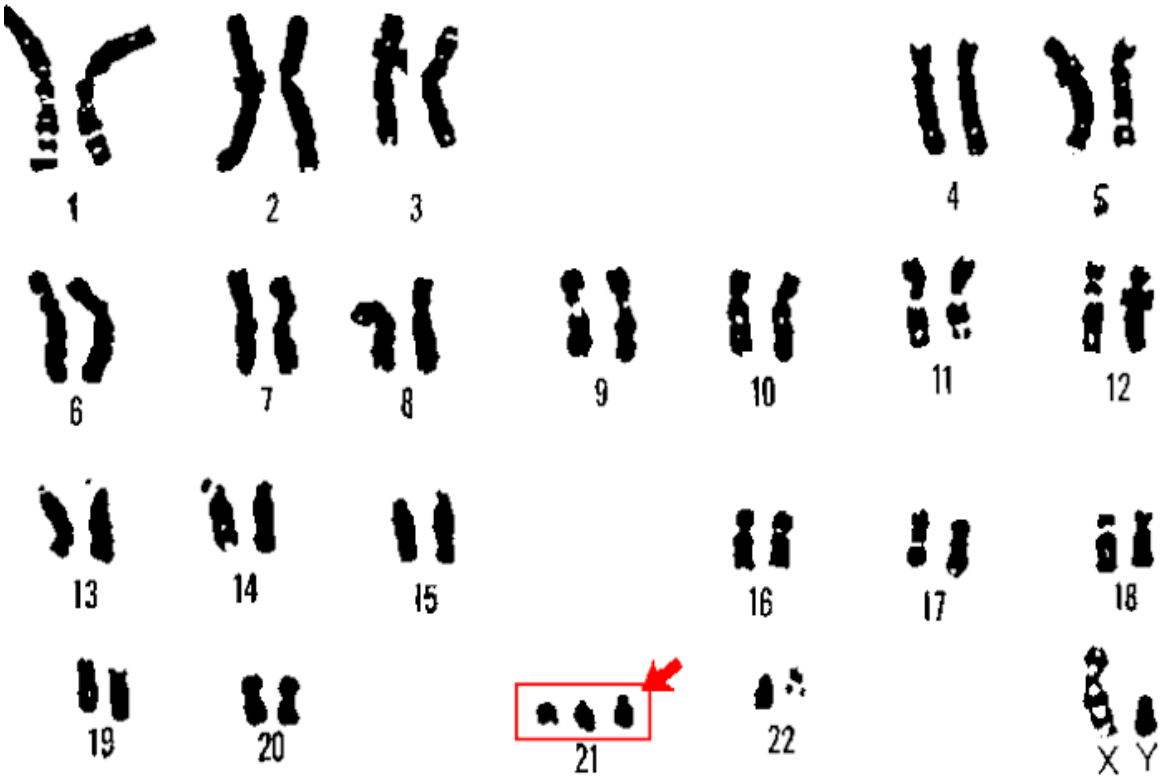
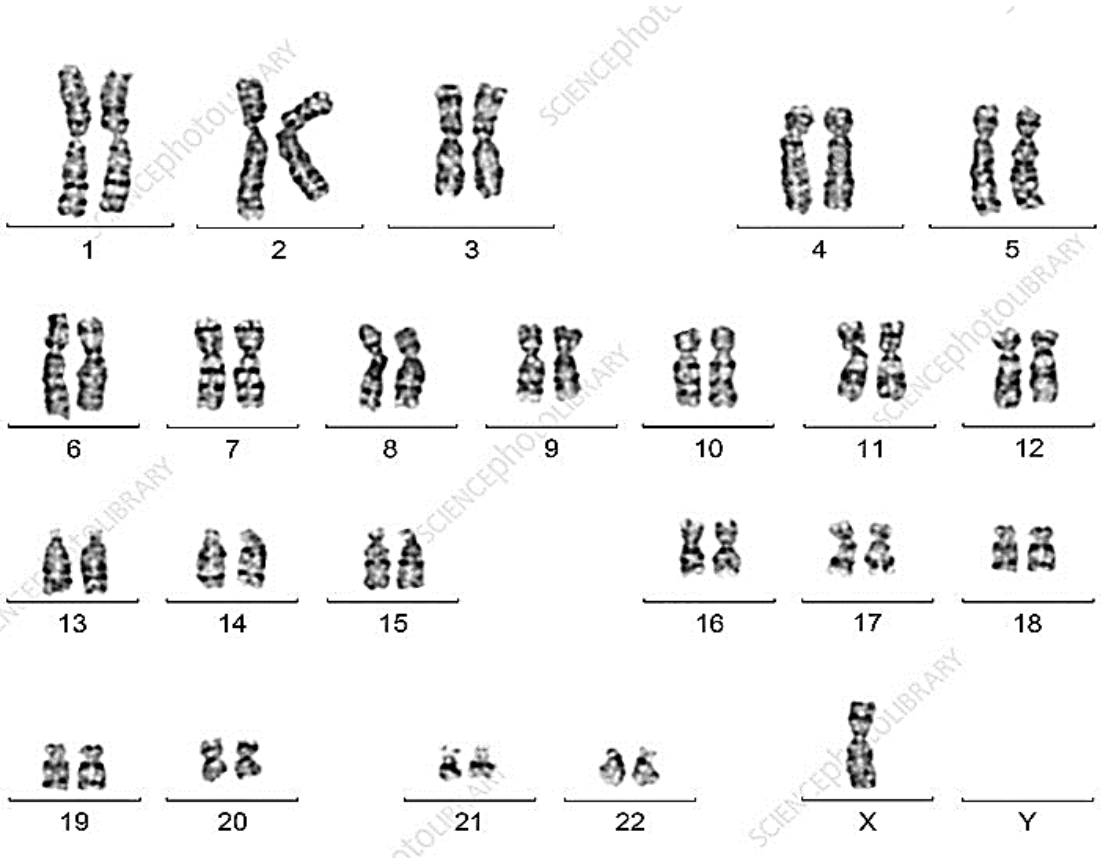
Karyotyping is the process of pairing and ordering all the chromosomes of an organism, thus providing a genome-wide snapshot of an individual's chromosomes. **Karyotypes** are prepared using standardized staining procedures that reveal characteristic structural features for each chromosome.

