

Ovulation is the release of an oocyte from the ovarian follicle. In a few days before the ovulation, under the influence of the follicle stimulating hormone and luteinizing hormone, the secondary follicle grows rapidly to a diameter of about 25mm to become mature vesicular or secondary or graafian follicle. For the oocyte to be released, two events occur caused by LH surge

- Increase in collagenous activity resulting in digestion of collagen fibers.
- Prostaglandin levels also increase in response to LH surge which causes local muscular contraction in ovarian wall

Those contractions extrude the oocyte which together with its surrounding follicular cells form the region of the cumulus oophorus which the later arrange themselves around the zona pellucida to form the corona radiata

Meiosis 1 reduces chromosome number in daughter cell while meiosis 2 equalizes chromosome number.

Meiosis 1 is preceded by interphase while meiosis2 isn't

In meiosis1, crossing over occurs while in meiosis2 crossing over doesn't occur.

Meiosis1 undergoes a heterotypic type of division while meiosis2 undergoes a homotypic type of division.

Meiosis1 is a complex division and takes more time while meiosis2 is a less simple division and takes less time.

In meiosis 1, individual chromosomes are present in the daughter cell while in meiosis2 sister chromosomes are present in daughter cell.

STAGES INVOLVED IN FERTILIZATION

–Passage of sperm through corona radiata: For sperm to be able to pass through the corona radiata they must be capacitated.

–penetration of zona pellucida: when the acrosome of the sperm comes in contact with the zona pellucida, acrosomal enzymes allow the sperm to penetrate the zona pellucida, thus coming in contact with the plasma membrane of the oocyte. As soon contact is made permeability of the zona pellucida changes.

–Fusion of plasma membrane of oocyte and sperm: The cell membrane of the two sex cells fuse and break down at the area of fusion. Only the head and but not the plasma membrane enter the cytoplasm.

–Completion of second meiotic division of oocyte and formation of female pronucleus: penetration of the oocyte by the sperm activates the oocyte into completing the second meiotic division forming a mature oocyte and second polar body.

–Formation of male pronucleus: within the oocyte the nucleus of the sperm enlarges into a male pronucleus and its tail degenerates.

DIFFERENCES BETWEEN MONOZYGOTIC AND DIZYGOTIC TWINS

Monozygotic twins are genetically identical while dizygotic twins aren't.

Monozygotic twins are of the same sex while dizygotic can be of the same or different sex.

Monozygotic twins are often seen as conjoined while dizygotic aren't.

Monozygotic twins are formed from a single zygote while dizygotic is formed from two zygotes.

Monozygotic twins are diamniotic, monochorionic with single placenta while dizygotic have two amnions, two chorions and two placentas.