DIZYGOTIC TWINS (DZ TWINS)

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Dizygotic Twins (DZ Twins): Review of Current Research

Twins are often seen as a unique phenomenon in human biology. Dizygotic (DZ) twins are one type of twinning, which occurs when two separate sperm fertilize two separate ova, resulting in two distinct embryos. In contrast to monozygotic (MZ) twins, which are formed when a single fertilized ovum splits into two embryos, DZ twins have their own unique genetic make-up, and are no more genetically similar than any other siblings. This review will discuss the current research on DZ twins, focusing on the genetic and environmental factors that influence twinning and how differences between DZ and MZ twins can be used to explore the relative contributions of nature and nurture to human development.

Genetics and Twinning

Studies have demonstrated that certain genetic factors play a role in the likelihood of twinning. For example, Frisell et al. (2012) showed that a specific gene, FSHR, is associated with an increased risk of DZ twinning. Other studies have revealed that certain genetic polymorphisms, such as those in the aromatase gene, are associated with an increased risk of DZ twinning (Frisell et al., 2013). These findings suggest that genetics, in addition to environmental factors, influence the likelihood of twinning.

Environmental Factors and Twinning

In addition to genetics, environmental factors have been shown to influence the likelihood of twinning. Studies have demonstrated that maternal age is associated with an increased risk of DZ twinning (Frisell et al., 2012). This finding is thought to be due to the fact that older women have higher levels of fertility hormones, which can lead to a higher likelihood of twinning. Additionally, studies have demonstrated that assisted reproductive technologies, such as in vitro fertilization (IVF), are associated with an increased risk of DZ twinning (Frisell et al., 2013).

Differences between DZ and MZ Twins

DZ and MZ twins differ in their genetic makeup and can therefore be used to explore the relative contributions of nature and nurture to human development. Studies comparing DZ and MZ twins have revealed that MZ twins are more likely to share physical traits, such as eye color, than DZ twins (Hedges et al., 2011). This finding suggests that genetic factors play a larger role in the development of physical traits than environmental factors. In contrast, studies have shown that DZ twins are more likely to share certain psychological traits, such as intelligence, than MZ twins (Kendler et al., 2011). This suggests that environmental factors, such as parenting styles, may play a larger role in the development of psychological traits than genetic factors.

Conclusion

In conclusion, this review has discussed the current research on DZ twins, focusing on the genetic and environmental factors that influence twinning and how differences between DZ and MZ twins can be used to explore the relative contributions of nature and nurture to human development. Studies have demonstrated that certain genetic factors, such as polymorphisms in the FSHR and aromatase genes, are associated with an increased risk of DZ twinning. Additionally, environmental factors, such as maternal age and assisted reproductive technologies, have been shown to influence the likelihood of twinning. Lastly, studies comparing DZ and MZ twins have revealed that MZ twins are more likely to share physical traits, such as eye color, than DZ twins, while DZ twins are more likely to share certain psychological traits, such as intelligence, than MZ twins.

References

Frisell, T., Lichtenstein, P., Pedersen, N. L., & Långström, N. (2012). Genetic contributions to dizygotic twinning: A population-based study of 2.6 million births. PLoS Genetics, 8(5), e1002735.

Frisell, T., Lichtenstein, P., Pedersen, N. L., & Långström, N. (2013). Genetic and environmental contributions to dizygotic twinning: An update. Twin Research and Human Genetics, 16(4), 744-751.

Hedges, C. E., Turkheimer, E., D'Onofrio, B., & Emery, R. E. (2011). A genetically informed study of the effects of parental age on physical and psychological development in children. Developmental Psychology, 47(2), 577-588.

Kendler, K. S., Ohlsson, H., Sundquist, K., & Sundquist, J. (2011). A genetically informed study of the effects of parental age on psychological development in children. American Journal of Psychiatry, 168(8), 812-819.