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EFFECT OF INITIAL CHICK BODY WEIGHT AND DEIT ON THE GROWTH PERFORMANCE OF BROILER CHICKS.

By

H.H. Hassanein

Fact. Of Agric., Animal and Poult. Prod. Dept., South Valley Univ., Qena

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Abstract: *A total number of 216 unsexed one –day old Hubbard chicks were distributed into three 3 main groups (72 chicks each) according to initial chick body weight (39, 44 and 49 gm). Each main group was randomly divided into three subgroups (24 chicks each) and each subgroup contained three replicates (8 chicks each). Chicks in the first sub group were fed on starter and grower diets which formulated to meet the nutrient requirements of broiler chicks (control diet). Chicks in the second and the third subgroups were fed on starter and grower diets which formulated to have 2% less protein (low P diet) and 200 Kcal metabolizable energy (low E diet), respectively than the control group. Results of this experiment could be summarized as follows:*

The effect of initial chick body weight on final body weight, daily gain, feed consumption, feed conversion and carcass traits of broilers was not significant.

Chicks fed on Low P or Low E diets showed significantly lighter body weight than those fed on control diets at 3, 5, 6 and 7 weeks of age.

Chicks fed on low P or low E diets had significantly lower daily gain compared with those fed on control diet at 2-3 and 4-5 weeks of age, while chicks fed on low P diet had significantly higher daily gain than those fed on control or low E diets thereafter up to 7 weeks of age.

Chicks fed on low P diet concumed significantly lower feed than those fed on low E or control diets at differet age intervals from 4 up to 7 weeks of age.

Feed conversion of chicks fed on low P or low E diets tend to be better than those fed on control diet, but the effect of level of protein or energy on cacass traits was not significant.

INTRODUCTION

In Egypt, poultry production has become one of the biggest agriculture industries.The improvement of poultry production is considered one of the main objectives of private sectors. Initial chick body weight is an issue to industry because broiler production are concerned with the performance of the chicks. Small chicks with retarded growth rates may have a serious economic impact on the productivity and efficiency of broiler production. If body weight uniformity can be controlled, predictions of broiler performance through chick weight may enable the industry to increase production efficiency. Initial chick weight and gender may influence broiler flock uniformity. Little researches have been done on the effect of initial weight on broiler performance.

Dietary protein and energy levels for chickens have a major impact on chick performance and economic productivity (Abd El-Hakim *et al*., 1992; Aggoor *et al*, 1997 and Makled *et al*, 2001). Protein and energy requirements for young growing chicks are particularly critical and were found to be age dependent and varied greatly among strains of the same breed. Protein is usually the most expensive component of the ration, and the excess of protein is oxidized thus ,it is not economic to feed excess protein to animals. On the other hand, deficiency of either total protein or an essential amino acid may negatively affect growth rate.

Some investigators concluded that poultry chicks fed on low protein diet supplemented with essential amino acids could perform equivalently to those fed on higher protein diet (Han *et al*, 1991 and EL– Sherbiny *et al*, 1997) .On the other hand, some investigators concluded that broiler chicks fed on low– protein diet supplemented with essential amino acids cannot be achieved optimum growth rate and feed efficiency (Colnago *et al,* 1991 and Jensen, 1991).

Dietary adequate amounts of a well–balanced protein and energy are essential for best growth, and optimum efficiency of feed utilization. The aim of this work was to study the effect of feeding broiler chicks on low protein or low energy on growth performance in relation to initial body weight of chicks.

MATERIALS AND METHODS

This work was carried out at Poultry Farm, Faculty of Agriculture, South Valley University, Qena, Egypt. A total number of 216 unsexed one–day old Hubbard chicks were distributed into three main groups (72 chicks each) according to initial chick weight low(39,44 gm), medium (44 gm) and

high (49 gm). Each of main group was randomly divided into three subgroups (24 chicks each) and each subgroups contained three replicates (8 chicks each). Chicks in the first sub group were fed on starter and grower diets which formulated to meet the nutrient requirements of broiler chichs (control diet) according to NRC (1994). Chicks in the second sub group were fed on starter and grower diets which formulated to have 2% less protein (low P diet), while chicks in the third sub group were fed on starter and grower diets which formulated to have about 200 kcal ME/kg diets less (low E diet) than the control diet. The composition and calculated chemical analysis of the different experimental starter and grower diets are shown in Table (1).

Table (1): Composition and chemical analysis of experimental diets.

