

istration were reported to decrease the contents of elastin in the vessel wall and/or to elevate vascular tone (25, 26), which in turn increases arterial stiffness. These mechanisms may contribute at least partially to the associations between the SDPTG and these factors. On the other hand, recent experimental studies showed that exercise had a negligible effect on arterial stiffness (27, 28), whereas in human studies regular exercise is thought to have a favorable effect on arterial properties (29–31). The present results showing the association between exercise and the SDPTG indices are in line with the results of the human studies.

Recently, numerous studies have indicated that inflammation increases arterial stiffness (32–36). However, in the current study the SDPTG indices were not independently associated with the blood leukocyte count or serum CRP levels. Although it is not possible to clearly explain this discrepancy, the current results may be influenced by some biases, such as the healthy worker effect, because this study was conducted at a certain company. To our knowledge, no other reports have investigated the association between the SDPTG and inflammation. Further studies are needed to evaluate their association in community-based populations.

This study has some limitations. First, heart rate and height were selected as independent determinants of the SDPTG indices. Particularly, an elevated heart rate ameliorates the SDPTG indices, although resting tachycardia is thought to be a cardiovascular risk factor (37, 38). These confounders must be considered when measuring and evaluating the SDPTG. However, this limitation is not specific to the SDPTG but is common to other representative measures of arterial stiffness (2). Second, the population of this study consisted of only middle-aged Japanese men. Therefore, the present results may not extrapolate to other populations including women, the elderly, or other ethnic groups.

In conclusion, the present study showed that several risk factors for CVD, such as age, hypertension, dyslipidemia, IFG/DM, a lack of regular exercise, and excessive alcohol drinking, were independently associated with the SDPTG indices in middle-aged Japanese men. These findings suggest that SDPTG measurement is efficient for evaluating the arterial properties affected by these risk factors. The application of the SDPTG to epidemiological settings is anticipated because of its simplicity and easy accessibility (39). The present results may therefore indicate the usefulness of the SDPTG in the field of cardiovascular preventive medicine.

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