# Application of a novel chick embryo culture system for developmental studies and chicken meat production

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**Objectives:** Chicken meat and eggs are highly nutritious and are widely eaten all over the world as an excellent foodstuffs. Also, chick embryos are useful as a material for developmental biology. Improving embryogenesis is extremely important in the production of individual chickens. However, chicken embryogenesis is blocked from the outside by eggshell, and the details are still un- known. In the present studies, we have developed a novel embryo culture systems.

**Materials and Methods:** As the control group, ex-ovo culture have been conducted by using conventional egg shell as a incubation substitute. In the experimental groups 1 or 2, Egg-in Cube (Huang et al., (2015)) or plastic glass have been applied for the ex-ovo culture, respectively. By using these culture systems, it became possible to completely observe through embryogenesis without barrier.

**Results and Discussion:** In the control group, it was possible to continue the embryonic development until the 18th day of incubation. Since the upper part of the eggshell was cut in these embryonic development processes, it was possible to observe embryo- genesis only from the upper part. On the other hand, the sides and bottom were covered with eggshell, and it was difficult to observe embryogenesis in the relevant part. In the experimental groups 2 and 3, it became possible to observe the embryo development with more transparency. In the experimental group 3, embryogenesis continued for up to the 15th day of incubation. In this culture system, embryonic development can be observed from all directions. Factor analysis for improving embryo development is essential. By adding these factors. These approaches should contribute for chicken meat production and avian developmental biology.

**Key words:** Chicken meat, Eggs, Embryo culture