

LIPID AND THYROID HORMONE INTERACTIONS

DANUTA ROSOŁOWSKA-HUSZCZ, KATARZYNA LACHOWICZ, EWELINA PAŁKOWSKA

*Department of Dietetics, Faculty of Human Nutrition and Consumer Sciences, Warsaw University of Life Sciences, Nowoursynowska  
159c, 02-776 Warszawa, e-mail: danuta\_rosolowska\_huszcz@sggw.pl*

Summary

Relationships between thyroid hormone and lipid compounds: fatty acids, eicosanoid and sterol actions are important for the energy homeostasis. Thyroid hormones affect the fatty acid synthesis and oxidation, cholesterol synthesis and its cellular uptake as well as the reverse transport. In turn, dietary fat in the manner depending on its amount and composition alters the hypothalamus-pituitary-thyroid axis activity. Nuclear thyroid hormone receptors and transcriptional factors binding lipid compounds regulate expression of the same genes, share structural similarities in the DNA binding domains and responsive element. All these receptors form the heterodimers with 9-cis-retinoic acid, RXR. Their interactions include both synergy and antagonism. Proliferator activated receptor type  $\gamma$  stimulates the thyroid cell differentiation and inhibits inflammatory processes in this gland.