



The Genetics Behind Human and Animal Behavior and its Effects in these Organisms through Environmental and Captive Changes



Establishments

Genetics has entered the scientific mainstream making numerous impacts in the Science community and now in the community of Psychology. Before we had an understanding of Psychology works and how our behaviors influences our daily life and the consequences we acquire through certain experiences in life, thus affecting our behavior and making us who we are. Neuroscience on the other hand, is the formation of the brain and how the brain works to make organisms function. However now thanks to genetics, we have an understanding of how our brain acquires most of the functions it performs and whom is responsible for passing various cerebrum traits to us. By us, I mean all organisms in general via our ancestors.

I wanted to conduct research on a very curious topic to me. Psychological impacts on organisms who have been held captive and then released back into their original habitat, and how this drastic change affects their overall behavior in their unique environments and mental states, and primarily on how to deal after such changes. I had questions pertaining to this idea including, How do we as organisms know how to select what is right for us? Can we adapt to new changes when faced with new challenges? How do others view them and us? How can gene similarities in these organisms, be treated in such a way that alter their behavior? If changing their diet, could this be a solution to a positive outcome in behavior? and Can genes overall be at some point altered to impede certain dysfunctions in the brain, that tend to alter our behavior.

This research gave me an important insight of the world around us, and the fact that we are all connected some way or another through genetic structures intrigued me the most. I do my best to emphasize what I learned in this project.

METHODS & MATERIALS

For this project I looked into what Scientist, Doctors, and even Zoologist have to say on how Animals in Particular act the way they do. I performed an intense research into online articles, text studies and found out what over the years Scientist had doubts about, how through observation and experiments acquiring information proved to be beneficial and actually showcased how we derive our character and behaviors from indeed or ancestors. How it can be altered is the next step.

RESEARCH

I took into account that if certain Genes are responsible for differences between human and non-human species, then even more subtle different genes are responsible for our individual differences within our own species. Perceptions of the field of behavioral genetics have changed radically over the past decades. From a mindset that believed that the most Psychiatric behavioral disorders were a result of Developmental difficulties such as brain damage is now certain that inheritance has a large contribution. Thus, bringing me to Homology, in the study of Homology you find different species tend to share a similar structure of genes. It has been proven as well that humans have very similar traits found in other species that tend to have similar ancestry when compared in DNA.

With this it is then possible to investigate why certain organisms behave in certain ways and others in other ways. In one experiment conducted it was found that PKU a metabolic disorder that results postnatal in severe mental retardation, is caused by a single gene on chromosome 12. This form of mental disorder has been prevented not by drugs or extractions, but rather in a change of diet that prevents the mutant DNA from having its damaging effects. Changing the Diet of an organism then proves to be the most effective ways to alter genetic traits. I began to ponder if we consume on the daily basis we are acquiring these foods from a source in our environment, being that each organism gets their meals from else where. Thus, I began to think we are what we eat and if this is so, this can most definitely have an impact on our genetic markers over time.

We eat grains and plants, animals eat grains and plants, we in return eat animals (excluding vegetarians), which brought me to attention that if organisms adapted to eating certain foods, could this alter their genetic markers. In Kobe, Japan for instance, cattle are treated in a way (usually very well bread) and given diets that ultimately affects their body and when it comes time for us to consume them they tend to be rather exquisite compared to other cattle raised in a normal way, with regular treatment and normal diets. If this was the case then, it is possible that if diets are a contributing source to our genetic and mental traits then it to was possible for organisms to adapt to environments that were unfamiliar to them, just like diets may be at times unfamiliar to us. Sure we all can adapt or so was Darwin's theory, but could wild animals adapt to being in captive environments, be given what zoologist may think is the best thing they should consume and be overall influenced by their surroundings? If so, then when let out of captivity, could these animals then thrive? Thus, making them **GE** interactions.*

I figured that animals tend to act on instinct and that their sole purpose in life is to actually consume to survive. So, if in the wild animals are able to go about their own means and fend for themselves than this most definitely changes, if their natural animal instinct is altered in captivity. I looked into a controversial Zoo in Buenos Aires, Argentina. I spoke to their director and inquired on how their wild animals like Lions and Primates behave in such ways that actually allowed them to interact with humans and humans actually felt no threats while being near these animals and how in return, animals actually responded back in that they as well felt no immediate threat to this other species invading their territory. Upon speaking to the Zoo's director I was assured that these animals are not drugged or fed certain things, but rather a matter of how they are physically treated. He assured me that the manner in which they are raised is with love and special care and is really the only thing that makes them react in an un harmful and unthreatening way to humans. Since they were mostly raised by the human species, they have become accustomed to them. This form of breeding falls under the category of Husbandry.