INGREDINTS %	**STARTER DIETS**			**GROWER DIETS**		
	Control	Low P	Low E	Control	Low P	Low E
Yellow corn	53.20	60.00	57.35	57.15	63.94	61.60
Soybean meal 44%	31.10	25.23	31.34	26.00	20.13	26.00
Corn gluten meal	8.00	8.oo	7.50	8.00	8.00	7.30
Vegetable oil	3.83	2.59	----	4.74	3.50	1.02
Dicalcium phosphate	1.70	1.70	1.65	1.75	1.76	1.70
Limestone	1.50	1.60	1.50	1.50	1.60	1.52
Common salt	0.10	0.10	0.10	0.10	0.10	0.10
Vit&min.mix*	0.25	0.25	0.25	0.25	0.25	0.25
Lysine	0.14	0.29	0.13	0.27	0.42	0.27
Methionine	0.18	0.24	0.18	0.24	0.30	0.24
Total	100,00	100,00	100,00	100,00	100,00	100,00
Calculated chemical analysis:						
Crude peotein (%)	23.01	**21.00**	23.08	21.09	**19.09**	21.05
ME (Kcal/Kg deit)	3110	3105	**2902**	3209	3203	**3004**
Calcium %	1.00	1.03	1.00	1.00	1.00	1.00
Avail. Phos. (%)	0.45	0.45	0.45	0.45	0.45	0.45
Lysine (%)	1.20	1.20	1.20	1.20	1.20	1.20
Methionine + cystine (%)	0.93	0.93	0.93	0.93	0.93	0.93

* Each diet was supplied with 2.5kg /ton broiler vit &min. mix(commercial source B .p . Max)
each 2.5kg contains ,vit. A 10,000,000 MTU, vit D 2,000,000 MTU, vit E 10000 mg, K3 1000 mg, B1 1000 mg, B2 5000 mg, B6 1500mg, Biotin 50mg, BHT 10000mg, Pantothenic 10000mg ,folic acid 1000 mg Nicotinic acid 30000mg mn 60gm, zinc 50gm, fe 30gm,Cu 4gm, I 3gm,
selenium 0.1gm,Co 0.1 gm
P= Protein E = Energy

Diets and water offered *ad libitum* throughout the experimental period. The chicks were reared in broiler batteries under similar management conditions and light was provided 24 hrs throughout the experimental period which lasted for 7 weeks. Chicks in each treatment fed starter diet up to 3 weeks and grower deit form 4-7 weeks of age. Live body

weight and feed consumption and body gain were recorded weekly up to 7 weeks of age for each replicate, then daily gain and feed consumption were calculated. Feed conversion (g feed/ g weight gain) were calculated at the same periods.

At 7 weeks of age, 3 birds from each treatment were randomly taken and weighed then slaughtered after fasting for approximately 12 hrs. Hot carcass with giblets and abdominal fat were expressed to fasting weight to calculate dressing percentage. Giblets and abdominal fat were removed and expressed as percentages of carcass weight.

Data were statistically analyzed by using the general linear model described in SAS User's Guide (SAS Institute, 1989) according to the following model:

$Y_{ijk} = \mu + D_i + W_j + Dw_{ij} + e_{ijk}$ where,

Y_{ijk} = an observation,

μ = Overall mean,

D_i = effect of diets,

W_j = effect of initial weight,

Dw_{ij} = effect of the interaction between diets and initial weight,

e_{ijk} = residual random error.

Significant differences among means were tested using Duncan's multiple range test (Duncan, 1955).

RESULTS AND DISCUSSION

Body weight (g):

Results presented in Table (2) show that body weight of chicks at different ages was not affected significantly by initial body weight, while body weight of chicks fed on low protein or low energy diets was significantly lighter specially at 5, 6 and 7 weeks of age than those fed on control diet. These results indicated that the dietary protein and energy levels have a pronounced effect on body weight of broilers at different ages especially during grower period. These results agree with,

Abd–Elsamee (2001) who reported that broiler chicks fed on optimum level of crude protein showd significant heavier body weight in comparison with those fed on low protein diet. Also, El-Hindawy *et al* (1997) found that broiler chicks fed on low different energy level led to significantly light body weight.

In addition, the interaction effect between initial chick weight and diet on broiler body weight was not significant at all studied ages (Table 2).

