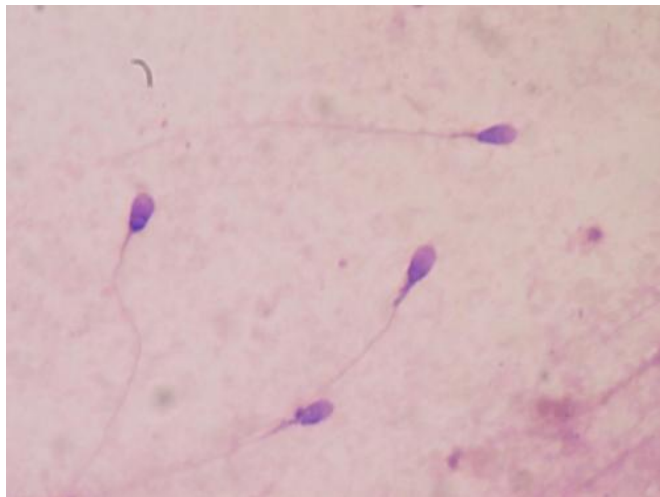


Zinc, folic acid supplements fail to enhance male fertility

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Human sperm stained for semen quality testing in the clinical laboratory. Credit: Bobjgalindo/Wikipedia

Zinc and folic acid, a pair of dietary supplements long touted as an effective treatment for male infertility, failed to improve pregnancy rates, sperm counts, and sperm potency in a new study conducted at University of Utah Health and other medical centers in conjunction with the National Institutes of Health. According to the researchers, the finding presents the most definitive evidence to date that so-called fertility supplements do not live up expectations.

"This is a landmark trial of male infertility supplements," says James M. Hotaling, M.D., co-author of the study and a U of U Health urologist specializing in male infertility. "The take-home message for men is that, for the first time, there is high-quality data that zinc and folic acid do not improve live birth outcomes or semen function."

The study, led by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), appears in *JAMA*.

Many fertility supplements contain zinc, a mineral essential for sperm development, and folate, the natural form of folic acid that helps form DNA in the sperm. These over-the-counter supplements, also known as nutraceuticals, are often promoted as a natural way to enhance sperm formation, sperm count, and movement. However, previous studies of these products have produced inconclusive results.

For this study, the researchers recruited 2,370 couples planning to undergo infertility treatments in Salt Lake City, Chicago, Minneapolis, and Iowa City, Iowa. Men were randomly assigned to either receive a placebo or a daily supplement consisting of 5 milligrams of folic acid and 30 milligrams of zinc for six months. Women were asked to complete questionnaires for up to 18 months following the beginning of the trial in order to track pregnancy outcomes.

Researchers found no significant differences in live births between the men who received the supplement (404 births, 34%) and the placebo group (416 births, 35%). Men in the two groups also had similar measures for total sperm count, mobility, and shape. However, men who took the supplements had a higher proportion of broken DNA in sperm than in the placebo group. Prior studies suggest that this phenomenon, known as DNA fragmentation, can contribute to male infertility.

Men in the supplement group also complained of more abdominal pain, nausea, vomiting, and other gastrointestinal symptoms than those in the placebo group.

"This large, well-controlled, randomized study shows us that nutraceuticals like zinc and folic acid really don't improve the chances of a couple getting pregnant and actually can cause side effects that are not beneficial," says C. Matthew Peterson, M.D., a U of U Health reproductive endocrinologist

and one of the study's principal investigators. "It's important for men of all ages to eat a healthy diet to maintain fertility, but you don't necessarily need to take something extra to help you achieve better sperm parameters."

More information: Enrique F. Schisterman et al, Effect of Folic Acid and Zinc Supplementation in Men on Semen Quality and Live Birth Among Couples Undergoing Infertility Treatment, *JAMA* (2020). [dx.doi.org/10.1001/jama.2019.18714](https://doi.org/10.1001/jama.2019.18714)

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