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News Release

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Hormone levels linked to survival of deer calves, study suggests

Levels of a key hormone in the blood may be important for the survival prospects of newborn animals, a study of wild deer suggests.

First-born male deer that have relatively high levels of the male hormone testosterone are less likely to survive their first year compared with their peers, the research shows.

Scientists say their findings suggest that high testosterone levels represent a risk to newborns which, when coupled with a new mother's inexperience, lowers their chances of survival.

High levels of testosterone in adult male animals, including deer, are known to be linked to dominance and aggression. However, high testosterone is also associated with lowered immunity to infection and shortened lifespan.

Scientists from the Universities of Edinburgh and Cambridge measured testosterone in blood samples taken from 850 newborn wild red deer on the Isle of Rum between 1996 and 2012.

Their study could shed light on how testosterone levels affect the health and survival of young animals, an area of research which has not yet been widely studied.

The new findings also suggest testosterone levels in offspring are linked to their mother's condition. Male deer born in the years after an older brother had lower testosterone levels than other calves. Scientists are uncertain why this might be, but suggest it is because mothers are weakened by having male calves, which are heavier and suckle for longer than females.

Alyson Pavitt, from the University of Edinburgh's School of Biological Sciences, who led the study, said: "For adult animals such as red deer, high testosterone can increase strength and dominance but reduces immunity and longevity.

"This latest finding suggests that individuals born with high testosterone may be subject to similar costs."

The study, supported by the Natural Environment Research Council, was published in *Functional Ecology*.

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