

Y is the Y Chromosome shrinking ?

By
Dr R.G. Wiseman Pinto
Professor of Pathology
Former HOD ,Former Dean Goa University
President Asian Society of Cytopathology

Why is the Y Chromosome shrinking?

The Sex Chromosomes are XX and XY

These determine the male and Female sex

There is also a third sex referred to as Intersex or Transgender, recognised officially in some countries and not in the others

WHO defines Gender and Sex as follows

Gender refers to the Social, roles and relationships

Sex refers to the Biological and Physical features including Reproductive organs
DNA and Hormones

In some countries there is a option or category called third gender

Y Chromosome is responsible for the male gender , male characters and male Reproductive system , DNA , Chromosomes and Hormones and other functions and Attributes

In the normal humans

X Chromosome carries 900 genes

Y Chromosome carries 55 genes

The Y Chromosome has lost 5 genes over a million years

It is projected that the Y Chromosome will vanish completely in another 11 million years

Y Chromosome is involved in

Immune functions

Cancer biology

A gene on the Y Chromosome known as UTY influences Immune response

Without this gene the Immune cells are less effective.

Also there is the formation of more scar tissue

And the tumor cells grow 2 times faster

If Y Chromosome is lost

Natural selection will promote a new pathway for the male development. By the age of 80 , 40% of men lose a large part of their Y Chromosome in their blood cells.

This results in

1 short life span of these cells

2 more risk of heart disease , cancer

3 more risk of Alzheimer's Disease

Between 1973 to 2011

The total sperm count fell by 59 % in studies done in North America , Europe, Australia and New Zealand

Also the plasma Testosterone levels are decreasing. The normal sperm count ranges between 15 million to 250 million per milliliter

It is called Oligospermia when the sperm count is below 15 million per milliliter

The causes for the decrease in the sperm count are

Aging , lifestyle and environment.

As such

- 1 chemicals
- 2 pesticides
- 3 lead
- 4 flame retardants
- 5 Global warming

Measures to prevent this decrease in sperm count

- 1 avoid smoking
- 2 avoid excessive alcohol
- 3 decreased exposure to industrial chemicals and pesticides
- 4 healthy Lifestyles
- 5 good and adequate sleep
- 6 balanced diet
- 7 exercise

In research trials in Japanese rats Male traits develop when a gene on the Y Chromosome called SRY Gene activates SOX 9 Gene

By

Dr RG. Wiseman Pinto

Goa India