

More than a lucrative liquid: the risks for adult consumers of human breast milk bought from the online market

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The latest supplement – touted as completely natural, free-from and a ‘super food’ – human breast milk has emerged as a recent craze among adults. While breast milk has long been promoted as optimal for infant nutrition, among CrossFit, BodyBuilding, Palaeo and other fitness communities, fetishists, chronic disease sufferers and even foodies, breast milk is in demand. In the UK, breast milk ice cream is for sale. In the USA, a lollypop company sells a breast milk-flavoured sweet. Primarily, though, the milk is sold in its raw state, ready to drink.

At present, a number of Internet sites and forums cater to those wishing to buy or sell breast milk.¹ These sites allow women who are expressing milk to advertise both with text and images, communicating details such as cost per ounce and a description of milk’s source. Buyers can also advertise, detailing needs and volume requirements in order to find an appropriate donor or seller. Unlike licenced milk banks, which are directed at infant feeding needs, these forums allow adult buyers to seek sellers, and sellers to advertise that they will ‘sell to men’ or adult buyers. Individuals can then follow up on these advertisements, contacting each other either to meet or to conduct transactions via distance selling, with the milk being shipped, usually by courier, after being frozen and/or packed in dry ice.

Milk is often sold at a premium for adult buyers, with sellers charging as much as four times the price for non-infant feeding sales, a premium that has received high-profile media coverage.² But why are adult consumers paying a premium for human milk? Online forums are replete with posts boasting about the immune, recovery, nutritional and muscle building benefits of human milk. For those seeking a competitive edge, this milk is supposed to deliver significant returns. A ‘clean’ super food, it is purported to lead to ‘gains’ in the gym, to help with erectile dysfunction, to be more digestible and to contain positive immune building properties.

Such purported benefits do not stand up clinically, however. Nutritionally, there is less protein in breast milk than other milks like cow’s milk.³ Chemical and environmental contaminants are known to make their way into breast milk, just like the food chain more broadly.^{4,5} No scientific study has evidenced that direct adult consumption of human milk for medicinal properties offers anything more than a placebo effect, and rather where breast milk offers clinical and nutritional researchers much promise is at a component or stem cell level.^{6,7} The benefits of breast milk are being found in the lab, not in drinking a bottle ordered online from an expressing mum.

Indeed, raw human milk purchased online or in an unpasteurised state poses many risks. It exposes consumers to food-borne illnesses like any other raw milk. Research into breast milk bought online identified the presence of detectable bacteria in 93% of samples, with Gram-negative bacteria in 74% of samples.⁸ Such levels of bacteria can be attributed to the failure to sanitise properly when expressing milk, the failure to sterilise equipment properly, improper or prolonged storage of milk and improper transportation of milk.

The lack of pasteurisation and testing not only indicates a bacterial risk but breast milk also exposes consumers to a host of infectious diseases, including cytomegalovirus, hepatitis B and C, HIV-1/2, HTLV-I&II and syphilis.^{7,9} While many online mums claim they have been tested for viruses during pregnancy, many do not realise that serological screening needs to be undertaken regularly, as a one-off test may produce a false negative during the initial period after the virus was contracted. Sexual and other activities in the postpartum period may expose the woman expressing to viruses that they unwittingly pass on to consumers of the milk.

Improper storage not only increases the risk of food-borne illness but also may introduce toxins

into the milk. Many online sellers are selling to multiple clients, and thus are buying containers online, posing the risk of high levels of Bisphenol A, a synthetic chemical linked to health problems and banned for use in infant bottles in the EU and Canada, being present in the plastic.⁹ Additionally, alcohol, drugs (both prescription and illicit), tobacco and caffeine pass into the milk alongside other environmental contaminants, meaning chemicals and toxins may be in the milk that those seeking 'to eat clean' are themselves shunning.^{3,5} Milk bought online may also contain cow's milk, water or another milk like soy, if the seller has added a substance to increase the selling volume, as most milk is sold by ounce volume.¹⁰

In sum, breast milk purchased online is not optimal for adult nutrition or in the treatment of disease, as milk bought online poses more risks than proven benefits. As adult consumers are generally ineligible for milk banks, unless milk is coming from a known source – a lactating partner, for instance – it comes from an online source and therefore poses many unknown potentials for communicable disease. Buying online potentially exposes the consumer to bacteria, viruses and contaminants that render this not a 'clean' 'super food' for performance nutrition or supplementation. More than this, human milk is potentially very hazardous if used to replace a healthy balanced diet, as it contains less protein than other milk sources, contrary to the suppositions of online fitness forums. Thus, the authors find human milk consumption by adults purchasing milk online is ill-advised. Health professionals and regulators both must be aware of this growing trend and issue public guidance against the purchasing of human milk from Internet sources for adult as well as infant feeding.

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References

1. Horton H. *Josie Cunningham to Sell Breast Milk: Will She Really Make £300 a Day? Mirror*. See <http://www.mirror.co.uk/news/ampp3d/josie-cunningham-sell-breast-milk-4467930> (last checked 20 October 2014).
2. Jensen RG, ed. *Handbook of Milk Composition*. San Diego, CA: Academic Press, 1995.
3. Anderson HA and Wolff MS. Environmental contaminants in human milk. *J Expo Anal Environ Epidemiol* 2000; 10: 755–760.
4. Sonawane BR. Chemical contaminants in human milk: an overview. *Environ Health Perspect* 1995; 103 (Suppl 6): 197–205.
5. Gustafsson L, Leijonhufvud I, Aronsson A, Mossberg AK and Svanborg C. Treatment of skin papillomas with topical alpha-lactalbumin-oleic acid. *N Engl J Med* 2004; 350: 2663.
6. Hassiotou F, Beltran A, Chetwynd E, Stuebe AM, Twigger AJ, Metzger P, et al. Breastmilk is a novel source of stem cells with multilineage differentiation potential. *Stem Cells* 2012; 30: 2164–2174.
7. Keim S, Hogan J, McNamara K, Gudimetla V, Dillon C, Kwiek J, et al. Microbial contamination of human milk purchased via the Internet. *Pediatrics* 2013; 132: 1227–1235.
8. Keim S, McNamara K, Jayadeva C, Braun A, Dillon C and Geraghty S. Breast milk sharing via the Internet: the practice and health and safety considerations. *Matern Child Health J* 2013; 18: 1471–1479.
9. Vogel S. The politics of plastics: the making and unmaking of bisphenol a "safety". *Am J Public Health* 2009; 99(S3): 559–566.
10. David S. Legal commentary on the Internet sale of human milk. *Public Health Rep* 2011; 126: 165.



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