

ESTIMATION OF MILK PRODUCTION BY LACTATING MOTHERS

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The volume of milk produced daily by breast-feeding women has been the subject of investigation for many years. Until recently, the usual method of estimating human milk consumption has been by weighing the nursing infant before and after each feed. Two alternative methods more convenient for some studies of this type are the principle of dilution of deuterium oxide (Coward *et al*, 1979), and the technique of weighing the mother before and after each feed (Rattigan *et al*, 1979).

The current investigation was undertaken as a pilot study to test the applicability of the method developed by Rattigan *et al*, to studies presently being conducted in the Geelong area.

Instead of using lactating mothers, the pilot study was performed with 12 female volunteers from within the University. Each volunteer simulated lactation for a day, by consuming six (in one case, five) cups of orange juice, or "test feeds", of volumes between 50 and 225 ml. Body weight was measured before and immediately after consumption of each quantity of fluid on an Avery platform scale with 50 g gradations. An additional body weight measurement was made 30 minutes after each "test feed". Table 1 indicates the results.

Table 1 : COMPARISON OF ACTUAL AND ESTIMATED FLUID CONSUMPTION

Change in body weight in g. after "test feed" less weight of fluid consumed. (mean \pm S.D.)	
Immediately after fluid ingestion	1.76 \pm 42.26, n = 71
30 minutes after fluid ingestion	-25.63 \pm 45.45, n = 71

The mean difference between the actual weight of fluid consumed, and weight estimated by test weighing of the females immediately after fluid consumption indicates that in measuring the volume of a feed in a population of lactating mothers, milk output would only be under-estimated by 2 g per feed, using this method. It was interesting to note however, that if the post-feed weighing of the mothers was delayed for 30 minutes, an over-estimation of milk output by 26 g per feed would be reported. This is in accordance with the expected insensible water loss for that period of time, and could presumably lead to even greater errors in determination of milk production in areas with high ambient temperatures, and low relative humidity.

The method of Rattigan *et al* (1979) would be suitable for population studies, provided post-feed weights are recorded immediately after each feed. The error involved in measuring the volume of single feeds in individual women is however, high, but with the use of a more sensitive scale, this can be reduced.

COWARD, W A, SAWYER, M B, WHITEHEAD, R G, PRENTICE, A M, and EVANS, J (1979), Lancet *ii*, 13.

RATTIGAN, S, CHISALBERTI, A V, and HARTMANN, P E (1979) Proc. Nutr. Soc. Aust. *4*, 115.

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