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An experiment was conducted to assess the relationship of dietary electrolyte balance and level of calcium (Ca), and this interactive effects on performance, digestibility of Ca and phosphorus (p) , immunity and some blood parameters in growing Japanese quails from 14 to 35 d of age. A total of 720 quial chicks were used to construet9 experiment groups receiving a combination of 3 level of dietary electrolyte balance(DEB)150, 250 and 350 mEq/kg and 3 level of Ca(o.4, o.8, and 1.6% of diet) in a completely randomized design with factorial arrangement .Each experiment diet was replicated 4 time, 20 quail chicks in each pen replicate. The bird had free access to the experiment diets and waters throughout the study. The interaction effect of DEB and Ca was signification on performance including feed intake (FI) , body weight gain (BWG) , and feed efficiency ($P<0.001$). Dietary treatment of o.8% Ca+ and 150mEq/kg DEB resulted in the greatest BWG and feed efficiency but lowest FI ($p<0.05$). The interaction effect of dietary treatments was significant on quail response to the sheep red blood cell (SRBC) challenge in which the highest response was obtained with 1.6% Ca and 150 mEq/kg DEB ($P<0.05$) The experimental diets affect the content of Ca , p , and Na in leg bone ($P<0.05$) . The levels of Ca and DEB had significant effects on carcass attribute, in wich the lowest size of kidney and heart Gwt highest relative weight of thigh and brast meat was observed in diet containing 0.8% Ca and 150 mEq/kg DEB ($p<0.001$).The experimental factors had interaction effects on biochemical blood variables ($p<0.05$) except for HDL. The main effect of DEB was only significant on TG and ELP ($p<0.05$). The lowest levels of AST and ALP in blood were observed in quails fed the lowest levels of dietary Ca ($p<0.05$). the highest levels of dietary Ca and DEB resulted in the highest amounts of cholesterol and LDL ($p<0.05$). the sercin contents including Ca, p, k was significanty affected by treatments ($p<0.05$). Deviation from 0.8% Ca of diet at all tested levels of DEB negatively changed the ebove mentioned variables ($p<0.05$). The effects of dietary Ca and DEB were significant on blood pH ($p<0.05$).The Ph drop in quails fed 0.4% Ca was significantly increased by 350 mEq/kg DEB. on there hand, blood Ph in quails fed 0.8% Ca and 150 mEq/kg DEB significantly dropped($p< 0.05$).
In conclusion,

Keywords: Quail, Electrolyte balance, Bone ash, Feed conversion ratio, Calcium,

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Effect of electrolyte balance on optimum level of calcium in growing Japanese quail

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