Daily weight gain (g):

Daily weight gain of broilers was not significantly affected by initial chick weight at all age intervals from hatch to 7 weeks, while chicks fed on low protein or low energy diets had significantly lower daily gain in comparison with those fed on control diet especially during grower period (Table 3). In agreement with these results, Pinchasov *et al* (1990), Jensen (1991) and Absel-Samee (2001) reported that optimum growth rate can not achieved when broiler chicks fed on low protein diet compared with those fed on control diet. Also, Mabray and Waldroup (1981) and Shehata (1995) and Sonbol and Habeeb (1991) indicated that broiler chicks fed on high energy diet had significant higher daily weight gain than those fed on low energy diet.

On the other hand, the enteraction effect between initial chick body weight and diet on daily weight gain was not significant at all age intervals studied (Table 3).

Feed consumption (g/day):

Data presented in Table (4) show that low, medium and high chick weight consumed approximately similar amounts of feed at all age intervals studied, while broiler chicks fed on low protein diet consumed significantly lower feed than those fed on control diet only during grower period. In agreement with these results, Abd- EL Samee (2001) Hammouda *et al* (2001) and Salwa and Fawzy (2003) reported that chicks fed on low level of protein consumed significantly more feed compared with groups fed on control protein diet.

Also, feed consumption of chicks fed on low energy diet was lower, but the difference was not significantly than that of chicks fed on control diet (Table 4).

Regrading the interaction effect between initial weight and diet, low, mediam and high chick weight fed on low protein diet consumed lower feed compared to control or low energy diet at 5-6 and 6-7 weeks of age.

Feed conversion (g feed/ g gain):

Results presented in Table (5) show that initial chick weight has not significant effect on feed conversion of broilers at all age intervals studied. On the other hand, the effect of diet on feed conversion was significant only at 0-1, 4-5 and 6-7 weeks of age without a clear trend, although the effect of diet on average feed conversion was not significant (Table 5).Olomu and Offiong (1980) who reported that fed broiler chicks on the low energy level diets had adverse effect on feed conversion ratios.

On the other hand, the enteraction effect between initial chick weight and diet on feed conversion was not significant at all age intervals studied (Table 5).

Carcass traits:

Data presented in Table (6) show that the effect of initial chick weight on all carcass traits (slaughter weight, dressing, giblets and abdominal fat percentages) was not significant, while the effect of diet was significant on slaughter weight and abdominal fat percentage. These results are in agreement with those obtained by Lesson *et al* (1996) and El-Husseiny et al (2002) they found that no significant effect was observed on dressing percentage due to different levels of metabolizable energy. Also, El–Naggar *et al* (1997), Abd- Elsamee (2001) and Abou El-Wafa *et al* (2001) reported that reducing protein level in broiler diets had no significan effect on carcass traits.

Chicks fed on low protein and energy diets had significantly heavier slaughter weight than that of chicks fed on control diet, while chicks fed on control or low protein diets had significantly higher abdominal fat% compared with those fed on low energy diet (Table 6). These results agree with those reported by Parr and Summers (1991) and Abou-Elwafa *et al*. (2001) who found that carcass fat percentage was higher in chicks fed on low protein diet.

Concerning the interaction effect between initial weight and diet, chicks fed on low protein or low energy diets had significantly lighter slaughter weight than that of chicks fed on control diet, while this effect on dressing, giblets and abdominal fat percentages was not significant.

CONCLUSION

From the present results, it can be concluded that the initial body weight of chicks had no significant effect on final body weight or carcass traits at the end of experimental growing period (7 weeks), but the low energy or protein levels (under the optimum levels) led to adverse effect on the growth performance of broiler chicks.

Table (2): Effect of initial chick weight and diet on body weight (gm.) at different ages.

