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HEN BEHAVIOUR AND HYPOTHALAMIC-PITUITARY-ADRENAL RESPONSES TO HANDLING AND TRANSPORT

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ABSTRACT

Laying hens in cages vary in their response to a human observer who keeps his face 0.4 m from the front of the cage. Some move to the back of the cage for most of the time that the observer is present, some show much head-flicking behaviour and others show neither response. Hens whose behaviour had been thus measured in laboratory conditions and in a battery house were subjected to the normal handling and transport procedures which occur prior to slaughter, or to modified procedures. Their ventilation rates and plasma concentrations of corticosterone and glucose were assessed at intervals between 1 and 120 min. Feathering scores were assessed and hypothalamic monoamine levels were determined in hens slaughtered after 1 and 120 min.

The ventilation rate had increased by 2 min after removal from the cage and the corticosterone and glucose levels had increased by 5–10 min, but declined again by 2 h. "Normal" handling, involving carrying two birds in each hand by their legs for 60 s, resulted in much higher plasma corticosterone levels than gentle, careful handling. After handling, crating and transport for 2 h, plasma corticosterone and glucose levels were still considerably higher than in birds sampled 60 s after removal from their cage. Following this treatment, the level of noradrenaline in the hypothalamus was depleted by 13%, but no changes were found in hypothalamic content of adrenaline, dopamine, serotonin, dihydroxyphenylacetic acid, homovannilic acid or 5-hydroxyindoleacetic acid. Hens which were transported for 1 h were not different by most measures from hens handled in the same way but kept in the crate on the floor of the henhouse for the same period, but their blood glucose levels were 10% higher.

Those hens which moved to the back of the cage when watched from close quarters had the highest degree of de-feathering and showed a greater ventilation rate after handling and transport. The ventilation rate and plasma corticosterone response to handling and transport was greater in those birds which moved to the back of the cage or showed most head-flicking.

These results show that the "normal" handling of hens, which might be considered rough, leads to a considerable adrenal response and that this can be reduced by gentle handling. Transport does not lead to much greater effects than being kept in a stationary crate. Birds which appear to be most affected by handling and transport can be identified in advance by behaviour observation.