

## Vitamins A and E in liver, kidney, and whole blood of East Greenland polar bears sampled 1994–2008: reference values and temporal trends - DTU Orbit (08/11/2017)

### Vitamins A and E in liver, kidney, and whole blood of East Greenland polar bears sampled 1994–2008: reference values and temporal trends

Vitamins A (retinol) and E ( $\alpha$ -tocopherol) are dietary vitamins, essential for, e.g., growth and development, reproduction, and immune function. Persistent organic pollutants (POPs) have been found to be related to vitamin A and E metabolism. However, few investigations have been published on this health issue in polar bears (*Ursus maritimus*). The aim of this study was thus to provide reference values for concentrations of vitamin A in liver, kidney cortex, and whole blood and vitamin E in kidney cortex and whole blood from 166 East Greenland polar bears, as well as to assess the relationship between POPs and vitamin concentrations. In addition, vitamin concentrations were analyzed for temporal trends (1994–2008). Results showed vitamin A in liver to be higher in adult bears and the concentrations of vitamin E in kidney and blood to likewise be generally higher in adult bears. In addition, all analyzed contaminant groups were correlated with at least one of the vitamin parameters, predominantly in a negative way. Finally, vitamin A liver concentrations as well as concentration of vitamin E in kidney and blood showed a temporal increase. Together, these results add to the weight of evidence that POPs could be disrupting polar bear vitamin status. However, while the observed temporal increases in vitamin concentrations were likely POP related, the question remains as to whether they stem from influence of contaminants only or also, e.g., changes in prey species. Further studies are needed to tease apart the causes underlying these changes in vitamin concentrations.

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