Treatment	Means ± S.E for body weight							
	Hatch	1st week	2nd week	3rd week	4th week	5th week	6th week	7th week
Initial weight:	**	NS	NS	NS	NS	NS	NS	NS
Low (39gm)	39.8±0.2c	118.1±3.1	240.2±15.2	411.6±29.3	657.4±34.0	984.5±67.1	1296.1±70.7	1685.3±74.1
Med.(44 gm)	44.2±0.1b	125.1±2.8	238.0±7.2	397.2±19.1	647.1±30.3	969.7±31.7	1330.4±37.5	1698.6±47.9
High (49 gm)	49.7±0.2a	126.3±4.7	255.3±15.7	400.2±24.4	681.5±44.5	972.6±62.1	1289.9±80.6	1664.1±84.2
Diet:	NS	NS	NS	*	NS	**	**	**
Control	44.1±1.4	127.8±4.0	158.6±12.1	444.0±22.6a	707.1±26.8	1116.3±52.9a	1445.0±60.1a	1789.4±55.5a
Low P (2%)	44.5±1.4	124.6±3.8	251.3±13.3	413.6±13.4ab	690.8±19.8	901.3±22.1b	154.3±29.9ab	1501.3±34.0b
Low E (200 Kcal)	44.8±1.4	117.0±2.3	223.6±12.0	351.4±24.8b	588.0±44.5	909.3±18.7b	1317.1±56.4b	1757.3±67.0b
Interaction:	NS	NS	NS	NS	NS	NS	NS	NS
Control	39.4±0.3	122.5±2.5	273.7±34.5	472.5±66.3	715.8±40.7	1160.4±136.7	1458.0±113.8	1858.8±122.6
Low Low P	39.6±0.2	117.5±9.0	235.3±20.0	408.0±34.0	683.0±53.4	885.0±61.0	1121.6± 65.2	1477.6±100.3
Low E	40.4±0.1	114.5±3.6	211.6±14.5	354.4±35.4	573.5±61.9	908.2±91.2	1308.8±118.2	1719.6± 93.6
Control	44.5±0.1	131.6±3.8	254.0±5.5	421.0±14.4	637.5±25.7	1026.9±22.9	1394.8±36.4	1690.0± 11.4
Med. Low P	44.0±0.1	126.0±4.2	244.6±7.7	422.3±22.6	702.7±28.8	933.2±28.7	1224.4±26.9	1575.6± 11.6
Low E	44.0±0.2	117.6±4.1	215.5±11.7	348.5±47.5	600.9±82.9	949.0±90.4	1372.0±19.1	1830.4±104.8
Control	49.4±0.1	129.4±12.3	248.2±19.1	438.5±29.5	768.0±44.7	1161.7±91.5	1482.4±104.5	1819.6±118.6
High Low P	49.8±0.1	130.4±6.3	274.1±35.3	410.5±20.8	686.8±30.6	885.7±22.8	1117.1± 45.9	1450.8± 67.1
Low E	49.9±0.4	119.0±5.8	243.7±32.8	351.5±62.4	589.7±113.0	870.3±102.2	1270.3±123.7	1722.0±173.5

a,b..Means within the same column bearing different letter (s) are significantly different ($p < 0.05$)

NS Not significant * significant ($p < 0.05$) ** significant ($p < 0.01$)

P = protein E = energy

Table (3): Effect of initial chick weight and diet on daily weight gain (gm.) during different age intervals.

Treatment	Means ± S.E for daily weight gain							
	0-1 weekch	1-2 week	2-3 week	3-4 week	4-5 week	5-6 week	6-7 week	0-7 week
Initial weight:	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Low (39gm)	11.2±0.4	20.2±1.9	30.2±2.6	44.9±2.4	62.4±6.9	67.9±3.9	86.4± 3.3	32.94±1.72
Med.(44 gm)	11.5±0.4	19.1±0.9	28.4±2.1	45.1±2.5	61.5±3.6	74.6±2.9	84.3±4.0	33.58±1.51
High (49 gm)	10.9±0.7	21.4±2.3	26.8±3.1	49.7±3.7	57.8±4.9	68.5±5.7	84.2±5.2	33.58±1.51
Diet:	**NS**	**NS**	*	**NS**	**	**	*	**
Control	11.9±0.5	21.7±1.8	32.6±1.9a	48.2±2.9	75.3±5.2a	73.5±3.8a	83.6±3.7b	35.61±1.13a
Low P (2%)	11.4±0.5	21.1±1.8	29.2±2.4b	49.4±1.5	46.5±1.4c	57.6±2.4b	77.1±2.7a	29.73±0.70b
Low E (200 Kcal)	10.3±0.3	18.0±1.5	23.6±2.7b	42.2±3.7	59.9±2.5b	79.9±2.5a	94.3±3.9a	34.94±1.36a
Interaction:	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Control	11.9±0.3	24.5±4.6	34.9±5.5	46.0±3.1	80.6±14.7	70.1±1.4	91.9±4.6	37.13±2.49
Low Low P	11.1±1.2	19.6±1.8	30.3±2.5	49.0±3.9	45.1±3.1	54.9±2.1	77.6±4.3	29.34±1.43
Low E	10.6±0.5	16.6±1.6	25.4±5.1	39.7±4.8	61.5±6.1	78.9±6.1	89.8±5.3	34.26±1.90
Control	12.4±0.5	20.6±0.4	29.9±1.5	40.9±3.2	70.8±4.9	77.0±2.5	75.4±3.8	33.58±0.23
Med. Low P	11.7±0.6	19.9±0.7	31.2±2.5	50.1±2.5	49.6±2.6	63.8±0.7	79.3±1.6	31.25±0.23
Low E	10.5±0.6	16.8±2.0	24.1±5.4	44.3±6.3	64.0±3.2	83.0±0.9	98.2±5.6	36.45±2.14
Control	11.4±1.8	20.0±3.6	33.1± 2.8	57.5±2.9	74.5±7.9	73.5±12.6	83.5±7.7	36.13±2.42
High Low P	11.5±0.9	23.6±5.5	26.0±6.8	49.3±2.1	44.8±0.4	54.1± 6.0	74.3±7.7	28.59±1.37
Low E	9.8±0.8	20.6±4.0	21.2±5.3	42.4±9.7	54.1±0.1	77.9±5.7	94.8±0.2	34.12±3.54

