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Growth Curves and Factors Affecting Body Weight in Indigenous Chicken Prior to Age at Sexual Maturity

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Abstract: Factors affecting body weight and growth curves pattern of the Sudanese local chicken were studied. About 1200 birds, the progeny of 40 sires and 120 dams, were used in this study. The data were statistically analysed using Harvey's Program (LSMLMSW). For general growth curves description and growth of cumulative weight gain, the logestic function model with multiphasic analysis was applied. The overall mean body weight ranged between 28.0±2.5 g at hatch and 840.2 ± 140 g at 18 weeks of age. The average body weight of the males at the same period ranged between 28.0±2.5g and 926.3±125.5g., whereas the corresponding results for females were 27.9±2.4 g and 769.8±97.0 g. Sexual dimorphism was evident at all ages except at hatch, with males being significantly ($P < 0.01$) heavier than females. Sire and dam effects were variable, while hatch exerted significant ($P < 0.01$) influence at all ages. The growth curves pattern seemed to exhibit sigmoid shape with male curve being slightly higher. It appeared that the curves did not reach asymptote (plateau). The point of inflection was attained at 12 weeks of age. At this point, males gained 19.1 g higher than females.

INTRODUCTION

Growth is considered of major economic importance for poultry raising, with special interest for broiler production. Growth rate is the most essential factor for determining duration, amount of feed consumption and cost of labour required for meat production. Modern broiler breeds are characterized by dramatic rate of growth so that market weight can be attained in a relatively short time (< 45 days). This remarkable rate is mainly attributable to the excepional genetic improvement which has been achieved by breeders (Chambers *et al.* 1981). On the other hand, the