



## Pomegranate

Revised: September 15, 2023.

## Drug Levels and Effects

### Summary of Use during Lactation

Pomegranate juice contains ellagitannins and numerous polyphenols such as delphinidin, cyanidin, pelargonidin, punicalin, pedunculagin, punicalagin, gallagic, and ellagic acid as well as vitamin C and B vitamins. Administration of pomegranate juice to nursing mothers result in a change in the microbiota of breastmilk and infant stools and an increase in antioxidant content of breastmilk and infant urine. A low-quality study found that administration of pomegranate juice concentrate to nursing mothers of infants with hyperbilirubinemia hastened the infant's improvement with phototherapy treatment. No adverse reactions to maternal pomegranate ingestion in breastfed infants have been observed.

### Drug Levels

Pomegranate juice contains ellagitannins that are metabolized to ellagic acid. Intestinal bacteria convert ellagic acid to urolithins that are absorbed by the mother and can appear in breastmilk.

*Maternal Levels.* Twelve exclusively breastfeeding mothers of full-term infants consumed 8 fluidounces of pomegranate juice daily for 2 weeks. After 2 weeks, breastmilk samples contained a median of 10.7 nmol/L of urolithin A-glucuronide. Two women had urolithin B-glucuronide in their milk in concentrations of 0.5 and 11.9 nmol/L. In addition, the microbiome of breastmilk was altered with a decrease in *Lactococcus*, *Subdoligranulum*, and *Acinetobacter*, and an increase in Firmicutes such as *Faecalibacterium*. [1]

*Infant Levels.* Twelve exclusively breastfeeding mothers of full-term infants consumed 8 fluidounces of pomegranate juice daily for 2 weeks. After 2 weeks, all of their exclusively breastfed infants' urine samples contained urolithin A-glucuronide in a median concentration of 18.1 nmol/L. The urine of 2 infants whose mothers' milk contained urolithin B-glucuronide contained it also in a median concentration of 1.8 nmol/L. Five other infants' urine contained dimethyl ellagic acid glucuronide in concentration ranging from 0.8 to 17.5 nmol/L. [1]

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## Effects in Breastfed Infants

Twelve exclusively breastfeeding mothers of full-term infants consumed 8 fluid ounces of pomegranate juice daily for 2 weeks. After 2 weeks, the infant stool samples had significant increases in the abundance of bacteria from the phylum Firmicutes (genus *Lachnospirillum* and *Staphylococcus*). Infants whose mothers' milk contained urolithin B-glucuronide (metabotype B) showed significant differences in 4 bacteria, with 2 bacteria from the phyla Firmicutes (genus *Veillonella*) and Bacteroidetes (genus *Bacteroides* and *Parabacteroides*) and *Bifidobacterium*. Infant stool *Blautia* was positively correlated with breastmilk and plasma urolithin B-glucuronide and infant stool *Enterococcus* was inversely related to breastmilk maternal plasma urolithin B-glucuronide, and maternal plasma urolithin B-glucuronide and dimethyl ellagic acid glucuronide.[1]

An open-label, nonblinded study randomized mothers of newborn infants to receive either concentrated pomegranate juice 15 mL 3 times daily or nothing (i.e., no placebo control). There were 43 mother-infant pairs in each group. The concentrate was made from the juice of fresh pomegranates concentrated at a warm temperature to a Brix of 60%. The total phenol content was 13.56 mg/g and the total flavonoid was 1.39 mg/g. All of the infants were over 72 hours old, had a gestational age over 37 weeks and birth weight over 2500 grams. Both groups were being treated with phototherapy for hyperbilirubinemia (total serum bilirubin level over 15 mg/dL). There was a greater decrease in bilirubin levels in the pomegranate group at 48 and 72 hours after the start of phototherapy and at 48 hours after discharge. In addition, the mean duration of phototherapy in the pomegranate group was significantly shorter (52 hours compared to 65 hours) than in the no-pomegranate group. All infants in the pomegranate group were discharged by 96 hours after the start of treatment compared to 114 hours in the no-pomegranate group. No side effects were observed in the infants whose mothers received pomegranate juice concentrate.[2]

## Effects on Lactation and Breastmilk

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

## References

1. Henning SM, Yang J, Lee RP, et al. Pomegranate juice alters the microbiota in breast milk and infant stool: A pilot study. *Food Funct* 2022;13:5680-9. PubMed PMID: 35510588.
2. Rezapour M, Zahedpasha Y, Kamalinejad M, et al. The effect of oral use of concentrated pomegranate juice by mothers on hyperbilirubinemia in neonates under phototherapy: A randomized clinical trial. *J Res Med Sci* 2023;28:46. PubMed PMID: 37496646.

## Substance Identification

### Substance Name

Pomegranate

### Scientific Name

*Punica granatum*

### Drug Class

Breast Feeding

Lactation

Milk, Human

## Complementary Therapies

Food

Phytotherapy

Plants, Medicinal