Husbandry is the branch of agriculture concerned with the care and breeding of domestic animals such as cattle, hogs, sheep, and horses. Comparing the behavior of zoo mammals with their wild counterparts can reveal the effects of captive conditions on exotic mammals as we attempt to improve zoo mammal well-being. Socialization comes then into this category because it is a process whereby an animal learns appropriate social skills for the eventual purpose of breeding and rearing offspring, or simply living compatibly in a more natural social setting.

This only showed me that the treatment of one species to another by actions can alter their behavior but what about once they are let back into the wild. For this I figured mostly that the memory of what they acquired in captivity can be a significant part in their survival in the wild. Learning and memory process, like all complex behavioral traits are regulated by polygenic systems. Consistent with this, all behavioral studies of inbred and recombinant inbred strains, to date, have revealed a continuous distribution of behavioral scores for all measures of learning examined.

Consequently, if by the fact that they were treated in such a humble way, then when faced in the presence of danger how will they react? We as humans defend ourselves when we feel threatened, regardless of how we were raised if this is the case then these animals if faced with immediate danger as is often the case in the wild, I can almost guarantee they will defend themselves, for it is in all our DNA structures to defend or protect what is rightfully ours.

We after all share similar forms of DNA structure, especially noticeable in Humans, Mammals, and Primates. 😊

* GE interaction occurs when specific genotypes react differently to the environment than other genotypes do; they show a greater or lesser environmental sensitivity. In classical analyses of variance, both genotypes, for example those of inbred species—and environments are varied and the resulting phenotypic outcomes are examined.

RESULTS

We have a wide range of variety of DNA letters so much that it is enough to make us different for each gene. Sharing very similar DNA structures are humans, mammals, and primates. Mostly these DNA differences involve a replacement for a single base pair called nucleotide polymorphisms (SNP's). These differences in DNA are mostly responsible for the mental disorder and behaviors in our species. Hence, when referring to a trait being hereditary, by hereditary it is meant that variations of the DNA exist that are associated with the differences in overall behavior. SNPS coding is therefore useful in pinpointing regions in DNA that regulate the transcription of genes. Evidently, we all have individual differences in genes and in behavior making some organisms stronger and others weaker, those with the weaker genes tend to be passed on via ancestry, just like presumably the stronger ones.

Based on all this information I was able to conclude that although it may be possible to alter the genetic traits in organisms primarily in Animals, their overall environment has an even greater impact in their existence. If an Animal or Human have been captive and then released, the way in which they were treated while in captivity is what alters their behavior later in life. Apart from any genetic trait acquired from their parents and their parents parents. All in all it is still plenty to be learned when attributing behaviors in Animals and Humans via genetic pathways. Apparently the way in which we are raised is what in the end makes us who we are.

References:

- 1-WWW.ASK.COM/Paraphyletic/Homology/Homoplasy
- 2-WWW.ASK.COM/Pathophysical/Mechanisms
- 3-Homoplasy the Recurrence of Similarity in Evolution. Sanderson, Michael and Hufford, Larry. San Diego, California. 1996.
- 4- Plomin, Robert. Behavioral Genetics in the Post-genomic Era. Port City Press, Baltimore, MD. 2002
- 5- Jorge Alberto Semino, Director y Fundador del Zoologico de Lujan de Argentina
- 6-Kleiman, Devra, Thompson, Katerina, Kirk Baer, Charlotte. Wild Mammals in Captivity. The University of Chicago, 2010.



"Life is too precious, do not destroy it. Life is life, fight for it."
- Mother Teresa

