Table 4. Comparison of clinical parameters in subjects without medications.

	Men			Women		
	60 - 69	70 - 79	*p*	60 - 69	70 - 79	*p*
Number of subjects	193	34		485	48	
Height (cm)	164.8 ± 5.0	160.7 ± 6.3	**<0.0001**	152.2 ± 5.1	150.4 ± 5.6	**0.0188**
Body weight (kg)	65.7 ± 8.2	58.2 ± 8.8	**<0.0001**	54.4 ± 7.4	53.3 ± 6.2	0.3148
Body mass index (kg/m^2)	24.2 ± 2.6	22.5 ± 3.0	**0.0013**	23.5 ± 3.0	23.6 ± 3.2	0.7063
Abdominal circumference (cm)	85.3 ± 8.8	80.5 ± 9.4	**0.0040**	77.1 ± 8.6	79.4 ± 9.7	0.0803
Hip circumference (cm)	91.7 ± 4.7	88.2 ± 5.9	**0.0001**	89.9 ± 5.0	90.0 ± 4.6	0.8551
Whole body reaction time (sec)	0.42 ± 0.08	0.48 ± 0.16	**0.0004**	0.44 ± 0.09	0.50 ± 0.11	**<0.0001**
One leg with eye closed balance (sec)	13.0 ± 13.5	6.2 ± 5.6	**0.0043**	11.7 ± 14.0	5.3 ± 3.7	**0.0016**

4. DISCUSSION

We evaluated whole body reaction time and one leg with eye closed balance in elderly Japanese. Especially in elderly subjects without medications, this standard mean value in 60's and 70's may provide a useful reference database for evaluating whole body reaction time and one leg with eye closed balance.

For preventing life-style related diseases, the level of maximal oxygen uptake and muscle strength was recommended in exercise and physical activity reference quantity for health promotion 2006 (EPARQ2006) by ministry of health, labor and welfare of Japan. However, according to other physical fitness *i.e.* agility and balance, the optimal level was not defined [10]. Reaction time is a physiological entity that has been linked as a causal factor in the incidence of falls in the elderly population [11]. In some literatures, whole body reaction time was analyzed in elderly Japanese. Higuchi *et al.* have reported that the whole body reaction time was increased with aging over 50's by 1028 Japanese, aged 20 - 85 years [12]. Cao *et al.* have reported that the effect of a 12-week combined exercise intervention program on physical performance and gait kinematics in community dwelling elderly women (n = 20). They showed that the whole body reaction time significantly decreased from 0.48 ± 0.07 sec to 0.45 ± 0.07 sec (6.4%) after intervention [11]. In addition, they also explored the effect of 12-month exercise and nutritional intervention by voluntary, homebased exercise [13].

According to one leg with eye closed balance, reference value for one leg balance time in elderly subjects varied widely from study to study [9], because various procedure are used to carry out the test *i.e.* eye-opened and eye-closed. At present, there is no consensus on whether it is better to perform the test with the eye open or closed. Potvin *et al.* reported and concluded that the test was more effective with the eyes closed [14]. The mean repo- rted one leg balance time of women aged 70 - 79 years ranging widely by as much as 6.9 - 32.9 sec [15].

In this study, we measured 730 men and 1329 women over the age of 60. In addition, we compared parameters between subjects with and without medications. This information gathered may serve as a useful reference database for evaluating whole body reaction time and one leg with eye closed balance in elderly Japanese.

Potential limitations remain in this study. First, our study was a cross sectional and not a longitudinal study. In addition, although there were differences of height or weight between 60's and 70's, cross sectional study design and/or difference of the birth cohort may affect these results. These greatly decrease the validity of the study. Second, the 2059 elderly subjects, all of whom wanted to change their lifestyle, underwent measurements for this study at Okayama Southern Institute of Health: they were therefore more health-conscious than the average person, especially may be in 70's. Thus, this study has a big selection bias. Third, the small sample size in especially 70's without medications might make it difficult to compare whole body reaction time and one leg with eye closed balance between subjects with and without medications. Therefore, this study does not have enough participants to obtain the standard mean value for the Japanese population. Further prospective, large sample size and community based studies are urgently needed in elderly Japanese.

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