

IS THERE A LONG-TERM EFFECT OF A 3-YEAR MODIFICATION PROGRAM ON THE CARDIOMETABOLIC RISK PROFILE OF MEN WITH ABDOMINAL OBESITY?

Aurélie Baillet¹, Natalie Alméras¹, Angelo Tremblay¹, Jean Bergeron², Paul Poirier¹, Jean-Pierre Després¹

¹Centre de recherche de l'Institut universitaire de cardiologie et de pneumologie de Québec, Québec, Canada

²Centre hospitalier de l'Université Laval (CHUL), Québec, Canada

Background and objectives: We have previously reported the effects of a 3-year lifestyle modification program (3-YLMP) on cardiometabolic risk variables. The program included a 1-year active intervention followed by a 2-year maintenance phase on long-term cardiometabolic risk profile. The objective of the study was to examine whether there were residual effects of this 3-YLMP when subjects were re-evaluated 4 years later.

Methods: Of the 94 abdominally obese and dyslipidemic men who initially met the inclusion criteria and accepted to be part of the 3-YLMP, 42 accepted to be re-evaluated 4±0.4 years after the baseline assessment. Fat distribution was assessed with computed tomography. A standardized submaximal treadmill exercise test was performed to assess cardiorespiratory fitness. After five minutes of rest in sitting position, three heart rate (HR) and blood pressure measurements were taken 3-minutes apart on the nondominant arm. An overnight fast blood sample was obtained followed by an oral glucose tolerance test (OGTT) to evaluate the cardiometabolic risk profile (triglycerides, total cholesterol, HDL-C, LDL-C, glucose and insulin). The areas under the curve from fasting values (AUC) of the OGTT were determined using trapezoid method.

Results: Four years after the completion of the 3-YLMP, weight (-2.2±7.0 kg), body mass index (-0.7±2.2 kg/m²), number of steps per day (1601±3977), % of HR reached at 3.5 mph and 2% slope during submaximal exercise (-3.3±6.6 %), resting HR (-5.9±10.1 bpm), total cholesterol (-0.3±0.7 mmol/L), HDL-C (0.2±0.2 mmol/L), triglycerides (-0.6±0.9 mmol/L), AUC insulin (-71113±68379 nmol/Lx120 min), fasting insulin (-73.8±84.0 pmol/L) and glucose (-0.3±0.4 mmol/L) were all significantly improved compared to baseline data. No significant difference was found for visceral adipose tissue, waist circumference, AUC glucose, LDL-C, diastolic and systolic blood pressures between baseline and 4-year post-intervention assessment.

Conclusions: Despite the non-maintenance of visceral adipose tissue decreases 4 years after the completion of the 3-YLMP, several cardiometabolic parameters remained improved compared to baseline. The maintenance of physical activity level and physical fitness after the 3-YLMP could explain these long-term benefits.