



**Western University**  
OF HEALTH SCIENCES

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College of  
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## The Making of an Egg

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The egg is the most complete source of nutrients available to humans. It provides protein, vitamins, and minerals and is the only food that contains all essential amino acids. For one egg to be produced it takes approximately 24 hours. Fig. 1 illustrates the different sections of the reproductive tract that helps produce the egg.

- A. Egg production is initiated when a mature ovum is released into the infundibulum. At this point, the egg can be fertilized, if there are live sperm present. The egg spends about 15 minutes in the infundibulum.
- B. The ovum travels next to the magnum where a protective, nutritious layer, the albumen (egg white) is added. There are two layers to the albumen, thick and thin, which serve as a source of niacin, riboflavin, potassium, sodium, and other nutrients. The thick layer is added first and is closest to the yolk. It provides the majority of the riboflavin and protein for the embryo. In addition, the chalazae are added. These rope-like structures, appearing on both sides of the yolk, are designed to hold the yolk in place as it proceeds through the reproductive tract.
- C. The isthmus is the next destination for the developing egg. Here, two

shell membranes are added, providing additional protection to the egg from the environment. There is an air pocket (air cell) that forms between the two shell membranes as a result of cooling at the blunt end (Fig. 3) of the egg.

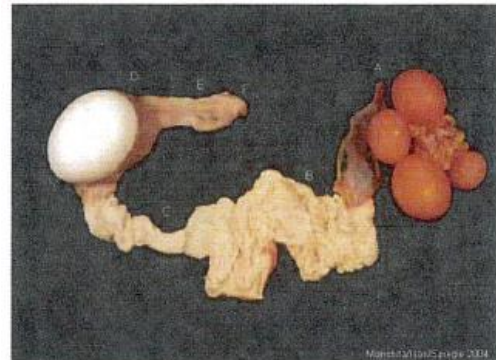


Fig. 1. Different sections of the hen's reproductive tract. Letters correlate with the different sections mentioned in the text.

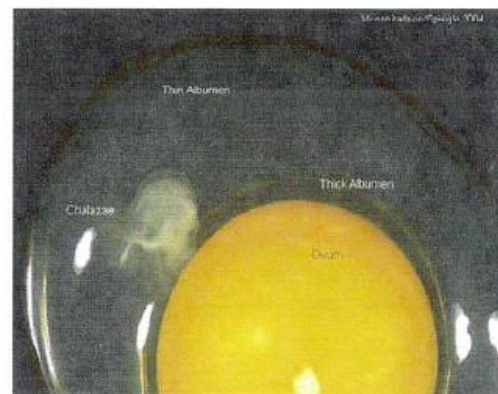


Fig. 2. Internal parts of an egg.

The uterus, also known as the shell gland, is where the developing egg spends the majority of the time, approximately 21 hours. Water and minerals pass through the membranes, causing the egg to inflate. In the shell gland, calcium is then secreted forming the hard outer layer. It is interesting to note that usually if a hen has a red earlobe, the egg will be colored (i.e., brown); whereas, if the earlobe is white, the egg will also be white.

- D. The vagina is the last part of the reproductive tract the egg passes through where it is coated with a waxy cuticle.

- E. After production is complete, the egg passes through the cloaca and is laid blunt end first.



Fig. 3. An egg with pointed end (left) and blunt end (right). The blunt end is where the air cell is located.

Revised in 2019 from Original Source: Spiegle, S.J., A.J. Ison, and T.Y. Morishita. The making of an egg. Extension Factsheet, Veterinary Preventive Medicine. The Ohio State University, Columbus, Ohio, #VME-21-04, 2004.