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Conjugated linoleic acids alter body composition differently according to physiological age in moulard ducks

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ABSTRACT

Recent developments in the field of lipid biology have shown conjugated linoleic acids (CLA) to have remarkable yet inconsistent metabolic effects in mice, rats, hamsters, chickens, cows, and humans. In particular, effects on lipogenesis vary with tissue, physiological state, and specie. In this study, sub-adult (7 wk) and adult (11 wk) moulard ducks were grouped by age and fed a standard corn-soy based diet supplemented with either 5% soybean oil (control) or 5% CLA isomer mixture (30% 9c,11t, 30% 10t,12c; CLA). Animals were harvested after 3 wk or 6 wk for assessment of body composition including liver, adipose, viscera, and empty carcass weight. After 3 wk, the sub-adult CLA group exhibited a 24% decrease in dissectible adipose tissue ($P<0.05$) while adult animals showed no significant diet effect. After 6 wk, the sub-adult CLA group exhibited a 20% increase in liver mass compared to the control ($P<0.05$), but no diet effect on adipose tissue, while the adult CLA group showed a 42% decrease in adipose tissue mass compared to the control (<0.05). These data indicate that CLA have potent effects on lipid metabolism in ducks, but that these effects differ dependent on physiological age.