

Effects of delayed access to feed on growth performance, yolk absorption and gastrointestinal tract histological changes of neonate Japanese quail

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Abstract

The hypothesis of this study was to investigate how Japanese quail chicks in post-hatching period can response to delayed feeding through their growth performance and gastrointestinal tract development. One hundred and twenty as hatch Japanese quail chicks were randomly assigned to 12 pens. Four replicate groups of 10 chicks were randomly assigned to each of the three treatments. Experimental treatments included; chicks early feeding (EF) for 3h, and delayed feeding (DF) for 24 and 48h after hatching. After that, all birds were fed a mash diet ad-libitum until 15 days of age. At 1, 3, 6, 9, 12, and 15d of ages, one bird of each replicate (four birds of each treatment) was randomly selected, weighted and euthanized. Samples from the middle part of jejunum dissected free and fixed in 10% formaldehyde solution. Sections were stained with Hematoxylin and Eosin, Alcian blue-van Gieson and Periodic acid-Schiff stain. Morphometric indices were included villus height (VH), crypt depth (CD), villus width (VW), tunica muscular thickness (MT) and villus surface area (VSA). Birds subjected to treatments showed no significant differences in feed intake and residual yolk weight. In the EF birds the 15d live body weight and weight gain during the 1-15d of ages were significantly higher, but feed conversion ratio (FCR) was significantly lower than DF birds. Similarly, in the EF birds, the VH and VSA were significantly higher than DF birds. In conclusion, delayed access to feed after hatch has adverse effects on Japanese quail chick growth and gastrointestinal tract development.

Key words: Quail, Delayed feeding, Histology, Jejunum

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