LH and testosterone pulsatility and antler development in red deer stags.

621

J.M. SUTTIE, P.F. FENNESSY, I.D. CORSON, F.J. LAAS, S.F. CROSBIE K.R. LAPWOOD* & H.J. ELGAR*, Invermay Research Centre, Mosgiel and*Massey University, Palmerston North, New Zealand.

Plasma LH and testosterone were measured in blood samples taken every 30 minutes for 24 hours at monthly intervals for one year in 6 young red deer stags. During the study the stags first grew the permanent boney pedicles and then the deciduous antlers which were ultimately cleaned of velvet. Prior to pedicle development the pulse frequencies of LH and testosterone were 2.85±0.41 ($\bar{x}$±SEM)/24h and 1.15±0.24/24h. During pedicle development the frequencies were higher ($P<0.001$) at 6.36±0.72/24h and 5.0±0.42/24h for LH and testosterone respectively. During the next stage when the antlers grew in velvet the pulse frequencies were lower ($P<0.001$) being 3.00±0.54/24h for LH and 2.75±0.41/24h for testosterone. After the antlers were clean of velvet, the pulse frequencies were again increased ($P<0.001$) to 8.00±1.34/24h for LH and 10.08±0.91/24h for testosterone. Those data are consistent with the hypothesis that higher levels of testosterone due to increased pulsatility of LH are required for pedicle growth than are required for antler growth, and that high levels of testosterone are required for antler cleaning.