A significant influence of maternal body height and weight on neonatal birth outcome has been confirmed before, whereas the influence of paternal traits is rather unknown. In order to analyze the correlation between parental body measurements and the birth weight of newborns, data of 1312 eutrophic term newborns and their parents were collected based on a multicenter study in 10 participating German maternity clinics. The collected data included the birth weight of the infants and the body height and weight of their parents. Besides empirical analysis, a multivariable regression analysis was performed to determine the impact of parental body measurements. The results show a significant correlation between infant birth weight and maternal body height. Even with a constant body height and body weight of fathers in a range between 176–184 cm and 76–84 kg, taller mothers gave birth to children with a higher birth weight than shorter mothers. Furthermore, higher maternal body weight is also correlated with increased birth weights, although this correlation is attenuated in higher maternal weight groups. Data regarding body weight and body height of fathers showed similar results with regard to birth weight of the newborns. At a constant maternal body height (164–172 cm) and weight (56–64 kg), the body weight of newborns significantly correlates with the body height of fathers (Fig. 1) but not with their body weight.

The multivariable regression analysis resulted in the following ranking of influence factors on the birth weight of newborns: 1) body height of mother, 2) body weight of mother, 3) body height of father. The results gave support to the assumption of a certain genetic influence of parental body stature on their neonates but argue for an even stronger impact of maternal environmental conditions on the developmental status of neonates. Thus the study may contribute to improve diagnostic criteria for neonatal risk factors.

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