

## The heavy consequences of maternal obesity

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*Several studies have shown that maternal obesity, beyond increasing the risk of complications during pregnancy, can also have a negative influence on the health of the children, both the physical and mental points of view.*

With the phenomenal **increase of body weight** that has occurred in our population over the past decades, more and more women of childbearing age suffer from being overweight or obese. It has been known for some time that excess weight has several negative effects on health, excess body fat being associated with an increased risk for developing several diseases (type 2 diabetes, cardiovascular diseases and uterine cancer, amongst others).

What is less well known, however, is that the excess weight can also have several negative effects on women who become pregnant. For one thing, several studies performed in recent years have shown that obesity before and during pregnancy is associated with an important increase in the risk of medical complications, particularly gestational diabetes and pre-eclampsia. For another, more and more observations indicate that this negative effect of excess weight is not limited to the mother but can also greatly influence the health of her future child.

### CHILDREN AT RISK

An article which recently appeared in the journal *Lancet Diabetes & Endocrinology* raised this issue and sounded the alarm about the risks posed by maternal obesity for the health of the children<sup>1</sup>.

According to the authors, analysis of the data currently available leaves no doubt that obese mothers are at very high risk of having children who will experience health problems throughout childhood and possibly throughout their entire lives.

This is not surprising because the fetus is in direct contact with the maternal circulation and its growth, consequently, is influenced by the living conditions of the mother which can modify the expression of certain genes involved in fetal development. Overeating and obesity, for example, are often associated with elevated levels of sugar and insulin in the mother, which leads to epigenetic modifications that affect the metabolism of the child even before birth.

Studies have shown that these children are at higher risk themselves of being obese and suffering several types of diseases including heart diseases, strokes, type 2 diabetes and asthma.



Recently, it was also observed that babies born to these obese mothers exhibit shortened telomeres, a marker for premature aging which is associated with a high risk for several diseases and for premature death<sup>2</sup>.

In other words, the obesity epidemic which we see on a world-wide scale not only affects the current generation, but may also be conferred (involuntarily) on the following generation, with unpleasant consequences for the health of these children.

### DEVELOPMENTAL PROBLEMS

Studies have suggested that metabolic upheavals caused by an excess of fat can also influence the intellectual capacities of children. For example, it was recently reported that children whose mothers were obese exhibited diminished fine motor control, which reflects decreased coordination of the small muscles of the fingers and hands. But the burden of obesity does not rest entirely with the mothers: the same study reported that children whose fathers were obese were more susceptible to failing tests which measured sociability<sup>3</sup>. And the situation seems worse when both parents were obese, the children of whom were at three times greater risk of failing a test for resolving a problem at age three.

It can never be said enough: keeping a normal body weight is not just a question of aesthetics, but of health. And it is true for the big ones as well as for the little ones.

- (1) Godfrey KM et al. Influence of maternal obesity on the long-term health of offspring. *Lancet Diabetes Endocrinol.* 2017;5:53-64.
- (2) Martens DS et al. Maternal pre-pregnancy body mass index and newborn telomere length. *BMC Med.* 2016;14(1):148.
- (3) Yeung EH et al. Parental obesity and early childhood development. *Pediatrics* 2017;139:pii:e20161459.