



## Peppermint

Revised: August 15, 2023.

## Drug Levels and Effects

### Summary of Use during Lactation

Peppermint (*Mentha x piperita*) contains menthol, menthone, menthyl acetate as major ingredients. Minor ingredients include 1,8-cineole, pulegone, bitter substances, caffeic acid, flavonoids, and tannins. Topical peppermint gel and solutions have been studied for the prevention of pain and cracked nipples and areolas in nursing women. The peppermint preparations were more effective than placebo and expressed breastmilk, and about as effective as lanolin in some,[1-5] but not all studies.[6] A meta-analysis concluded that application of nothing or breastmilk may be superior to lanolin, but good studies are lacking.[7] Some mothers in Turkey reportedly use mint to increase their milk supply and improve the taste and quality of their milk.[8] However, peppermint is also used to suppress milk production.[9] Menthol and 1,-cineol are excreted into breastmilk in small quantities; the excretion of other components has not been studied. Peppermint is "generally recognized as safe" (GRAS) as a food by the U.S. Food and Drug Administration. Large doses can cause heartburn, nausea and vomiting. Allergic reactions, including headache, have been reported to menthol. If peppermint is used on the nipples, it should be used after nursing and wiped off before the next nursing.

Dietary supplements do not require extensive pre-marketing approval from the U.S. Food and Drug Administration. Manufacturers are responsible to ensure the safety, but do not need to *prove* the safety and effectiveness of dietary supplements before they are marketed. Dietary supplements may contain multiple ingredients, and differences are often found between labeled and actual ingredients or their amounts. A manufacturer may contract with an independent organization to verify the quality of a product or its ingredients, but that does *not* certify the safety or effectiveness of a product. Because of the above issues, clinical testing results on one product may not be applicable to other products. More detailed information [about dietary supplements](#) is available elsewhere on the LactMed Web site.

### Drug Levels

The flavor of peppermint comes primarily from its menthol content, but 1,8-cineol (eucalyptol) is also present.

**Maternal Levels.** Eighteen lactating women were given 100 mg of l-menthol in a capsule on 3 test days. Milk samples were collected every 2 hours for 8 hours starting at the time of ingestion. Menthol was detected in milk

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at all collection times, with the average concentrations of 2.1 mcg/L at 0 hours, 4.9 mcg/L at 2 hours, 5.9 mcg/L at 4 hours, 5.8 mcg/L at 6 hours and 4.1 mcg/L at 8 hours after the dose. The average peak menthol concentration in milk was 8 mcg/L. Only small amounts of menthol glucuronide metabolites were present in the milk samples.[10]

Twelve nursing mothers who were 19 weeks to 19 months postpartum ingested 100 mg of 1,8 cineole (eucalyptol) in the form of delayed-release capsules (Soledum-Klosterfrau Vertriebs GmbH, Germany) that release the drug in the intestine. Then they pumped 1 to 4 milk samples at the time they perceived the smell of eucalyptus on their breath which had been previously shown to be approximately concurrent. A total of 21 milk samples were obtained. Odor was rated by a panel of 3 to 5 experts as either smelling like eucalyptus or not. Fourteen of the samples had a distinct eucalyptus-like odor. Chemical analysis of the positive odor tests found 1,8-cineole in concentrations from 70 to about 2090 mcg/kg of milk, most in the range of 100 to 500 mcg/kg of milk. Samples with negative odor tests contained concentrations in the range of 0.98 to about 20.23 mcg/kg of milk. In one woman who donated 3 samples, the highest concentration of 71 mcg/kg occurred at 1.5 hours after ingestion, with concentrations of 1 mcg/kg before ingestion and 15 mcg/kg at 9.5 hours after ingestion.[11] Eight women had their milk analyzed for 1,8-cineole metabolites. Ten metabolites and several enantiomers of these metabolites were detected.[11,12]

Eighteen nursing mothers who were nursing their infants of 8 to 53 weeks of age were served a curry dish that contained an average of 394 mcg of 1,8-cineole. Baseline 1,8-cineole concentrations in milk averaged 1.44 mcg/L (range 0.07 to 7.57 mcg/L). Milk samples contained 1,8-cineole in concentrations of 0.19 to 7.41 mcg/L at 1 hour after eating, 0.33 to 7.86 mcg/L at 2 hours after eating and 0.22 to 3.33 mcg/L at 3 hours after eating.[13]

*Infant Levels.* Relevant published information was not found as of the revision date.

