EFFECT OF FLOOR TYPE ON OSTRICH (*Struthio camelus*) CHICKS BEHAVIOUR AND HEALTH, WITH EMPHASIS ON LEG DEFORMITY

تأثير نوعية الأرضية على سلوكيات وصحة صيصان النعام مع التركيز على تشوه الأرجل

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Abstract

Ostrich (*struthio camelus*) chicks from the same hatch-group 2 days old and weighing between 0.72 to 1.06kg were studied for 16weeks. A total of 44 chicks were randomly assigned to two groups, 22 chicks in each. They were similarly managed and fed except for the type of floor. One group was reared on concrete floored room and yard, this group is later referred to as '*Concrete group*'. The other group was reared on a normal sand ground yard, later referred to as '*Sand group* '.

The average weekly live body-weights of the chicks in the two experimental groups were the same ($p \geq 0.05$) for the first two weeks of age. From the third week to the eighth week, the *sand-group* had significantly higher average live body-weights ($p \leq 0.05$) as compared to the *concrete-group*. From the ninth to sixteenth week, there was no significant difference between the two groups in terms of average live-body weight ($p \geq 0.05$)

There were a total of 7 cases of leg deformity in both groups (n = 44) of chicks under observation; that is about 15.91%. Two cases were from the sand ground (*sand group*) (28.57%); and five cases (71.43%) in the *concrete group*. There were three cases of **right** leg-tibiotarsal rotation (42.86%), two cases of **left** leg-tibiotarsal rotation (28.57%) and two cases in which both legs (**bilateral**) were affected (28.57%).

The mean bone-calcium and phosphorus percentages of the affected leg bones were significantly lower than that of the normal leg bones ($p \leq 0.05$). For normal bones, the levels were calcium 17.92 ±1.84% and Phosphorus 8.57± 0.75%. Deformed leg bone values were calcium, 15.29 ±1.02% and phosphorus 7.33± 0.51%.

Serum analysis results for chicks affected with leg deformity were Calcium *7.02±0.852 mg/dl (5.64-8.01 mg/dl)*, Total Phosphorus *8.10±0.65 mg/dl (7.19-9.30 mg/dl)*, Zinc *0.16±0.066 µg/dl (0.06-0.24 µg/dl)*, Manganese *2.33±0.852 µg/dl (1.35-3.42 µg/dl)*, Copper *54±17.49 µg/dl (37-55 µg/dl)*, and Selenium *17.86±7.31 µg/dl (11.13-25.63 µg/dl)*.

There were two outbreaks of *E.coli* infection in the *concrete group* while there was none on the *sand group*. Geophagy which caused sand impaction in the proventriculus, gizzard and intestines has affected seven chicks of the *sand group*; while eye-pecking and coprophagy developed in the *concrete group*; none, on the *sand group*.

A total of fifteen chicks died among the chicks under study (34.09 %; n=44). Five (11.36 %) chicks died from the *sand group* and ten (22.73%) from the *concrete group*.

The five chicks of the *sand group* died (22.73 % ; n=22). Two chicks died due to leg deformity (9.09 %, n=22) and three due to sand impaction (13.64 %, n=22).

Ten chicks died in the *concrete group* resulting in 45.45 % mortality (n=22), five died due to leg deformity (22.73%), three due to *E.coli* infection (13.64 %) and one due to eye-pecking (4.55 %).

It is concluded that rearing on concrete floor resulted in higher mortality due to leg deformity and infections, compared to rearing on sand floor. On the other hand, rearing on sand floor poses a challenge in terms of control of geophagy. Generally, rearing of ostrich chicks requires careful consideration of the management practices to ensure not only their nutritional requirements, but also their behavioral satisfaction.

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