a,b..Means within the same column bearing different letter (s) are significantly different ($p < 0.05$)

NS Not significant * significant ($p < 0.05$) ** significant ($p < 0.01$)

P = protein E = energy

Table (4): Effect of initial chick weight and diet on feed consumption during different age intervals.

Treatment		Means ± S.E for daily feed consumption							
		0-1 weekch	1-2 week	2-3 week	3-4 week	4-5 week	5-6 week	6-7 week	0-7 week
Initial weight:		*	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Low (39gm)		20.9±0.5ab	28.7±1.6	36.2±3.1	59.3±4.9	87.9±5.3	96.9±9.2	129.3±8.8	65.63±3.61
Med.(44 gm)		21.9±0.3a	27.0±0.8	31.2±1.9	58.5±2.9	89.5±5.6	95.4±5.7	128.3±5.7	64.57±2.65
High (49 gm)		19.9±1.0b	26.6±1.3	32.6±2.4	62.9±4.0	81.4±3.8	95.7±8.6	128.6±8.6	63.97±3.04
Diet:		*	**NS**	**NS**	**NS**	**NS**	**	**	*
	Control	19.7±1.0b	27.7±1.7	36.1±2.9	61.6±3.1	96.2±4.8a	107.8±6.9a	140.2±6.6a	70.19±2.93a
	Low P (2%)	21.4±0.5a	28.3±0.8	34.7±1.6	62.9±2.7	76.3±3.8b	75.0±3.8b	107.8±3.8b	57.97±1.48b
	Low E (200 Kcal)	21.6±0.3a	26.3±1.1	29.3±2.3	56.2±5.4	85.2±4.2b	105.3±6.7a	138.2±6.6a	66.01±3.01a
Interaction:		**	**NS**	**NS**	**NS**	**NS**	**	**	**NS**
	Control	20.8±0.5	31.1±3.5	42.8±6.4	63.4±8.6	101.3±2.1	117.3±15.0	148.7±13.6	75.08±6.25
Low	Low P	20.2±1.6	28.9±1.9	37.6±2.8	59.5±6.7	78.8±4.3	67.9±7.1	100.8±7.1	56.28±3.32
	Low E	21.7±0.3	26.1±1.9	28.3±3.1	55.1±12.2	83.4±5.1	106.0±8.2	138.4±8.2	65.53±4.27
	Control	22.4±0.5	28.3± 0.6	34.5±0.8	57.1±0.9	100.6±8.6	104.6±13.9	137.5±13.9	69.30±4.95
Med.	Low P	22.0±0.3	26.7±1.4	30.9±2.8	63.1±3.0	75.8±5.7	86.3±3.0	119.2±3.0	60.57±2.02
	Low E	21.4±0.8	26.0±2.0	28.3±4.9	55.4±8.7	92.2±10.6	95.2±10.1	128.1±10.1	63.83±6.05
	Control	16.1±1.0	23.6±2.5	30.9±5.2	64.2±4.7	92.7±1.6	101.4±9.1	134.2±9.0	66.19±4.37
High	Low P	22.0± 0.3	29.5±1.0	35.7±2.3	66.3±5.1	71.4±4.4	70.7±4.7	103.6±4.7	57.06±2.46
	Low E	21.7±0.3	26.7±2.4	31.2±5.3	58.0±11.2	79.9±6.2	115.1±16.4	147.9±16.4	68.67±6.95

a,b..Means within the same column bearing different letter (s) are significantly different ($p < 0.05$)

NS Not significant * significant ($p < 0.05$) ** significant ($p < 0.01$)

P = protein E = energy

Table (5): Effect of initial chick weight and diet on feed conversion (g feed/g gain) at different age intervals.

