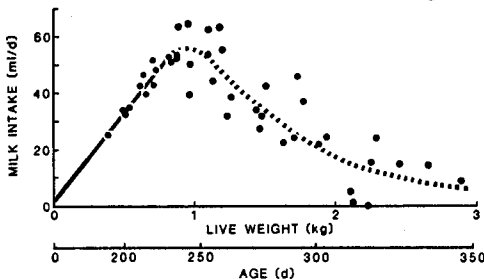


MILK CONSUMPTION IN LATE LACTATION IN A MARSUPIAL,  
THE TAMMAR WALLABY (*MACROPUS EUGENII*).

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The tamar wallaby is an herbivorous marsupial of 4-5 kg mature live-weight. Like all marsupials, development of offspring is characterised by a short gestation followed by a long period of lactation spanning developmental stages typical of both gestation and lactation in other mammals. The mammary gland grows throughout early lactation and the composition of the milk changes markedly between early and late lactation (Green 1984). Milk intake by tamar offspring before they begin to ingest herbage (up to 800 g weight or 30 weeks of lactation) has been estimated from dilution of  $^{22}\text{Na}$  (Green 1984) but no data are available beyond this stage for any marsupial because of interference by dietary Na. Similarly, intake of free water during this time prohibits the use of water labelled with a single isotope of hydrogen to estimate milk intake (Dove and Freer 1979) but the problem can be circumvented by using different labels in the mother and offspring (Holleman et al. 1975).

We estimated milk intake using a modification of the method of Holleman et al. (1975) in nine tammar on six occasions over the weight range 400-2800 g (210-350 d). Transfer of milk to offspring was determined from their serum specific activity after injecting the mothers with tritium. The size and fractional turnover rate of the tritium distribution space in the offspring were determined by injecting offspring with deuterium and sampling serum at equilibrium and again after 8 days. Tritium and deuterium were assayed by liquid scintillation counting and infra-red spectrometry respectively.



Milk intake by tammar wallabies in relation to live-weight and age of offspring. Solid line is Green's (1984) relationship between milk intake and live-weight.

Milk intakes are shown above in relation to live-weight and age of offspring. The results match closely with the relationship between milk intake and weight obtained for early to mid lactation by Green (1984). Peak intake of approximately 56 ml/d occurred near 1 kg live-weight or 240 d of age, which is the time when the mammary gland reaches maximum size (Green 1984). Using data on milk composition from Green (1984), peak energy consumption was estimated to be 504 kJ/d or 162 kJ per unit of maternal metabolic mass ( $\text{kg}^{0.75}$ ) or 580 kJ per unit of offspring metabolic mass ( $\text{kg}^{0.83}$ ). Each of these estimates is low compared with values for most other mammals. The relatively long period from conception to weaning in herbivorous marsupials may tend to stretch the lactation curve and lower its peak.

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