The White Leghorn chicken is a light weight bird that is primarily used to lay eggs in the production industry. Their frame is very small which causes them to be prone to osteoporosis causing bone fractures. The biggest issue is when these chickens are being caught and taken to processing plants. Rough handling causes their bones to break (Webster, 2004). It is known that using perches during the laying phase will cause the skeletal structure to be improved (Jendral et al., 2008). If we know perches help their bone structure during the laying phase, then what would happen if the pullets (chickens) were exposed to perches earlier? Just like children, if they don’t receive enough calcium or enough exercise they will grow up with fragile bones. Our objective was to determine if bone mineralization can be improved in pullets through exercise. The study pullets had perches in their cages and the control group did not have perches. We expect the chickens that are in the perched cages to have a higher bone mineral density and fewer fractures than non-perched birds, especially later in life. If there are fewer fractures then it will increase livability for these pullets. An increase in livability causes an increase in egg output which would then positively affect egg production.

Methods and Materials

- A total of 38 cages, half with perches (the study), and half without (the control) were used during the pullet phase.
- In order to determine the bone mineral density (BMD), dual energy X-ray absorptiometry (DEXA) was used to scan the bones.
- We focused on the keel, tibia, femur, and humerus at 6 weeks of age.
- Pullets were weighed at 3, 6, and 12 weeks of age.
- Cameras captured pullet activity to see if they were using the perch.

Results

Figure 1. The BMD did not differ between perch and control pullets at 6 weeks of age. The standard error of the mean is 0.0009.

Figure 2. The body weight of the pullets did not differ between perch and control treatments until 12 weeks of age. Standard error of the mean is 5 g. Asterisk indicates difference between treatments (P < 0.03).

Conclusions

- Behavioral observations indicated that pullets began using perches as early as 2 weeks of age.
- However, the BMD was not affected by perching at 6 weeks of age. No fractures were noted in any of the bones examined.
- Pullets with perches showed an increase in body weight at 12 weeks of age as compared to 12-week-old pullets without perches with no effect on body weight at 3 and 6 weeks of age (treatment by age interaction, P < 0.03).

Future Work

- Scan bones collected from 12 week old pullets. Examine bones for fracture.
- Conduct DEXA scans on live hens at 30, 40, 50, 60, and 70 weeks of age.
- Daily egg production & egg shell quality traits at 5 week intervals will be measured.
- Behavioral observations will be made every 5 week during egg laying.

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References
