

ABSTRACT

In order to investigate the effects of dietary metabolizable energy (ME) and crude protein (CP) in growing Japanese quails, a total of 540 fourteen chicks were used in a 3-weeks experiment with 9 dietary treatments including 3 levels of ME (2800, 2950, and 3100 kcal/kg) and CP (22, 24, and 26%) and 4 replicates (15 birds each). Feed intake (FI) and weight gain (G) were measured weekly and feed conversion ratio (FCR) was calculated. At the end of experiment, two birds of each replicate were selected and sacrificed and then thigh and breast weights were obtained immediately. The results showed that FI and G were not significantly affected by dietary treatments from 14 to 21 d of age but the main and interaction effects of ME × CP significantly affected FCR ($P < 0.05$) and the lowest FCR was obtained with 2800 kcal/kg ME and 26% CP. Dietary ME and interaction effects of ME × CP significantly affected bird performance ($P < 0.05$) and FCR improved with increasing dietary CP from 14 to 28 d of age. During 14 to 35 d of age, the main effect of CP and interaction effects of ME × CP were significant FI and FCR ($P < 0.05$) in which the lowest FCR was observed in birds fed 26% CP either at 2950 or 3100 kcal/kg ME. The effects of dietary levels of ME and CP were significant on efficiency of energy and protein ($P < 0.05$) in which the maximum protein efficiency was obtained with low-CP diets whereas energy efficiency decreased in low-CP diets. Moreover, energy efficiency increased in low-ME diets ($P < 0.05$) but ME did not affect protein efficiency. Dietary ME and CP were not significant on relative weight of breast and thigh muscles while antibody titer against sheep red blood cell (SRBC)-antigen was significantly affected by treatments ($P < 0.05$) where the highest antibody titer against SRBC was obtained with diets containing 2950 kcal/kg ME and 26% CP. This study showed that the best dietary levels of ME and CP for optimum performance and boosting humoral immunity were 2950 kcal/kg and 26%, respectively.

Keywords: Japanese quail, Energy, Protein, Performance, Immunity



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**The Thesis Submitted for The Degree of Master of Science
(in the field of Animal Nutrition)**

**Study effect of different levels of dietary
energy and protein in Japanese quail
chicks during grower period**

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September 2014