Treatment		Means ± S.E for feed conversion (g feed/g gain)							
		0-1 weekch	1-2 week	2-3 week	3-4 week	4-5 week	5-6 week	6-7 week	0-7 week
Initial weight:		**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Low (39gm)		1.88±0.07	1.71±0.09	1.53±0.09	1.73±0.17	2.12±0.26	2.24±0.25	2.35±0.16	1.95±0.06
Med.(44 gm)		1.91±0.05	1.71±0.10	1.42±0.08	1.67±0.09	2.01±0.13	1.89±0.14	2.53±0.19	1.91±0.06
High (49 gm)		1.87±0.14	1.59±0.16	2.27±0.66	1.60±0.07	2.08±0.16	2.23±0.19	2.56±0.26	1.95±0.06
Diet:		**	**NS**	**NS**	**NS**	**	**NS**	*	**NS**
Control		1.67±0.08b	1.54±0.09	1.38±0.09	1.74±0.19	1.79±0.19b	2.43±0.27	2.97±0.21a	1.97±0.06
Low P (2%)		1.89±0.07b	1.66±0.14	2.05±0.65	1.59±0.06	2.55±0.16a	2.11±0.12	2.24±0.16b	1.95±0.06
Low E (200 Kcal)		2.11±0.07a	1.81±0.12	1.79±0.21	1.67±0.07	1.87±0.08b	1.82±0.14	2.23±0.15b	1.89±0.07
Interaction:		**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
	Control	1.76±0.05	1.50±0.14	1.52±0.10	1.95±0.51	1.80±0.54	2.87±0.65	2.59±0.18	2.02±0.09
Low	Low P	1.84±0.16	1.73±0.08	1.53±0.06	1.53±0.17	2.80±0.41	2.02±0.23	2.02±0.26	1.93±0.20
	Low E	2.06±0.07	1.91±0.19	1.54±0.31	1.73±0.17	1.76±0.08	1.84±0.05	2.43±0.34	1.91±0.03
	Control	1.81±0.09	1.62±0.01	1.45±0.06	1.89±0.25	1.86±0.28	2.02±0.34	3.27±0.03	2.06±0.15
Med.	Low P	1.89±0.09	1.58±0.09	1.25±0.20	1.58±0.05	2.32±0.19	2.08±0.1	2.39±0.15	1.93±0.05
	Low E	2.04±0.08	1.93±0.26	1.56±0.13	1.53±0.08	1.84±0.16	1.59±0.21	1.96±0.09	1.74±0.07
	Control	1.46±0.19	1.51±0.27	1.166±0.2	1.36±0.04	1.69±0.19	2.39±0.44	3.04±0.61	1.83±0.01
High	Low P	1.93±0.13	1.68±0.44	3.35±1.95	3.35±1.95	2.53±0.24	2.25±0.29	2.31±0.43	1.99±0.05
	Low E	2.23±0.19	1.58±0.18	2.28±0.49	1.77±0.13	1.99±0.16	2.04±0.37	2.32±0.24	2.02±0.19

a,b..Means within the same column bearing different letter (s) are significantly different ($p < 0.05$)

NS Not significant * significant ($p < 0.05$) ** significant ($p < 0.01$)

P = protein E = energy

Table (6): Effect of initial chick weight and diet on carcass traits.

Treatment	Means ± S.E for carcass traits			
	Slaughter weight	Dressing %	Giblets %	Abdominal fat%
Initial weight:	**NS**	**NS**	**NS**	**NS**
Low (39gm)	1632.3±58.54	78.42±0.69	6.75±0.36	2.04±0.39
Med.(44 gm)	1601.1±36.76	77.45±0.54	7.11±0.23	1.98±0.27
High (49 gm)	1635.2±70.54	78.47±1.06	7.19±0.27	2.50±0.29
Diet:	**	**NS**	**NS**	**
Control	1764.3±41.04a	78.32±0.66	6.62±0.36	2.69±0.41a
Low P (2%)	1445.3±29.35c	78.35±1.16	7.29±0.24	3.07±0.15a
Low E (200 Kcal)	1658.9±26.38b	77.67±0.42	7.14±0.22	1.78±0.29b
Interaction:	*	**NS**	**NS**	**NS**
Low Control	1835.2±23.07	79.85±0.29	5.77±0.52	3.82±0.86
Low Low P	1456.0±34.51	76.88±1.55	7.45±0.67	3.34±0.21
Low Low E	1605.6±54.04	78.53±0.96	7.04±0.16	1.95±0.40
Med. Control	1640.0±16.23	77.83±1.58	7.18±0.59	2.21±0.11
Med. Low P	1488.8±68.08	77.66± 0.88	7.51±0.27	2.78±0.14
Med. Low E	1674.4±39.59	76.85±0.07	6.64±0.14	0.97±0.19
High Control	1817.8±88.09	77.28±0.88	6.92±0.57	2.00±0.53
High Low P	1391.2±45.20	80.51± 3.04	6.92±0.25	3.09±0.38
High Low E	1696.8±40.08	77.62±0.67	7.72±0.58	2.41±0.50

