



## Oxidative stress in COPD, pathogenesis and therapeutic views

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Chronic obstructive pulmonary disease (COPD), characterised by partially reversible contracture of small respiratory airways seems to be among leading causes of death in the world. COPD is characterized by inflammation, protease/antiprotease imbalance, genetic variability and oxidative stress. The latter refers to a condition in which oxidative agents overcome against antioxidants. In this review literature, the consequences of oxidative stress in COPD, such as systemic and pulmonary neutrophil influx, hypersecretion, dual and reciprocal effects with inflammatory contributors and systemic manifestations are discussed. In addition, a review of oxidative stress biomarkers as well as therapeutic strategies based on recent researches for antioxidant supplementation therapy is provided.

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## Introduction

The respiratory system contacts permanently to internal and external oxidant. Air pollutants and particles in smokes are external and phagocytic products are internal instances of oxidative substances.

Besides, intracellular organelles like mitochondria can produce radicals which act as oxidative agents. Enzymatic and non enzymatic antioxidants are defensive

system against invasive oxidative agents (1). Overcomes of oxidant burden to antioxidants and diminished antioxidants availability can lead to oxidative stress. In cigarette smokers that each puff contains 1017 oxidative particles, lung cells are susceptible to oxidative stress, due to excessive burden of oxidants over antioxidants. According to this occurred

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