

# THYROID GLAND IN NEWBORN

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## SUMMARY

Normal thyroid gland function during pregnancy and in newborns is a basic condition for normal growth, development and neurologic status during childhood and adulthood. The thyroid function can be influenced by external factors (mainly iodine supplementation and maternal thyroid diseases) and by anatomic and functional development of the fetal thyroid gland. Thyroid gland begins to form from third to twelfth gestational week and fetal thyroid hormones are detectable after 12 weeks of gestation. Fetus is fully dependent on maternal thyroid hormones during the first half of pregnancy and on maternal iodine supplementation during the whole course of pregnancy.

The Czech Republic is considered a country with sufficient iodine supply in the general population although pregnant women are a population group in risk of iodine deficiency. Maternal thyroid diseases and iodine deficiency can lead to more prominent disability in newborns with congenital hypothyroidism even when treated in time. The functioning screening of congenital hypothyroidism and timely treatment is effective protection of affected newborns. One part of the management of these newborns is causal diagnosis of the congenital hypothyroidism. We are able to distinguish between morphologic dysgenesis of the gland and thyroid hormones disorders using the ultrasound and scintigraphy examination findings and by comparing the levels of TSH, fT4, thyroglobulin, anti-thyroid peroxidase and anti thyroglobulin antibodies levels. The targeted molecular-genetic examination is indicated in research and in specific clinical cases. Thyroid imaging and functional tests have a well-defined place in the diagnosis of congenital hypothyroidism but thyroglobulin levels relevance is still being researched.

This thesis presents data from clinical research of iodine supply in pregnant women and their newborns. We also show normal thyroglobulin levels in term healthy newborns and their role in thyroid gland function examination in newborns.

**Key words:** fetus, newborn, thyroid hormones, congenital hypothyroidism, urinary iodine concentration, thyroglobulin

