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Letter to the Editor

Does The Second Wind Blow From The Muscle, Heart or Brain?

Josef Finsterer, MD, PhD[1] and Claudia Stöllberger, MD[2]

[1]Krankenanstalt Rudolfstiftung, Messerli Institute, Vienna, Austria
[2]2nd Medical Departments, Krankenanstalt Rudolfstiftung, Vienna, Austria

*Corresponding Author
Josef Finsterer, MD, PhD

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In a recent article, Vissing *et al.*, reported about a study of 12 patients with McArdle's disease who profited from intake of 75g sucrose before exercise with regards to exercise-tolerance and well-being (Vissing J., & Haller, R.G. 2003). The study raised the raised the following comments and concerns.

In addition to skeletal muscle, cerebrum and heart may be affected by the myophosphorylase-gene-mutation, manifesting as seizures (Leproive, T. *et al.*, 2002) or dilated cardiomyopathy (Walker, A.R. *et al.*, 2003). Since cardiac involvement was not assessed, it remains uncertain if improvement of exercise-tolerance can be exclusively attributed to improved fuel availability for the skeletal muscle. Glucose may reduce catecholamine levels and consequently heart-rate or improve myocardial contractility by increasing the Na/K-pump content (Haller, R.G. *et al.*, 1998). Reduction of heart-rate may also result from insufficient ADP-phosphorylation (Sahlin, K. *et al.*, 1990) or increased vagal tone from cerebral involvement. Glucose-administration may also economize heart-work, and influence blood-pressure, which was not registered, as well as expiratory exchange-ratio. Increase of heart-rate at the beginning of exercise may be the response of an impaired myocardium to maintain an adequate cardiac output. Adjusting exercise-workload to perceived exertion and heart-rate is subjective and requires prior exclusion of heart-disease.

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To explain reduction of heart-rate and second-wind-phenomenon following sucrose administration in McArdle disease, cerebral or cardiac mechanisms should be additionally considered and investigated.

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