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[Effects of L-carnitine in poultry].

[Article in German]

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Abstract

Because of the well established function of carnitine possible effects of carnitine were studied in poultry. In trial I it was investigated if carnitine and its precursors (lysine, methionine) reduce the formation of abdominal fat in broilers. Chickens (10 groups of 10 chickens each) were fed different diets (control, lysine and methionine in excess and deficient, respectively, with or without 5% fat supplement, L-carnitine and DL-carnitine supplement, respectively). Performance (body weight gain, feed conversion), amount of abdominal fat and carnitine concentration in blood, muscles (M. sartorius, M. pectoralis superficialis, cardiac), liver and kidney were determined. Performance and abdominal fat were influenced by dietary fat, lysine and methionine as expected and were not altered by carnitine. Excess and deficiency of lysine and methionine did not influence, fat supplement reduced and carnitine supplementation significantly increased tissue concentration of carnitine. In trial II it was studied if supplementation of a commercial layers' ration with either 500 mg L-carnitine or 500 mg nicotinic acid or both per kg reduces the cholesterol concentration in yolk. Influence on body weight, feed intake, laying performance, serum and yolk cholesterol concentration could not be observed, but yolk concentration of carnitine was significantly increased in supplemented groups. Trial III should clarify if the L-carnitine content in broiler parent stock ration influences hatchability. Four groups of 1350 hens each were fed a commercial all-mash supplemented with 0, 20, 50 and 100 mg L-carnitine, respectively. Hatching rate was increased from 83% to 87% and from 82.4% to 85.3% in groups supplemented with 50 and 100 mg L-carnitine, respectively, and in randomly sampled eggs of these groups carnitine concentration in yolk was higher.

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