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18/MHS01/123

EMBRYOLOGY ASSIGNMENT

1. Ovulation: Ovulation is the release of mature egg from the ovaries. Ovulation around day 14 of a 28-day menstrual cycle. It begins with release of follicle stimulating hormone between 6th and 4th day of menstrual cycle.
2. Difference between meiosis1 and meiosis2

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| Meiosis1 | Meiosis2 |
| Reduces the chromosome number in daughter cells. | Equalizes the chromosome number of both parent and daughter cells. |
| Homologous chromosomes are present at beginning. | Individual, bivalent chromosomes are present at the beginning. |
| Individual chromosomes are present in the daughter nuclei. | Sister chromosomes are present in the daughter nuclei. |
| Chromosomal cross-over occur during prophase1. | No chromosomal cross-over occurs during prophase2. |
| Complex and takes more time. | Comparatively similar and takes less time. |
| Cohesion protein complexes are at the arms of the homologous chromosomes are cleaved. | Cohesion at the centromeres are cleaved in order to separate the two sister chromatids. |

1. Stages involved in fertilization:
2. Passage of a sperm through corona radiata: The sperm loses its glycoprotein oat and seminal plasma proteins from the plasma membrane that overlies the acrosomal region of the sperm and passes through the corona radiata
3. Penetration of the zona pellucida: The zona pellucida is a glycoprotein shell surrounding the egg that facilitates and maintains sperm biding and induces the acrosome reaction. Release of acrosomal enzymes allow sperm to penetrate the zona pellucida then the permeability of the zona changes so as to not allow any other spermatozoa into the plasma membrane of the oocyte.
4. Fusion of plasma membranes of the oocyte and sperm: the plasma membranes of the oocyte and sperm fuse and breakdown at the area of fusion.
5. Completion of the second meiotic division of oocyte and formation of female pronucleus: Penetration of the oocyte by a sperm activates the oocyte into completing the second meiotic division and forming a mature oocyte and a second polar body**.**

The nucleus of the mature ovum/oocyte is now called the f**emale** pronucleus.

1. Differentiation between monozygotic and dizygotic twins:

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| Monozygotic Twins | Dizygotic twins |
| They are the two offspring that develop from one zygote | They develop from separate zygote |
| They share the same DNA | They do not share DNA |
| They are always the same gender | Can be different or same gender |
| Almost have same appearance | May have same or different appearance |
| Blood type is always the same | Blood type is not always the same |