

MOTHERISK UPDATE

Gideon Koren, MD, FRCPC

Drinking alcohol while breastfeeding

Will it harm my baby?

ABSTRACT

QUESTION I recently delivered a healthy, full-term baby and am now breastfeeding exclusively. I abstained from drinking alcohol during my entire pregnancy and am wondering if drinking alcohol now would harm my nursing baby.

ANSWER Nursing mothers who choose to drink alcohol during the postpartum period should carefully plan a breastfeeding schedule by storing milk before drinking and waiting for complete elimination of alcohol from their breast milk after drinking. Motherisk has created an algorithm to estimate how long it takes to eliminate alcohol from breast milk.

RÉSUMÉ

QUESTION J'ai récemment accouché à terme d'un enfant en santé que j'allaite maintenant exclusivement. Je me suis abstenue de boire de l'alcool durant toute ma grossesse et je me demandais si la consommation d'alcool nuirait maintenant à l'enfant que j'allaite.

RÉPONSE Les mères qui allaitent et choisissent de boire de l'alcool après l'accouchement devraient soigneusement se fixer un horaire d'allaitement et prévoir de prélever du lait avant de boire, puis d'attendre l'élimination complète de l'alcool dans leur lait par la suite avant d'allaiter. Motherisk a produit un algorithme estimant la période requise pour éliminer l'alcool du lait maternel.

A mple evidence indicates that drinking alcohol during pregnancy poses a severe and avoidable risk to unborn babies. The risks of drinking alcohol while breastfeeding, however, are not well defined. Currently, some mothers are still advised by physicians, nurses, lactation consultants, family members, and friends that it is all right to drink,¹ even though an acceptable level of alcohol in breast milk has never been established.

Alcohol consumed by a mother passes easily into her breast milk at concentrations similar to those found in her bloodstream. A nursing infant is actually exposed to only a fraction of the alcohol the mother

ingests,² but infants detoxify alcohol in their first weeks of life at only half the rate of adults.³

Several proven or potential adverse effects of alcohol on suckling infants have been reported, even after exposure to only moderate levels: impaired motor development,⁴ changes in sleep patterns,⁵ decrease in milk intake,⁶ and risk of hypoglycemia.⁷ In addition, drinking large

amounts of alcohol could affect lactating women's milk flow.^{8,9}

Some report that beer aids milk production and that infants prefer alcohol-flavoured breast milk. Even though beer increases maternal milk production and alcohol enhances its flavour, evidence indicates that the presence of alcohol in breast milk has an overall effect of decreasing infant consumption by 23%.⁶ The underlying mechanism for this reduction is unknown. At this time, there are no known benefits of exposing nursing infants to alcohol. Although occasional drinking while nursing has not been associated with overt harm to infants, the possibility of adverse effects has not been ruled out. Occasional

Do you have questions about the safety of drugs, chemicals, radiation, or infections in women who are pregnant or breastfeeding? We invite you to submit them to the Motherisk Program by fax at (416) 813-7562; they will be addressed in future Motherisk Updates. Published Motherisk Updates are available on the College of Family Physicians of Canada website (www.cfpc.ca). Some articles are published in *The Motherisk Newsletter* and on the Motherisk website (www.motherisk.org) also.

Motherisk questions are prepared by the **Motherisk Team** at the Hospital for Sick Children in Toronto, Ont. **Dr Koren** is Director of the Motherisk Program.

CLINICAL CHALLENGE ❖ DÉFI CLINIQUE

.....

drinking, however, does not warrant discontinuing breastfeeding, as the benefits of breastfeeding are extensive and well recognized.¹⁰ Until a safe level of alcohol in breast milk is established, no alcohol in breast milk is safest for nursing babies. It is, therefore, prudent for mothers to delay breastfeeding their babies until alcohol is completely cleared from their breast milk.

Previous guidelines for determining the time needed to eliminate

alcohol from breast milk were rough estimates based on number of drinks consumed. By also taking into account mother's weight, which affects milk-alcohol concentration, a more accurate estimate of how long a nursing mother should delay breastfeeding can be determined.

With pharmacokinetic modeling, the Motherisk team produced an algorithm to help breastfeeding mothers and their health care providers determine how long it takes

to eliminate alcohol completely from breast milk (**Table 1**).¹¹ Time should be calculated from the beginning of drinking.

Because alcohol elimination follows zero-order kinetics, drinking water, resting, or "pumping and dumping" breast milk will not accelerate elimination.¹² Unlike urine, which stores substances in the bladder, alcohol is not trapped in breast milk, but is constantly removed as it diffuses back into the bloodstream.²

Table 1. Time from beginning of drinking until clearance of alcohol from breast milk for women of various body weights: Assuming alcohol metabolism is constant at 15 mg/dL and woman is of average height (1.62 m [5'4"]).

