

Käännöksiä

NOR tulee kääntämään norjaksi tai ruotsiksi muutamia artikkeleja suomesta, erikoisesti «Poromies»-lehdestä, joka on suomalainen poronhoito-lehti. On myöskin suunnitteilla venäläisten julkaisujen käännöksiä hankkiminen siinä määrin kuin sellaisia mahdollisesti löytyy.

DISSERTATION



Kjell J. Nilssen.

The thesis *Factors affecting energy expenditure in reindeer* by Kjell J. Nilssen was approved for the Phil. dr's degree at the University of Tromsø. The dissertation took place in Tromsø December 15.1984.

Doktordisputas

Avhandlingen *Faktorer som innvirker på reinens energi* av Kjell J. Nilssen ble godkjent til å forsvares for den filosofiske doktorgrad ved Tromsø Universitet. Doktordisputasen fant sted i Tromsø 15. desember 1984.

SYNOPSIS

Measurements in Norwegian and Svalbard reindeer have revealed a seasonal change in resting metabolic rate. A linear relationship between food intake and metabolic rate indicated that the metabolic changes are results of the thermic effects from feeding. This hypothesis was supported by results from metabolic measurements in food-restricted animals. Accordingly, it was concluded that the reindeer do not reduce their basal metabolic rate to conserve energy during winter.

Further experiments also established a linear relationship between metabolic rate and running speed in both sub-species. This relationship did not differ with season or ambient temperature (within thermoneutrality). Energy cost of locomotion was slightly higher for the Svalbard than for the Norwegian reindeer. There was no evidence of an improved economy of locomotion (due to the evolution of the migratory behaviour) in reindeer.

In winter, both reindeer subspecies were found to be thermally well protected against cold as reflected in a low total body conductance. Furthermore, it was found that these animals can vary the over-all insulation by changes in peripheral circulation and respiratory heat loss. The increased winter insulation was found to effect the avenues for heat loss during exercise. Thus, body surface including the extremities were most important during summer, while the reindeer was more dependant on respiratory heat loss in winter. During exercise, respiratory minute volume decreased with decreasing ambient temperature. The reduction in respiratory minute volume leads to reduced respiratory water loss. Altogether, the results indicate that the Norwegian and the Svalbard reindeer regulate energy expenditure mainly by changes in locomotoric activity and insulation.

Thyroid hormone concentrations in blood from captive or free-ranging Norwegian and Svalbard reindeer exhibited seasonal changes with low levels in winter. Short time changes (within 24 hours) exhibiting no diel rhythms, were furthermore documented in the Norwegian reindeer. Plasma T_3 and FT_4 levels were subjects to changes if food intake was restricted. Studies in Norwegian reindeer, using radioactively labelled hormones, indicate that T_3 and T_4 disappearance rates were independent of food intake. Accordingly, a change in secretion rate, or a change in equilibrium between plasma protein bound and free thyroxine concentrations, were therefore suggested to explain the changes in the FT_4 hormone profiles. A change in the rate of peripheral monodeiodination of T_4 to T_3 was assumed to cause the variability in the T_3 plasma profile.

Results from studies combining measurements of metabolic rate and plasma T_3 and FT_4 levels could not support a hypothesis of a relationship between resting metabolic rate and plasma thyroid hormone levels in reindeer. The decreased plasma T_3 and FT_4 levels during winter and during starvation were suggested to reflect conservation of protein.