## Effects in Breastfed Infants

Nursing mothers who were participating in an experiment on the excretion of 1,8-cineole (eucalyptol) in breastmilk took a 100 mg capsule of 1,8-cineole orally. Although instructed not to, 12 mothers breastfed their infants during the experiment. Mothers reported that none of their infants refused their milk or breastfed less than usual. Two mothers felt that their infants were more agitated a few hours after breastfeeding. A third mother reported that the infant stopped nursing from time to time and "looked puzzled", but resumed nursing. Upon repeating the experiment 6 weeks later, the infant did not react in an unusual way during breastfeeding. [14]

## Effects on Lactation and Breastmilk

Peppermint has been used to suppress lactation;[9] however, no clinical trials have been found that demonstrate lactation suppression. Menthol can suppress milk production in cell culture and in mice.[15] In humans menthol is rapidly converted to its glucuronide metabolite after oral ingestion.[16] It is not clear if the glucuronide has any lactation suppressing effect or if typical peppermint intake would be adequate to suppress lactation in humans.

## References

1. Sayyah Melli M, Rashidi MR, Delazar A, et al. Effect of peppermint water on prevention of nipple cracks in lactating primiparous women: A randomized controlled trial. *Int Breastfeed J* 2007;2:7. PubMed PMID: 17442122.
2. Melli MS, Rashidi MR, Nokhoodchi A, et al. A randomized trial of peppermint gel, lanolin ointment, and placebo gel to prevent nipple crack in primiparous breastfeeding women. *Med Sci Monit* 2007;13:CR406-411. PubMed PMID: 17767120.

3. Akbari SA, Alamolhoda SH, Baghban AA, et al. Effects of menthol essence and breast milk on the improvement of nipple fissures in breastfeeding women. *J Res Med Sci* 2014;19:629-33. PubMed PMID: 25364362.
4. Shanazi M, Farshbaf Khalili, A, Kamalifard M, et al. Comparison of the effects of lanolin, peppermint, and dexpanthenol creams on treatment of traumatic nipples in breastfeeding mothers. *J Caring Sci* 2015;4:297-307. PubMed PMID: 26744729.
5. Bolourian M, Dadgar H, Aqadousti R, et al. The effect of peppermint on the treatment of nipple fissure during breastfeeding: A systematic review. *International Journal of Pediatrics (Mashhad)* 2020;8:11527-35. doi:10.22038/ijp.2020.46558.3784
6. Gharakhani Bahar, T, Oshvandi K, Masoumi SZ, et al. A comparative study of the effects of mint tea bag, mint cream, and breast milk on the treatment of cracked nipple in the lactation period: A randomized clinical trial study. *Iran J Neonatol* 2018;9:72-9. doi:10.22038/ijn.2018.30078.1409
7. Dennis CL, Jackson K, Watson J. Interventions for treating painful nipples among breastfeeding women. *Cochrane Database Syst Rev* 2014;12:CD007366.
8. Kaygusuz M, Gümüştakım RŞ, Kuş C, et al. TCM use in pregnant women and nursing mothers: A study from Turkey. *Complement Ther Clin Pract* 2021;42:101300. PubMed PMID: 33412511.
9. Johnson HM, Eglash A, Mitchell KB, et al. ABM Clinical Protocol #32: Management of hyperlactation. *Breastfeed Med* 2020;15:129-34. PubMed PMID: 32031417.
10. Hausner H, Bredie WL, Mølgaard C, et al. Differential transfer of dietary flavour compounds into human breast milk. *Physiol Behav* 2008;95:118-24. PubMed PMID: 18571209.
11. Kirsch F, Beauchamp J, Buettner A. Time-dependent aroma changes in breast milk after oral intake of a pharmacological preparation containing 1,8-cineole. *Clin Nutr* 2012;31:682-92. PubMed PMID: 22405404.
12. Kirsch F, Buettner A. Characterisation of the metabolites of 1,8-cineole transferred into human milk: Concentrations and ratio of enantiomers. *Metabolites* 2013;3:47-71. PubMed PMID: 24957890.
13. Debong MW, N'Diaye K, Owsienko D, et al. Dietary linalool is transferred into the milk of nursing mothers. *Mol Nutr Food Res* 2021;65:e2100507. PubMed PMID: 34658145.
14. Kirsch F, Horst K, Rohrig W, et al. Tracing metabolite profiles in human milk: Studies on the odorant 1,8-cineole transferred into breast milk after oral intake. *Metabolomics* 2013;3:47-71. doi:10.1007/s11306-012-0466-9
15. Suzuki N, Tsugami Y, Wakasa H, et al. Menthol from *Mentha piperita* suppresses the milk production of lactating mammary epithelial cells in vivo and in vitro. *Mol Nutr Food Res* 2020:e2000853. PubMed PMID: 33188562.
16. Gelal A, Jacob P, 3rd, Yu L, et al. Disposition kinetics and effects of menthol. *Clin Pharmacol Ther* 1999;66:128-35. PubMed PMID: 10460066.

## Substance Identification

### Substance Name

Peppermint

### Scientific Name

*Mentha x piperita*

### Drug Class

Breast Feeding

Lactation

Milk, Human

Complementary Therapies

Food

Phytotherapy

Plants, Medicinal

Gastrointestinal Agents