

Elevated Prenatal Progesterone Results in Increased Heart Rate in Northern Bobwhite Quail (*Colinus virginianus*) Neonates.

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Abstract:

The proposed research is designed to investigate whether increased levels of progesterone found within the yolk of Northern bobwhite quail (*Colinus virginianus*) will elevate arousal levels as measured by heart rate. Previous studies show that elevated progesterone levels cause an elevation in emotional reactivity among chicks and also influence their auditory learning. Previous studies have also indicated that an increased heart rate following an injection of norepinephrine into quail eggs prior to hatching, can interfere with prenatal auditory learning. To test whether progesterone elevation does have an effect on quail embryos' heart rate, prior to incubation 90 bobwhite quail chick eggs will be injected with progesterone, another 30 will be injected with vehicle oil, as a pseudo-experimental group, and an additional 30 eggs will not be injected and will serve as controls. At 17 days of incubation, each developing embryo will be assessed using the Buddy System Digital Egg Monitor to record its heart rate for a duration of three minutes. It is expected that those injected with progesterone will exhibit an elevated heart rate. The proposed experiment will provide a new understanding on the physiological effects prenatal hormones have on avian embryos, and how these changes can affect emotional reactivity, and in turn, prenatal auditory learning.