



Title	EXPERIMENTAL STUDIES ON DEHYDRATION IN RUMINANTS, ESPECIALLY ON CLINICAL OBSERVATIONS, CHANGES OF BLOOD CHARACTER, AND FLUCTUATION OF VARIOUS PHASES OF BODY FLUIDS IN PROLONGED WATER RESTRICTION OF GOATS
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BLOOD CHARACTER, AND FLUCTUATION OF VARIOUS  
PHASES OF BODY FLUIDS IN PROLONGED WATER  
RESTRICTION OF GOATS\***

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In order to obtain basic data for clinical application, as well as to elucidate the part of patho-physiology of body fluids in dehydration of ruminants, clinical and hematological examinations and determinations of various phases of body fluids have been carried out systemically using 18 healthy goats which come into the conditions of water depletion induced by the cessation of water intake; they received only dryfeed.

The average length of the survival period in 12 cases was 38.7 days. The earliest signs found immediately at the early stage were accentuation of heart sound, increase of the pulse rate, i.e. tachycardia and pulsus irregularis. The body temperature showed little change through the course of dehydration, while it lowered strikingly due to collapse shortly before death. Hypochloremic alkalosis was noted toward the middle stage. Because of the absence of vomiting, diarrhea and respiratory acidosis in the clinical observations, it will be logical to believe that secondary aldosteronism participates in this phenomenon.

Total body water, extracellular water and plasma volume were measured simultaneously using NAAP, NaSCN and T-1824, respectively. The normal average volumes of the body fluid compartments in the percentages of body weight in 5 adult healthy goats were as follows: total body water 61.9%, extracellular water 30.4% and plasma volume 6.3%. The maximum reductions of them at the last stage were 43.5% in total body water, 33.8% in extracellular water, 52.9% in intracellular water, 30.1% in interstitial water and 47.6% in plasma volume, respectively. From these findings, it may be summarized that considerable severe loss of body water was recognized in such a chronic and slow rate of water depletion. In view of the fact that the body weight was reduced significantly in the early stage, whereas there were no appreciable changes in the body fluids, it was presumed that the decrease of body weight at this time was due mainly to the reduction of the water content in the rumen.

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