Cardiac fatigue and oxygen kinetics after prolonged exercise.

Abstract
BACKGROUND: Although the underlying mechanisms responsible for cardiac dysfunction after prolonged exercise remains to be elucidated, it has reported cardiac deterioration following exhaustive exercise in the absence of underlying cardiovascular diseases, which has been attributed to cardiac fatigue. The study was designed to investigate the effects of after fatiguing exercise on oxygen kinetics.

METHODS: Six athletes have taken examination, firstly by echocardiography, secondly by cardiopulmonary exercise testing and then by near-infrared spectroscopy (NIRS), before 2 days (pre-race) and after 1 day (post-race) marathon competition.

RESULTS: We found decrease in left ventricular systolic and diastolic functions, and peak oxygen consumption while increasing half time of muscular oxygen delivery after race period.

CONCLUSION: Cardiopulmonary exercise testing in conjunction with oxygen kinetics of skeletal muscle measured by NIRS may be a tool for detecting cardiac fatigue.

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