

SUPPLEMENT OF THE MONTH:

COLLOIDAL SILVER by Ann Gerhardt, MD

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Bottom line at the top: Colloidal silver, taken by mouth, has no proven health benefit. It is NOT recognized as safe by the FDA and can cause long-lasting blue-gray skin and mucous membrane staining.

Not long ago the New England Journal of Medicine published a picture of a young man's blue-gray face. He had 'argyria', skin discoloration from silver deposition. He had taken colloidal silver to make him feel better. His odd color wasn't hurting him, except to reduce his work options to freak show or Halloween character.

Colloidal silver is widely marketed as a dietary supplement for diseases like diabetes, AIDS, cancer, and various infections. It was used to treat infections prior to the antibiotic era, with limited evidence that it actually worked. Naturopathic doctors claim that pharmaceutical companies in search of profits sullied silver's reputation in order to promote their new antibiotics. In actuality silver preparations cost far more than the new and more effective sulfa drugs, so use declined.

The Food and Drug Administration, established in 1938, allowed silver to be used only in forms already in existence prior to that year. In 1991 the FDA banned silver promoters from claiming any health benefit, and in 1999 revoked colloidal silver's GRAS (Generally Recognized As Safe) status. It cannot be sold as an over-the-counter *drug* purporting to solve any health problem. It may be sold as a dietary supplement, but must satisfy the 1984 Dietary Supplement Health and Education Act, which requires that there be no health claims and only oral forms may be sold, to qualify as *dietary*. Why marketers continue to sell it over the internet with extensive health claims attached is unclear.

Silver promoters believe that colloidal silver, in contact with a virus, fungus or bacterium, "disables its oxygen metabolism enzyme," "suffocating" and killing it. It seems to affect the organism's ATP production, which is crucial to energy generation. Believers claim that colloidal silver is non-toxic to humans, insisting that it works on enzymes not present in humans and leaves human cells intact.

Silver nitrate is used on neonates eyes to prevent infections. Silver-containing antibiotic creams help to treat infections of burned skin, but recently were suspected of slowing healing. Colloidal silver in a solution of 3-5 parts per million can kill bacteria, so it is used as a topical antiseptic and to purify water. All of these uses require direct contact of the silver with organisms on some accessible surface. I've found no evidence that supports any anti-microbial or health benefit when silver is taken internally by humans or animals. Some test-tube experiments of colloidal silver

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solutions show no antimicrobial effect at concentrations that might be clinically relevant, casting doubt even on its use as an antiseptic.

Colloidal silver products vary considerably in content. Some have no silver at all, most have very little colloid and many have unsafe amounts of free silver, which increases argyria. Almost all lack chemical stability and purity. There is no way from the label to discern which might be safe and which aren't.

Argyria results from contact with or ingestion of silver salts from any source, including medication. The most common cause of argyria is mechanical deposition of small silver particles in the skin of people who work in silver mining or refining, industries manufacturing silver products and photographic processing.

Blue spots may appear at acupuncture needle and silver earrings sites. Habitual silver-based nose drop use may deposit pigment on both the nose and the nail beds. Silver-sulfadiazine cream, used to treat skin wounds and burns, may stain scars.

Generalized argyria often starts with gray-brown staining of gums, followed by diffuse, gray, metallic or blue-gray skin discoloration. The whites and conjunctiva of the eyes and the membranes of the mouth may turn blue or gray. Hyperpigmentation is most apparent in the sun-exposed areas of skin, possibly because silver bound to proteins in skin are reduced to elemental silver by light. Abdominal organs turn blue, but only your surgeon would know for sure.

Great individual variability exists in the length of exposure and total dose needed to result in argyria. The rapidity and degree of staining after oral ingestion of silver-containing medications may correlate with how much free silver is in the 'colloid' preparation.

The normal human body contains approximately 1 mg of silver; the least cumulative amount of silver reported to produce generalized argyria in humans ranges from 4-5 g to 20-40 g. Silver at 50-500 mg/kg body weight may be lethal.