

Newly discovered role of thyroid hormone during pregnancy

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Thyroid hormone deficiencies in early pregnancy can cause locomotor underdevelopment in the child, according to research from the Swedish medical university Karolinska Institutet. The results bring new insights into brain development and could affect routine pregnancy testing.

Children born with thyroid hormone deficiencies (hypothyreosis) are in danger of mental and locomotor underdevelopment if they remain untreated. However, scientists are unsure about what causes the damage and about how much attention should be given to the mother's hormone levels during pregnancy. In Sweden, all newborn babies, but not all pregnant women, are tested for hypothyreosis.

Scientists at Karolinska Institutet have now shown in experiments on mice that both the mother's and the child's thyroid hormone are necessary for proper locomotor development. Hormone deficiencies during early pregnancy, when the mother is the only source of the hormone, produced locomotor disorders in the mice that persisted into adulthood, at which point they were beyond treatment.

"Hypothyreosis is easy to treat if it's discovered," says Professor Björn Vennström, who has led the study. "The results provide fresh support for those who advocate the more thorough monitoring of pregnant women."

The scientists were also able to show that the cause of the locomotor disorders was an abnormal development of specific nerve cells in the motor cortex and cerebellum. The findings thus give new and important

insights into the part played by thyroid hormone in brain development.

The study used gene modified mice with a mutation in one of the two receptors for thyroid hormone. The discoveries mean that patients with mutations of the same receptor can, for the first time, be identified and treated.

Source: Karolinska Institutet

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