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

<table>
<thead>
<tr>
<th>Enrichment Type</th>
<th>Count</th>
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<tbody>
<tr>
<td>Light program</td>
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<td>Intensity of light</td>
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<td>Stocking density</td>
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<td>Perches</td>
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<tr>
<td>Straw bales</td>
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</table>
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
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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