MOTHER'S WEIGHT KG (LB)	NO. OF DRINKS* (HOURS : MINUTES)												
	1	2	3	4	5	6	7	8	9	10	11	12	
40.8 (90)	2:50	5:40	8:30	11:20	14:10	17:00	19:51	22:41					
43.1 (95)	2:46	5:32	8:19	11:05	13:52	16:38	19:25	22:11					
45.4 (100)	2:42	5:25	8:08	10:51	13:34	16:17	19:00	21:43					
47.6 (105)	2:39	5:19	7:58	10:38	13:18	15:57	18:37	21:16	23:56				
49.9 (110)	2:36	5:12	7:49	10:25	13:01	15:38	18:14	20:50	23:27				
52.2 (115)	2:33	5:06	7:39	10:12	12:46	15:19	17:52	20:25	22:59				
54.4 (120)	2:30	5:00	7:30	10:00	12:31	15:01	17:31	20:01	22:32				
56.7 (125)	2:27	4:54	7:22	9:49	12:16	14:44	17:11	19:38	22:06				
59.0 (130)	2:24	4:49	7:13	9:38	12:03	14:27	16:52	19:16	21:41				
61.2 (135)	2:21	4:43	7:05	9:27	11:49	14:11	16:33	18:55	21:17	23:39			
63.5 (140)	2:19	4:38	6:58	9:17	11:37	13:56	16:15	18:35	20:54	23:14			
65.8 (145)	2:16	4:33	6:50	9:07	11:24	13:41	15:58	18:15	20:32	22:49			
68.0 (150)	2:14	4:29	6:43	8:58	11:12	13:27	15:41	17:56	20:10	22:25			
70.3 (155)	2:12	4:24	6:36	8:48	11:01	13:13	15:25	17:37	19:49	22:02			
72.6 (160)	2:10	4:20	6:30	8:40	10:50	13:00	15:10	17:20	19:30	21:40	23:50		
74.8 (165)	2:07	4:15	6:23	8:31	10:39	12:47	14:54	17:02	19:10	21:18	23:50		
77.1 (170)	2:05	4:11	6:17	8:23	10:28	12:34	14:40	16:46	18:51	20:57	23:03		
79.3 (175)	2:03	4:07	6:11	8:14	10:18	12:22	14:26	16:29	18:33	20:37	22:40		
81.6 (180)	2:01	4:03	6:05	8:07	10:08	12:10	14:12	16:14	18:15	20:17	22:19		
83.9 (185)	1:59	3:59	5:59	7:59	9:59	11:59	13:59	15:59	17:58	19:58	21:58	23:58	
86.2 (190)	1:58	3:56	5:54	7:52	9:50	11:48	13:46	15:44	17:42	19:40	21:38	23:36	
88.5 (195)	1:56	3:52	5:48	7:44	9:41	11:37	13:33	15:29	17:26	19:22	21:18	23:14	
90.7 (200)	1:54	3:49	5:43	7:38	9:32	11:27	13:21	15:16	17:10	19:05	20:59	22:54	
93.0 (205)	1:52	3:45	5:38	7:31	9:24	11:17	13:09	15:02	16:55	18:48	20:41	22:34	
95.3 (210)	1:51	3:42	5:33	7:24	9:16	11:07	12:58	14:49	16:41	18:32	20:23	22:14	

*1 drink = 340 g (12 oz) of 5% beer, or 141.75 g (5 oz) of 11% wine, or 42.53 g (1.5 oz) of 40% liquor.

Example no. 1: For a 40.8-kg (90-lb) woman who consumed three drinks in 1 hour, it would take 8 hours, 30 minutes for there to be no alcohol in her breast milk, but for a 95.3-kg (210-lb) woman drinking the same amount, it would take 5 hours, 33 minutes.

Example no. 2: For a 63.5-kg (140-lb) woman drinking four beers starting at 8:00 PM, it would take 9 hours, 17 minutes for there to be no alcohol in her breast milk (ie, until 5:17 AM).

CLINICAL CHALLENGE



DÉFI CLINIQUE

.....

Mothers who choose to drink alcohol while breastfeeding should be aware of the documented effects on nursing infants. Carefully planning a breastfeeding schedule and waiting for complete alcohol clearance from breast milk can ensure that babies are not exposed to any alcohol ❁.

Acknowledgment

Supported by the Brewers Association of Canada and the Duchesnay and Canadian Foundation for Women's Health Chair in Better Pharmacotherapy During Pregnancy and Lactation. Dr Koren is a Senior Scientist of the Canadian Institutes for Health Research.

References

1. Menella JA. Infant's suckling response to the flavour of alcohol in mother's milk. *Alcohol Clin Exp Res* 1997;21:581-5.
2. Lawton ME. Alcohol in breast milk. *Aust N Z J Obstet Gynaecol* 1985;25:71-3.
3. Abel EL. *Pharmacology of alcohol relating to pregnancy and lactation*. Buffalo, NY: Plenum Press; 1984. p. 29-45.
4. Little RE, Anderson KW, Ervin CH, Worthington-Roberts B, Clarren SK. Maternal alcohol use during breastfeeding and infant mental and motor development at one year. *N Engl J Med* 1989;321:425-30.
5. Mennella JA, Gerrish CJ. Effects of exposure to alcohol in mother's milk on infant sleep. *Pediatrics* 1998;101:E2.
6. Mennella JA, Beauchamp GK. The transfer of alcohol to human milk. Effects on flavor and the infant's behavior. *N Engl J Med* 1991;325:981-5.
7. Lamminpaa A. Alcohol intoxication in childhood and adolescence. *Alcohol Alcohol* 1995;30:5-12.
8. Cobo E. Effect of different doses of ethanol on the milk-ejection reflex in lactating women. *Am J Obstet Gynecol* 1973;115:817-21.
9. Coiro V, Alboni A, Gramellini D, Cigarini C, Bianconi L, Pignatti D, et al. Inhibition by ethanol of the oxytocin response to breast stimulation in normal women and the role of endogenous opioids. *Acta Endocrinol* 1992;126:213-6.
10. American Academy of Pediatrics. Work Group on Breastfeeding. Breastfeeding and the use of human milk. Work Group on Breastfeeding. American Academy of Pediatrics. *Pediatrics* 1997;100:1035-9.
11. Ho E, Collantes A, Kapur BM, Moretti M, Koren G. Alcohol and breast feeding: calculation of time to zero level in milk. *Biol Neonate* 2001;80:219-22.
12. Anderson PO. The galactopharmacopedia, alcohol and breastfeeding. *J Hum Lact* 1995;11:321-3.

...