

## PHOTOPERIODIC DELAY OF PUBERTY IN MALE RED DEER

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Male red deer reach full sexual maturity around 15 months of age. Pubertal development is not a continuous process over this 15 months however. Testicular development is halted between 8 and 12 months of age during late-winter and summer followed by a rapid resurgence in development culminating in sexual maturity in autumn. In a series of experiments we have investigated the role of photoperiod in controlling this pattern of pubertal development.

The first development phase to 8 months of age appears to be independent of photoperiod. Animals born 6 to 8 weeks earlier than normal were heavier and reached an advanced stage of reproductive development before the winter-check. These animals thus achieved an early sexual maturity and the winter-check served to end this reproductive period in the normal seasonal manner. The winter growth check appeared to be due to the short photoperiod around the winter solstice as early-born animals maintained on a summer solstice photoperiod (16L:8D) continued to grow at the same rate. The photoperiod following the winter solstice appeared to delay the reactivation of development as animals placed on a 16L:8D photoperiod from the winter solstice underwent an early redevelopment phase.

We suggest that puberty in the male deer occurs in a gradual fashion that is related to body size and is unimpeded until winter. At this time photoperiodic cues halt further development until summer, thus preventing precocious puberty.