















#### D-4. First test result standard value

More than 80% of the FVC measurement (% Pre) and more than 80% of the FEV1 measurement (% Pre) were within the normal range beyond 80% of the measurement range. Thus, the results were compared through a secondary test.

#### D-5. Second test result standard value

The measurement range was the same as the normal range reference value, with the FVC measurement (% Pre) of 80% and the FEV1 measurement (% Pre) of 80% or more. When comparing the results of the first and second tests of vitamin C non-taking group (male), better results were obtained in the FVC among the pulmonary function tests of the vitamin C non-taking group (female).

### IV. CONCLUSION

This study was conducted to investigate whether vitamin C has antioxidative effects in reducing the levels of active oxygen in the blood, and the results of active oxygen concentration in the blood showed a decrease in all of the vitamin C taking group, however, there was no significant difference in pulmonary function test results.

Previous studies have shown that fine dust acts on pulmonary epithelial cells and macrophages to induce oxidative stress and increase the active oxygen group (AOG)[10]. However, There were few studies on the improvement of pulmonary function by removing active oxygen. We have found that vitamin C lowers active oxygen, which is consistent with the findings of the WM Son and the other's study[10]. However, the lowered concentration of active oxygen in the blood did not show any improvement in pulmonary function. This is because the research period is limited to a short time of 2 months, the results of pulmonary function tests are highly influenced by individual efforts, and there is a limit to the difficulty of controlling individual health and psychological state before testing.

However, as a result of this experiment, vitamin C decreased the active oxygen concentration in the blood, and it was possible that the pulmonary function which is related to active oxygen could be improved. It also showed that decreasing blood concentration also has an effect on stress reduction. This scientific data suggests that vitamin C, which is vaguely known, is effective for immunity and oxidative stress, and it is expected to be used as basic data on vitamin C.

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