

INCREASE IN NAD BUT NOT ATP AND GTP CONCENTRATIONS IN RAT LIVER BY DEHYDROEPIANDROSTERONE FEEDING

*Julian Świerczyński[#], Ewa Słomińska, Ryszard T. Smoleński,
Doris Mayer**

Department of Biochemistry, Medical University of Gdańsk, Dębinki 11, PL 80-211 Gdańsk, Poland,
*Research Group "Hormones and Signal Transduction", Deutsches Krebsforschungszentrum,
Im Neuenheimer Feld 280, D-69120 Heidelberg, Germany

Increase in NAD but not ATP and GTP concentrations in rat liver by dehydroepiandrosterone feeding. J. ŚWIERCZYŃSKI, E. SŁOMIŃSKA, R.T. SMOLEŃSKI, D. MAYER. Pol. J. Pharmacol., 2001, 53, 125–130.

Dehydroepiandrosterone (5-androsten-3 α -ol-17-one; DHEA), the main circulating steroid in humans, has been described to exert varied beneficial effects including antiobesity, anti-aging and anticancer action when used at pharmacological doses in experimental animals. To elucidate the mechanism of the pleiotropic effects of DHEA, we studied the effect of this steroid on concentrations of NAD and adenine and guanine nucleotides in rat liver. Administration of DHEA at 0.3% in the diet for 7 consecutive days caused an increase in liver NAD and NADP, but was without effect on NADH concentrations. This indicates a shift of the redox couple (NAD/NADH) towards oxidation in the DHEA-treated rats. Moreover, there was no change in adenine and guanine nucleotide concentrations, which disproves the hypothesis that the DHEA anticancer actions are due to a decrease in the availability of nucleosides for DNA synthesis. The findings indicate that an increase in liver NAD pool and/or altered redox status, but no changes in adenine or guanine nucleotide content, may be involved in the pleiotropic effects of DHEA.

Key words: *dehydroepiandrosterone (DHEA), NAD, NADP, ATP, GTP, adenine nucleotide, liver (rat)*

[#] *correspondence*