

Supplemental Data Files

Table 1S Summary of Additional Study Participant Demographic, Physical Activity Level and Hemoglobin A1c.

<i>Race Ethnic Group</i>	Number of Participants	% of Study Group
Non-Hispanic Whites	3	30
Non-Hispanic Blacks	0	0
Asians/South Pacific Islanders	0	0
Hispanic	7	70
<i>Hispanic Distribution</i>		
Central and South American	2	29
Cuban	4	57
Mexican	0	0
Puerto Rico	1	14
<i>Physical Activity Level (PAL)</i>	Mean	SD
MET-min/week VPA	0	0
MET-min/week MPA	16	51
MET-min/week walking	318	133
MET-min/week total	334	144
Minutes/week sitting time	420	85

PAL*

1= Moderate 9=LOW

Hemoglobin A1c (%)	Mean	SD
Study Group	6.9	0.3
Male (n=3)	7.1	0.1
Females (n=7)	6.8	0.3

Legend: Tale 1S

*This table represents an additional summary of the study participants; race/ethnic status, physical activity level (PAL) based on the categorical groups outlined in IPAQ Short Form Questionnaire, and the most recent hemoglobin A1c level prior to enrolling in the study. Time variables for minutes per week converted to MET (Metabolic Equivalent) for vigorous (MET-min/week VPA), Moderate (MET-min/week MPA), walking (MET-min/week walking), sum of the aforementioned (MET-min/week total) and minutes per week of sitting time. Mean and standard deviation (SD) for these. * The IPAQ scores physical activity levels (PAL) as; Low, Moderate, or High (C. L. Craig, Marshall, A. L., Sjostrom, M., et al., "International physical activity questionnaire: 12-country reliability and validity," Medicine and science in sports and exercise, 35, 8, 1381-95, 2003). The scoring protocol for IPAQ utilized the file created by Andrea Di Blasio, Francesco Di Donato and Christian Mazzocco at the Endocrinology Unit, Department of Medicine and Aging Sciences, G. d'Annunzio University of Chieti-Pescara (Italy), which can be found <https://sites.google.com/site/theipaq/scoring-protocol>*

Table 2S. The Effects of Age on JD Induced Changes in HRV

	BL		JD7		Post-JD	
	Young	Old	Young	Old	Young	Old
Heart Rate (BPM)	74.1(7.0)	80.9(7.9)	71.5(6.7)	82.7(8.9)	75.5(6.0)	78.9(10.2)
SDNN(ms)	20.0(3.1)	17.2(2.6)	27.8(2.0) ^a	28.5(2.5) ^b	27.7(4.9) ^a	29.1(1.8) ^b
SDANN(ms)	20.1(4.4)	16.6(3.2)	29.9(3.6) ^a	25.1(3.1) ^b	26.2(4.6) ^a	28.0(2.5) ^b
RMSSD(ms)	19.9(4.4)	16.5(3.3)	29.5(3.3) ^a	24.9(3.0) ^b	26.0(4.4) ^a	27.8(2.4) ^b
SD1(ms)	14.2(3.1)	11.8(2,3)	21.2(2.6) ^a	17.7(2.2) ^b	18.6(3.2) ^a	19.8(1.8) ^b
SD2(ms)	19.5(3.6)	17.7(2.5)	24.8(6.3) ^a	31.4(3.6) ^b	27.8(10.7) ^a	29.8(5.4) ^b
LFnu	46.2(27.1)	42.8(20.8)	50.6(24.9)	61.4(22.3)	52.1(22.5)	45.8(27.7)
HFnu	31.9(18.2)	45.5(18.2)	34.0(21.3)	27.8(18.2)	27.1(9.5)	40.6(25.6)
LF/HF	2.9(3.7)	1.4(1.6)	2.5(2.4)	4.1(4.1)	2.6(2.7)	2.2(2.3)

Legend: Table 2S

The effects of age on HRV parameters for Older (subjects >59 yrs, n=5) and Younger (subjects < 59 yrs, n=5). Standard deviation of all normal RR intervals (SDNN), standard deviation of the delta of all RR intervals (SD Δ NN), square root of the mean of the sum of the squares of differences between adjacent NN intervals (RMSSD). Poincare parameters of SD1 and SD2, Frequency domain parameters determined using a standard Fast Fourier spectral analysis calculated on the NN time intervals; low-frequency power (LF), high-frequency power (HF) LF, and HF powers are reported in normalized units (LFnu, and HFnu). Baseline (BL) after 7 days of Jogging Device (JD7) and 7 days after completion of JD (Post-JD). In Younger subjects ^a= BL vs. JD7 or Post-JD p< 0.01. In Older subjects ^b= BL vs. D7 or Post-JD p< 0.01. ***Data are Mean(SD)***

