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Adaptation to high temperature increases is improved by thermal stimulations during the first week of age in chickens. The present experiment was designed to look whether an adaptation capacity was still present at higher ages (5 weeks of age). We evaluated adaptation by measuring panting behaviour and body temperature during repeated rises in room temperature.
When the chickens were 35 days old, the room temperature (22°C) was increased from 22°C up to 27°C for 2H30, then up to 32°C for 2H30 more, and then switched back to 22°C. On Day 36 and 37, room temperature was increased to 27°C for 6H per day to maintain the thermic stimulation. At Day 38, the same increase in ambient temperature as at Day 35 was repeated. Panting behaviour and body temperature were measured on Day 35 and 38. Body temperature was measured manually and with intra-abdominal telemetric transmitters.
Body temperature increased when the room temperature was set to 27°C and then remained stable during the 2H30. At a room temperature of 32°C, it kept increasing and reached 43.0°C. An adaptation of the thermoregulatory process was found since body temperature at 27°C and 32°C was lower during the second heat challenge (Day 38) compared to the first one (Day 35). Panting frequency was highest at 32°C, but remained unable to maintain body temperature. No difference was recorded in panting behaviour between Day 38 and 35.
Our results suggest that the lower body temperature increase in Day 38 compared to Day 35 would be related to physiological changes rather than changes in animal behaviour.

Keywords: heat stress, adaptation, behaviour, chicken, telemetry

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