A two-way street: interaction between mother and child in pregnancy

As the growth of a plant is affected by the quality of earth and seed, the well-being of a human child is greatly influenced by its time in the womb and its mother’s health.

Without a doubt, genetics plays a big part in fetal development. But recent work has uncovered the astonishing impact of external factors: including the mother’s nutritional status, body composition and endocrine status. Proof of the impact of these factors is that they influence not only the baby’s physiology, but its future health. Thus, the babies of obese women are far more likely to suffer from metabolic syndrome or cardiovascular disease later in life.

Cetin and Cardellicchio outline the fascinating process of pregnancy and fetal growth. Their article describes the carefully orchestrated interplay between mother, fetus and placenta throughout the various stages of pregnancy and explores the effects of environmental factors on this process. From rat mothers to humans in the Dutch famine of World War II, Cetin and Cardellicchio reveal the common ties that bind maternal condition to fetal health.

A key player is the placenta, a membrane rich in blood vessels and nutrient transporters that forms the crucial link between mother and fetus. Through this organ, the fetus not only receives nutrients but also maternal cues which influence its growth and development. Mothers who suffer from gestational diabetes have higher levels of glucose and free fatty acids in the blood, a factor which increases the risk of cardiovascular disease for the child. On the other side of the spectrum, underweight mothers often suffer from deficiencies in iron and folic acid, with a greater chance of malformation of the fetus.

Yet despite the potential hazards, fetal development is a surprisingly adaptable process, with built-in mechanisms to handle fluctuations of deficiency and excess. The good news is that aside from genetics, nearly all of the maternal factors are within our control. Like any other aspect of human health, moderation is key to ensuring normal fetal development and a healthy future for the child.

References