

Adult maternal body size matters

From ARNAUD CHIOLERO^{1,2*}

¹Institute of Social and Preventive Medicine (IUMSP), University Hospital Center and University of Lausanne, Lausanne, Switzerland and ²Department of Epidemiology, Biostatistics, and Occupational Health, McGill University, Montreal, QC, Canada

*Corresponding author. Institute of Social and Preventive Medicine (IUMSP), University Hospital Center, 17 rue du Bugnon, 1005 Lausanne, Switzerland. E-mail: arnaud.chiolero@chuv.ch

Horta *et al.*¹ elegantly demonstrated that maternal, but not paternal, birthweight and weight gain in early childhood may be directly associated with next-generation birthweight.

However, the relative contributions of early and adult body weight (i.e. at the time of conception or during pregnancy) may have been overlooked. It is not clear whether the associations were still observed once adult maternal body weight was accounted for.

Maternal weight is a major determinant of offspring's birthweight. Pre-pregnancy body mass index and gestational weight gain are both associated with infant birthweight.² While offspring's adult body size is strongly determined by both parents' size, maternal weight has greater influence than paternal weight on birthweight.³ Maternal constraint is a complex regulator of fetal growth and, for instance, uterine and pelvic canal size may themselves determine fetal weight gain.^{4–7} Actually, matching fetal growth and maternal size at the time of pregnancy helps the fetus to be delivered vaginally, irrespective of the paternal/fetal genotype.⁵ Thus, when the father is of large stature, such a matching is critical to prevent a mother of short stature giving birth to large babies not suited to her uterus size or pelvic dimensions.

Since birth size or early weight gain are directly associated with body size in adulthood,⁸ and maybe with uterus size,⁹ it may be expected that these factors determine offspring's birthweight. Still, comparing the relative contributions of early body size and adult body size would help assess the importance—if not the existence—of critical periods of maternal growth for the offspring's birthweight. Such information may also help decide the best timing to implement interventions to improve health across generations.

Conflict of interest: None declared.

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