



**We perform the endothelial function test at smoking cessation outpatient department.**



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**We recommend the endothelial function test at smoking cessation outpatient department.**

Smoking cessation is important for the prevention of respiratory diseases such as lung cancer and chronic obstructive pulmonary disease (COPD), as well as cardiovascular diseases such as myocardial infarction. In recent years, the use of varenicline, a smoking cessation drug, has been widely used for patients who wish to quit smoking. We recommend that these patients undergo a vascular endothelial function test (FMD).

In many, but not all, cases, FMD values show a trend toward improvement, and patients are able to feel that their vascular health has improved along with their smoking cessation.

It is well known (and true) that successful smoking cessation is associated with weight gain, but it is inferred that the positive effects of smoking cessation on blood vessels outweigh the negative effects of weight gain.



Figure 1. FMD change over time for A, who successfully quit smoking, and B, who failed.

**Smoking cessation improves the endothelial function.**

The FMD test is an ultrasound using test that is almost painless, and many patients have been willing to return for a follow-up visit every three months after completing smoking cessation treatment with medications.

We believe that one of the reasons for the good patient acceptance is that the test takes less than 20 minutes to complete and the results are given on the same day. Improvement in FMD can be observed as early as 3 months after quitting smoking, but it may take up to a year for FMD improvement to become evident (Figure 1).

On the other hand, follow-up of patients who failed to quit smoking (although the number of cases was small) showed that vascular endothelial function worsened. This patient smoked occasionally while using varenicline, but the number of cigarettes gradually increased after 3 months, and by the time we checked after 6 months, he was smoking every day.

The FMD test is a functional test of nitric oxide (NO) released from the vascular endothelium, and the results reflect the state of vascular health.

Although it is not clear at this point whether or not FMD is a sensitive predictor of cardiovascular events in the near future (e.g., how much improvement will reduce the risk and provide peace of mind), it is worthwhile to strive to maintain good values over time.

The FMD test is considered a useful test to help people better understand the importance of continuing to quit smoking.