1.Karyotype for Down's Syndrome Patient (Trisomy of chromosome 21)

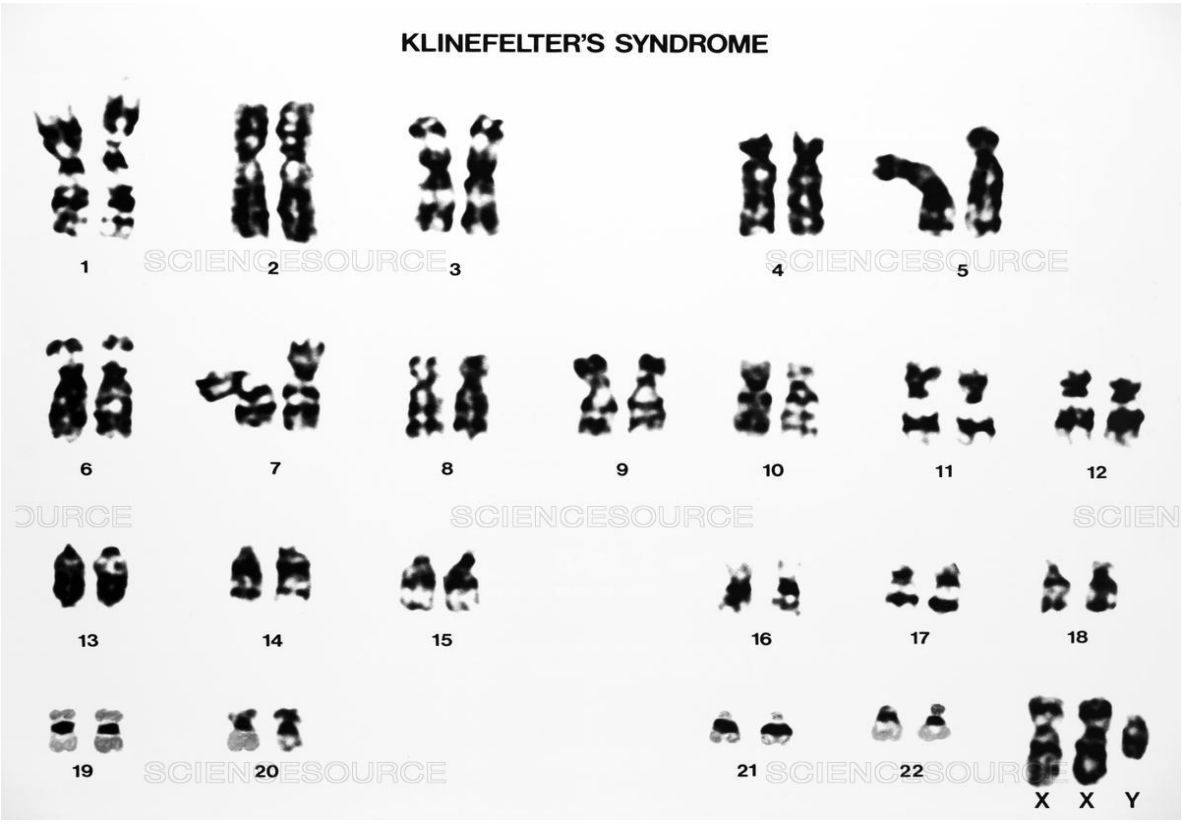


2.Karyotype for Turner's Syndrome Patient

Turner syndrome is characterized by the presence of one X chromosome in females. It is a type of aneuploidy, where one chromosome is missing. They have 45 chromosomes with XO karyotype. Normal females have a pair of X chromosomes, while females with Turner syndrome have either only one chromosome or the other chromosome is structurally abnormal. Maleness is determined by Y chromosome so males don't have Turner syndrome.



3.Karyotype for Klinefelter's Syndrome Patient



Chromosomal disorders in Human:

Genetic Disorder	Defect in	Genotype	No. of Chromosomes	Phenotypic effect
Down's syndrome	Autosomes	Trisomy of 21st chromosome	47	• 1:700 live births • Short statured with a small round head • Furrowed tongue with partially open mouth • Broad palm with palm crease • Called as mongolism or Mongolian idiocy • Susceptible to heart disease and respiratory problems • Shorter life span • Physical, psychomotor and mental development is retarded
Turner's syndrome	Sex Chromosomes	Monosomy-XO	45	• 1:5000 live births • Only viable monosomy in humans • Sterile females with short stature • Breasts and ovaries are underdeveloped, thin and less pubic hairs
Klinefelter's syndrome	Sex Chromosomes	XXY	47	• These males have tall and masculine stature with

				feminine characteristics • Development of breasts (gynecomastia) • Sterile • Small testicles, high-pitched voice and sparse body hairs • Mental retardation