immediate assessment of the success of the RSD procedure. The acute BDNF level reduction was associated with SBP reduction after 6 months of follow-up. Moreover, the significant difference in BDNF level changes between BP responders and nonresponders additionally underlines this assumption.

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"Add 10 Min for Your Health"



The New Japanese Recommendation for Physical Activity Based on Dose-Response Analysis

We read with interest the papers by Lee et al. (1) and Wen et al. (2), both of which advocated for the health benefits of low doses of exercise, even performed at moderate intensity. The American College of Sports Medicine currently recommends completing the equivalent of 30 min of moderate-to-vigorous physical activity (MVPA) per day in bouts of at least 10 min. On the other hand, on the basis of the results of their exercise dose-response analyses, Lee et al. (1) and Wen et al. (2) both argue that an exercise prescription of 5 min of running or 15 min of walking per day can positively influence cardiovascular mortality. The idea is to encourage people to engage in physical activity (PA), even if they cannot allocate the recommended daily 30 min.

On the basis of scientific evidence provided by the (Japanese) National Institute of Health and Nutrition, the Ministry of Health, Labour and Welfare established and published the Japanese recommendations for PA (or "ActiveGuide") in March 2013 (3). This document advises Japanese adults (i.e., 18 to 64 years of age) to perform 60 min of MVPA per day without any consideration of the duration of the bouts. In contrast to the reports of both Lee et al. (1) and Wen et al. (2), these recommendations include not only structured bouts of running or walking, but also incorporate PA resulting from housework, commuting, or shopping that are over 3 metabolic equivalents (METs). Most importantly, the main message disseminated to the Japanese population is "+10," representing "+10 min of MVPA per day." To our knowledge, the implementation of such PA recommendations in a governmental health promotion policy is a world first. It allows the involvement of people who have already achieved the targeted 60 min per day and encourages the most sedentary individuals to become progressively more active, thus targeting sedentary and more active people with the same simple message.

The Japanese "+10" recommendation mainly results from the 2 following complementary reports. The first is a PA dose-response meta-analysis completed in March 2011 (4). Data was extracted from 26 cohort studies that investigated the relation between the amounts of PA (summed from at least 2 PA domains) and mortality divided by the relative risk for some noncommunicable diseases (including cardiovascular diseases, cancer, dementia, and joint or musculoskeletal diseases). We found that an increment of 1 MET-h/week, which is equivalent to 2 to 3 min of MVPA per day, results in a 0.8% reduction of the average relative risk (RR) (see Table 14 in reference [4]). The second is Japan's National Health and Nutrition Survey, completed in 2010, in which the data collected from a sample of 7,876 people indicated that 61% of the Japanese

population would be willing to perform an additional 10 min per day of PA (5).

Taken together, the results from the meta-analysis and data of the National Health and Nutrition Survey provide room for an approximately 3.2% reduction of the RR (2 to 3 min \times 4 \approx 10 min, so 0.8% \times 4 \approx 3.2%), which is promising from a public health perspective.

To summarize, we demonstrated that a low dose of >3 METs activities, which can be performed in the course of daily life, that is, not only structured sessions of running or walking, can positively influence the RR for noncommunicable diseases and mortality. In accordance with the scientific evidences described by Lee et al. (1) and Wen et al. (2), the Japanese "+10" experience presented here may inspire other public health agencies, encouraging them to consider an efficient but engaging low-dose PA message that fits the characteristics and needs of their populations. We will be able to validate the effectiveness of such a policy by comparing PA between 2013 and 2023 using annual objective assessments PA in National Health and Nutrition Surveys.

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The New Japanese Recommendation for Physical Activity Based on Dose-Response Analysis

REPLY: "Add 10 Min for Your Health"



We would like to thank Dr. Murakami and colleagues for their interest in our paper (1). Exercise is Medicine is a global health initiative by the American College of Sports Medicine to promote and include physical activity (PA) as a prevention and treatment option of diseases in all medical care. Knowing the minimal effective dose of exercise, as a medicine, is important from both clinical and public health perspectives. The current aerobic PA guidelines from the World Health Organization recommend at least 150 min/week of moderate-intensity or 75 min/week of vigorous-intensity PA, or an equivalent combination of both (2). Although some PA is better than none, it still remains uncertain whether 150 or 75 min/week of moderate- or vigorous-intensity aerobic exercise is the precise and effective minimal dose of exercise for health.

In our recent study, a minimum of 30 to 59 min/ week (5 to 10 min/day) of vigorous-intensity running showed 28% and 58% significantly lower risks of all-cause and cardiovascular mortality, respectively, compared with the risks associated with no running (1). On the basis of evidence from the Japanese National Institute of Health and Nutrition, the Japanese government recommends goals of 60 min/ day of moderate-to-vigorous PA for adults (18 to 64 years of age) and 40 min/day of moderate-tovigorous PA for older adults (≥ 65 years of age). However, the most important main message is "+10 min/day of moderate-to-vigorous PA" as a minimal starting dose of PA for everyone to encourage both sedentary and active individuals to become progressively more active (3). This is currently the lowest specific dose of PA for health promotion recommended and published by a government agency.

Current PA guidelines are developed largely on the basis of observational studies using self-reported exercise, which are prone to underestimate the true health benefits of exercise because of over-reporting. Therefore, the current minimal dose of exercise could actually be lower than 150 or 75 min/week if it was accurately reported or objectively measured. In fact, we found that measured cardiorespiratory fitness, an objective marker of habitual PA, predicted mortality better than self-reported PA did (4). Furthermore, 62% of Americans meet the aerobic PA guidelines based on self-report, however, only 10% meet the guidelines based on objective accelerometry (5). It is