

Characteristics of fatty acid composition of adipose tissue and serum lipids in reindeer calves

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Abstract: Fatty acid composition of adipose tissue and serum lipids were studied in newborn and growing (1.5-month-old) reindeer. Material was collected during 1985 and 1986 at the Kaamanen research station. Lipids were extracted with methanolchloroform and fatty acid methyl esters of lipid fractions were analysed by gas liquid chromatograph. Fatty acids of adipose tissue triglycerides in newborn calves were predominantly unsaturated (51%) referring to fluid properties of brown adipose tissue lipids. The dominant fatty acid was oleic acid (18:1) with 46% followed by palmitic acid (16:0) with 30% and stearic acid (18:0) with 15%. Triglycerides (TG) contained 3% polyunsaturated fatty acids (PUFA), the majority of which was essential fatty acids (EFA). In growing reindeer adipose tissue TG were predominantly saturated (67%). The dominant fatty acid was 16:0 (34%) followed by 18:1 (29%) and 18:0 (25%). Adipose tissue phospholipids (PL) were mainly unsaturated in both age groups. The proportion of PUFA was 23%, of which majority was EFA, necessary to normal structure and function of biomembranes. A high correlation existed between fatty acid composition of adipose tissue TG and PL with serum TG in newborn calves ($r=0.982$ and 0.924). Fatty acids of serum TG were saturated by 54%. The dominant fatty acids were 18:1, 16:0 and 18:0 with percentages of 38,32 and 12, respectively.

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