

INSIDE JEB

Noises heard in egg mould quail chick personality



Two-day-old quail chicks. Photo credit: Lucile Archimbeau.

Far from being cut off from the external world, chicks developing within their eggs are aware of light, temperature and sound; they can even experience stress while secure inside their mini-incubators. But what effects do these experiences have on the behaviour of the youngsters once they have broken free of their early egg homes? How would hearing a natural sound (a sparrowhawk squawk) or a crashing metal dish – which developing quail (*Coturnix coturnix japonica*) embryos would never encounter naturally – while developing inside their eggs affect the behaviour of quail chick hatchlings? Nawel Mezrai from the University of Rennes, France, with colleagues from Rennes, Université F. Rabelais, France, and Normandie University, France, monitored chicks' reactions to a variety of situations during the first 16 days of life.

After playing sparrowhawk squawks to 11 developing chicks 100 times a day

from day 8 of gestation to day 11, and 200 times per day from day 11 to day 14, the team then waited for the youngsters to hatch. Meanwhile, a second group of 23 developing chicks listened to the sound of a metal plate crashing to the floor, while a third group of 13 youngsters developed in complete silence. Once all of the youngsters were 4 days old, Mezrai and her colleagues began testing how timid the chicks were when exploring new environments, whether they were sociable and how emotional they became when startled; and it turned out that the sounds had very different impacts on the chicks' personalities.

Analysing the chicks' reactions, the team found that the chicks that had heard the threatening sparrowhawk squawks were most afraid of new situations. However, the chicks that had encountered the crashing metal sound were most

sociable, keen to join a gaggle of unfamiliar chicks and becoming distressed when isolated from their siblings. In contrast, the chicks that had developed in silence and the youngsters that had developed to the sound of sparrowhawks were relatively unfriendly. In addition, the chicks that experienced complete silence while developing were the least emotional and relatively bold, exploring new environments faster than the chicks that had experienced noise. The chicks that had developed with noise were also more nervous, taking longer to recover from being held on their backs as if being attacked, and were more emotional, cheeping more when startled.

Overall, the chicks that experienced natural sounds during development, which they could well encounter as embryos, were bolder and a little emotional, while the birds that heard artificial crashing sounds were even more emotional and preferred the company of others. 'Auditory stimuli therefore have an impact on an individual's behaviour profile', says Mezrai, who suggests that we develop a better understanding of the impact of the environment on developing chicks and embryos as their experiences could have a life-long impact.

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