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Gender Differences of Oxidative Stress Biomarkers and Erythrocyte Damage in Well-Trained Horses During Exercise

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1 **GENDER DIFFERENCES OF OXIDATIVE STRESS BIOMARKERS AND**  
2 **ERYTHROCYTE DAMAGE IN WELL-TRAINED HORSES DURING EXERCISE**

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8 **ABSTRACT**

9 The aim of this study was to determine the effects of gender differences on the blood oxidative  
10 stress biomarkers, antioxidant defenses and resistance of erythrocytes to hemolytic agents of  
11 trained horses before and after exercise. The study was carried out on 9 mares and 14 stallions of  
12 Ukrainian Warmblood well-trained horses, involved in jumping, eventing and dressage.  
13 Oxidative stress biomarkers, antioxidant defenses, and osmotic resistance of erythrocytes were  
14 assessed. Trained stallions showed a decrease in lipid peroxidation and higher glutathione  
15 reductase activity, while mares presented a higher superoxide dismutase activity after exercise.  
16 The resistance of erythrocytes was similar in female and male. No statistically significant  
17 differences in the percentage of haemolysed erythrocytes between post-exercise and before  
18 exercise were observed. A correlations between the oxidative stress biomarkers and antioxidant  
19 defenses in the stallions after exercises were observed, which may indicate a protective response  
20 of superoxide dismutase and catalase against exercise-induced oxidative stress.

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