Chromosomal foundation/Introduction

Chromosomes XX and XY

Although there are numerous anatomical and physiological differences between the sexes, the chromosomal basis of sex determination is quite simple. In humans, women carry two X chromosomes, while men have one X and one Y chromosome. This means that the DNA sequence differs by 1.5 percent between the sexes. The phenotypic differences result, among other things, from the fact that one of the two X chromosomes is inactivated in all women's tissues. The inactivation is irreversible and affects either the X chromosome of paternal or maternal origin. Since this process takes place during early embryonic development, only the genes of the active X chromosome are read, providing information for the synthesis of the corresponding proteins. Since 15 percent of X chromosomal genes can escape inactivation, women can sometimes produce twice as many of the same protein as men. This can lead to significant differences in metabolism. From the sex-specific chromosome constellation (XX or XY) it is evident that Y-chromosomal genes are present only in men and are predominantly expressed in the reproductive system. Lastly, there are sex differences regarding physiological, anatomical and behavioral characteristics. [1]

Back to Module 1: Sex and Gender in medicine.

Literature

Click here to expand literature references.

1. Kindler-Röhrborn A, Pfleiderer B. Gendermedizin - Modewort oder Notwendigkeit?: - Die Rolle des Geschlechts in der Medizin. XX 2012; 1(03):146–52.

License

Autoren

Last changed: 2021-03-02 11:28:55