**Purpose**
- To determine whether using CGMS technology with counseling can facilitate short-term changes in physical activity and self-efficacy behavior in individuals with type 2 diabetes.

**Endpoints**
- Outcomes were measured through the following metrics:
  - Physical activity self-efficacy (confidence in one's ability to change physical activity behaviors)
  - Physical activity levels (measured using accelerometers to detect and record movement)
  - Glycemic control (HbA1c)
  - Blood pressure (BP)
  - Body mass index (BMI)

**Methods**
- Enrolled individuals met the following criteria: (1) known history of type 2 diabetes, (2) >18 years old, (3) not engaged in physical activity more than 2 days per week, (4) HbA1c >7.5%, (5) not using insulin, (6) able to read and speak English.
- At baseline, the following information and measurements were collected from both groups: demographics, physical activity self-efficacy, BP, BMI, and HbA1c. All participants were instructed on and fitted with physical activity monitors, which collected activity counts at 1-minute intervals. Subjects wore the monitors for 7 days.
- During week 1, subjects in the intervention group received a CGM monitor with instructions. Three days later, the CGMS monitors were removed.
- Following removal, intervention subjects also received 90 minutes of individualized education and counseling with the following 5 goals: (1) to review CGMS graphs, (2) to outline the benefits of physical therapy, (3) to assess subjects’ confidence in changing physical activity, (4) to prescribe a physical activity program, and (5) to discuss normal responses to starting a physical activity program.
- The control group also received 90 minutes of general diabetes education and counseling. Both groups received a follow-up phone call during week 4 to reinforce counseling.
- In addition, during step 1 of the above protocol, subjects received feedback on their own expected areas of activity-related glucose reduction and received role model CGM graphs to illustrate glucose reductions in response to physical activity.
- At week 7, subjects again wore activity monitors for 7 days. Baseline measures were repeated again at week 8.

**Results**
- Of 231 assessed subjects, 52 were enrolled in the pilot study; subjects were randomized to intervention (n=27) or control (n=25) groups.
- Study subjects were 57.0 ± 13.5 years of age and had a mean HbA1c of 8.6% ± 1.2%. The subjects’ mean duration of diabetes was 8.4 ± 6.2 years.
- Forty-six subjects completed the protocol (control group: n=25; intervention group: n=21).
- Participants in the intervention group (using CGM) had higher self-efficacy scores than in the control group for sticking to activity (resisting relapse) at 8 weeks (p<0.05), indicating more confidence in maintaining a physical activity program.
- Within the intervention group, the amount of sedentary and light activity decreased significantly (p<0.05), while moderate-intensity activity increased significantly from pre- to post-intervention (p<0.05).
- While neither group, on average, reached the recommended 30 minutes of moderate activity per day, of the 28 subjects who had an increase in moderate activity minutes, 19 of 21 (90.5%) were in the intervention group while only 9 of 25 (36%) were in the control group (p<0.05).
• Systolic blood pressure showed a near-significant decrease (p=0.05) within the intervention group from pre- to post-intervention and showed a significant between-group difference at week 8, favoring the intervention group (p<0.05).
• HbA1c levels improved in both groups from baseline to the end of the study. However, the HbA1c reduction was only statistically significant in the intervention group. Subjects in this group reduced their HbA1c levels from 8.9% ± 1.15% at baseline to 7.7% ± 1.23% at the end of the study (p<0.05).
• Mean BMI decreased from baseline to the end of the study in both groups, but this decrease was significant only in the intervention group (p<0.05).

Conclusions
• Subjects in the intervention group displayed more confidence in their ability to stick to a regular physical activity regimen and they achieved lower HbA1c levels, lower BMI levels, and higher physical activity levels, with less time spent in light activity and more time spent in moderate level activity.
• Findings of this study suggest that physical activity counseling interventions using CGMS feedback for individuals with type 2 diabetes may improve physical activity levels and reduce risk factors for diabetes-related complications.