

Glucose and fatty acid oxidation in reindeer

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Abstract: Although winter energy expenditure (EE) in reindeer is lower than in summer and is thought to be highly regulated, there are no data on nutrient substrate oxidation. This study was conducted on adult reindeer given either a high quality pelleted ration (QT, 18% CP) or mixed lichens (ML, 3% CP) and the oxidation rate of fatty acid and glucose was determined using ^{14}C labeling ($1\text{-}^{14}\text{C}$ stearic acid, $\text{U-}^{14}\text{C}$ glucose). Stearic acid made up 21 to 31% of the total NEFA (0.07-0.18 mM/ml) and supplied 1 to 6% of the EE for both diets; 36 to 45% of stearate was oxidized. Glucose levels on the QT diet (5.96 mM/l) exceeds those for lichens (3.59 mM/l) and likewise glucose oxidation provided 6.0% QTX vs. 4.5% ML of EE. Total fatty acid contribution to EE was 25%, glucose 6 and rumen volatile fatty acid 60%.

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