# Long-term Cardiorespiratory Effects of Mediterranean Diet and Exercise Training Intervention in Sedentary Older Participants

Ahmad Alkhatib[1], Geoff Middleton[2], Markos Klonizakis[1]

[1]Academy of Sport and Physical Activity, Sheffield Hallam University, United Kingdom.
[2]School of Sport and Exercise Science, University of Lincoln, United Kingdom.

**Introduction:** The cardio-protective benefits of exercise and healthy diets, especially Mediterranean Diet (MD) are well established. Combining MD with exercise training has been recently shown to reverse cardio-metabolic risk in ageing adults. This study tested whether the exercise and MD improvement in cardiorespiratory capacity are sustained after six-months in older participants.

**Methods:** With institutional ethical approval, seventeen sedentary healthy participants (age = 54.7 ± 3.5) completed eight-weeks of moderate aerobic exercise training alone or combined with MD, assessed by MD adherence questionnaire. Cardiorespiratory capacity was assessed by ventilatory threshold (VT) before, after and six-months following the completion of training. Mixed-design ANOVA was used to assess within effects (training and follow-up) and between effects (MD- and Exercise-group).

**Results:** The initial intervention-dependent cardiorespiratory improvement in VT (12.2 ± 3.0 vs. 15.1 ± 3.1 $ml \cdot kg^{-1} \cdot min^{-1}$, $p < 0.01$), was maintained after six months compared with baseline (12.2 ± 3.0 vs. 13.2 ± 3.2$ml \cdot kg^{-1} \cdot min^{-1}$, $p < 0.05$) with no significant deterioration in the six months after the completion of the intervention. However, no interaction effect was found between MD-group and exercise-group. Within groups comparisons showed a trend, though not significant, towards sustained benefits of the MD group (12.2 ± 2.7, 14.1 ± 3.8, 13.1 ± 3.7 $ml \cdot kg^{-1} \cdot min^{-1}$, $p = 0.078$ for main ANOVA effects) in pre-, post-intervention and follow-up respectively. However, this trend was more prominent and significant in the exercise group (12.2 ± 3.3, 15.6 ± 3.0, 13.3 ± 3.2 $ml \cdot kg^{-1} \cdot min^{-1}$, $p = 0.010$ for pre-, post-intervention and follow-up respectively.

**Conclusion:** In older sedentary adults, exercise training provides sustained improvement in cardiorespiratory capacity. Combining MD with exercise, though initially effective, require further research to distinguish the specific long-term benefits and adherence to MD.

* The work was presented at the 21th European Congress on Obesity (ECO2014), Sofia, Bulgaria, May 28-31, 2014.

* Official abstract listing can be found at: http://www.karger.com/Article/Abstract/363668 (page 119)