

## Depressed fatigue-induced oxidative stress in chronic hypoxemic humans and rats

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Jean Guillaume Steinberg, Marion Faucher, Chantal Guillot, Nathalie Kipson, Monique Badier and Yves Jammes

It was already documented that acute hypoxemia reduces the oxidative stress following static as well as dynamic handgrip bouts in humans. Then, we examined if chronic hypoxemia could produce the same effect in patients suffering from chronic respiratory insufficiency. In rats, we studied the respective consequence of a one-month exposure to normobaric hypoxia on two muscles (*soleus*, SOL, and *extensor digitorum longus*, EDL) which have high and low aerobic metabolism, respectively. Compared to healthy humans, the resting level of erythrocyte reduced glutathione (GSH) was significantly lower in chronic hypoxemic patients, and after a handgrip contraction sustained at 50% of maximal until exhaustion the GSH level and plasma thiobarbituric acid reactive substances (TBARS) did not vary. A 20-min period of oxygen supplementation partly restored the post-handgrip oxidative stress. Compared to control rats, SOL muscle of hypoxemic animals had lower intra-muscular resting level of GSH; after a 3-min muscle stimulation (MS) leading to fatigue, TBARS did not vary in SOL and EDL and the GSH decrease was absent in SOL whereas it persisted in EDL. We concluded that chronic hypoxemia depressed the fatigue-induced oxidative stress, the effects prevailing in muscles having a high oxygen demand.

