



## Lecture title: female reproductive system

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### Summary:

The female reproductive system consists of two main parts:

1. Ovary.

2. Oviduct.

➤ At the time of early embryonic development, **two ovaries** and **two oviducts exist**. But the **right set atrophies**, leaving only the **left ovary and oviduct at hatching**.

➤ **Egg formation requires 21-24 hours**.

#### First : the ovary

The **ovary** consists of a mass of yellowish, rounded objects called "**Follicles**", each containing an **ovum or yolk**.

➤ When a mature follicle is examined an area virtually free of blood vessels will be found on the surface of it.

➤ This area, called the **stigma** or (suture line) is where the follicle normally splits to release the yolk into the oviduct.



If, for some reason, the follicle splits at other than the stigma, the numerous blood vessels that rupture will result in free blood being found in the egg i.e. a **blood spot** will form.

#### **Ovulation:**

- The release of the yolk (the process of ovulation), is the major controlling factor influencing the subsequent steps in the formation and laying of the egg.
- As a consequence, factors that influence ovulation are of critical importance to the various aspects associated with egg production.
- The presence of a mature yolk in a follicle causes hormones from the ovary to stimulate the release of **luteinising hormone (LH)** by the **pituitary gland**. The presence of LH in the blood stream causes the follicle that contains the mature yolk to split along the stigma thus releasing it into the oviduct abdominal cavity adjacent to the oviduct.

#### **Second: the oviduct**

The **oviduct** : Is a **long tube** through which the yolk passes and where the remaining portions of the egg are secreted. It consist of the following parts :-

##### *1. Infundibulum*

The funnel-shaped upper portion of the oviduct is called the infundibulum.

☐ When functional, its length is approximately (9 cm). Normally inactive except immediately after ovulation, its purpose is to search out and swallows the yolk causing it to enter the oviduct, and also for fertilization.



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2. *Magnum*

The magnum responsible for the albumen-secreting portion of the oviduct, and it is about 13 inches (33 cm) long in the average laying hen.

3. *Isthmus*

A relatively short section approximately (10 cm) in length.

☐ Here the inner and outer shell membranes are formed in such a manner as to represent the final shape of the egg.

4. Uterus:

Also called “shell gland”.

☐ The uterus is (10 cm) long in the laying hen.

☐ Eggshell calcification begins just before the egg enters the uterus.

5. *Vagina*

The final section of the oviduct is the vagina, which is about (8 cm) in length in a bird during egg production.

☐ Normally, the egg is held in the vagina for only a few minutes. The vagina has no role in egg formation and only serves to expel the egg once it leaves the shell gland



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The time it takes for the egg to pass through each part of the oviduct:

1. Infundibulum: about 18 minutes, with a range of 15–30 minutes.
2. Magnum: about 54 minutes, with a range of 2–3 hours.
3. Isthmus: about 75 minutes on average. This means that the egg takes about 4 hours and 26 minutes from the time it is captured by the funnel until it reaches the uterus.
4. Uterus: the egg remains in the uterus for about 18-20 hours.
5. Vagina: takes a few minutes