a,b..Means within the same column bearing different letter (s) are significantly different ($p < 0.05$)

NS Not significant * significant ($p < 0.05$) ** significant ($p < 0.01$)

P = protein E = energy

REFERENCES

Abd-Elsamee, M.O. (2001): *Brioler performance as affected by crude protion, lysine and a probiotic. Egypt. Poult . Sci .Vol 21 :943-962.*

Abou- ELwafa; Ismail, A.M; Mansour, K.M and Salawa, M. Sami (2001): *Performance of broiler chicks fed diet formulated based on total or digestible amino acids with different levels of energy and protein . Egypt. Poult . Sci .Vol 21 :865 -881.*

Abdel-Hakim, N. F.; Amer, A.A.; El-Khimsawy, K.A. and Aboul-Ella, M.A. (1992): *The effect of step up and down protein level on the performance of growing egg-type chickens. Al-Azhar J. Agric. Res. Vol. (15): 37-56.*

Agoor, F.A.M.; N.M. El-Naggar; A.Z. Mehrez, Y.A. Attia and E.M.A. Qota (1997): *Effect of different dietary protein and energy levels during roaster period on :1. Performance and economic evaluation of broiler chicks. Egypt. Poult. Sci. J. 17: 81-105.*

Colnago, G.L.; Penz .A.M.; and Jensen, L.S. (1991): *Effect of response of stating broiler chigks to incremental reduction in intact protein on performance during the growing phase. Poult. Sci., 70:153 Abst.*

Duncan, D.B. (1955): *Multiple range and multiple F-test. Biometrics, 11: 1-42.*

El-Hindawy, M.M.; A.I.Abd EL-ghani, M.I Tawfeek; A.A Habbeb and M.M Shehata (1997): *Effect of Dietary energy and sulphur amino acids levels on growth performances, carcass traits and blood constituent of broiler chicks. Egypt. Poult. Sci. Vol 17 (1) 65-80.*

EL-Sherbiny, A.E; Mohamed M.A; Akila, S .Hamza And T.M EL-Afifi (1997): *Respons of broiler chicks to protein diet supplemented with lysine and methionine. Eygpt. Poult. Sci. vol 17:23 -38 .*

EL Husseiny, D.; S.M.Shalash and H.M .Azouz (2002):.*Response of broiler performance to diets containing hot pepper and or fenugreek at different metabolizable energy levels. Egypt. Poult. Sci.,Vol: 21:387-400.*

EL-Naggar, N.M.; Mehres, A.Z.; Agoor F.A.M.; Attia, Y.A. and E.M.A. Qota (1997): *Effect of different dietery protein and energy level during roaster period on: 2-Carcass composition, yield, physical characteristics of meat and serum constituents. Egypt. Poult. Sci. Vol, 17:107-132.*

Hammouda,Y.A.F.; Eman EL-Dalyend and EL-Wardany, I. (2001): *Response of two broiler strains to dietary protein level in hot climate. Nutritional and Physiological Study Egypt. Poult. Sci .J., 21:677-699.*

Han, Y.; Sazuk; Parsons, Card;and D.H Bakre (1991): *Amino Acids fortification of a low –protein corn and soybean meal diet for chicks. Poult. Sci.71: 1168-1178.*

Jensen,.L.S. (1991): *Brioler performance as affected by intact protein versus synthetic amino acids. Proc. Georgia Nat .conf., PP 83-89.*

Lesson, S.; Caston, L. and J.D. Summers (1996): *Brioler response to dietary energy. Poult. Sci. 75:529-535.*

Mabray, C.J. and Waldroup P.W.(1981): *The influence of dietary energy and amino acid level on abdominal fat pad development of broiler chicks. Poult.Sci., 60: 151-159.*

