

Influences of diet, gestation and age on haematology and plasma chemistry of the harbour seal, *Phoca vitulina*

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The study was carried out in March 1984 with 23 harbour seals, *Phoca vitulina*, which were kept in captivity at the Research Institute for Nature Management on the island Texel, in the Netherlands. The seals, aged from approximately 5 to 13 years, were all females; 13 of them were pregnant at the time of blood sampling, and 5 had produced a pup in the previous year. The seals had been divided arbitrarily into 2 groups, of 12 and 11 animals. One group was fed on mackerel which had been caught in the North Sea. The other group was fed on a mixture of fishes, mainly plaice and flounder, caught in the Dutch part of the Wadden Sea. The fish was deep-frozen and was fed to the seals within a month after capture.

Blood samples were taken, once only, from the hind flipper of the seals, and sent for analysis to the laboratories of the Faculty of Veterinary Science of the State University of Utrecht and of the Bergschot Research Centre in Breda.

The results of these analyses were used to help establish normal values of the measured blood parameters for the harbour seal.

The influence of diet on the blood values was determined with use of the Wilcoxon's test. The

other variables were not judged statistically due to the small number of samples.

The group of seals fed fish from the Wadden Sea showed significantly lower concentrations of white blood cells, glucose, triglycerides, total cholesterol, bilirubin, creatinine, uric acid, calcium, magnesium, iron, total protein, albumin and α -globulin. The percentage of monocytes and the iron binding capacity were also significantly lower, in comparison to the mackerel fed group. The group fed fish from the Wadden Sea showed significantly higher percentages of eosinophils, basophils, and lymphocytes, a significantly higher phosphorus concentration, and significantly higher activities of alkaline aspartate amino transferase, alanine amino transferase, and α -glutamyl transferase.

The pregnant seals had higher levels of lactate dehydrogenase and triglycerides, while seals, which had produced a pup in the previous year had a lower packed cell volume and a lower haemoglobin concentration.

The older seals also had a lower packed cell volume and haemoglobin concentration than the younger seals, while the percentage of eosinophils was higher in the older seals.