

A Family History of Type 2 Diabetes does Not Impact Maximal Aerobic Capacity in Normoglycemic, Hispanic Males

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ABSTRACT

A family history of type 2 diabetes (FH+) is considered a risk factor for insulin resistance and poor cardiorespiratory fitness. However, it is not known if a FH+ impedes exercise-induced improvements in maximal aerobic capacity (VO_{2max}). **PURPOSE:** The purpose of this study was to determine if normoglycemic, sedentary, Hispanic men with FH+ have a lower VO_{2max} compared to those without a family history of type 2 diabetes (FH-) and if the improvement in VO_{2max} after 8-weeks of combined exercise training is comparable between FH- and FH+. **METHODS:** 20 participants underwent 8 weeks of combined exercise training (35 min aerobic at 60-75% VO_{2max} followed by 6 full-body resistance exercises) 3x/week. VO_{2max} was measured using ParvoMedics 2400 metabolic measurement system during a standardized graded exercise test performed on a treadmill. Body composition was assessed by dual-energy x-ray absorptiometry. **RESULTS:** There was no difference in VO_{2max} at baseline regardless of family history (3.57 ± 1.7 vs. 3.91 ± 0.21 L/min; $p=0.22$). Eight weeks of combined exercise training significantly improved VO_{2max} (3.57 ± 0.17 to 3.82 ± 0.16 L/min; $p=0.002$) in FH+, and tended to increase VO_{2max} in FH- (3.91 ± 0.21 to 4.06 ± 0.21 L/min; $p=0.09$). There was no difference in VO_{2max} between groups after 8 weeks of exercise training ($p=0.67$). Lean body mass significantly improved in both groups (FH+ 50.7 ± 1.7 to 53.5 ± 1.79 kg; $p<0.001$; FH- 55.62 ± 2.2 to 57.7 ± 2.1 kg; $p=0.02$); FH+ showed a trend to decrease in fat mass (24.2 ± 2.0 to 23.2 ± 1.8 kg; $p=0.08$). No change in fat mass was observed in FH- (24.0 ± 2.7 to 23.9 ± 2.8 kg; $p=0.44$). **CONCLUSIONS:** A family history of diabetes shows no effect on cardiorespiratory fitness in a normoglycemic, sedentary, Mexican American population.