral have enhanced physiological impact. In simpler terms, this type of silica will have **more potent and measurable health benefits** than other plant, mineral or synthetic silicas. In fact, in a study comparing a patented, bio-active organic silica and another rich botanical silica source (bamboo), it was found that this special natural form was less than 0.01% the molecular size



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(600 micrometers—bamboo vs 5 micrometers—bio-active silica), assuring a much higher level of absorption and utilization by the body!

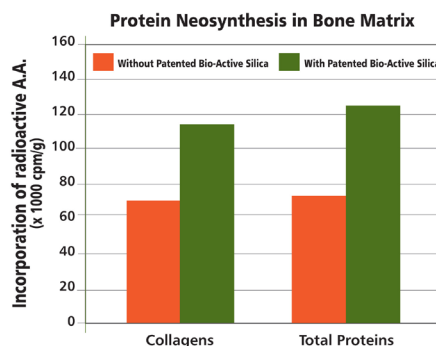
Another difference is that bio-active silica is obtained by a unique soluble water extraction process (no chemicals, no solvents) that preserves the silica's natural bond to companion compounds from the plant, while filtering out the insoluble parts, which are abrasive and harmful if ingested. After this purification and extraction, the compounds are micronized (very small particles) and blended with marine lipids. Marine lipids are **nature's perfect transport mechanism** for absorption and utilization within the body. This process and combination is so effective that it has been patented. Remember: it does not matter how much silica you ingest—what matters is how much is absorbed!

That is why I recommend a bio-active, highly absorbable silica so you can reap the highest benefits from this necessary mineral. Only silica in this bio-active form fully enables calcium to be transferred to the bones. The other mineral forms of silica are actually involved in transporting calcium *away* from the bones, to other tissues. This can be especially problematic if the other tissues are arterial walls, in which calcium deposition can be dangerous.

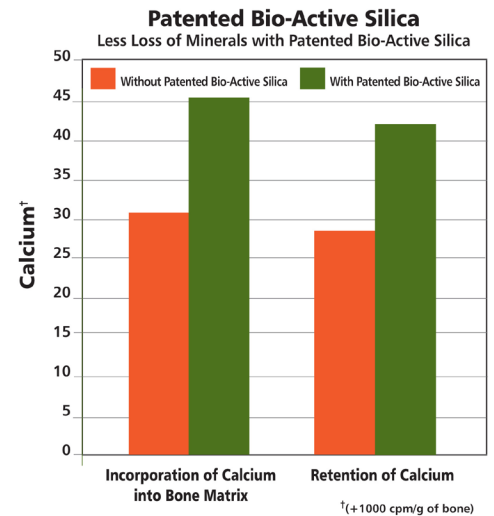
Bio-active Silica Studies

The special, bio-active form of silica has been the subject of several scientific and clinical studies, and described in multiple case reports. Many of these studies specifically examined the effects on bone healing, osteoporosis and dental implant integration into the jaw.

The effect of a patented bio-active silica blended with marine oil on the metabolism of the bone matrix was investigated with cultures of human bone. This special form of silica significantly **increased** the growth of collagen **by over 50%**, stimulating the total protein metabolism within the bone matrix, a key component to bone density and regrowth/repair.



In another study, this special silica was also shown to increase absorption of calcium into the bone by an **average of 50%**. It balanced the ratio of natural bone anabolism (adding minerals to bone) with bone catabolism (withdrawing minerals from the bone.) This healthy balance allows bones to retain calcium longer—by an average of 50% or more. This has great implications for osteoporosis and osteopenia.



A randomized, double blind, placebo controlled study over 12 months of 65 women revealed that a patented bio-active silica blended with marine oils *reduced* bone destruction and increased bone strength as measured by the biomarker serum C-terminal telopeptide of type I collagen (CTX), which is associated with the process of bone resorption. Bone resorption is the movement of minerals out of the bone and into the blood stream. Lower levels of CTX indicate lower activity of the bone resorption process, while *higher* levels indicate greater flow of minerals *out* of bone tissue. This special silica is associated with lower levels of CTX, indicating less movement of minerals out of bone and better overall bone density.

Another study (single arm, open label) was performed on 150 individuals with varying degrees of bone fracture. A consistent finding from X-ray and other structural evaluations was an increase in bone building activity. Doctors reported that in 80% of participants, significant improvements in bone healing were evident after 15 days of use, and further gains were measurable after 6 weeks of use.

When in doubt, always consult your physician or health care practitioner. This column is to provide you with information to maintain your health.

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High Purity, Bioavailable Silica

Regardless of your definition of beauty, bio-active silica blended with marine oil can play an important role in improving both the strength and appearance of hair, skin and nails. And delving deeper, we find that silica can reduce recovery time after bone fractures and dental implants, improve bone mineral density, eliminate certain classes of cancer-causing compounds from the body, reduce dementia risk and improve cardiovascular health significantly. But remember—it doesn't matter what you take—what matters is what you *absorb*. Make sure to use an organic, bio-active silica blended with marine oil, and see what a difference it can make in your life!

Terry recommends a product with this formula look for it at your local health food store:

Organic Silica from Horsetail 20 mg
(*Equisetum arvense*) Extract flavonoids and trace minerals (from the sea), bound to marine phospholipids.

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In a dental open label study performed on 37 participants over the course of 3 months, dentists evaluated parameters of both tooth and jawbone health after dental implants. They found a 50% reduction in the time it took for full integration of the dental implant, with no associated pain or inflammation.

Physicians also looked at individual cases of women with osteoporosis. In a single case study, doctors gave a volunteer subject (a 56 year-old woman) a patented bio-active silica blended with marine oil for 6 months, measuring the lumbar spine and neck of the thigh bone. Measurements after 6 months of use showed an **increase of 12.3%**. In a second individual study, doctors performed this again on a different volunteer (a 48 year-old woman), with results indicating an **increase of 1.7%**. And in a third case study, measurements were taken before use and after 6 months of use in a third volunteer (a 64 year-old woman) with an **increase of 6.3%** noted. Doctors concluded that these initial significant reports indicated a very powerful effect for this type of silica on people with osteoporosis or osteopenia.

Safety

There are no known adverse effects associated with ingestion of natural silica. A 12 month study of 65 women taking a patented bio-active silica blended with marine oil daily found no negative changes in blood work after one year of use. Toxicity data suggests that typical levels of intake (10-25 mg daily) pose no risk of adverse effects for the general population. In fact, certain populations consume as much as 150—200 mg of dietary silicon daily with no reported adverse effects.

When in doubt, always consult your physician or health care practitioner. This column is to provide you with information to maintain your health.