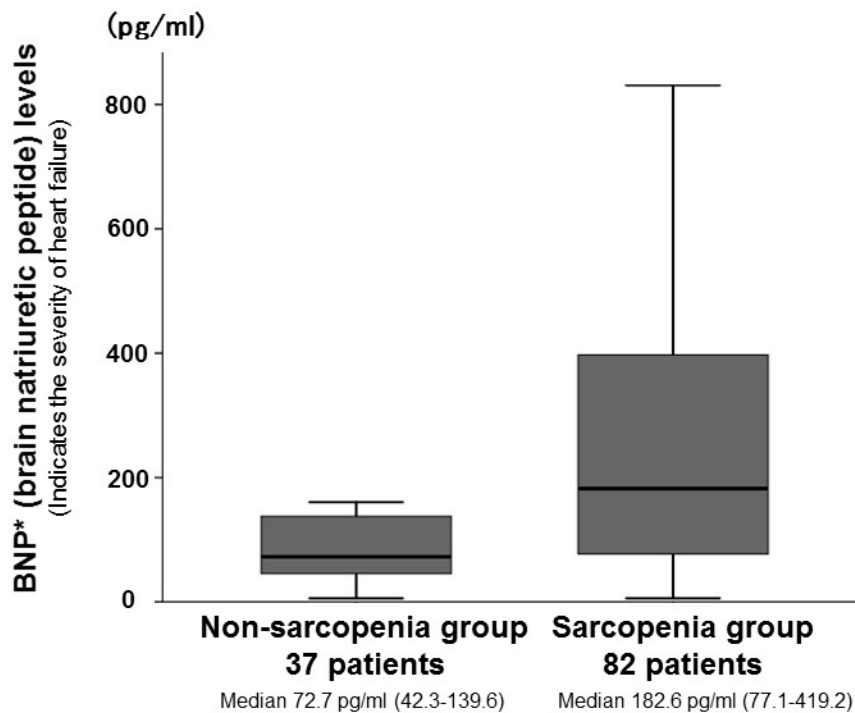


# Simple screening test can predict heart failure severity

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## Patients with sarcopenia have a higher risk of heart failure



\*The BNP reference value is below 20 pg/ml.  
Generally, a value greater than 100 pg/ml is a strong indicator of heart failure requiring treatment.

The risk of heart failure is higher in patients with sarcopenia vs those who don't.  
Credit: Dr. Yasuhiro Izumiya

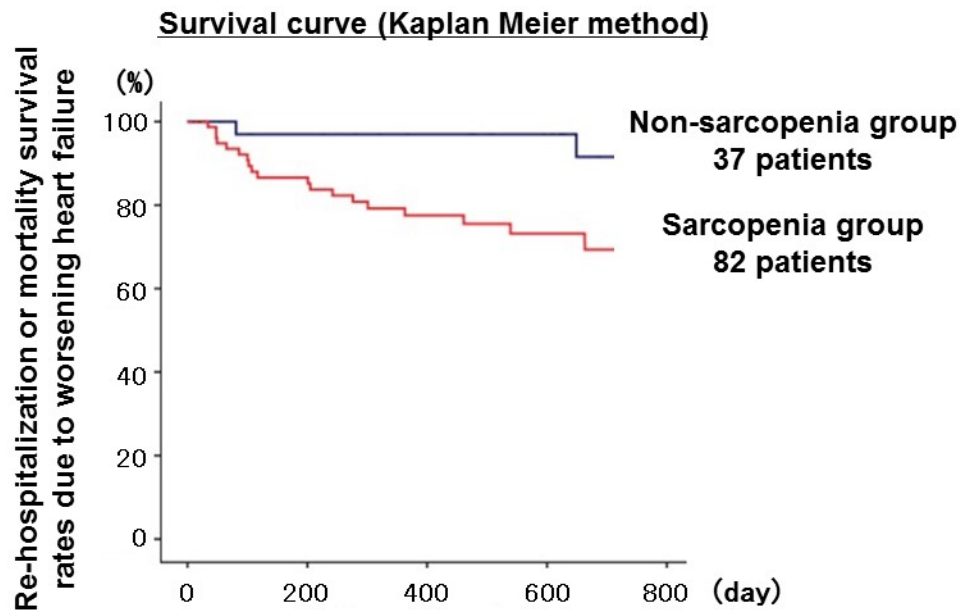
Researchers from Kumamoto University in Japan have shown that a simple screening method could quickly and easily diagnose the severity of heart disease. The method was originally developed to diagnose sarcopenia, a disease that causes a loss of muscle mass and strength. People naturally have varying degrees of muscle mass and strength loss as they age, but a large loss can be especially bad for patients of cancer or heart disease. Traditionally, sarcopenia was diagnosed via CT or MRI, however, a simple screening test for the disease was recently developed.

The reasons for the exacerbated pathology of cancer or [heart disease](#) when combined with sarcopenia are not yet clear. However, it is thought that skeletal muscle, whose primary function is movement, secretes a substance that improves the condition of remote organs, and when skeletal muscle mass is decreased, as seen in sarcopenia, this substance also decreases.

The pathogenesis of sarcopenia, particularly in elderly [patients](#), should be assessed carefully. In the past, tests were often difficult to perform since [muscle mass](#) measurements were taken with CT or MRI examinations. These types of analyses were expensive, and not all medical institutions carried such large-scale equipment. The examination of sarcopenia in daily clinical practice was therefore often difficult.

Recently, however, a simple sarcopenia screening test was developed which allows for a quick and easy evaluation of the disease. This test calculates a patient's "sarcopenia score" by using their age, grip strength, and calf circumference, and doesn't require the use of expensive equipment or cost a significant amount of time.

**Patients with sarcopenia have a lower re-hospitalization and mortality survival rate caused by worsening heart failure**



The heart failure survival rate is lower over a 750-day period for patients who have sarcopenia vs those who do not. Credit: Dr. Yasuhiro Izumiya

The Kumamoto University research team performed a study on 119 patients who had been hospitalized for evaluation and treatment of [heart failure](#) in the university hospital's department of cardiovascular medicine to determine if this screening test was also effective at evaluating patients with heart failure. The team calculated sarcopenia scores prior to discharge and compared the scores to laboratory data, echocardiography, and the patient's prognosis over a 750-day period.

The results showed that higher sarcopenia scores were related to higher

levels of brain natriuretic peptide (BNP), a hormone that indicates how well the heart is working, and to the left ventricular ejection fraction, which indicates how well the heart pumps blood during ventricular contraction. Continued examination of each patient's progress, re-hospitalization, and mortality due to heart failure found that patients with higher sarcopenia scores were at a higher risk of heart failure.

An evaluation of BNP levels is useful to predict the prognosis of [heart failure patients](#), and the predictive capabilities of the BNP assessment can be further improved if it is coupled with a patient's sarcopenia score. The sarcopenia screening test is a simple and useful evaluation method for the severity of heart failure that can be easily and effectively employed in a daily clinical setting at any medical institution. It is expected to spread widely as society ages in patients with heart disease and [muscle wasting diseases](#) such as chronic kidney disease, diabetes mellitus, and chronic [obstructive pulmonary disease](#).

**More information:** Yoshiro Onoue et al, A simple sarcopenia screening test predicts future adverse events in patients with heart failure, *International Journal of Cardiology* (2016). [DOI: 10.1016/j.ijcard.2016.04.128](#)

Provided by Kumamoto University

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