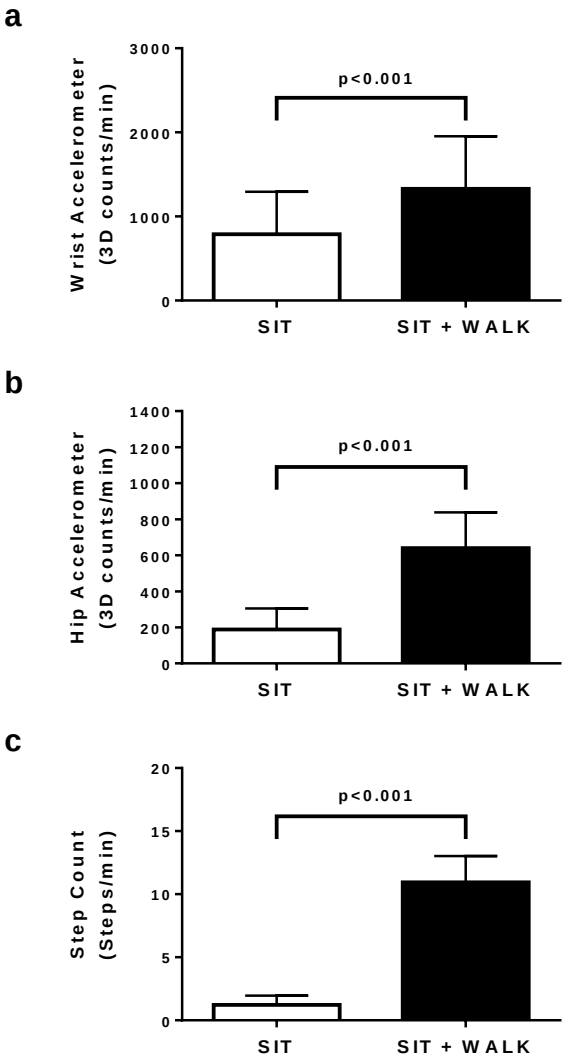
SUPPLEMENTARY DATA

Supplementary Figure 1. Participant Flow

SUPPLEMENTARY DATA

Supplementary Figure 2



Activity during walking vs. sitting visits. Mean ±SE mounted tri-axial vector magnitude counts per minute for wrist (a) and hip (b) accelerometers, used to calculate step count (c) over the entire 3 hour period of the SIT + WALK condition (black bars), when participants walked on the treadmill 3 minutes of each 30 minute period, versus the same 3- hour period of the SIT condition (white bars), when participants engaged in sedentary activities only.

SUPPLEMENTARY DATA

Supplementary Material

Calculating Glucose Effectiveness

Glucose effectiveness was calculated using the analytical approaches reported by Nagasaka et al (1) and Weiss et al (2) as follows:

Units for calculation: glucose = mg/dL, insulin = mcU/mL

1. Determine: Post load plasma glucose without insulin / without GE **[PGwoI/GE]**
   Post load plasma glucose = Fasting Plasma Glucose = [0.75 x 75000] / [0.19 * body weight (kg)*10]

2. Determine: Expected 2 hour plasma glucose **[2hrPG$_{exp}$]**

   -NGT: 2-hr Glucose= 133.01 - 24.22*Log(oDI)
   -IGT/IFG: 2-hr Glucose= 160.05 – 19.14*Log(oDI)
   (Regressions provided by Weiss et al (2))

   -Oral disposition index (oDI) = Matsuda Index * Insulinogenic Index
   -Matsuda Index = $10{,}000/\sqrt{(\text{fasting glucose} * \text{fasting insulin} * \text{mean glucose} * \text{mean insulin})}$ (3)
   -Insulinogenic Index = Δ Insulin (time 0-time 30) / Δ Glucose (time 0-time 30)

3. Calculate glucose effectiveness index (GE). This requires the two terms calculated above which are unique for each subject in addition to the unique, measured 2hrPG and the constant PGwoI/wGE as follows:

   GE (mg/dl per min) = {PGwoI/GE - [PGwoI/wGE] * (2hrPG / 2hrPGexp)} / 120

   -Post load plasma glucose without insulin / with GE **[PGwoI/wGE]**: The following constant was used for each subject depending on their degree of glucose tolerance: normal glucose tolerance (NGT) or impaired glucose tolerance (IGT) or impaired fasting glucose (IFG)

NGT:	160.85
IGT/IFG:	184.79

   Details of the data set and analysis used to obtain these constants can be found within the original description reported by Weiss et al. (2)
   -**2hrPG**: The measured 2hr plasma glucose

References:

1. Nagasaka S, Kusaka I, Yamashita K, Funase Y, Yamauchi K, Katakura M, Ishibashi S, Aizawa T: Index of glucose effectiveness derived from oral glucose tolerance test. Acta Diabetol 2012;49 Suppl 1:S195-204

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2. Weiss R, Magge SN, Santoro N, Giannini C, Boston R, Holder T, Shaw M, Duran E, Hershkop KJ, Caprio S: Glucose effectiveness in obese children: relation to degree of obesity and dysglycemia. Diabetes Care 2015;38:689-695

3. Matsuda M, DeFronzo RA: Insulin sensitivity indices obtained from oral glucose tolerance testing: comparison with the euglycemic insulin clamp. Diabetes Care 1999;22:1462-1470