Table 3S. The Effects of Gender on JD Induced Changes in HRV

	BL		JD7		Post-JD	
	Female	Male	Female	Male	Female	Male
Heart Rate (BPM)	77.5(8.4)	77.5(8.1)	76.2(9.4)	79.2(11.4)	77.3(5.7)	77.0(14.1)
SDNN(ms)	19.7(3.0)	16.0(1.0)	28.3(1.7)	27.7(3.4)	28.9(3.9)	27.1(2.7)
SDANN(ms)	19.9(3.9)	14.9(1.4)	28.1(4.2)	26.2(4.1)	26.6(4.1)	28.4(1.9)
RMSSD(ms)	19.7(4.0)	14.7(1.3)	27.7(4.0)	26.0(3.9)	26.4(4.0)	28.1(1.8)
SD1(ms)	14.1(2.8)	10.5(1.0)	19.8(3.0)	18.5(2.9)	18.8(2.9)	20/1(1.3)
SD2(ms)	19.3(3.5)	17.1(0.8)	28.1(4.2)	28.0(10.3)	30.4(8.2)	25.2(7.9)
LFnu	40.7(22.8)	53.4(24.8)	56.4(21.8)	55.2(30.9)	52,6(23.5)	40.5(28.1)
HFnu	39.8(16.9)	36.1(26.2)	32.7(20.6)	26.7(17.6)	31.0(15.9)	40.7(29.3)
LF/HF	2.1(3.2)	2.3(1.9)	2,9(2.6)	4.1(5.2)	2.8(2.7)	1.6(1.7)

Legend: Table 3S

The effects of gender on HRV parameters for Males (n=3) and Females (n=7). Standard deviation of all normal RR intervals (SDNN), standard deviation of the delta of all RR intervals (SD Δ NN), square root of the mean of the sum of the squares of differences between adjacent NN intervals (RMSSD). Poincare parameters of SD1 and SD2, Frequency domain parameters determined using a standard Fast Fourier spectral analysis calculated on the NN time intervals; low-frequency power (LF), high-frequency power (HF) LF, and HF powers are reported in normalized units (LFnu, and HFnu) Baseline (BL) after 7 days of Jogging Device (JD7) and 7 days after completion of JD (Post-JD). There were no statistically significant differences between males and females at BL ***Data are Mean (SD)***

Table 4S Differences (delta after-before) for HRV parameters for the entire group

	Δ (JD7-BL)	Δ (Post-JD-BL)
Heart Rate (BPM)	-1.6(-7.2,5.0)	1.0(-2.9,4.5)
SDNN(ms)	9.0(6.8,12.8)	10.7(7.4,13.3)
SDΔNN(ms)	11.35(3.7,13.9)	9.9(4.3,13.9)
RMSSD(ms)	11.2(3.5,13.8)	10.1(4.3,13.8)
SD1(ms)	8.0(2.6, 9.9)	7.0 (3.1,9.9)
SD2(ms)	8.5(7.5,16.3)	12.6(3.1,16.0)
LFnu	10.2(-0.4,25.2)	1.2(-22.2,29.9)
HFnu	-6.8(-22.3,4.8)	-5.3(-15.4,4.6)
LF/HF	0.5(-0.8,3.5)	0.2(-0.7,1.3)

Legend: Table 4S

Differences between 7 days of Jogging Device (JD7) and 7 days after completion of JD (Post-JD) and baseline (BL) for parameters of the HRV for the entire study group. Standard deviation of all normal RR intervals (SDNN), standard deviation of the delta of all RR intervals (SDΔNN), square root of the mean of the sum of the squares of differences between adjacent NN intervals (RMSSD). Poincare parameters of SD1 and SD2, Frequency domain parameters determined using a standard Fast Fourier spectral analysis calculated on the NN time intervals; low-frequency power (LF), high-frequency power (HF) LF, and HF powers are reported in normalized units (LFnu, and HFnu). **Data are Median and IQR (Q1,Q3)**

Figure 1S. CONSORT FLOW DIAGRAM

Legend: Eleven participants were enrolled all diagnosed as type 2 diabetics by their primary care physician and on either insulin or other medications to control glucose. Since the study was designed to mimic real world situation, no attempts were made to exclude any subjects. One participant was withdrawn due to lack of compliance with the usage of passive simulated jogging device (JD).


Figure 1 S




Enrollment

Referred for eligibility (n=11)
Type 2 Diabetics

Day 1

- Informed Consent
- Baseline EKG (seated) 
- Instruction for Home use of Passive Simulated Jogging Device (JD) (*minimum 3 times per day 30 min session*)

Day 7

Return of JD 
Compliance Logs and EKG

Withdrawal (n=1)
Lack of JD compliance

Day 14

Study Completion and
Final EKG (seated) 