Methods The institutional review board approved this study. Physical fitness parameters included body height, body weight, side steps per 20 sec, 20-m shuttle run test, 50-m run time, and standing long jump distance. We used a toe grip dynamometer to measure TGS. This scale can measure the pulling power of toes at 0.1–50.0 kg at a precision of 0.1 kg. We divided children into three groups according to TGS score tertiles. One-way analysis of variance (ANOVA) was used to identify differences in physical function test scores among the three groups. The level of significance was set at p < 0.05. Results Participants were 1,005 Japanese elementary school children aged 10–12 years (490 boys, 515 girls). The average TGS was 12.63 ± 3.60 kg. Tertile classifications were as follows: 338 in the first (T1), 333 in the second (T2), and 334 in the third (T3) (TGS: T1, 8.75 ± 1.82 kg, T2, 12.44 ± 0.86 kg, T3, 16.76 ± 2.64 kg). One-way ANOVA showed that TGS was significantly associated with all physical function test scores (p-values: side steps per 20 sec, 31.4 and <0.01, 20-m shuttle run test, 12.9 and <0.01; 50-m run, 21.6 and <0.01; and standing long jump, 35.3 and <0.01, respectively). Discussion TGS was associated with physical function test scores (side steps, 20-m shuttle run test, 50-m run, and standing long jump). Toe function has been shown to be related to various abilities such as walking, jogging, and running (Achini et al., 2012; Mann and Hagy, 1979), and this study demonstrated similar findings. Foot-gripping training improves foot-gripping strength and physical function in adolescents (Soma et al., 2012), and these findings suggest that the same may be possible in children aged 10–12 years. References Masayuki Soma, Takefumi Igarasai, Wataru Kudou, Hideyuki Nakae, Tepppe Akibko. (2012). Jap J Health Prom Phys Ther, 2: 59-63. Achini Sayoa, Claire Hillier, Kathryn Reshauge, Joshua Burns. (2012). J Foot Ankle Res, 5: 29. Mann RA, Hagy JL. (1979). Clin Orthop Relat Res, 142: 24-29. Contact ta-shiro.yuta.53c@st.kyoto-u.ac.jp

DEVELOPMENT OF ELDERLY FITNESS EQUIPMENT WITH ADJUSTABLE RESISTANCE IN NEIGHBORHOOD PARK
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In this study, an upper and lower limb outdoor fitness equipment with adjustable resistance is developed specifically for elderly. This study investigated the health promotion of providing local facilities with ease of access that give elderly more opportunities for exercise and socialization in neighborhood parks. The hydraulic damper resistance sources is employed to replace the common damping oil with water to avoid blocking doing harm to the environment. The transmission mechanism of cam driven damper piston moves up and down to adjust the resistance. Through the discussion with the cam position, adjustable resistance and operating frequency, it revealed that the resistance produced has a positive relationship with operating frequency. Meanwhile, the resistance from the stroke during the compression process in hydraulic cylinder is much better than stretching process. Therefore, the compression stage, together with the core muscle contraction training can be chosen in the outdoor equipment for elderly. The operating frequency is adjusted for every elderly to achieve the optimal resistance. Finally, these equipment contain green design and can be involved in the park’s surroundings. The muscle strengthening can be improved through this facility and hence provides a social activity and health promotion for aging in place.

EXERCISE AND DIET INTERVENTION IMPROVES LIPOPROTEIN PROFILE RATIOS IN OVERWEIGHT AND OBESE PEOPLE
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Introduction Lipoprotein ratios have been proposed to provide information on cardiovascular diseases (CVD) risk, lipid profile, size and athero/antiatherogenicity [1]. Therefore, the aim of this study was to evaluate the effect of four different weight loss intervention programs on the lipoprotein profile ratios. Methods 180 overweight and obese subjects (96 women and 84 men, 18-50 years; BMI > 25 <34.9 kg/m²) were included in the study and randomised into four supervised treatment groups: strength training (S), endurance training (E), combined S + E (SE), and recommendations of physical activity (PA; n=18 men and 18 women). All subjects followed a hypocaloric diet (70-75% of the daily energy expenditure) and trained 3 times/week (38-60 min/session) for 5, S and E; and E+11). Blood lipid profile was measured to estimate lipoprotein ratio at baseline and after 24 weeks of intervention [2]. Atherogenic risk factor was calculated with total cholesterol/high density lipoprotein cholesterol (TC/HDL), low density lipoprotein (LDL/HDL), Apolipoprotein B/Apolipoprotein A1 (ApoB/ApoA1), LDL/ApoB and triglycerides (TG)/HDL ratios. Results Women allocated in PA group and men of all groups showed a decrease in TC/HDL (-18.80%) and LDL/HDL [-11.91%] (p<0.01). Men of the E group obtained more favourable change in ApoB/ApoA1 [-17.74%, p<0.01]. The TG/HDL ratio decreased in S and E men groups [-19.23% and 19.90% respectively, p<0.01] suggesting LDL particle size enlargement. After intervention, LDL/ApoB ratio in men group which had significant change in respect to S, SE and PA groups (p<0.01). Discussion Weight loss achieved combining diet and different exercise modes resulted in CVD risk decrease due to improvement of lipoprotein ratios. The results of the present study are in agreement with recently reported results that showed improvement in lipid profile with aerobic training [3, 4], resistance training [5] and combination [6]. Present results suggest that E group seems to be the most favourable to improve lipoprotein ratios. 1. Maruyama, C., et al. J Ather Throm (2003); 10: 186-193. 2. Zapico, A., et al. BMC Public Health (2012); 2:1100. 3. Stensvold, D, et al. J Appl Physiol (2010); 108: 804-10. 4. Sillanpää E, et al. Eur J Appl Physiol (2009); 106: 285-96. 5. Strasser, B, and Schobersberger, W. J Obes (2011); 40: 397-415. 6. Pitsavos, C, et al. Q J Med (2009); 102: 609-16.

THE EFFECT OF PHYSICAL ACTIVITY ON BODY COMPOSITION AND WEIGHT-HEIGHT PROPORTION IN THE ELDERLY
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The Aim Health of the people is determined by a set of behaviours typical for their lifestyle. One of the most important factors is physical activity which shapes many features of the human organism (Ball et al. 2001, Gaba et al. 2009, Jeffery et al. 2009). The aim of this study is: 1) to assess body composition and weight-height proportion of the elderly subjects in the aspect of age and gender, 2) to obtain information about physical activity of examined men and women 3) to determine the relationships between physical activity and various aspects of body composition in elderly. Material and methods The material comprises data of 116 men and 406 women, 60 to 80 years of age, living in Wroclaw (Poland). The subjects were divided in two groups: younger – below 70 years and older – above 70 years. Based on the data from the questionnaire elderly people were divided into physically active and non-active. Body height and weight was measured with an electronic weighing and measuring station (SECA model 764, quality control no. C-2070). Based on those measurements, body mass index (BMI) was calculated. The components of body build (fat %, fat mass, lean body mass, total water and muscle mass) were determined with TANITA MC-180 MA. Such statistical procedure was used as the analysis of variance, assuming p<0.05 as the level of significance. Results The study suggests that physical activity has a positive effect on some aspects of body composition and BMI only in younger group (60-70 yrs). It can also be seen that physically active men have more profits from active style of life than physically active women.