A NEW METHOD FOR DETERMINING GENETIC VARIANCE IN HUMANS: *THE DEAD TWIN STUDY*

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A major problem in the analysis of human traits has been the inability to accurately attribute observed variance to genetic and environmental factors. The classical technique for studying human characteristics, the family study, including sibling adoption studies, adopted twin studies and monozygotic versus dizygotic twin studies, has failed to delineate these effects to the satisfaction of a scientific consensus. These studies have been less than successful and are often criticized since proper control is impossible. Though animal models have been successfully used to study many characteristics, most human traits are, by definition, unassayable. IQ, for example, cannot yet be studied in mice due to the lack of an acceptable scheme to translate human IQ tests into a language understandable by all species and strains of mice.

What is needed then is a paradigm that will allow unambiguous analysis of genetic and environmental contributions to specific human traits, studied in human subjects. The ideal situation would be to have paired humans of identical genetic makeup, with one member of the pair exposed to an environment and the other exposed to no environment. That is, one pair member's phenotype would have been influenced by both genetic and environmental factors, while the other member's phenotype would have been influenced by the same genetic factors but by no environmental factors. To approximate this situation as closely as possible, we propose that human monozygotic twins be found that meet the following criterion: one member of the pair must have died in the first year of life, while the other member still survives.

We chose to examine IQ with such a model; specifically, 10 such pairs of MZ twins were located within the state of Colorado. At testing all S's were 22-29 years of age, with 4 sets of male twins, 6 sets of female twins. The average IQ of the live twins was 108±14 whereas the average IQ of the dead twins was 0±0. Obviously, we can attribute 100% of the observed variance to environmental factors and none to genetic effects.

To verify the generality of this finding, we also examined a second trait, this time of a more physiological nature—namely, the percent alpha activity in the EEG as recorded from the occipital pole of the head by standard techniques. In the live twins, alpha activity was observed 54.6±12% of the time, whereas in the dead twins alpha activity was never seen (0±0%; see Figure 1). Again, we can attribute 100% of the observed variance to environmental factors.

FIGURE 1. Example of Cortical Alpha Activity in Twin Pair MZ

Our results unequivocably show that environment is the only factor that determines if one will be a genius or a dunce; and, if we may extrapolate, tall or short, fat or thin, handsome or ugly, etc. Although this creates a minor logical problem, i.e., why are we different than frogs?, it is more than compensated for by the joy our results will no doubt bring to many of the liberal persuasion. Hopefully this method will be widely utilized by others who wish to clarify the true nature of man.

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