



Genetic influence on birthweight and gestational length determined by studies in offspring of twins.

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Abstract: OBJECTIVE: To determine the relative importance of genetic effects on birthweight, gestational length and small for gestational age. DESIGN: A cohort study, using individual record linkage between the population-based Swedish Twin and Birth Registers to estimate twin similarities in twins with known zygosity. POPULATION: Included were 868 monozygotic and 1141 dizygotic female twin pairs, born in Sweden before 1959, who both delivered single births from 1973-1993. METHODS: Quantitative genetic methods, offspring birthweight, gestational length and small for gestational age birth in twin sisters. MAIN OUTCOME MEASURES: Twin similarities measured as probandwise concordance rates and intra-class correlations for birthweight, gestational length and small for gestational age births. RESULTS: Concordance rates and intra-class correlations for birthweight, gestational length and small for gestational age were consistently higher in monozygotic compared with dizygotic twins. Model fitting suggested heritability estimates in the range from 25% to 40%. CONCLUSIONS: This study suggests genetic effects not only for birthweight and fetal growth, but also for gestational length. The mediation of these genetic effects may partly be due to similarities in maternal antropometric measures, lifestyle and medical complications during pregnancy. The study does not distinguish between fetal and maternal genetic effects.

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