LETTER TO THE EDITOR :

RESPONSE OF EXERCISE ON BLOOD LEUCOCYTES AND CHOLESTEROL IN CASTRATED AND UNCASTRATED MALE BUFFALOES

Sir,

An experiment was designed to compare the changes in some haematological parameters in castrated and uncastrated male buffaloes subjected to physical stress of exercise

Six healthy male buffaloes of about two years of age were used. Of these, three animals were castrated by Burdizzo castrator. The other three animals served as uncastrated control. The blood sampling was started about three months after castration. These animals were put to exercise by making them to pull a roller weighing 80 *kg* for three hours. Blood samples were collected from jugular vein before and after exercise. Total leucocyte count (TLC) and differential leucocyte count (DLC) were made using standard methods. Total cholesterol was estimated by the method of Abell *et al.* (1).

The mean values for TLC, DLC and cholesterol in uncastrated and castrated animals before and after exercise are presented in Table I. It was found that TLC in castrated

TABLE I: Effect of castration and exercise on haematological picture in male buffalo calves.

Groups	*TLC/cmm*		*Differential leucocyte count*								*Cholesterol (mg/100 ml plasma)*	
			Lymoho–cytes		*Neutro –phils*		*Eosino –phils*		*Monocy –tes*			
	BE	*AE*	*BE*	*AE*	*BE*	*AE*	*BE*	*AE*	*BE*	*AE*	*BE*	*AE*
					PERCENT VALUES							
Non- castrated	—	—	61.9^{a} ±1.4	51.4^{b} ±1.6	33.2^{a} ±1.5	44.7^{b} ±1.5	1.4^{a} ±0.6	1.0^{a} ±0.3	3.3^{a} ±0.4	2.6^{a} ±0.3	—	—
Castrated	—	—	57.4^{a} ±2.8	51.6^{b} ±2.7	32.8^{a} ±2.2	42.7^{b} ±2.2	5.3^{b} ±0.8	2.2^{c} ±0.4	4.3^{a} ±0.6	3.2^{a} ±0.6	—	—
					ABSOLUTE NUMBER							
Non-castrated	8456^{a} ±513	10956^{b} ±776	5226^{a} ±318	4625^{a} ±423	2815^{a} ±215	4759^{b} ±445	174^{a} ±75	106^{a} ±37	277^{a} ±40	275^{a} ±79	71.8^{a} ±3.45	57.7^{b} ±4.04
Castrated	10603^{b} ±515	14966^{c} ±960	6095^{b} ±392	7595^{c} ±483	3456^{a} ±288	6552^{c} ±672	594^{b} ±93	320^{c} ±55	444^{b} ±65	499^{b} ±106	68.1^{a} ±3.00	57.7^{b} ±2.93

Note: Mean values for a characteristic having different superscripts differ significantly.
Each of the mean is based on 15 observations.
BE — Before exercise.
AE — After exercise.

animals was higher by about 25 per cent as compared to uncastrated animals. The DLC on per cent basis was similar in both the groups except eosinophils, but the absolute number of all the four types of leucocytes was significantly higher in castrated animals. This may probably be due to a disturbance in the androgenic levels in castrated animals. The cholesterol level were same in both castrated and uncastrated animals.

Buffaloes in both groups behaved similarly to exercise by showing leucocytosis by 30 to 40 per cent. In both groups there was a significant decrease in percentage of lymphocytes while the absolute number showed a little rise. On the contrary, the percentage as well as absolute number of neutrophils increased markedly after exercise. The eosinophils recorded a significant fall but monocytes were not affected. Plasma cholesterol levels showed a consistant and significant fall after exercise in both groups of animals. All these changes appeared to be due to secretion of adrenal corticoids as a result of physical stress of exercise (2,3,4,5). The results indicated that exercise like any other stress, causes typical changes of lymphopenia, neutrophilia and Eosinopenia and hypocholesterolemia both in castrated and non-castrated buffaloes. Cardio-pulmonary responses to exercise are being studied to determine physical endurance of castrated and non-castrated animals.

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