

Body Fat was Related with Sedentary Time, but not with Moderate-Vigorous Physical activity time in type 2 diabetes

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Background

- Persons with type 2 diabetes were encouraged to undertake at least 150 min/week of moderate to vigorous aerobic exercise spread out during at least 3 days during the week, with no more than 2 consecutive days between bouts of aerobic activity.
- Sedentary behavior has emerged as a new risk factor for cardiovascular accident.
- The ADA (American diabetes association) recently announced updated, comprehensive guidelines for regular, structured physical exercise for everyone with diabetes and recommended less overall sedentary time every day. This is a shift from the Association's previous recommendation of physical movement every 90 minutes of sedentary time.
- Sedentary behavior has emerged as a new risk factor for cardiovascular accident. Body fat is related with all-cause mortality.

Aim

The aim of this study was whether moderate to vigorous physical activity (MVPA) time or Sedentary time(ST) was related with percent body fat in type 2 diabetes

Method

- We randomly recruited seventy smart phone user with Type 2 diabetes and investigated sedentary(SPAt), light(LPAt), moderate(MPAt), vigorous physical activity time(VPAAt) with wireless activity tracker (fitbit HR®:FB) for 7 days in free-living conditions.
- We also measured total muscle mass in kilograms(kg), total body fat (kg), and total body fat percentage(%) using body composition analyzer (Inbody®)

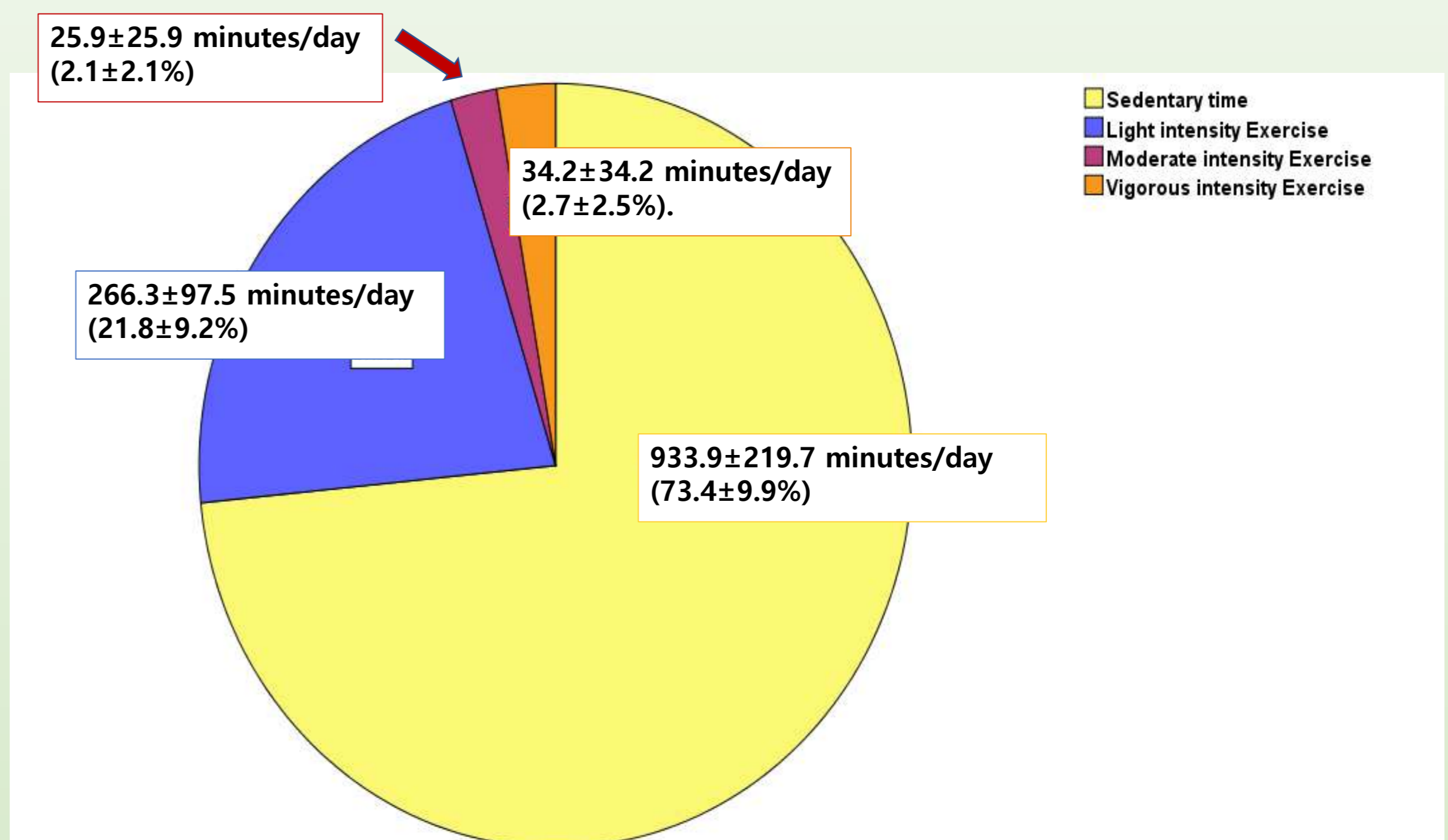
Results

General Characteristics

Male: Female	64.7%
Age	60.4±7.9 years
Body mass index,	25.6±3.6kg·m ²
Duration of diabetes;	12.5±7.7 years
A1c	7.8±1.3%
Muscle	42.2±7.6 kg
Body fat	20.3±7.1 kg
Percent fat	30.9±7.4%
Recommended fat control	8.9±5.9 kg

Monitoring 24 hour activity in Elderly type 2 Diabetes Mellitus

- SPAt was 933.9±219.7 minutes/day (73.4±9.9%), LPAt was 266.3±97.5 minutes/day (21.8±9.2%), MPAt was 25.9±25.9 minutes/day (2.1±2.1%), VPAAt was 34.2±34.2 minutes/day (2.7±2.5%).

