

## RADICALII LIBERI ÎNTRE SĂNĂTATE ȘI BOALĂ

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**FREE RADICALS BETWEEN HEALTH AND DISEASE.** After a short presentation of the oxidative stress-generating cellular biochemical imbalances the main normal and pathological implications of oxygen reactive species are reviewed. It is made clear, among others that according to the concentration of the free radicals, the activity of the antioxidant enzymes and the intensity of the lesions, oxidative stress induces reversible or irreversible molecular alterations, leading in the last case to cell death by necrosis or apoptosis. Through such mechanism the phagocytic, antibacterial and antiviral properties of the radical species of molecular oxygen radicals are produced. Inducing the binding of molecular lipid, protein and nuclear protein components, free oxygen radicals produce multiple tissue injuries, beginning with the phenomena of membrane lipid peroxidation and the block of the thiol group of active cell proteins and ending with the degradation of nuclear and mitochondrial DNA. Through this pathway are produced the molecular and cellular alterations due to intense stress, smoking, senescence, irradiation, inflammation, atherosclerosis, cancer, neurodegenerative disease and other pathologic states. Together with the nitric oxide, oxygen radical species participate as vasoactive factors both in the phenomena of local self-regulation of the basal vascular tone and in the achievement of the adaptive reactions induced by effort or hypoxic oxidative stress. The phenotype adaptation phenomena induced by free radicals are completed by the genotype ones, in order to insure the cellular morpho-chemical substrate necessary to the recovery and the protective adaptation. Finally, references are made regarding the enhancement of the endogenous antiradical defenses, with exogenous antioxidant substances like vitamin E and C,  $\beta$ -carotene, flavonoides, glutathione, selenium and polyphenols of certain red wines.