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Citation	Japanese Journal of Veterinary Research, 37(2), 139-139
Issue Date	1989-06-20
Doc URL	<a href="https://hdl.handle.net/2115/3181">https://hdl.handle.net/2115/3181</a>
Type	departmental bulletin paper
File Information	KJ00002377284.pdf



## HEMATOLOGY AND YEARLY SEX STEROID HORMONE PROFILE OF CAPTIVE HOKKAIDO BROWN BEARS (*URSUS ARCTOS YESOENSIS*)

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Hematological and endocrinological studies were carried out in captive Hokkaido brown bears from 1983 to 1986 to obtain basic data on their physiology and reproductive physiology. Blood was taken from the anesthetized bears once a month.

Six hematological parameters were analysed from forty-six samples of 3 males and 2 females. Results of the analysis indicated large variations. The mean and standard deviation values within the confidence limit were the following; RBC, WBC, Ht and Hb were  $5.5 \pm 1.6 \times 10^6/\text{mm}^3$ ,  $7.4 \pm 2.0 \times 10^3/\text{mm}^3$ ,  $42.8 \pm 7.4\%$  and  $14.5 \pm 3.8\text{g/dl}$ , respectively. The differential leukocyte count and rate for stab neutrophil, segmented neutrophil, lymphocyte, monocyte, eosinophil and basophil were  $973 \pm 876/\text{mm}^3$  and  $18.3 \pm 12.6\%$ ;  $2710 \pm 1390/\text{mm}^3$  and  $43.5 \pm 16.9\%$ ;  $958 \pm 621/\text{mm}^3$  and  $11.8 \pm 6.9\%$ ;  $1543 \pm 823/\text{mm}^3$  and  $20.3 \pm 9.7\%$ ;  $406 \pm 271/\text{mm}^3$  and  $6.0 \pm 3.1\%$ , and  $0/\text{mm}^3$  and  $0\%$ .

To study the reproductive cycle of Hokkaido brown bear, progesterone and estradiol- $17\beta$  were analysed from pregnant, solitary non-pregnant and non-pregnant with cub females. There was a gradual increase in the progesterone of pregnant female from June to October and marked elevation occurred from November to December. This was followed by a rapid decrease in January. Similar changes in the progesterone was observed in non-pregnant female with cub but there was significantly lower progesterone in October and December. It was suggested that ovulation occurred even if there was no mating and that functional corpus luteum was present. From June to October, there was low corpus luteum activity, while from November to December, activity was increased. Even though the corpus luteum was present in the non-pregnant female with cub, low corpus luteum activity was observed as compared to the other two groups. It was also observed that pregnancy can be maintained with low level of progesterone just before parturition. It was further suggested that there is a possibility that pregnant or non-pregnant solitary females will show similar luteal phase.

It was not determined whether there was a significant variation in the estradiol- $17\beta$  level during the whole year of observation.