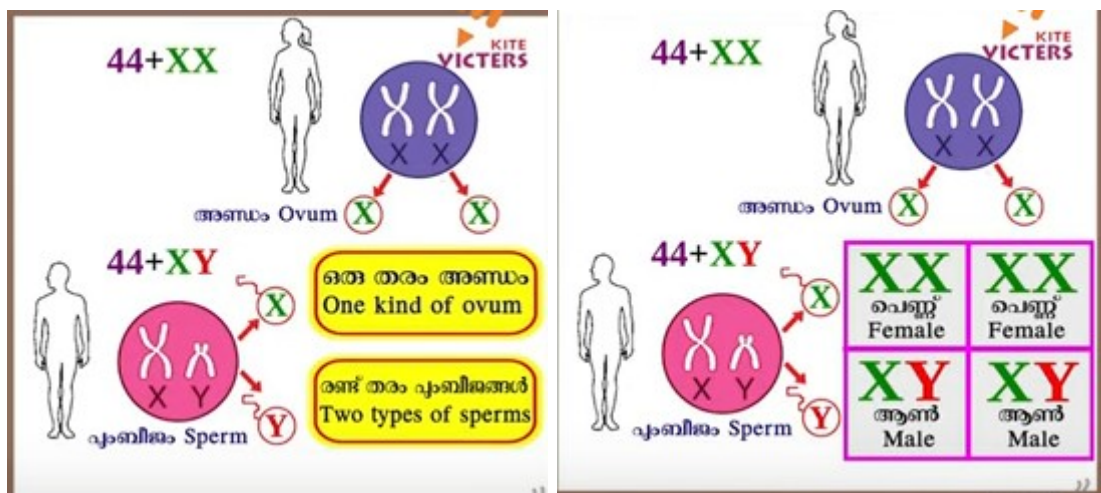


STD 10-BIOLOGY-FIRST BELL-CLASS-41 Dated 30/12/2020
Chapter – 6
UNRAVELLING GENETIC MYSTERIES

Is the child male or female?

- What is the genetic mechanism that determines whether a child is male or female?
- The genetic make up of female is 44 + XX
- The genetic make up of male is 44 + XY



- If a sperm with an X chromosome fuses with the ovum with X chromosome, the offspring would be a female (46, XX).
- If a sperm with Y chromosome fuses with the ovum with X chromosome, the offspring would be male (46, XY).
- The Y chromosome was therefore thought to be a powerful determinant.
- The presence of Y chromosome was necessary for the birth of a male (XY) offspring, and its absence resulted in a female (XX) offspring.
- What is the possibility for the birth of a male or a female child?
 - The possibility for the birth of a male or a female child is equal.

- Number of chromosomes in male and female.
 - 46
- Chromosome difference in male and female.
 - In male XY
 - In female XX
- The XY chromosomes of the father determine whether the child is male or female.
- Child with XX sex chromosomes is female and one with XY sex chromosomes is male.



- **In our society the women are often blamed for giving birth to daughters. Can you explain why this is not correct?**
- **Who determines the gender of a child?**
- A child's gender is determined by the chromosome that the male parent contributes.
- Females have **XX** sex chromosomes.
- Males have **XY** sex chromosomes.
- A male infant results if the male contributes his Y chromosome while a female infant results if he contributes his X chromosome

- Females have 23 pairs of chromosomes, 22 + XX (sex chromosome) and males have 23 pairs of chromosomes , 22 + XY (sex Chromosome).
- While fertilization ova will be carrying one X chromosome while sperm would either be carrying X or Y chromosome.
- If ova having X chromosome fertilizes with sperm having X chromosome, the child will be Girl (XX)
- If ova having X chromosome fertilizes with sperm having a Y chromosome, the child will be a boy (XY). Thus mothers are wrongly blamed.

Difference in Skin colour

- What may be the reason for the difference in the colour of skin in people living in various parts of the world?
 - Melanin, a pigment protein imparts colour to the skin.
 - The rise or fall in the production of melanin is due to difference in the function of alleles of genes responsible for skin colour.
 - This is the reason for the colour difference of human skin.
- It is not racial difference which makes the skin colour dark or light.
- This is simply an adaptation to live under the sun.
- Races among mankind are only cultural. Biologically, all men are of the same race.
- Studies in genetics become meaningful only when one attains an awareness to consider all men equal without any racial discrimination.



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