

Colloidal Silver Products – A Response to and a Refute of the NCCAM Publication, NCCAM Pub. No. D209, Aug. 2010

This article is intended to refute the errors in the above report and set the record straight.

Let us investigate the erroneous statements claimed in the above paper.

In their KEY POINTS section:

“The U.S. Food and Drug Administration (FDA) does not consider colloidal silver to be safe or effective for treating any disease or condition.” They are completely ignoring articles such as

- 1. Antibacterial Characterization of Silver Nanoparticles against E. Coli. M Raffi et al., J. Mater. Sci. Technol., 24, No. 2., 2008, p. 192-196,** in which they proclaim silver nanoparticles as a safe effective antibacterial against 650 different microorganisms. They also affirm that silver nanoparticles are toxic to bacteria, but have a low toxicity to animal cells and humans. They found that the silver nanoparticles were most effective when they were smaller than 60 nm and most effective around 14 nm, but that was the smallest size at their disposal. Their proposed mechanism is that silver nanoparticles adhere to cell walls and can penetrate bacterial membranes to kill the cells. They observed that there were no CFU's (Colony Forming Units) at concentrations exceeding 65 ppm.
- 2. Silver Colloid Nanoparticles, A. Panáček, et al., J. Phys Chem. B, 2006, 110, 16248-16253**
The authors found that as little as 1.7 ppm of colloidal silver was effective against MRSA. They also found that the 24 nm particles were most effective, but that was the smallest size they had.
- 3. Antimicrobial effects of silver nanoparticles, Jun Sung Kim et al., Nanomedicine: Nanotechnology, Biology and Medicine 3, 2007, 95-101**
They claim that a stable silver colloid with a zeta potential of -0.33 mV and a particle size of 0.2 to 33 nm, with 3.3 to 6.6 nm being most effective against pathogens.
- 4. Synthesis and antibacterial activity of silver nanoparticles with different sizes, G. A. Martínez-Castañón et al., J. Nanopart. Res. 2008 10:1343-1348**
The authors produced silver nanoparticles of 7, 29, and 89 nm. They noted that the MIC (minimum inhibition concentration) was the best with the 7 nm size against E. Coli and Staph. A.
- 5. The bactericidal effect of silver nanoparticles, Jose Ruben Morones, Nanotechnology 16, 2005 2346-2356.**
Strains of bacteria are developing resistance to current antibiotics. This is leading to a strong interest in developing new sources of antibacterial products that will not be subject to developing resistance, such as silver nanoparticles. The authors “grow” silver nanoparticles inside a carbon nanotube matrix. They claim particles in the 8 to 16 nm range, with 1 to 10 nm being most effective. (against pathogens)

6. Silver nanoparticles directly formed on natural macroporous matrix and their anti-microbial activities, Fang Zeng et al., Nanotechnology 18 2007 055605

They demonstrate high antimicrobial effectiveness of colloidal silver against E. Coli and Candida albicans, while showing low toxicity to humans.

7. Characterization of enhanced antibacterial effects of novel silver nanoparticles, Siddhartha Shrivastava et al, Nanotechnology 18 2007 225103

These people made their silver nanoparticles in concentrations of 5 to 25 ppm and stated that 5 ppm killed 60% of the bacteria in an 8 hour period, while the 25 ppm was 100% effective. They surmise that the silver nanoparticles work by attaching to and penetrating the cell walls of the pathogen. This is the only paper that specifically states why silver nanoparticles work: They modulate cellular signaling by dephosphorylating putative key peptide substrates on tyrosine residues.

There are many other articles of this nature, but the above are sufficient to prove the point.

In their "Claims" section:

1. "The FDA and the Federal Trade Commission (FTC) have taken action against a number of colloidal silver companies (including some companies that sell products over the Internet) for making drug-like claims about their products."

While we agree that colloidal silver companies should not make drug-like claims, the authors fail to report that over one hundred thousand people in the United States alone die annually from the use of FDA approved drugs. (Source: **Byron J. Richards, "Fight for your Health", Wellness Resource Books, (2006)**)

2. "Colloidal silver can cause many side effects. One example is argyria, a bluish-gray discoloration of the body, which is not treatable or reversible."

There is absolutely no evidence that *colloidal silver* has ever caused a single case of argyria. It is well known that ionic silver, silver protein, and some silver compounds in excess can and does cause argyria. Most people who criticize silver products do not understand the difference between them.

They also claim that they have the following "Scientific Evidence".

- "Silver has no known function in the body." In light of the above articles, this is obviously not the case.
- "Silver is not an essential mineral supplement or a cure-all and should not be promoted as such." No one in his right mind should ever claim anything to be a "cure-all."
- "Claims that there can be a "deficiency" of silver in the body and that such a deficiency can lead to disease are unfounded." The term "deficiency" is not correct. One cannot have a deficiency of something that is not present at birth. A more accurate statement would be that silver has been found to be a useful additive to the body chemistry in its fight to overcome bacterial and viral problems.

- “Claims made about the effectiveness of colloidal silver products for numerous diseases are unsupported scientifically” The effectiveness of colloidal silver is determined in vitro in the laboratory and in individual case studies in the real world.
- “Colloidal silver products can have serious side effects.” Wishful thinking on the part of Big Pharma. No serious side effects have ever been reported for products which can be proven to be colloids. The people who wish to criticize silver products make sure they are not using *colloidal silver* but are using “ionic” silver instead, either deliberately or accidentally.
- “Laboratory analysis has shown that the amounts of silver in supplements vary greatly, which can pose risks to the consumer.” The author endorses the rigorous quantitative analysis of silver, as well as any colloidal, products, so that this can not be a problem

In their “Side Effects and Risks” section:

“Animal studies have shown that silver builds up in the tissues of the body. In humans, buildup of silver from colloidal silver can lead to a side effect called argyria, which causes a bluish-gray discoloration of the skin, other organs, deep tissues, nails, and gums. Argyria is permanent and cannot be treated or reversed. Other side effects from using colloidal silver products may include neurologic problems (such as seizures), kidney damage, stomach distress, headaches, fatigue, and skin irritation. Colloidal silver may interfere with the body's absorption of some drugs, such as penicillamine, quinolones, tetracyclines, and thyroxine.”

Again, argyria is not the result of using *colloidal silver* but rather is the result of ionic silver, silver protein or silver compounds. None of the effects listed above have ever been linked to metallic silver (of which colloidal silver is a form) over the more than 100 years silver has been used by the dental profession.

In the “Federal Regulation” section:

“The FDA issued a ruling in 1999 that no products containing colloidal silver are generally recognized as safe and effective. In addition, the FDA and the FTC have sent warning letters to the operators of many Web sites that market colloidal silver with drug-like claims (i.e., claims that their products diagnose, treat, cure, or prevent disease).”

There are many references, several in this article, which show the effectiveness of colloidal silver. There are no known articles, to our knowledge, which have proven any harmful effects in humans which was the result of using colloidal silver when the bad actor was really ionic silver.

“There is a lack of evidence for effectiveness and a risk for serious side effects from colloidal silver products. The FDA does not consider colloidal silver to be safe or effective for treating any disease or condition.”

The correct statement is that there is a lot of evidence that colloidal silver is both safe and effective, but this information has been suppressed by the FDA and Big Pharma.