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18/mhs01/264

200lvl MEDICINE AND SURGERY

EMBRYOLOGY

1)DISCUSS OVULATION

Ovulation is the release of an egg from one of a woman's ovaries. After the egg is released, it travels down the fallopian tube, where fertilization by a sperm cell may occur.

Ovulation typically lasts one day and occurs in the middle of a woman's menstrual cycle, about two weeks before she expects to get her period. But the timing of the process varies for each woman, and it may even vary from month to month.

If a woman is hoping to become pregnant, she will want to keep track of when she may be ovulating. Knowing when a woman is ovulating each month is helpful because she is the most fertile — or able to become pregnant —around the time of ovulation.

During ovulation, the walls of the uterus also thicken to prepare for a fertilized egg. But if the egg is not fertilized, the uterine lining is shed about two weeks later, causing menstrual flow to begin. But simply having her period does not always indicate that a woman is ovulating.

Ovulation typically happens around day 14 of a 28-day menstrual cycle. However, not everyone has a textbook 28-day cycle, so the exact timing can vary.

In general, ovulation occurs in the four days before or four days after your cycle’s midpoint.

2). DIFFERENTIATE BETWEEN MEIOSIS 1 and MEIOSIS 2

|  |  |  |
| --- | --- | --- |
|  | **MEIOSIS I** | **MEIOSIS II** |
| No of cells produced | Two daughter cells | 4 daughter cells |
| Duration | Long duration | Short duration |
| Crossing over | Occurs | Do not occur |
| Nature | Heterotypic division | Homotypic division |
| Chromosome separation | Homologous chromosome separate from each other | Sister chromatids separate from each other |

3)DISCUSS THE STAGES INVOLVED IN FERTILIZATION

a)Passage of sperms through the corona radiata

For sperms to pass through they must undergo capacitation this involves the removal of the glycoprotein coat and the seminal plasma proteins form the plasma membrane that overlies the Acrosomal region of the spermatozoa.

b) Penetration of the Zona pellucida

The intact acrosome of the sperm binds with the Zona glycoprotein on the Zona pellucida

The release of the acrosomal enzyme allows the sperm to penetrate the Zona pellucida thereby coming in contact with the plasma membrane of the oocyte

When a spent comes in contact with the oocyte surface lysosomal enzymes are released from the cortical granule lining is the plasma membrane of the oocyte.

Only one sperm penetrates the the oocyte

C) FUSION OF PLASMA MEMBRANE OF THE OOCYTE AND SOERM

The cell membrane of the oxygen and sperm fuse and break down at the area of fusion

The head and tail of sperm enter the cytoplasm of the oocyte but the sperm plasma memo remains behind

D) COMPLETION OF THE SECOND MEIOTIC DIVISION OF THE OOCYTE AND FORMATION OF FEMALE PRONUCLEUS

Penetration of the oocyte by the sperm activates the oocyte into completing the second meiotic divisions and forming a mature oocyte and a second polar body

The nucleus of the mature oocyte is now the female pronucleus

E) FORMATION OF MALE PRONUCLEUS

Within cytoplasm of oocyte the nucleus of sperm enlarged to form the male PRONUCLEUS and the tail of sperm degenerates

F) The 2 PRONUCLEI rise into a single diploid aggregation Of chromosome to become a zygote

4) DIFFERENCE BETWEEN MONOZYGOTIC AND DIZYGOTIC TWINS

|  |  |  |
| --- | --- | --- |
|  | MONOZYGOTIC | DIZYGOTIC |
| Develop form | The splitting of the same fertilized egg into two | Two different eggs fertilized by two different sperm cells |
| Gender | Always the same | May be different |
| Blood group | Always the same | May be different |
| Appearance | Extremely similar, although may not be exactly identical due to environmental factor | As similar as any other sibling |