

***Trans* Fatty Acids Compared with the Polyunsaturated Fatty Acids Affects Gene Expression of Adipokines Regulating Energy Metabolism in Rats**

Guimarães, D. E.D.¹, Bispo, K. P.¹, Castro, J.², Martinez-Botas, J.³, Sardinha, F. L.C.¹, Herrera, E.², Carmo, M. G. T.¹. ¹Instituto de Nutrição, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brasil; ²Universidad San Pablo, Madri, Espanha; ³Hospital Ramón y Cajal, Madri, Espanha.

In this study the effects of dietary *trans* and n-6 and n-3 polyunsaturated fatty acids (PUFA) on the expression of resistin, TNF α , adiponectin, leptin and PPAR γ (mRNA) in retroperitoneal adipose tissue (RET) and plasmatic biochemical parameters were investigated. Female Wistar rats were fed isoenergetic and normolipidic diets containing soy oil (rich in n-6 PUFA), fish oil (rich in n-3 long PUFA) or hydrogenated fat (rich in *trans* fatty acid) during gestation and lactation and then fed young weaning males the same until the 120th day of life. We observed a increase in body weight in *trans* group; fish group had lower triglycerides, total cholesterol, HDL-c, non esterefied fatty acids, glycerol and glucose levels and the *trans* group showed higher CT/HDL-c, insulin/glucose ratio and insulin levels. There was higher resistin and TNF α mRNA and lower adiponectin and PPAR γ mRNA in the RET of the *trans* group. Furthermore, there was higher PPAR γ mRNA and lower leptin mRNA in the RET of the soy group. Therefore, the kind of dietary fat offered in early life should affect the endocrine function of adipose tissue with repercussions on energy metabolism in rats.