

Abstract

Avian incubation is influenced by three basic factors: temperature, humidity, and egg rotation. The incubation temperature can significantly affect the development of an individual before hatching as well as after it. In natural conditions the incubation temperature is maintained by a parent trying to stabilize it at the developmental optimum. The parents must also provide their own needs during incubation, which results in temperature fluctuations. Although the incubation temperature is species-specific, its mean varies between 30 °C and 40 °C across all avian taxa. Lower temperatures but still within the optimum range cause reduced hatchability and prolongation of incubation period. Higher temperatures within the optimum range shorten incubation period and also reduce hatchability. Incubation temperature affects also the weight of an individual, its body proportions, metabolism, survival after hatching, and possibly also reproduction success (fitness). A detailed understanding of the mechanisms by which temperature affects the embryo development and its features is necessary, among others, to optimize incubation methods in artificial incubators.

Key words: incubation, temperature, reintroduction, egg, avian embryo, hatchability, incubation length