

HOW TO MAKE AN EMBRYONIC DISPLAY



PREPARATION AND PRESERVATION OF EMBRYOS:

Chick embryo displays are popular and educational. The great changes in size and form that take place from day to day are quite startling.

It is possible to preserve embryos so that they maintain their original size and shape for several years.

The natural color of the embryo is bleached away by the preparation, but this does not detract too much from the display because the size and shape of the embryo are the most striking aspects of the exhibit.

MATERIALS AND SUPPLIES:

Incubator
Incubated fertile eggs
Egg Candler
Pencil
Spoon
Small regular scissors
Cuticle scissors
Tweezers (2-3 pair)
Distilled water
Salt (NaCl)
Formalin (37.5 or 40% formaldehyde) CAUTION:
Avoid excessive inhalation & skin contact of formalin.
2 or more bowls or petri dishes
Jars (baby food or similar size)

PROCEDURES:

You should set at least 3 eggs for each embryo wanted for preservation to allow for infertile eggs, mortality and accidents. The setting schedule should be arranged so that the embryos of the desired age come off on a convenient day.

Embryos can be prepared conveniently from 3 to 19 days of age to give practically a complete record of chick development from fertilization to hatching at 21 days.

Hint: It is an advantage to start with the older embryos and proceed backward to build technique and confidence as the embryos are more fragile at the earlier stages of development.

SALINE SOLUTION:

9 grams—non-iodized table salt in 1,000 ml of water.

FORMALDEHYDE SOLUTION:

1 part 37.5–40% formaldehyde with 3 parts water.

(mix in a bowl with a cover, set aside until ready to use) This will eliminate breathing fumes for a prolonged period.

PREPARATION:

To prepare the embryo from the incubated egg, crack the shell as if to fry an egg. This should be done over a sink. Let the contents drop gently into a dish or plate.

Carefully rupture the embryonic membrane surrounding the embryo and gently pick up the embryo by slipping the fingers or a spoon underneath it for support. Transfer the embryo to a bowl of saline solution. Here the embryo is gently swished around in the solution to free it of undesirable materials.

The umbilical attached to the abdomen must be clipped to remove the embryonic membranes.

Transfer the embryo to another bowl combining the formaldehyde solution and *allow to stand for several minutes.*

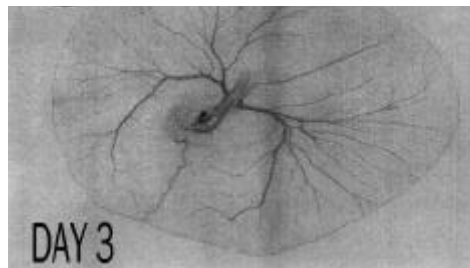
You are now ready to fill a clear jar with the diluted formalin solution and drop in the embryo. Cover the jars, do not leave the embryo exposed to air for any length of time. It is normal for the embryo to float until its tissues absorb some of the solution.

Check the preserved specimens at intervals and transfer them to a fresh diluted formalin solution if the solution is cloudy or contains floating tissue, etc.

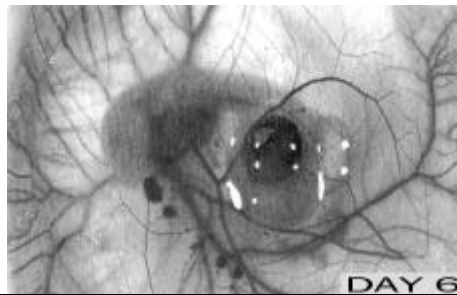
Continue these transfers until the solution remains clear and free of extraneous floating tissue.

When this point is reached, fill the jars to the top, close them tightly. Label the tops of the lids with appropriate information you wish to share. This will leave an unobstructed view of the embryo.

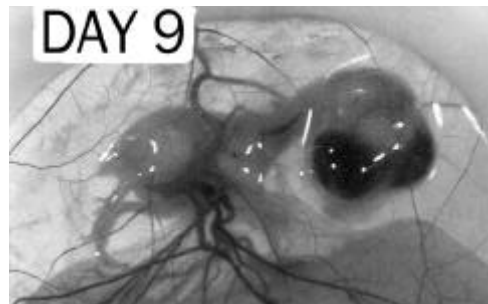
By day 3 the first kidney-like cells have been formed, the yolk sac begins. Blood function begins, vertebral columns began & is visible, eye is apparent, ear began, heartbeat moves blood, posterior & anterior limb buds begin, nasal pits, pharynx, lungs are forming.



By day 6 the tongue and esophagus began, the embryo separates from the yolk sac, the appearance of reproductive system & differentiation of sex began. The beak, voluntary movement has begun.



By day 9 comb growth begins, the egg tooth begins, digits appear, mineral from shell begins, feather tracts appear (no feathers), bone calcification begins, mouth opening appears.



Embryo should move into the proper position to hatch. Head in large end of egg, head to right and under right wing, beak pointed toward air cell and feet toward head.

