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Winter Meeting, 4–5 December 2018, Optimal diet and lifestyle strategies for the management of cardio-metabolic risk

Effects of protein supplementation alone and in combination with exercise on cardiometabolic health markers in older adults

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Advancing age presents a myriad of interrelated diseases. Metabolic syndrome is a term relating several cardiovascular risk factors, including dyslipidemia, hypertension, obesity and insulin resistance[1]. As age can independently increase cardiometabolic risk, it is vital that modifiable risks are managed and minimised[2]. Lifestyle interventions such as dietary and exercise regimes, can reduce the prevalence of metabolic syndrome, therefore reducing the risk of cardiovascular disease (CVD) and type 2 diabetes (T2D)[3].

The aim of this study was to examine the effects of a 16-week dietary and/or exercise intervention on cardiometabolic health in older adults (n = 100). One hundred older adults aged 60-83 years were randomly allocated to one of four intervention groups; control (n = 31), nutrition (n = 23), exercise plus nutrition (n = 22) or exercise (n = 24). Outcome measures were metabolic parameters, as outlined and defined by the National Cholesterol Education Program (NCEP) Adult Treatment Panel (III)[4]; waist circumference >88 cm (females) and >102 cm (males), triglycerides ≥ 150mg/dL; high density lipoprotein cholesterol <40 mg/dL (male) and <50 mg/dL (female); systolic blood pressure >130 mmHg; diastolic blood pressure >85 mmHg; fasting glucose ≥ 100 mg/dL.

Although there were reductions observed over time for systolic blood pressure, diastolic blood pressure and fasting glucose, the between group comparisons did not show any significant difference after 16-weeks. Lower than desired adherence with the supplement groups (50-80 %), intervention duration and baseline health status of participants may be contributing factors to the findings.

Risk factor	Control		Nutrition		Exercise& Nutrition		Exercise		
	T1	T2	T1	T2	T1	T2	T1	T2	*p*
WAIST CIRCUMFERENCE (CM)	84 (16.5)	83.5 (24.5)	91.5 (15)	91 (15.5)	85.5 (20.63)	85.5 (18.25)	93.7 (21.9)	94 (20.9)	0.872
TRIGLYCERIDES (MMOL/L)	1.3 (0.8)	2.34 (1.92)	1.09 (0.99)	2.65 (1.16)	1.17 (0.7)	1.13 (1.13)	1.39 (1.62)	1.32 (0.85)	0.264
HDL-CHOLESTEROL (MMOL/L)	1.51 (0.66)	1.64 (0.5)	1.6 (0.93)	1.53 (0.82)	1.54 (0.85)	1.64 (0.69)	1.39 (0.73)	1.61 (0.75)	0.909
SYSTOLIC BLOOD PRESSURE (MM/HG)	140 (24)	138 (21)	154 (15)	146 (16)	151.5 (23.25)	147.5 (24.75)	140.5 (29.8)	137.5 (20.8)	0.254
DIASTOLIC BLOOD PRESSURE (MM/HG)	79 (12)	81 (8)	82 (14)	84 (16)	85.5 (14.5)	83.5 (8.75)	79 (15.3)	79.5 (8.25)	0.802
FASTING GLUCOSE (MMOL/L)	5.32 (0.79)	5.13 (0.66)	5.58 (0.78)	5.23 (0.82)	5.24 (0.67)	5.21 (0.58)	5.4 (1.02)	5.5 (0.76)	0.638

Values are shown as median (interquartile range)

To conclude, interventions that involve exercise and dietary adaptations are critical in tackling cardiometabolic risk factors, particularly in ageing populations. Long duration interventions with community level application and all-round benefits are greatly warranted.

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