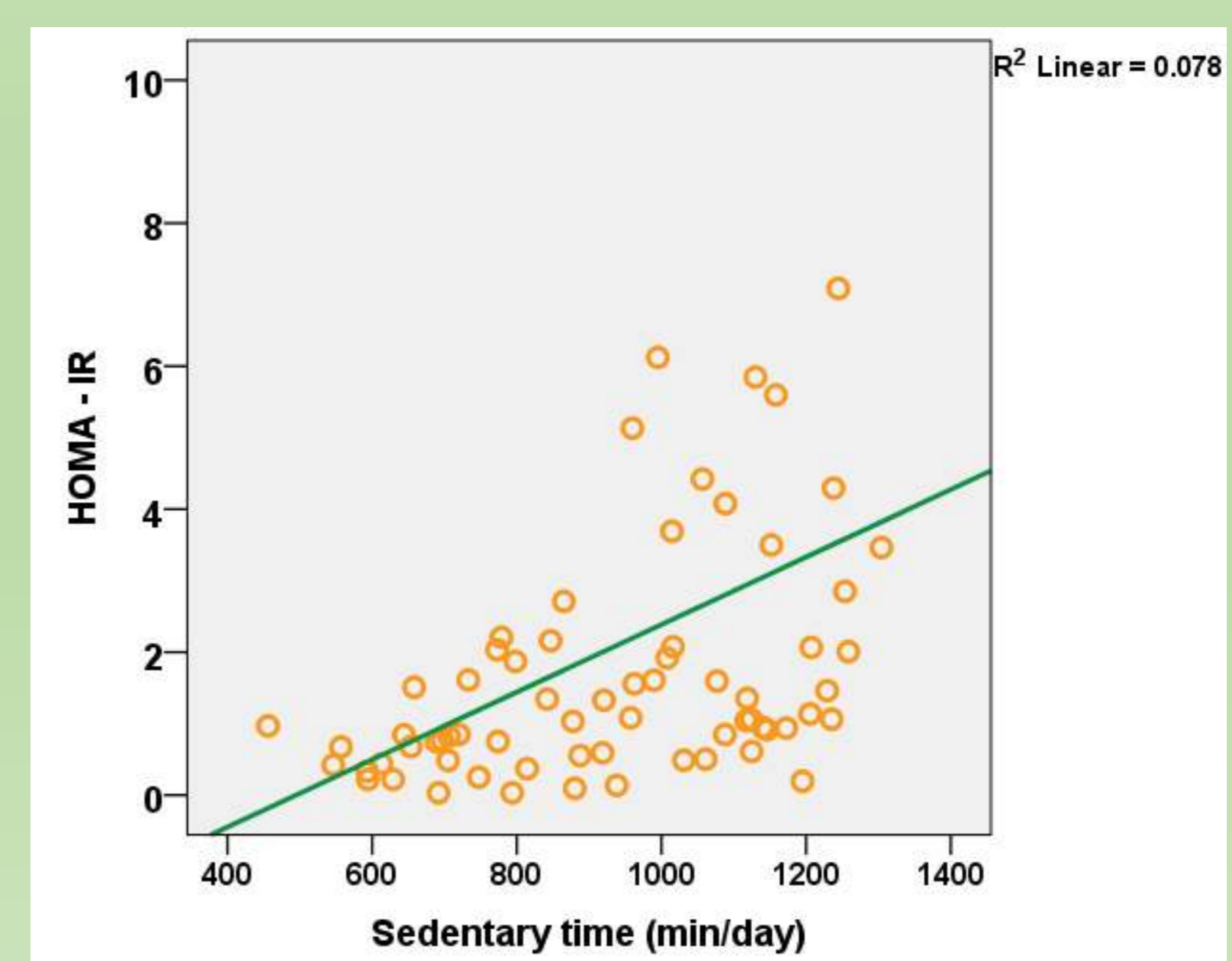


Relations between activity time and percent body fat after adjusted for age, gender, and glycosylated hemoglobin level.

	r	p
Sedentary (Min/day)	0.415	0.001
Light Exercise (Min/day)	-0.526	0.000
Moderate Exercise (Min/day)	-0.112	0.380
Vigorous Exercise (Min/day)	0.131	0.302
Moderate and vigorous Exercise (Min/day)	0.031	0.810

- Similar results were found in 48 persons who had exercised more than 150 min.

Relations between HOMA-IR and activity time



HOMA IR was correlated with sedentary time (r=0.280, P=0.021)

Conclusion,

- Longer sedentary time was related with higher body fat in type 2 diabetes.
- These results supported the validity of the new recommendations about less sedentary time in type 2 diabetes mellitus from the American Diabetes Association in 2016.