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Does hatchery processing affect health and welfare of broiler chickens?

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During processing in commercial hatcheries, day-old chickens are exposed to possible mental and physical stressors. Three determinants of the processing line may affect the birds in particular: drop height from one conveyor belt to another, belt speed, and acceleration. The aim was to evaluate the effects of these factors on chicken health and welfare in early life. Therefore, day-old broiler chickens were tested on an experimental processing line that was adjusted to different levels of drop heights (0-360 mm), belt speeds (0-27 m/min) and accelerations (0-0.2 g) separately (n=14 animals/factor and increment). Several indicators for disorientation were recorded during the treatment and traumatic injuries were assessed *post mortem*. Data were analysed using GLM models (multinomial/binary distributions, logit link functions). The proportion of chickens changing their orientation after the drop increased at a drop height of 360 mm (χ^2=9.13, P=0.01). Body posture changes increased both at a drop height of 280 mm (χ^2=25.94, P<0.01) and a belt speed of 27 m/min (χ^2=11.77, P=0.01), with the majority of chickens not being able to regain a standing position. Traumatic injuries were found in two birds but were not related to a certain treatment. The present results suggest that the treatments on the experimental conveyor belts did not affect the birds' physical health. However, significantly more chickens did not manage to regain their initial body position on the belt with a drop height of 280 mm or a belt speed of 27 m/min. In terms of controllability, it may be preferred by the bird to be able to recover its posture after a drop from one belt onto the following. This indicates that there may be scope for discomfort and welfare impairment – at least in the short term – if commercial systems are operated with considerably larger drop heights and at higher speeds.