**NAME: BABAGBALE QUEEN-ESTHER JOSEPHINE**

**MATRIC NUMBER: 18/MHS01/101**

**LEVEL: 200 lvl**

1. Ovulation is the release of secondary oocyte from the ovarian follicle/ovaries. An increase of luteinizing hormone (LH) causes 2 events to occur and hence the release of the oocyte. These events are:
2. Increase in collagenase activity resulting in digestion of collagen fibers (connective tissue) surrounding the follicle
3. Increase in prostaglandin levels and local muscular contractions in the ovarian wall.

These contractions cause the expulsion of the oocyte, which together with its surrounding follicular cells from the region of the cumulus oophorus. Corpus radiate is then formed by the rearrangement of some of the cumulus oophorus around the zona pellucida.

A surge of luteinizing hormone triggers ovulation which usually follows 12 to 24 hours after this LH peak. The LH surge appears to cause the stigma to balloon out and form a vesicle.

Some symptoms of ovulation are:

* Mittelschmerz/ middle pain
* Changes in cervical mucus
* Increased libido
* Swollen vagina or vulva
* Tender breasts

Some ladies fail to ovulate and that condition is called anovulation .

1. The following are the differences between meiosis I and meiosis II

|  |  |
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| **MEIOSIS I** | **MEIOSIS II** |
| Homologous chromosomes separate | Sister chromatids separate |
| Produces 2 diploid daughter cells | Produces 4 haploid daughter cells |
| Crossing over/ genetic recombination occurs | Crossing over/ genetic recombination does not occur |
| There is formation of chiasma | There is no formation of chiasma |
| Synapsis is present | Synapsis is absent |
| The centromeres do not split | The centromeres split |

1. The stages of fertilization includes:
2. Passage of sperm through the corona radiata:

At the beginning of the process, the sperm undergoes a series of changes, as freshly ejaculated sperm is unable or poorly able to fertilize.The sperm must undergo [capacitation](https://en.wikipedia.org/wiki/Capacitation) in the female's reproductive tract over several hours, which increases its motility and destabilizes its membrane, preparing it for the [acrosome reaction](https://en.wikipedia.org/wiki/Acrosome_reaction), the enzymatic penetration of the egg's tough membrane, the [zona pellucida](https://en.wikipedia.org/wiki/Zona_pellucida), which surrounds the oocyte.

1. Penetration of the zona pellucida

After binding to the corona radiata the sperm reaches the [zona pellucida](https://en.wikipedia.org/wiki/Zona_pellucida), which is an extra-cellular matrix of glycoproteins. A special complementary molecule on the surface of the sperm head binds to a ZP3 glycoprotein in the zona pellucida. This binding triggers the acrosome to burst; releasing enzymes that help the sperm get through the zona pellucida

1. Fusion of the plasma membranes of the oocyte and sperm

The plasma or cell membranes of the oocyte and sperm fuse and break down at the area of fusion.

The head and tail of the sperm enters the cytoplasm of the oocyte leaving the sperm’s plasma membrane behind.

1. Completion of the second meiotic division of oocyte and formation of female pronucleus

The oocyte now undergoes its second meiotic division producing the mature ovum/ oocyte and a polar body. The nucleus of the mature ovum is called the female pronucleus.

1. Formation of male pronucleus

The nucleus of the sperm enlarges to form the male pronucleus within the cytoplasm of the oocyte and the tail of the sperm disintegrates.

1. The pronuclei fuse into a single diploid aggregation of chromosomes, the ootid becomes a zygote

The chromosomes in the zygote become arranged on a cleavage spindle in preparation for cleavage of the zygote.

1. The differences between monozygotic twins and dizygotic twins include:

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| --- | --- |
| **MONOZYGOTIC TWINS** | **DIZYGOTIC TWINS** |
| These are formed by the splitting of one embryo | These are formed by the fertilization of two different eggs |
| They are genetically identical and look alike | They are not genetically identical and do not look alike |
| They are the same sex | They can be of the same or different sex |
| They share an amniotic sac, chorionic sac and placenta | They have different amniotic sacs, chorionic sacs and placenta |
| They are less common | They are more common |