

# Patrick long

[Science](#), [Biology](#)



Patrick Long Mrs. LeClerk Biology 132 Video Analysis In The Family that Walks on All Fours, a documentary by PBS NOVA, a genetic anomaly was discovered in a remote location in Turkey. A family of twenty-one, two parents and nineteen children, six of the children were born quadrupedal. The diagnosis was a debate between reverse evolution and a mental deficiency in the cerebellum; both of which deal with genetics. However, it was not debatable that many key factors such as inbreeding amongst close relatives, isolation, the nature of the genes involved, and the role of environment and culture on the expression of the gene. Inbreeding amongst many species is common and not usually deleterious, but with the complexity of the human genome increases the chance of mutations. The reason inbreeding is common amongst many animals is because of assortative mating, which is a reproductive isolating mechanism in which a mate is chosen based upon certain specifications deemed valuable to the species. This is also a form of pre-zygotic selection. In the case of the family observed the parents were found to be first cousins, which is unusual for members of our species to mate when that closely related. One of the potential reasons for why this inbreeding could have happened is the geographical isolation. The community is in essence allopatric to the neighboring towns since that sort of travel is unfeasible to their lifestyle. It is unlikely that this family is a "genetic throwback" or a "missing link" and it was almost offensive to the family to act as if they were in reverse evolution, especially with the culture of the surrounding community. Throwing around labels like these are not helpful to a family in need of help of medical assistance so they are not seen as demons or monsters. However, this family

could provide critical information about mobility in regards to the genome. MRI scans suggested that the brothers and sisters have a form of cerebellar ataxia. The condition affects the brain's cerebellum, which is located at the top of the neck and is associated with balance and muscle coordination. Since it has been discovered, according to the video, that there is a basic set of "blueprints" odds are there is a gene for cerebral development. If the gene associated with cerebral development could be located it could not only help this family but many others with different cerebral defects as well. Due to the culture, the oldest brother taught himself to walk upright. With assistance and physical therapy majority of the affected siblings have been able to begin to walk upright. Some conclusions that can be drawn would be that this quadrupedalism is a recessive since only five out of nineteen children are affected. It cannot be sex linked for many reasons, one of which being that three daughters and two sons were affected. It is possible by definition that it could be a lethal allele in the aspect that there was a miscarriage and it clearly interferes with essential genes, but it probably is not. Hopefully continued research can lead to further insight into what genes are involved with this condition and more knowledge about cerebral development, motor function, and evolution.