

**Introduction:** This study examined the effects of high-intensity interval training on cardiac structure function in lifelong sedentary ageing men (SED) compared with a control group of age-matched masters athletes (LEX). **Methods:** 39 aging male participants (SED;  $n = 22$ , aged  $62.7 \pm 5.2$  years) (LEX;  $n = 17$ , aged  $61.1 \pm 5.4$  years) were recruited to a study consisting of three assessment phases: upon enrolment to the study (Phase A), following six weeks of cardiovascular conditioning exercise in SED (Phase B), and following six weeks of HIIT performed once every five days by both groups (Phase C). Echocardiographic measurements were obtained in a laboratory setting using standard techniques. Data were analyzed using SPSS version 20.0. Q-Q plots were employed to confirm normal distribution of data. Training effects were compared using a  $2 \times 3$  (group  $\times$  time) mixed design ANOVA with pairwise comparisons of within- and between-group simple main effects including a Bonferroni correction. An alpha value of  $P \leq .05$  was used to indicate statistical significance. Data are presented as mean  $\pm$  standard deviation (SD). **Results:** In combination, HIIT and conditioning exercise improved resting systolic and mean arterial blood pressure (both  $P < .01$ ) and lowered rate pressure product ( $P < .01$ ), whilst increasing heart rate reserve ( $P < .01$ ) in SED only. **Conclusion:** The present findings indicate that HIIT subsequent to cardiovascular conditioning exercise can lower cardiovascular risk by lowering blood pressure and improving cardiovascular efficiency at rest in lifelong sedentary ageing men. **References:** Herbert, P., Grace, F. M., & Sculthorpe, N. F. (2015). Exercising caution: prolonged recovery from a single session of high-intensity interval training in older men. *Journal of the American Geriatrics Society*, 63(4), 817–818. Herbert, P., Sculthorpe, N., Baker, J., & Grace, F. M. (2015). Validation of a six second cycle test for the determination of peak power output. *Research in Sports Medicine*, 1–11.

### One Session of High-Intensity Interval Training (HIIT) Every Five Days Improves Maximal Cardiorespiratory Function in Both Lifelong Sedentary and Lifelong Active Ageing Men

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**Introduction:** Epidemiological studies consistently identify older adults as the least physically active demographic, with few achieving a sufficient volume of recommended exercise to accrue health benefits. This study examined the effects of high-intensity interval training on maximal cardiorespiratory function in lifelong sedentary ageing men (SED) compared with a control group of age-matched masters athletes (LEX). **Methods:** 39 aging male participants (SED;  $n = 22$ , aged  $62.7 \pm 5.2$  years) (LEX;  $n = 17$ , aged  $61.1 \pm 5.4$  years) were recruited to a study consisting of three assessment phases: upon enrolment to the study (Phase A), following six weeks of cardiovascular conditioning exercise in SED (Phase B), and following six weeks of HIIT performed once every five days by both groups (Phase C). All measurements were obtained in a laboratory setting using standard techniques. Data were analyzed using SPSS version 20.0. Q-Q plots were employed to confirm normal distribution of data. Training effects were compared using a  $2 \times 3$  (group  $\times$  time) mixed design ANOVA with pairwise comparisons of within and between group simple main effects including a Bonferroni correction. An alpha value of  $P \leq .05$  was used to indicate statistical significance. Data are presented as mean  $\pm$  standard deviation (SD). **Results:** Compared with conditioning exercise, HIIT improved  $VO_{2Max}$  ( $P < .01$ ),  $VE_{Max}$  ( $P < .01$ ),  $O_2$  Pulse ( $P < .05$ ), and MET capacity ( $P < .01$ ) in both SED and LEX. **Conclusion:** In conclusion, the present findings indicate that HIIT subsequent to cardiovascular conditioning exercise improves components of maximal respiratory function in both SED and LEX. HIIT should be considered when prescribing exercise to aging cohorts, irrespective of initial fitness level. **References:** Herbert, P., Grace, F.M., & Sculthorpe, N.F. (2015). Exercising caution: prolonged recovery from a single session of high-intensity interval training in older men. *Journal of the American Geriatrics Society*, 63(4), 817–818. Herbert, P., Sculthorpe, N., Baker, J., & Grace, F. M. (2015). Validation of a six second cycle test for the determination of peak power output. *Research in Sports Medicine*, 1–11.

### The Effect of an Exercise Intervention Program on Postmenopausal Women Living in North Queensland

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**Introduction:** Sedentary postmenopausal women living in North Queensland have lower levels of cardiorespiratory fitness, and higher resting blood pressure, body mass index, and waist-to-hip ratios (Barnett, 2009), which are all risk factors for cardiovascular disease. In addition, 3.3% of Australians have osteoporosis, with the condition more common in females (5.3%) compared to males (1.2%) (ABS, 2012). Postmenopausal bone loss is a risk factor for osteoporosis and hip fracture. Exercise has been suggested as an effective intervention strategy for the reduction in the rate of bone loss for postmenopausal women and for the attenuation of cardiovascular disease risk factors. Previous research has found that sedentary postmenopausal women of North Queensland perceive a number of barriers to exercise, however when given the opportunity to exercise they perceive it as a positive experience (Barnett, 2013). The aim of this study was to determine whether an eight-week aerobic and resistance group-based exercise intervention had an effect on the health status and QoL of postmenopausal women living in North Queensland. **Methods:** Thirty-three women volunteered to take part in the intervention consisting of a 60-min group-based circuit style session undertaken three times per week. The circuit included a combination of aerobic and resistance exercises to music. Pre- and post-intervention measures were taken. Primary outcome measures included anthropometric profiles, blood lipids, peripheral bone density, cardiorespiratory fitness, and upper and lower body strength. Secondary measures included exercise self-efficacy and menopausal quality of life. **Results:** Twenty-six women completed the eight-week program. Significant increases were found in cardiorespiratory fitness ( $p = .00$ ), upper body strength ( $p = .00$ ), lower body strength ( $p = .00$ ), exercise self-efficacy ( $p = .00$ ), and the Menopause Quality of Life psychosocial ( $p = .01$ ), physical ( $p = .00$ ), and sexual ( $p = .01$ ) domains. Waist girth ( $p = .01$ ) and triglycerides ( $p = .02$ ) significantly decreased. A downward trend was also found in cholesterol ( $p = .07$ ). No difference was found for bone density. **Conclusion:** Results of this study suggest that an eight-week aerobic and resistance group-based exercise intervention can improve the health status and QoL of postmenopausal women living in North Queensland. It is suggested that a longer duration may be required for positive changes in bone density to be seen. **References:** Barnett, F. (2009). Do physical activity levels influence the cardiovascular-related physiological characteristics of postmenopausal women? *Australasian Journal on Ageing*, 28(4), 216–218. Australian Bureau of Statistics. (2012). *Australian Health Survey: Health Service Usage and health Related Actions, 2011-12*. Barnett, F. (2013). The effect of exercise on affective and self-efficacy responses in older and younger women. *Journal of Physical Activity and Health*, 10(1), 97–105.