

# Heritability of height and weight at age five



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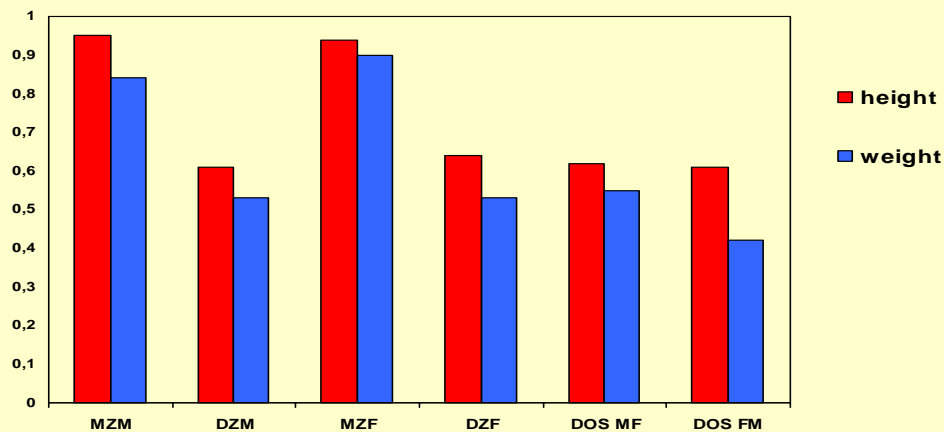
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**BACKGROUND:** As part of a large longitudinal study on the causes of individual differences in height and weight, we estimated heritability of height and weight in five-year old Dutch twins. Previous studies have shown that the influence of genes and environment on body height and weight are significant but of different magnitude for males and females and not stable over age.

**OBJECTIVE:** To study genetic and environmental influences on height and weight in twins at age 5, taking possible sex-differences into account.

**METHODS:** For 2,900 five-year old twin pairs of the Netherlands Twin Register maternal ratings on height and weight were available. Based on twin correlations genetic and environmental influences on height and weight were estimated. Further sophisticated modelling will be performed.

## TWIN CORRELATIONS FOR HEIGHT AND WEIGHT AT AGE FIVE



**RESULTS:** The higher monozygotic (MZ) twin correlations versus dizygotic (DZ) twin correlations indicate influence of genetic factors. However, the fact that the MZ correlations are less than twice the DZ correlations demonstrates influences of shared environment on body size as well. Similarity in same sex and opposite sex (DOS) twin correlations indicate the same underlying set of genes for boys and girls.

**CONCLUSIONS:** Body size at age 5 is mainly influenced by genetic factors (59 to 74%). However, 16 to 34 % of variance in body size is explained by shared environmental factors. The genetic and environmental influences on height and weight are of different magnitude for boys and girls. However, no heterogeneity is expected.

## HERITABILITY AND INFLUENCES FROM ENVIRONMENT ON HEIGHT AND WEIGHT AT AGE FIVE

