

## Trace Elements May Play role in Lung Health

By Greg Arnold, DC, CSCS, September 22, 2009, abstracted from "Serum trace element levels in COPD patient: The relation between trace element supplementation and period of mechanical ventilation in a randomized controlled trial" published online September 16, 2009 in *Respirology*

Lung - <http://www.nowfoods.com/HealthLibrary/HealthArticles/HealthNotes/077588.htm?cat>

Chronic Obstructive Pulmonary Disease (COPD) is defined as "a slowly progressive disease of the airways that is characterized by a gradual loss of lung function" and is the fifth-leading cause of death worldwide (1). While 12.1 million adults ages 25 and older were diagnosed with COPD in 2001, it's estimated that another 24 million adults have evidence of impaired lung function. In 2001 alone, COPD cost our healthcare system over \$32 billion (2)

Natural ways to help maintain lung health include [omega-3 fatty acids](#) (3), [creatine](#) (4), [fiber](#) (5), N-Acetyl-Cysteine (6), and [soy](#) (7). Now a new study (8) has found that trace elements (defined as elements the body needs only in very small amounts) such as Selenium, Manganese, and Zinc may also help with lung health.

In the study, 80 patients with COPD and 40 patients without COPD had blood samples taken to measure for trace elements. The COPD patients were then given intravenous supplementation of selenium (100 micrograms per day), manganese (0.4 mg per day), and zinc (2 mg per day) or placebo while the researchers measured how long the COPD patients needed to be on mechanical ventilation.

On average, selenium, manganese, and zinc blood levels were 43% (96 vs. 67 milligrams per Liter), 25% (0.79 vs. 0.63 mg per Liter), and 32% (91 vs. 69 mg per Liter) higher, respectively, in the patients without COPD compared to patients with COPD. By the end of the study, the researchers found "a significant reduction" in the amount of time the COPD patients spent on mechanical ventilation after receiving the intravenous supplementation. Specifically, COPD patients receiving the trace elements were on mechanical ventilation 47% less than the placebo group (9.4 vs. 17.8 days).

The researchers suggested that these trace elements improved lung health due to their antioxidant properties, as previous research has shown for selenium (9), manganese (10), and zinc (11). They concluded that "Trace element (Selenium, Manganese and Zinc) status is altered in critically ill patients with COPD. The supplementation achieved a reduction in the period those patients spent on the mechanical ventilation."

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### Reference:

1. Pauwels RA, Rabe KF. Burden and clinical features of chronic obstructive pulmonary disease (COPD). *Lancet* 2004; 364:613-620
2. "Chronic Obstructive Pulmonary Disease" posted on the National Heart, Lung, and Blood Institute Website [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
3. Wataru M. Effects of Omega-3 Polyunsaturated Fatty Acids on Inflammatory Markers in COPD. *Chest* 128(6): 3817-3827
4. Fuld JP. Creatine supplementation during pulmonary rehabilitation in chronic obstructive pulmonary disease. *Thorax* 2006; 60(7): 531-537
5. Kan H. Dietary Fiber, Lung Function, and Chronic Obstructive Pulmonary Disease in the

Atherosclerosis Risk in Communities Study. *American Journal of Epidemiology* Advance Access published on December 5, 2007. doi:10.1093/aje/kwm343

6. Shan CAI. Oral N-acetylcysteine attenuates pulmonary emphysema and alveolar septal cell apoptosis in smoking-induced COPD in rats. *Respirology* 2009;14(3): 354-359

7. Hirayama F. Soy consumption and risk of COPD and respiratory symptoms: a case-control study in Japan. *Res Res* 2009; 10:56-63

8. El-Attar M. Serum trace element levels in COPD patient: The relation between trace element supplementation and period of mechanical ventilation in a randomized controlled trial.

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9. Maier KL. How the lung deals with antioxidants. *Eur. Respir. J.* 1993; 6: 334–6

10. Story DA, Ronco C, Bellomo R. Trace element and vitamin concentrations and losses in critically ill patients treated with continuous venovenous hemofiltration. *Crit. Care Med.* 1999; 27: 220–3

11. Shenkin A. Adult micronutrient requirements. In: Payne-James J, Grimble G, Silk D (eds) *Artificial Nutrition Support in Clinical Practice*. Edward Arnold Publishers, London, 1995; 151–66.