

# MILK COMPOSITION OF THE RETICULATED GIRAFFE (*GIRAFFA CAMELOPARDALIS RETICULATA*) THROUGH LACTATION

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## **Abstract**

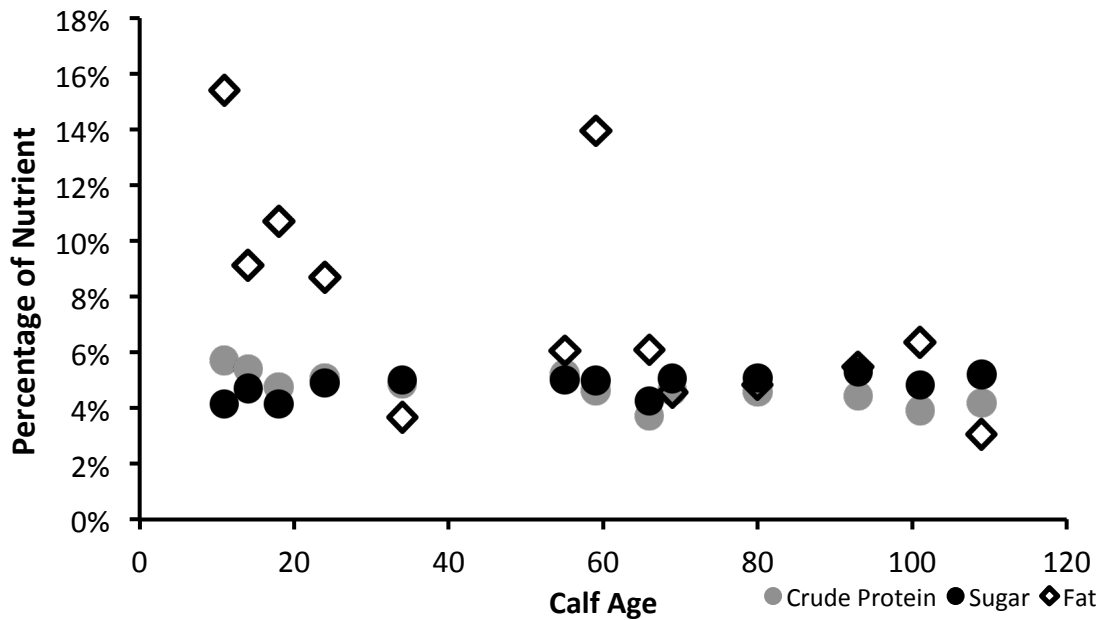
Reticulated giraffes (*Giraffa camelopardalis reticulata*) are the most common subspecies of giraffe maintained in zoological institutions. The gestation length for a reticulated giraffe is about 455 days (15 months). Lactation in wild giraffes has been estimated to last 12-13 months. The milk samples used in this study were part of the Smithsonian National Zoological Park's Milk Repository and had been stored at -20°C since collection. For this study 15 reticulated giraffe milk samples from three individuals were analyzed. Two of the individuals had only one milk sample analyzed, while the other 13 milk samples came from the same individual over a single lactation. Milk samples were analyzed from day 11 post-partum through day 268 post-partum. Samples were assayed for dry matter (DM), fat, sugar, crude protein (CP), and ash, using standard methods that have been validated at the Nutrition Laboratory of the Smithsonian National Zoological Park and performed on milks from about 200 species of mammals. Gross energy was calculated using the formula:  $9.11 * \text{fat} + 3.95 * \text{sugar} + 5.86 * \text{CP}$ .<sup>4</sup>

Reticulated giraffe milk was higher in dry matter during the first month of lactation (25.7 versus 17.9%). Reticulated giraffe milk had very little change in sugar or crude protein over the lactation on an as-is basis. On an as-is basis, fat tended to be much higher in the first month of lactation (11.0%) than the remainder of lactation (5.9%). There was more fluctuation in the amount of fat on an as-is basis over lactation than crude protein or sugar. The ash content of reticulated giraffe milk was fairly constant over lactation (0.98%). Reticulated giraffe milk had 1.48 kcal/g milk during the first month of lactation and 1.00 kcal/g milk over the remainder of lactation. When viewed on a mg nutrient per kcal GE basis, crude protein and sugar increased over lactation while fat decreased. Reticulated giraffe milk contained 36mg protein/kcal milk during the first month of lactation and 47.3mg protein/kcal milk for the remainder of lactation, suggesting an increase in growth rate for calves after the first month post-partum. After two months of lactation mg of crude protein, sugar, and fat in one kcal of milk was evenly distributed.

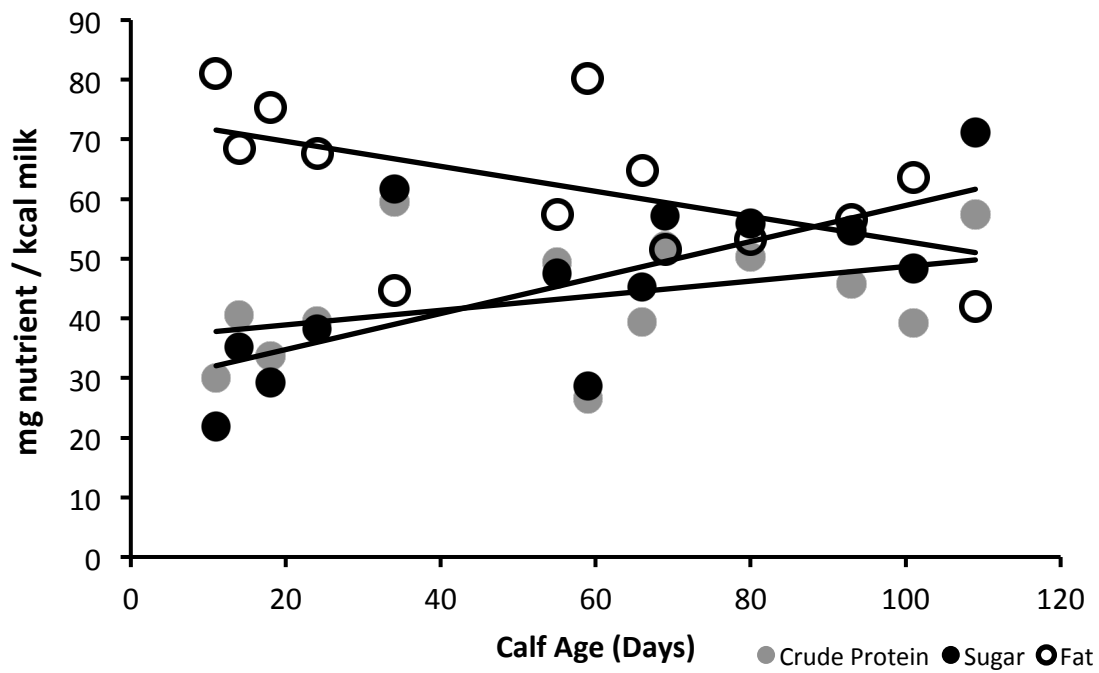
## **Literature cited**

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**Figure 1.** Nutrient composition of reticulated giraffe milk expressed as a percentage on an as-is basis. Day 30 was excluded due to very different values compared to the other milk samples. Day 268 is not included in the figure due to difficulty seeing relationships when included due to a large gap in sample days.



**Figure 2.** Nutrient composition of reticulated giraffe milk expressed as mg nutrient per kcal milk. Day 30 was excluded due to very different values compared to the other milk samples. Day 268 is not included in the figure due to difficulty seeing relationships when included due to a large gap in sample days.