
Effect of catching method on the concentration of plasma corticosterone in end-of-lay battery hens

T. G. Knowles, D. M. Broom

Veterinary Record (1993) 133, 527-528

In a recent survey by Gregory and Wilkins (1989) it was found that 29 per cent of live, end-of-lay, battery hens had broken bones after being transported to slaughter. Many of the breaks had occurred when the birds were caught in their cages and carried from the hen house to be crated on the lorry. End-of-lay hens from battery cages have particularly fragile bones (Knowles and Broom 1990, Knowles and others 1993). Broken bones are likely to be very painful and any practice which results in broken bones will compromise the welfare of the hens. A further study by Gregory and others (1993) looked at the effect of alternative methods of catching and crating battery hens on the incidence of broken bones. Another aspect of the welfare of battery hens is their physiological response to these practices. The study described below investigated the effect of some of the catching methods.

T. G. Knowles, D. M. Broom, Department of Clinical Veterinary Medicine, University of Cambridge, Madingley Road, Cambridge CB3 0ES
Dr Knowles' present address is School of Veterinary Science, University of Bristol, Langford, Bristol BS18 7DY
used by Gregory and others (1993) on the concentration of plasma corticosterone in end-of-lay hens after catching and crating. The concentration of plasma corticosterone has been shown to be related to the magnitude of an emergency response in laying hens (Beuving and Vonder 1978).

In the first trial each bird was removed individually from the cage by both legs and then either crated and taken from the house in the crate with other birds or carried from the house with another bird and then crated outside. Once outside a blood sample was collected by venepuncture. Each treatment was carried out on 20 birds. Control samples were collected from 20 birds which were sampled immediately after being removed carefully from their cages.

The birds in the second trial were from the same flock and the same house as those used by Gregory and others (1993) and they were used to compare the effect of catching and removing the birds one at a time by both legs, or catching and removing the birds one at a time by both legs, using a breast slide, or catching and removing three birds at a time by one leg. Twenty of the 40 birds allocated to each of these three treatments were crated directly and 20 were carried from the house and then crated, as in the first trial. Once outside the house a blood sample was collected by venepuncture. Control samples were collected from 20 birds which were sampled immediately after being removed carefully from their cages. In both trials care was taken to ensure that all the non-control blood samples were obtained at a similar time after the bird had been removed from its cage, so that the plasma corticosterone concentrations were comparable between birds and between treatments. Plasma corticosterone was assayed as described by Knowles (1990) and the results were analysed by analysis of variance. In both trials, birds carried from the house were carried inverted, held in one hand, by the legs as is normal commercial practice.

In the first trial the mean (± sem) concentrations of plasma corticosterone were 1.55 ± 0.21 ng/ml in the control birds, 1.97 ± 0.103 ng/ml in the birds crated inside the house, and 2.68 ± 0.157 ng/ml in the birds that were carried normally and crated outside the house; the differences between the three treatments were significant (P<0.05), Fig 1 shows the results from the second trial. A two-way analysis of variance of the effects of method of removal and method of carrying showed no significant difference in plasma corticosterone concentrations due to the method of removal from the cage (P=0.12) but a significant difference due to the method by which the hens were carried from the house (P=0.013). A one-way analysis of variance of all seven treatments showed that the plasma corticosterone concentrations in the control birds were lower than in the birds from all the other treatments (P<0.01) and that the concentrations in the birds removed from the cages three at a time and carried from the house were higher than in the birds removed individually, without the use of a slide, and crated directly (P<0.05).