

## 博士学位論文内容の要旨

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学位論文題名	<b>A predictor of aerobic threshold for patients with heart failure with reduced ejection fraction</b> (心機能低下を伴う心不全例における嫌気性代謝閾値の予測因子)
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**【論文の内容の要旨】**

## [Purpose]

The initial cardiopulmonary response to exercise is hypothesized to be a useful predictor of aerobic threshold in patients with heart failure. This study aimed to evaluate the correlation between aerobic threshold and cardiopulmonary responses to exercise onset by comparing patient with heart failure using preserved ( $\geq 50\%$ ) and reduced ( $< 50\%$ ) left ventricular ejection fractions.

## [Participants and Methods]

Twenty-eight males (age, 36–82 years; 12 with preserved and 16 with reserved left ventricular ejection fractions) underwent a progressive submaximal cardiopulmonary exercise test using a cycle ergometer. The aerobic threshold, time constant, and area under the oxygen uptake curve for the first 4 min ( $VO_2AUC$ ) were determined.

## [Results]

A significant association was observed between aerobic threshold and  $VO_2AUC$  in the reduced group but not in the preserved group. No significant correlations were found between time constant and  $VO_2AUC$  or between aerobic threshold and time constant in either group.

[Conclusion]

The results suggest that  $\text{VO}_2\text{AUC}$  measured from exercise onset to an initial 4-min period could provide an easily and safely obtained predictor to assess aerobic capacity in people with reduced left ventricular ejection fractions.