

Human sexual reproduction



**ASSIGN
BUSTER**

Introduction

In human sexual reproduction, the males always produce sperms and the females produce ovum. Generally, the sperms and the ova are what are referred to as the gametes. These gametes contain chromosomes which are coiled threads of DNA and protein found in the nucleus of the cells. A chromosome is that which carries the hereditary information of an individual and constitutes of densely packed coiled up Chromatin.

Sperm and Baby's Sex

The pairing of chromosomes is responsible for the different sexes evident in the human and widely on most of the animal species. Genetically sperms contain X and Y chromosomes while the ovum contains the X chromosomes alone. An individual with both the Y and X chromosome is referred to as the male while an individual with only the chromosome is the female. During normal fertilization a male always contributes one chromosome while the female contributes the other chromosome. Together they will form an individual. If the male contributes a Y chromosome then the resulting sex will be that of a male since the final set will be XY. However, if the male contributes an X chromosome the resulting set will be a XX and hence a female. A female in all the cases produces an X chromosome. This means the sperm is of importance since it will contribute the all important Y chromosome to male the child male.

Possible Complicating Factors

Although meiosis is a precise mechanism that separates the two sex chromosomes of a diploid cell into a single chromosome of haploid gamete cells, errors sometimes do take place. Nondisjunction is one of the commonest

errors. Nondisjunction is the failure of chromosomes to separate properly during one of the stages of meiosis. This Nondisjunction error can produce gametes that contain either two sex chromosomes or no sex chromosome. Lack of sex chromosomes or having two sex chromosomes is a direct contrast to the normal condition of one sex chromosome. When either of these gametes joins with a normal gamete during fertilization, its result is a person with an abnormal count of sex chromosomes. This leads to a number of disorders.

Most common disorders are Turner syndrome and Klinefelter syndrome. Victims of Turner syndrome are female in appearance but their female genital organs do not develop at puberty. They are also sterile. The Turner syndrome is abbreviated as 45X or 45X0, where 0 denotes the absence of second sex chromosomes. People with Klinefelter syndrome are male in appearance and they too, are unable to sire children. Klinefelter is abbreviated as 47XXY. All babies must have x chromosomes for it contains a number of genes that are vital for normal human development. Other disorders, though not very common, which are as a result of nondisjunction are; the Down syndrome, Edward syndrome, Patau syndrome, triple x syndrome and XYY syndrome. Triple X syndrome is as a result of an extra x chromosome in female where as the XYY syndrome is as a result of an extra y chromosome in male. Victims of Edward syndrome usually experience abnormal development of body organs such as kidneys, intestines and the heart.

Conclusion

An X chromosome is absolutely essential for survival. Sex seems to be determined by the presence or absence of a y chromosome and not by the number of X. chromosomes. An example is the evidence of reported cases of people who have genotypes 48XXXXY and 49XXXXXY and are male in appearance. The Y chromosome contains a gene that switches on the male pattern of growth during embryological development. If this gene is absent, the embryo follows a female pattern of growth.

Reference

Komisaruk, B. R. (1986). *Reproduction: Behavioral and Neuroendocrine Behavior*. New York Academy of Sciences,

Papalia, D. E., Olds, S. W and Feldman, R. D. (2001). *Human Development (8th Ed)*. McGraw-Hill Education