# Abstract

Redox Rep. 2006;11(4):163-72.

## The effect of polyphenolic extract from pine bark, Pycnogenol on the level of glutathione in children suffering from attention deficit hyperactivity disorder (ADHD).

Dvoráková M, Sivonová M, Trebatická J, Skodácek I, Waczuliková I, Muchová J, Duracková Z.

Department of Medical Chemistry, Biochemistry and Clinical Biochemistry, Faculty of Medicine, Comenius University, Bratislava, Slovak Republic.

**BACKGROUND**: Attention deficit hyperactivity disorder (ADHD) belongs to the neurodevelopmental disorders characterized by impulsivity, distractibility and hyperactivity. In the pathogenesis of ADHD genetic and non-genetic factors play an important role. It is assumed that one of non-genetic factors should be oxidative stress. Pycnogenol, an extract from the pine bark, consists of bioflavonoids, catechins, procyanidins and phenolic acids. Pycnogenol acts as powerful antioxidant, chelating agent; it stimulates the activities of some enzymes, like SOD, eNOS, and exhibits other biological activities.

**AIM**: The aim of this randomized, double-blind, placebo-controlled trial was to investigate the influence of administered Pycnogenol or placebo on the level of reduced (GSH) and oxidized (GSSG) glutathione in children suffering from ADHD and on total antioxidant status (TAS). This is the first investigation of the redox glutathione state in relation to ADHD.

**RESULTS**: One month of Pycnogenol administration (1 mg/kg body weight/day) caused a significant decrease in GSSG and a highly significant increase in GSH levels as well as improvement of GSH/GSSG ratio in comparison to a group of patients taking a placebo. TAS in children with ADHD was decreased in comparison with reference values.

**CONCLUSION**: Pycnogenol administration normalizes TAS of ADHD children.

PMID: 16984739