Letter to the Editor

Comment on “Cytokines and Oxidative Stress Status following a Handball Game in Elite Male Players”

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In a well-conducted study, Marin et al. [1] reported significant alterations of oxidative stress biomarkers, antioxidant capacity, and indices of muscular damage in elite handball players after a friendly match. The authors were surprised by the marked increase of muscular damage indirectly assessed by serum creatine kinase (CK) in experienced players, which increased from about 80 U/L at baseline to 150 U/L 24 hours after game. However, average CK values reported here are quite low in comparison to reference values of athletic populations [2] and do not exceed reference values used in clinical practice [3, 4]. Although containing lots of eccentric exercises like abrupt stopping or landing after jumping and the risk of muscle injury due to direct contact with other players, the average 24-hour postmatch value reported by Marin and colleagues reached only 20% of the upper reference level of swimmers. Swimmers generally exhibit low CK levels because of the non-weight-bearing, noncontact, and concentric nature of their sport [2, 5, 6]. We investigated twenty-one elite handball players to obtain representative values during a regular play-off season and found 12-hour postmatch CK values of 347 U/L (SEM: 43 U/L) and values of 255 U/L (SEM: 38 U/L) during a normal training week (60 hours after match). The relatively low values reported by Marin et al. are due to the study design, which included the abstinence from handball training and games before a friendly match for 2 and 4 days, respectively. Furthermore, serum CK is not always an (indirect) marker of muscular damage, but rather reflects increased rates of muscle turnover, stimulated by muscle use [6–8]. Thus, a 2-fold and even higher increase in response to exercise is not surprising [6, 9, 10].

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