

The effect of enrichment on broiler leg health – a systematic review

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Outcome variable – leg health

- Gait score
- Footpad and hock dermatitis
- Tibial dyschondroplasia
- Bone measurements
- Leg abnormalities
- Culled due to leg disorders
- Valgus-varus deformities
- Latency to lie
- Other



What is "enrichment"?

- Enrichment is generally defined as "an improvement in the biological functioning of captive animals resulting from modifications to their environment." (Newberry 1995)
- Here: Changes in management/resources that are believed to increase welfare

Enrichment types included

Light program

Intensity of light

Stocking density

Perches

Straw bales

Separation of resources

The search

- Web of Science, PubMed, Cab abstracts
- Search terms: ("leg") AND ("broiler") AND (Search terms related to the enrichment type)
- 56 randomized studies, 6 cross-sectional

Enrichment types included

Light program	24
Intensity of light	7
Stocking density	24
Perches	9
Straw bales	1
Separation of resources	5

Light program

- **Hypothesis:** Changes in light cause increase in activity
- Mainly effect of dark period (longer than 1h)
- Effect of different lighting regimes
- 20 out of 24 found an effect, especially gait score & leg disorders
- No effect on TD

Intensity of light

- **Hypothesis:** Higher light intensity will increase activity
- 5 out of 7 studies found a positive effect of higher light intensity
- Dermatitis affected in 3 out of 4



Perches & platforms

- **Hypothesis:** Increased activity (not supported by data)
- Max vertical distance 10 cm
- Leg health in 3 out of 9 studies
- Dermatitis and bone angle disorder



Photo: Dreamstime

Stocking density

- **Hypothesis:** More space increases activity
- 12 of the 24 studies found an effect
- Dermatitis 11 out of 14 studies
- Gait score was improved in 4 of 11 studies
- TD was not affected (4 studies)



Straw bales

- **Hypothesis:** Increase activity (not supported)
- Only one paper included
- Improvement in LTL and gait score



Photo: Farmers weekly

Separation of resources

- **Hypothesis:** Increased activity
- Gait score 2 out of 4 studies
- Tibia, 2 out of 3 studies
- No effect on body weight



Conclusion

- Different types of enrichment has different effects
- Good evidence
- Stocking density
- Intermittent light schedules
- Potential
- Straw bales
- Separation of resources

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