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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 S, E and S+E). Blood lipid profile was measured to estimate lipoprotein profile ratios 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, ApolipoproteinB/ApolipoproteinA1 (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 (-8.80%) 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 E group men (7.73%) and women (9.57%) increased significantly with 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 improvements 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.