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Improving leg health in broiler chickens: a systematic review of the effect of environmental enrichment

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Abstract

Leg problems are highly prevalent in modern broiler production and provision of environmental enrichment could be a strategy to improve leg health. Different types of environmental enrichment have undergone evaluation. Our objective was to conduct a systematic review of the effect of environmental enrichment on leg health in broiler chickens. The evaluation of leg health included measures of the entire leg and foot, and behavioural, pathological and physical measures. Six types of environmental enrichment were selected for inclusion: light programme, intensity of light, stocking density, perches, straw bales and separation of resources. For each type, a systematic literature search was performed. The review included 62 studies; 56 randomised trials and six cross-sectional studies. An assessment of the methodological quality of all 56 randomised trials was performed with some reporting deficits regarding occurrence of blinding, randomisation and reliability of measures. Provision of perches and increased intensity of light only displayed limited effectiveness in improving leg health and both mainly affected contact dermatitis. In contrast, there was evidence that a lowered stocking density and a dark/light schedule could improve leg health. Few studies have been carried out on the effect of straw bales and separation of resources. The few studies done have, however, shown that both types of enrichment can be effective in improving leg health. In conclusion, identifying and providing the optimal types of enrichment for broilers will reduce leg problems and increase mobility, thereby improving the welfare of the birds.

Keywords: animal welfare, broiler chicken, environmental enrichment, leg health, light, stocking density