

# A Commentary on Organic Milk Products and Comparison with Conventional Milk

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## Commentary

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## ABOUT THE STUDY

Organic milk refers to a variety of milk products derived from livestock raised using organic farming methods. Food authorities regulate the use of the term "organic" or equivalents such as "bio" or "eco" on any product in most jurisdictions. In general, these regulations require livestock to be allowed to graze, fed organically certified fodder or compound feed, not treated with most drugs (including bovine growth hormone), and treated humanely in general. There are numerous barriers to reaching firm conclusions about the safety or health benefits of consuming organic or conventional milk, including a lack of long-term clinical studies. The available studies have yielded conflicting results in terms of absolute differences in nutrient content between organic and conventionally produced milk, such as protein or fatty acid content.

## Comparison with conventional milk

**Chemical composition:** Chemical differences in the composition of organic milk versus conventional milk have been studied. These studies are generally plagued by confounding variables and are difficult to generalize due to differences in the tests performed, the season of testing, and the brand of milk tested, as well as the vagaries of agriculture affecting the chemical composition of milk. The treatment of foodstuffs after initial gathering (whether milk is pasteurized or raw), the time between milking and analysis, as well as transport and storage conditions, all influence the chemical composition of a given batch.

**Nutrient content:** A 2012 meta-analysis of the scientific literature found no significant differences in vitamin content between organic and conventional plant or animal products, and the findings varied from study to study. The authors discovered four studies on beta-carotene and alpha-tocopherol levels in milk; the differences were heterogeneous and not statistically significant. The authors discovered only a few studies on fatty acids in milk; all (except one) were of raw milk, and they believe that raw organic milk contains significantly more beneficial omega-3 fatty acids and vaccenic acid than raw conventional milk. The authors discovered no significant differences in total protein, total fat, or the seven other vitamins and fatty acids tested between organic raw milk and conventional milk.

**Chemical and pesticide residue:** Consumers are concerned that conventional foods may contain pesticide and chemical residues, which drives demand for organic food. Many organic milk studies have not measured pesticide residues. According to one review of the literature, available evidence indicates that regular and organic milk contain comparable trace levels of chemical and pesticide residues.

## Health and safety

Regarding scientific knowledge of the health and safety benefits of an organic food diet, several factors limit our ability to say whether such a diet is beneficial or harmful to one's health. According to the meta-analysis published in 2012, there have been no long-term studies of health outcomes of populations consuming predominantly organic versus conventionally produced food controlling for socioeconomic factors; such studies would be expensive to conduct. According to a 2009 meta-analysis, there have been very few studies that have looked at direct human health outcomes. Furthermore, as previously discussed the difficulties in accurately and meaningfully measuring chemical differences between organic and conventional milk make extrapolating health recommendations based solely on chemical analysis difficult.

**Taste:** According to one review, some consumers prefer the taste of organic milk while others do not, and the amount of heat treatment is likely to be a significant factor in determining the milk's taste. Certain treatments, such as ultra-heat treatments used by milk producers, can give milk a slight nutty flavor. Overall, the taste test results "are not clear-cut" in terms of whether organic or conventional milk is preferred.