

Effect of two type of stress on the plasmatic levels of cortisol and some haematic parameters

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1. Message

Many routine sheep handling procedures are stressfully and determine an increase blood levels of cortisol, glucose and haematic parameters.

2. Introduction

The animal response to stresses depends on the individual temperament, previous experiences and type of stress. In fact the isolation from flock of the sheep causes in the animals a rise of cortisol and glucose as also the constriction of animals. The aim of the study was to determine the effect of this two type of stress by measuring plasma concentrations of cortisol, glucose and triglycerides in Sarda sheep.



3. Methods

Three blood samples were taken from 30 sheep at 10 minute intervals, beginning at isolation. The animals have been subdivided in three groups, everyone of 10 animals: Group A separated from the flock, Group B separated and tied down, Group C control. Ewes led to natural pasture during the day, but were penned at night when they received 200g/head of feed supplement in form of commercial concentrate. Hay and water were ad libitum. Plasma cortisol concentrations were evaluated by RIA, glucose and triglycerides were measured by colorimetric assay. The data were subjected to analysis of variance.

4. Results

Cortisol and glucose levels in the second and third sample shown a higher increase ($P<0.01$) in animals that had been isolated and tied down than in the others ($P<0.05$). A comparison between the isolated and tied down groups revealed significant differences ($P<0.01$) in the third sample in levels of cortisol and glucose. All the two types of handling caused a certain amount of stress, shown by an increase in blood levels of cortisol and glucose, but tying down had a greater effect on the response of the organism.

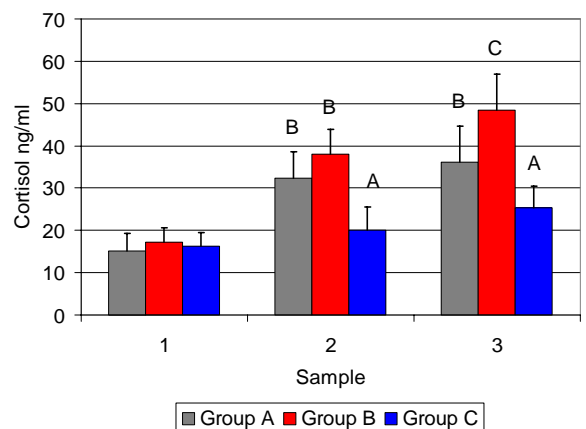


Table 1 – Mean values (\pm s.d.) of cortisol and glucose

	Cortisol			Glucose		
	Group A	Group B	Group C	Group A	Group B	Group C
1	15.21 \pm 4.1 ^A	17.18 \pm 3.4 ^A	16.23 \pm 3.2 ^a	47.14 \pm 6.4 ^A	48.15 \pm 4.8 ^A	49.54 ^a
2	32.76 \pm 6.3 ^B	38.54 \pm 5.7 ^B	20.1 \pm 5.4 ^b	59.90 \pm 8.1 ^B	74.68 \pm 7.5 ^B	60.32 ^b
3	36.66 \pm 8.5 ^C	48.56 \pm 8.6 ^C	25.35 \pm 5.1 ^b	67.28 \pm 7.5 ^C	102.88 \pm 12.5 ^C	70.21 ^b

Figure 1 - Cortisol blood levels in three group of animals

5. Conclusions

In conclusion to respect animal welfare it would be right to reduce to the necessary the time of handling.