

ADMINISTRATION OF EXOGENOUS TESTOSTERONE REDUCES FEED INTAKE IN MALE FALLOW DEER

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The fallow buck is a highly seasonal animal. Its seasonality is characterised by a period of heightened sexual activity, the rut, occurring in late March to early April. This event is thought to be initiated by the decrease in the prevailing photoperiod (Marshall 1937). The bucks' seasonal reproductive behaviour is associated with a marked increase in circulating testosterone levels and an accompanying decline in voluntary feed intake, irrespective of the availability of feed. We have previously suggested (Newman *et al.* 1990) that testosterone may be implicated in the regulation of feed intake in male fallow deer. In this study we investigated the effect of the administration of exogenous testosterone to fallow bucks on feed intake outside the period of the rut.

Six mature fallow bucks were maintained in individual pens at Badgery's Creek, N.S.W. (lat 34°S.) and offered a pelleted mixture of lucerne hay and oats (6:4 w/w) with 0.5% NaCl *ad libitum*. This diet was continued throughout the experiment and any residue left at the end of each feeding period was weighed and recorded. Three animals received i.m. injections of 125 mg of testosterone enanthate every 4 or 5 days for 18 days commencing 8 weeks prior to the normal onset of the rut while the remaining 3 received the vehicle only. Venous blood samples were collected weekly and assayed for testosterone by RIA.

Plasma testosterone concentrations in the treated group were elevated compared to those of the controls after the initial injection of testosterone enanthate and continued to rise after each subsequent injection. Maximum testosterone levels attained after the 18-day treatment period reached 8-13 ng/mL compared with 0-5 ng/mL in the control group (Table 1).

Table 1. Mean (\pm s.e.) feed intake (kg/week) of mature bucks with or without testosterone injection

Treatment	2 weeks pre treatment	During treatment	2 weeks post treatment
Control	9.9 \pm 0.5	9.3 \pm 0.8	10.0 \pm 1.7
Testosterone	10.3 \pm 1.0	4.5 \pm 1.1*	9.2 \pm 2.8
* Significantly different from control, $P < 0.02$.			

These results indicate that outside the rut feed intake in fallow bucks can be reduced by the administration of exogenous testosterone and that normal feeding behaviour resumes after cessation of this treatment. We conclude that elevated circulating testosterone levels may induce the decline in feed intake observed during the rut in fallow bucks.

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