



SEXUAL MATURATIONAL CHANGES IN CIRCULATORY INHIBIN CONCENTRATION IN RELATION TO FSH CONCENTRATION AND TESTICULAR SIZE IN SUFFOLK AND DLS* RAMS

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ABSTRACT

Developmental patterns in immunoactive inhibin and FSH concentrations in peripheral blood were determined for Suffolk and DLS (Dorset x Leicester x Suffolk) rams born in January. Blood samples were taken every 3 to 4 wk when testes were developing during puberty (5 to 44 wk of age) and redeveloping in early adulthood (17 to 23 months of age). Suffolk lambs had a greater average daily gain (195 vs. 143 g/day, $P < 0.01$), and they developed larger testes ($P < 0.01$) than DLS lambs. Inhibin and FSH concentrations peaked at about the same pubertal (8 wk) and early adult (19 or 20 months) ages in both breeds. Elevations in FSH were greater ($P < 0.05$) in Suffolk than DLS rams at each stage of development. The pubertal inhibin peak was nearly 70% larger ($P < 0.01$) in DLS than Suffolk rams, and the early adult peak was comparable in rams of both breeds, but much smaller ($P < 0.01$) than the pubertal peak. Nonetheless, inhibin was positively correlated ($r = 0.48$ to 0.57) with FSH in both breeds during each developmental stage. Inhibin and testicular size were negatively correlated in Suffolk ($r = -0.74$) and DLS ($r = -0.86$) rams during puberty, and positively correlated in DLS rams ($r = 0.46$) in early adulthood. We conclude that 1) inhibin concentrations are higher in juvenile rams at the time Sertoli cell numbers are being established than in adult rams during testicular recrudescence and 2) rises in FSH concentration participate in regulating corresponding rises in inhibin concentration in both stages of testicular development.

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Key words: sexual maturation; inhibin and FSH; testes; breed; ram

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* A relatively new breed of sheep developed by crossbreeding Dorset, Leicester and Suffolk.