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Fit for transport? Broiler chicken fitness assessment for transportation to slaughter

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Abstract

EU legislation stipulates that unfit broilers may not be transported, but no guidelines for fitness-for-transport assessment are provided. Moreover, the impact of pre-slaughter conditions (eg crate stocking density) may depend on broiler fitness. We aimed to evaluate a fitness-assessment method and test physiological responses to the pre-slaughter phase with different stocking densities. Broilers (41 days; n = 1,939) were transported for 45 min at 'high' (160 cm² per kg), 'medium' (190 cm² per kg) or 'low' (220 cm² per kg) stocking density, and were subjected to a commercially representative pre-slaughter phase duration of ≈ 16 h. Pre-loading, lameness, illness, hock burns, foot-pad dermatitis, lesions, physical defects, cleanliness and cachexia were scored on a sample, for categorisation as fit (n = 49) or unfit (n = 25). Blood was collected before and after the pre-slaughter phase for determination of plasma levels of corticosterone (CORT), lactate, glucose and thiobarbituric acid-reactive substances (TBARS). Lameness, foot-pad dermatitis, lesions, illness, defects, and cachexia scores were, or tended to be, correlated with ≥ 1 physiological stress indicators. Unfit chickens tended to show or showed lower pre-transport glucose and lactate levels than fit chickens. Post-lairage, unfit chickens had higher TBARS and lower lactate levels compared to fit chickens. At high and low stocking densities, unfit chickens showed higher CORT levels than fit chickens. Furthermore, CORT levels of unfit chickens increased more at low stocking density. The results show that our method potentially identifies chickens experiencing additional stress during the pre-slaughter phase, due to poor physical condition. High and low stocking density proved a stressor for all, and especially for unfit chickens, with detrimental implications for their welfare.

Keywords: *animal-based welfare measure, animal welfare, broiler chicken, fitness-for-transport assessment, physiological stress, pre-slaughter phase*