

Diabetes and Technology for Increased Activity (DaTA) Study: Results of a Remote Monitoring Intervention for Prevention of Metabolic Syndrome

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Abstract

Objective:

An increasingly aged, overweight, and sedentary population has resulted in elevated risk of cardiovascular disease (CVD). The escalating incidence of diabetes and other chronic illnesses, deficits in health care budgets, and physician shortages, especially in rural communities, have prompted investigations of feasible solutions. The Diabetes and Technology for Increased Activity (DaTA) study was designed to test the effectiveness of a lifestyle intervention driven by self-monitoring of blood glucose (BG), blood pressure (BP), physical activity (PA), and weight to positively impact CVD risk factors in a medically underserved rural population with a high incidence of metabolic syndrome (MS).

Research Design and Methods:

Conducted in a community-based research setting, this single-center open feasibility study used smart phones to transmit BP, BG, pedometer, weight, heart rate, and activity measurements to a database. Technology allowed participants to interface with the clinical team and self-monitor their personal health indicators.

Results:

Twenty-four participants aged 30 to 71 years completed the 8-week intervention. Participants had significant improvement in clinic ($p = .046$) and self-monitored diastolic BP ($p = .001$), body mass index ($p = .002$), and total cholesterol ($p = .009$), and steps per day. Daily PA increased as well as participants' interest in and willingness to make lifestyle changes that impact health outcomes.

Conclusions:

The DaTA study demonstrated that self-monitoring of the risk factors for MS and increased PA improved the participant's CVD risk profile. Considering the 8-week time period of this intervention, results are encouraging. This lifestyle intervention, which uses education and technology as tools, confirms the utility of remote health monitoring.

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Abbreviations: (BG) blood glucose, (BMI) body mass index, (BP) blood pressure, (CT) clinical team, (CV) cardiovascular, (CVC) cardiovascular complication, (CVD) cardiovascular disease, (DaTA) Diabetes and Technology for Increased Activity, (DBP) diastolic blood pressure, (HbA1c) hemoglobin A1c, (HDL) high-density lipoprotein, (HR) heart rate, (HT) hypertension, (LDL) low-density lipoprotein, (PA) physical activity, (PI) principal investigator, (SBP) systolic blood pressure, (STEP) Step Test and Exercise Prescription, (TSS) technology implementation and systems administration specialist

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