

Abstract

The current study was performed to investigate the effect of duration of early feed restriction on performance, blood parameters, jejunal epithelial cell morphology and ileal microflora in broiler chicks. A total of 300 day-old Ross 308 broiler chicks were randomly distributed among 5 replicates (12 birds per each) of 5 experimental treatments. The experimental treatments consisted of a control group and 25% feed-restricted groups for 4, 6, 8 and 10 d started at 7 days of age. At d 49 of age, two randomly-selected birds per replicate were slaughtered to evaluate carcass characteristics, ileal microbial populations and jejunal epithelial cell morphology. Application of early feed restriction caused a significant ($P < 0.05$) decrease in feed intake; however, body weight gain and final body weight weren't different between feed-restricted groups and control one. Also, feed conversion ratio wasn't affected by experimental treatments. Although carcass characteristics weren't influenced by treatments, feed restriction increased ($P < 0.05$) relative weight of small intestine compared with control group. Between lymphoid organs, only relative weight of bursa of Fabricius tended ($P = 0.0943$) to increase in 28 d- aged feed-restricted chicks in comparison with control chicks. On the other hand, antibody titer against Newcastle disease virus wasn't different among experimental groups. At d 28 of age, *E. coli* count in ileal contents was reduced ($P < 0.01$) as the result of feed restriction, however, jejunal villi height wasn't affected by experimental treatments. Application of early feed restriction caused a considerable ($P < 0.01$) decrease in serum triglycerides compared with that of control birds, however, serum cholesterol and high-density lipoproteins were not influenced by different treatments. The present findings suggest that considering 6-8 d feed restriction started at 7 d of age not only doesn't adversely affect body weight gain and final performance, but also reduce pathogenic microbial count of ileum and optimize the early costs of broiler production.

Keywords: Broiler chick, Early feed restriction, Jejunal morphology, Ileal microflora, Blood parameters



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