

X chromosome and intelligence

[Technology](#), [Artificial Intelligence](#)



" Science is not about building a body of known 'facts'. It is a method for asking awkward questions and subjecting them to a reality-check, thus avoiding the human tendency to believe whatever makes us feel good," reveals the English author, Terry Parachute. TWO articles explore whether or not intelligence is linked to the X chromosome in a person's genetic makeup. Perhaps this research will end the never ending battle of the sexes regarding which sex is smarter. X Rated summary Recent research regarding the X chromosome sequence may help to define the biological differences between men and women.

Sexual differences in intelligence ere once thought to arise primarily from hormones and the environment. Studies have not found intelligence to be attributed to a single gene, but new discoveries may show that genes on the X chromosome may play a direct role. David Page, interim director of the Whitehead Institute for Biomedical Research In Cambridge, Massachusetts, admits that attempts to link enrichment of cognitive genes on the X chromosome to IQ differences are " reasonable speculation".

Women receive two X chromosomes: one from each parent. However, men obtain a Y chromosome from the father and only one X chromosome from the mother. The Y horseshoe bares genes that serve to invoke sperm production and other factors regarding male sexual reproduction. The X chromosome sports one thousand ninety- eight protein-carrying genes. Only fifty-four of the genes have functional counterparts found on the Y chromosome. When a gene on the X chromosome mutates in a woman, the woman has another x chromosome to balance out the irregularity.

Unfortunately, men do not possess an extra X chromosome to " fix" any

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errors that may arise from X chromosome mutations. The fact that males only have one X chromosome and few Y counterparts to match the X genes leaves men alienable to approximately three hundred genetic disorders and diseases. These abnormalities range from cloudlessness to around two hundred brain disorders as the brain is particularly vulnerable to x-linked malfunctions.

Horst Hamster, physician and geneticist at the university of Elm in Germany, has stated that 21% of brain disabilities are related to x-linked mutations. In fact, there are more mentally retarded men than women. While the differences first appear to be advantageous to females In aspects that regard intelligence, males can likewise benefit from the X chromosome. Men can acquire rare beneficial x-linked mutations from the mother that have not been diluted by recombination because males inherit x-linked genes solely from the mother.

For example, over all, women scored higher on IQ tests with an average score of 100 whereas men average a 99. On the other hand, men dominate In IIS over 135. " Intelligence has been defined 'as the ability to deal adaptively with the changing environment, to benefit from past experience, to proceed in goal-directed fashion, to pursue productive avenues of problem solving, and to perceive common properties in otherwise separate domains of experience,'" states Gillian Turner.

A female receives two X chromosomes resulting in greater diversity in females and reflecting functioning of genes on both X chromosomes. The male with only one chromosome is likely to be influenced by either

advantageous or disadvantageous chromosomes. Several studies of minimization twins brought up separately concluded that 70% of variation in IQ is due to genetic variation. The average score for women and men on IQ tests are almost equal, but there is a greater variability among males.

It has also been noted that males perform better in mathematics and music than the females. Conversely, females outscore males in verbal abilities.

Robert Lahore, the first individual to comment that genes regarding intelligence may be located on the X chromosome, has based his beliefs on his own study of ten families in which mental retardation was segregating in the X chromosome, the excess of males with mental handicaps, and the difference of distribution of IQ in males and females.

The total number of genes on the X chromosome relating to mental handicaps is one hundred fifty-four plus eight locations for x-linked mental retardation. X-linked retardation is three times more than fragile X syndrome in deteriorated handicapped persons and is more common in the mildly handicapped. Gillian Turner's group performed a study of the causes, distribution, and control of mental handicaps in New South Wales. The group gathered evidence supporting the belief that genes on the X chromosome greatly donates to the male excess of mental handicaps.

The genes localized in families with x-linked mental retardation signify mutations in genes coding for aspects of intelligence. Compare Both articles clearly state the belief that intelligence can be attributed to genes on the X chromosome. X rated by Ellen Rappel Shell even credits the author of Intelligence and the X chromosome, Gillian Turner, with producing studies

backing up the idea that intelligence and the x chromosome are linked. Both articles described the advantages and disadvantages a male may come across by possessing only one X chromosome.

From reading the articles, the reader can conclude that even though a man may be vulnerable to the genes on the X chromosome, there are times when the lonely X can prove to benefit the male. The articles describe the intellectual differences between men and women, but in no way indicate that one sex is smarter than the other. Contrast that just about anyone could read the article and understand what the author is trying to convey. X rated sums up the research that has been provided by a few renowned physicians and geneticists.

Because the author's primary job in the popular press is to first entertain and second inform, she does not actually conduct the studies herself. Intelligence and the X chromosome is peer reviewed article written by a scientist, Gillian Turner, who has actually completed studies concluding that the X chromosome and intelligence are related. To add to the credibility of the article, she scribes studies executed by several other scientists reaching the same conclusions. Methods used to conduct the experiments were observation and testing.

The facts were presented in a logical manner, but were obviously tailored to an audience that already has insight into genetics. Also contributing to the credibility of the author's research is the extensive list of references following the conclusion of the article. While X rated was a fascinating read, the reader gains more specific facts in Intelligence and the X chromosome

and thus has a greater understanding of the material. Conclusion Scientists have only just begun to study the relationship between the sex chromosomes and intelligence.

Based on the evidence obtained from studies, it is becoming obvious that intelligence can be attributed to the genes present on the X chromosome in males and females. Men can both benefit and suffer from the genes present on their sole X chromosome. It can be concluded that even though one sex is not smarter than the other sex, intelligence is expressed differently in the sexes. Even though both articles are a fascinating and informative read, it is apparent that the reviewed articles provide greater detail, more substantiated research, and superior credibility.