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Influence of early rearing system on later performance of commercial laying hens.

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Poultry production is undergoing rapid changes from cage systems to cage-free environments such as floor housing systems. In this study, we examined the effects of early life rearing environment on late performance (from 70 to 93 weeks of age). We used data from 1024 purebred hens from the nucleus of Novogen, reared in either a floor housing system (120 hens) or in collective cages (904 hens) during the first laying period (FLP) from 18 to 55 weeks of age, and then transferred to individual cages for the late laying period (LLP) from 56 to 93 weeks of age. More specifically, we recorded daily egg production throughout the measurement period and measured individual feed intake twice a week for three weeks, starting at 70, 80, and 90 weeks of age, as well as body weight at the beginning and end of each feed intake recording period. Egg quality was assessed at 70 and 90 weeks and body organ weight at slaughter. Random regressions models were used to study trait variation on a trajectory of time and genotype by time interactions. To study the impact of the rearing system of the first laying period on the performance of the late laying period, a fixed effect was included in the model, with two levels: floor or collective cage. The results showed that the rearing environment of the FLP did not affect body weight, feed conversion ratio, weight gain, yolk percentage, or abdominal fat content recorded in the LLP. Instead it affected daily feed intake, egg weight, laying rate, egg mass, Haugh unit, and residual feed intake. Specifically, floor hens had a 9.4% higher daily feed intake, 4% higher egg weight, 3.8% higher laying rate, 7.3% higher egg mass, 6.8% higher Haugh unit, and 133% higher residual feed intake compared to those reared on collective cages in the FLP. They also presented increased liver (+15%) and breast muscle (+9%) weight proportion. Although more data are needed to confirm this observation, our results suggest that floor rearing in the first laying period may have an impact on performance at later laying stages, perhaps reflecting a change in the animals' energy allocation. Project funded by the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000236.