

WATER FITNESS TO REDUCE WEIGHT AND IMPROVE BLOOD GLUCOSE

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Key Words: Diabetes Type 2, Exercise, Water Aerobics

Purpose: Water aerobics was tested as a means to reduce weight and improve blood glucose in Type 2 diabetes.

Method: A one-group pre/post-test pilot study was used. Dependent variables are: weight, hemoglobin A1c (Hgb_{A1c}), finger-stick blood glucose (pre and post exercise), lipid profile, body tape measurements, transcutaneous oxygen ($TcpO_2$)/carbon dioxide ($TcpCO_2$), scores on the Profile of Mood States, the Rosenberg Self-Esteem Scale, and four YMCA fitness tests. The independent variable is: group water aerobics, 3 times per week for twelve weeks. The sample is 17 Hispanics and 17 African Americans, males and females, 40-65 years of age. This age is most-representative of people with T2DM.

Findings: Data are available for 14 subjects. Mean weight loss was 0.6 lbs. (-12 to +10). Initial A1c levels were 6.1% to 11.3% (target <7%). Overall, A1c was lowered by a mean -0.3% (-1.9 to +0.7). Mean inches lost were: (a) neck = -0.5 inches (-1.5 to +.5), (b) waist = -1.85 inches (-6 to 0), (c) hips = -1.35 inches (-2.25 to +1), (d) thighs = +0.2 inches (-2 to +4). Calves were unchanged. Mean $TcpO_2$ decreased by 2mmHg (-17 to +16). Mean $TcpCO_2$ increased by 1.25mmHg (-11 to +15). Mean daily change in blood glucose was -70 mg/dl/session (Range +22 to -111). All subjects reported the exercise sessions were valuable and enjoyable. Five of the 14 subjects continue to exercise following the end of the study. Changes observed have not been subjected to statistics because of the small number of results; however, it can be observed that pre and post-measurement changes would not be statistically significant at this point.

Discussion: Preliminary conclusions are that water aerobics is an effective and pleasurable way to exercise regularly and reduce Hgb_{A1c} . More data are needed to assess the effect of water aerobics on weight loss.

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