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Aqua jogging-induced pulmonary oedema

To the Editors:

The case study by WENGER and RUSSI [1], of pulmonary oedema occurring during aqua jogging, is interesting. Aqua jogging certainly lowers the burden to joints and tendons as compared with land running. Conversely, running or cycling at sustained intensity may lead to higher burden to lung tissue in water than on ground. In water, the exercising mechanical strain [2] is strengthened by congestion of pulmonary vessels (hence, decreased lung compliance) and also by the inspiratory loading due to hydrostatic pressure, which is likely to enlarge intra-airway pressure swings [3, 4]. In addition, the work of breathing increases progressively during endurance exercise at constant work [5]. Therefore, it seems difficult to believe that stress failure of alveolar or bronchial capillaries is improbable in the case reported by WENGER and RUSSI [1]. In an experiment designed to compare immersed *versus* ground 30-min cycling, thoracic electrical impedance was lower during recovery on land after exercising in water than on ground, which reflected a larger amount of thoracic fluid, while stroke volume was simultaneously lower, *i.e.* some degree of suboedema may have been present [4, 6]. In addition, 20°C water carries a cold stress, even to an exercising subject [4, 7, 8], and even mild cooling increases peripheral vascular resistance, left ventricular afterload and pulmonary congestion [7]. Finally, symptoms related to pulmonary oedema occur earlier during sustained exercising in water than on land. In the case reported by WENGER and RUSSI [1] symptoms occurred after 20 min, which matches other reports (see references quoted by WENGER and RUSSI [1], and also recently gathered data [9]). All in all, the occurrence of pulmonary oedema during various conditions of immersed exercising is not rare, which encourages efforts for a better understanding of the underlying pathophysiological mechanisms. Cardiovascular strains linked to sustained exercise during immersion should not be overlooked. Detailed recording of each case's circumstances of occurrence should aid recognition of recurrent features and tracking possible underlying pathways [9].

J. Regnard

Functional testing – Clinical Physiology, University Hospitals, Besançon, France.

STATEMENT OF INTEREST

None declared.

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