

Can hyperbaric oxygenation therapy (HOT) modify the blood testosterone concentration?

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Abstract

INTRODUCTION:

Testosterone has a modulating effect on inflammatory and healing processes. In this study, we evaluate whether hyperbaric oxygenation therapy (HOT) modifies the blood concentration of total testosterone (TT) in patients treated for different pathologies.

MATERIALS AND METHODS:

Fourteen male patients (23-72 years old) were treated with 90-min HOT sessions (range 4 to 23 sessions) as an adjuvant to the following conditions: leg fractures, osteonecrosis, diabetic foot, firearm injuries, complicated arthroprosthesis and underwater diving embolism. As controls, six healthy male volunteers (37-51 years old) were subjected to 10 HOT sessions. Testosterone plasma levels were determined immediately before the first HOT session and the day after the last session.

RESULTS:

At the end of treatment, 12 patients fully recovered and 2 (diabetic foot patients) showed a marked improvement. Testosterone significantly increased after hyperbaric oxygenation therapy in both patients and controls (ANOVA, $p < 0.004$).

DISCUSSION:

We conclude that hyperbaric oxygenation therapy increases the blood concentration of total testosterone in patients as well as in healthy men. This finding raises new questions and indicates the need to investigate the causes of this increase and its therapeutic significance. Since testosterone modulates inflammation and healing processes, it is possible that hormonal changes are the mechanisms affected by hyperbaric oxygenation therapy.

PMID: 20890859 [Indexed for MEDLINE]