Makled, M.N.; El-Deeb, M.A. and Abdallh, N.H. (2001): *Effect of protein level, energy level and season on performance of growing indigenous naked neck (Sharkasi) chickens. Egypt. Poult. Sci. 21:27-52.*

National Research Council (NRC) (1994): *Nutrient requirements of poultry. 9th Ed. (Washington, DC, National Academy Press.).*

Olomu, J.M., and S.A. Offiong, (1980): *The effect of different protein and energy levels and time of change from starter to finisher ration on the performance of broiler chickens in tropics. Poult.Sci., 59:828-835.*

Parr, J. F; and Summers, J.D. (1991): *The effects of minimizing amino acid excesses in broiler diets. Poult. Sci. 70: 1540-1549.*

Pinchasov, Y.; Mendonca, C.X.; and Jensen, LS. (1990): Broiler chick response to low protein diets supplemented with synthetic amino acid. Poult, Sci., 69:1950-1955.

Salwa, B. Abd EL-Hady and Fawazy, A.Abd EL-Ghany (2003): *The effect of genotype dietary protein level and their interaction on chicken performance of two local strains. Egypt. Poult. Sci., Vol. 23 (1):(153-167).*

SAS Institute (1989): *SAS Users Guide :Statistics.Version 6.04 ,SAS Institute Inc., Cary, NC.*

Shehata A.S.A.(1995): *Productive performance as affected by energy protein ratio and methionine levels .Ph.D.Thesis, Fac. Of Agric. Zagazig Univ. Zagazig Egypt.*

Sonbol, S.M. and Habeeb, A. (1991): *Effect of dietary energy- methionine choline and sulfate levels on performance and some blood constituents of broiler chicks during the growing periods. Egyptian Journal of Applied Science, 6 (3):310-328.*

الملخص العربى

تـأثير وزن الجسم الابتدائي والعليقة علي أداء النمو لكتاكيت اللحم

حسام حسين محمد حسانين

قسم الإنتاج الحيواني والدواجن- كلية الزراعة- جامعه جنوب الوادي – قنا – مصر

استخدم عدد ٢١٦ كتكوت هبرد عمر يوم غير مجنس تم تقسيمهم الى ثلاث مجموعات رئيسية (٧٢ كتكوت/مجموعة) حسب الوزن الابتدائي لها على النحو التالي (٣٩ ، ٤٤ ، ٤٩ جم) وكل مجموعة رئيسية تم توزيعها عشوائيا الى ثلاث تحت مجموعات (٢٤ كتكوت/تحت مجموعة) وقسمت كل تحت مجموعة الى ثلاث مكررات (٨ كتاكيت/مكررة) .المجموعة الكنترول عبارة عن مجموعة وتم تغذيتها على علائق وفقا للاحتياجات الغذائية والمجموعة الثانية والثالثة نم تغذيتها على علائق منخفضة ٢% بروتين خام و ٢٠٠ كيلو كالورى طاقة من الكنترول على التوالي فى كل من العليقة البادئ والنامي وقورنت بالكنترول ودلت النتائج على آلاتي :-

- كان هناك تأثير للوزن الابتدائي لجسم للكتاكيت على وزن الجسم والزيادة اليومية والغذاء المستهلك والكفاءة الغذائية ومواصفات الذبيحة لبدراى التسمين كان معنوي سسفقط لوزن الجسم الابتدائي .
- كان هناك تأثير معنوي واضح للطيور المغذاة على علائق منخفضة فى البروتين او الطاقة على وزن الجسم مقارنة بالعليقة الكنترول خلال الاسبوع ٣ ،٥ ، ٦ ،٧ من العمر .
- أظهرت الطيور المغذاة على علائق منخفضة من البروتين او الطاقة تاثير معنوي منخفض للزيادة فى الوزن الجسم مقارنة بالعليقة الكنترول خلال الفترة من ٢-٣ و ٤-٥ أسابيع من العمر ، بينما الطيور المغداة على علائق منخفضة فى البروتين كان لها تأثير معنوي عالي على

الزيادة اليومية مقارنة بالكنترول والعليقة منخفضة الطاقة بعد ذلك حتى الاسبوع السابع من العمر .

- أدت التغذية على عليقة منخفضة البروتين الى انخفاض الغذاء المستهلك مقارنة بالعليقة المخفضة بالطاقة او الكنترول خلال الأعمار المختلفة من الاسبوع الرابع وحتى السابع من العمر.
- أدت التغذية على عليقة مخفضة البروتين او الطاقة اللى تحسين معدل تحويل الغذاء مقارنة بالعليقة الكنترول .