

Abstract

## Effect of Light Schedule during the Brooding Period on Leg Bone Development and Growth at Slaughter Age

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**We previously found that applying a light schedule during the early brooding period (0-4 days post-hatch) of a broiler chicken influences leg bone development at D4, in favour of the continuous light treatment. In the current study, effects of light schedule and transition from light to darkness (abrupt or gradual transition in 15 minutes) from D0 to D4 on leg bone development and body weight until slaughter age were investigated.**

Newly hatched Ross 308 chickens (n=2,525) were housed in HatchBrood (brooding system for the first 4 days post-hatch) and exposed to 12 hours of light, followed by 1 of 5 light schedules until D4: 24L, 2L:1D abrupt, 2L:1D gradual, 2L:6D abrupt, or 2L:6D gradual. From D4 until D39, chickens were housed in a commercial broiler house. The right leg's tibia and femur weight, length, diameter, and ash content were determined. Body weight was determined weekly.

Tibia length on D39 was longer for 24L and 2L:6D abrupt than for 2L:6D gradual

(both +3.3 cm; P=0.02). Tibia ash content on D39 was higher for 2L:1D gradual than for 2L:6D abrupt (+1,0%; P=0.02). Other bone parameters did not differ among treatments (all P>0.05). Body weight was higher for 2L:1D abrupt (2301.8 g at D35) than for 2L:6D abrupt (2215.7g at D35; P=0.05).

In conclusion, effects of light on bone development were still present at slaughter age, but they were ambivalent, and it seems that a light treatment until D4 has no significant effect on leg bone development at slaughter.