

Happy Father's Day: From biological sex, height to paternal obesity & cancers, here are things that your dad's genes gift you



We are all mirrors of our parents. We inherit their DNA, behaviour patterns, world view, dreams and even fears. However, over the years, several studies have corroborated that biologically speaking, father's genes are more dominant and influential in a child, compared to the mother.

According to health experts, your father's genetic endowment determines some of the most fundamental aspects of your being. On this Father's day, find out more about your father's contribution to who you are.

Dr Parag Tamhankar, Senior Consultant Medical Geneticist from MedGenome Labs says that the main thing that's inherited from the father is the Y chromosome - which gives a child the maleness traits.

"There are genes for masculinisation and sperm formation/maturation on the Y chromosome in boys. If the child has an extra Y chromosome from the parent, behaviour disorder such as aggressiveness is also possible. Diseases linked to male sex formation, sperm formation/maturation are linked to Y chromosome genes, and therefore, inherited from dads," says Tamhankar.

Apart from maleness, several other factors of a father's genes determine how we shape up. Dr [Gouri Pandit](#), Senior Genetic Counsellor, Indus Health Plus says that several physical traits of ours are inherited from the father.

"Fathers are responsible for the gender of the babies, and it's one of the physical traits that are 100% contributed by males as fathers transmit the Y chromosome defining the male gender. At least 700 genetic variations are responsible for determining height, coming from both mother and fathers genes. But there is evidence to suggest that each parents height gene' functions differently to some extent. Dad's genes play a significant role in promoting growth," adds Pandit.

Dr Anup Rawool, Consultant - Genetic Medicine, Fortis Hospital Mulund says that other physical characteristics such as facial appearance, colour of eyes and hair of an individuals are more likely to bear resemblance to father compared to the mother.

"Interestingly paternal obesity, malnutrition and consumption of a high-fat diet has been speculated to increased breast cancer development in offspring (daughters in particular) and same has been demonstrated in a [mouse](#) mode study of paternal obesity. When considering genetic disease conditions due to the loss (or abnormality) of Y chromosome has been associated with increased risk of infertility secondary to spermatogenic failure, certain cancers, Alzheimer's disease, behavioural conditions like autism and cardiovascular diseases," he explained.

"Mouse study using machine learning have shown that genes from each parent impacts their child's behavioural pattern differently, with mothers having more control over some of their sons' decisions and fathers over some of their daughters. It is interesting to see further how such data could be applied to study aspects of human behaviour and relationship. Certainly, daughters are usually observed to share a strong bond with father than mother."

New research will keep pouring in and add to the existing domain of knowledge. Physical traits are mostly inherited in polygenic and multifactorial way with underlying genetic component having a significant if not total impact. We are what we inherit - be it from the father or mother. This Father's Day lets raise a toast to the legacy of Y chromosome since time immemorial.