

**Supplemental material****Table S1. Correlations among intra-pancreatic fat deposition, liver ectopic fat accumulation, and visceral fat area**

	Pancreatic fat (P-S) (HU)	Liver fat (L-S) (HU)	Visceral fat area (cm <sup>2</sup> )
Pancreatic fat (P-S) (HU)			
Liver fat (L-S) (HU)	0.02		
Visceral fat area (cm <sup>2</sup> )	0.27*	0.35*	

\*  $P < 0.001$ .

**Table S2. Relationships between lifestyle factors and visceral fat area (VFA)**

Number of meals (/day)	VFA (95%CI)			P
	Two	Three		
MV1	105.7(83.9, 133.0)	112.5(102.5, 124.0)		0.52
MV2	104.6(81.5, 134.3)	112.2(102.5, 124.0)		0.59
MV3	107.8(84.8, 137.0)	112.2(102.5, 122.7)		0.78
MV4	114.4(96.5, 137.0)	109.9(103.5, 117.9)		0.67
<b>Snack</b>	-	+		
MV1	97.3(76.7, 124.0)	115.0(104.6, 126.5)		0.16
MV2	97.5(76.7, 124.0)	115.6(104.6, 126.5)		0.22
MV3	96.5(75.9, 121.5)	115.6(105.6, 126.5)		0.15
MV4	108.9(91.8, 129.0)	112.2(105.6, 120.3)		0.70
<b>Exercise</b>	-	+		
MV1	119.0(105.6, 134.3)	99.2(86.5, 114.4)		0.07
MV2	119.1(105.6, 134.3)	99.5(85.6, 115.6)		0.08
MV3	120.3(106.7, 134.3)	98.5(84.8, 113.3)		0.04
MV4	108.9(100.5, 119.1)	111.1(99.5, 124.0)		0.83
<b>Exercise at work</b>	-	+		
MV1	112.6(102.5, 124.0)	123.2(98.5, 154.5)		0.46
MV2	113.3(102.5, 124.0)	129.0(101.5, 162.4)		0.33
MV3	113.3(103.5, 124.0)	124.0(98.5, 154.5)		0.51
MV4	112.2(104.6, 119.1)	130.3(109.9, 152.9)		0.10
<b>Smoke</b>	never	previous	current	
MV1	107.8(96.5, 121.5)	124.0(107.8, 144.0)	111.1(92.8, 133.0)	0.30
MV2	105.6(93.7, 119.1)	129.0(109.9, 151.4)	115.6(95.6, 139.8)	0.31
MV3	105.6(94.6, 119.1)	127.7(108.9, 148.4)	115.6(95.6, 138.4)	0.35
MV4	108.9(100.5, 119.1)	113.3(101.5, 126.5)	122.7(107.8, 141.2)	0.18
<b>Alcohol intake</b>	none	intermediate	large	
MV1	115.6(103.5, 129.0)	114.4(98.5, 134.3)	105.6(87.4, 127.7)	0.57
MV2	115.6(102.5, 129.0)	115.6(98.5, 134.3)	106.7(86.5, 130.3)	0.58
MV3	115.6(103.5, 129.0)	114.4(98.5, 133.0)	105.6(86.5, 129.0)	0.49
MV4	106.7(98.5, 115.6)	121.5(108.9, 134.3)	119.1(103.5, 137.0)	0.12
<b>Insomnia</b>	-	+		
MV1	110.1(100.5, 120.3)	149.6(117.9, 190.6)		0.02
MV2	109.9(100.5, 120.3)	148.4(116.7, 190.6)		0.02
MV3	111.1(101.5, 121.5)	142.6(112.2, 179.5)		0.06
MV4	112.2(104.6, 119.1)	130.3(108.9, 154.5)		0.11
<b>Sleep apnea syndrome</b>	-	+		
MV1	103.8(94.6, 113.3)	171.1(142.6, 204.4)		<0.001
MV2	103.5(94.6, 113.3)	174.2(145.5, 208.5)		<0.001
MV3	104.6(95.6, 114.4)	167.3(138.4, 200.3)		<0.001
MV4	114.4(106.7, 124.0)	114.4(96.5, 134.3)		0.93
<b>Nightwork shift</b>	-	+		
MV1	118.2(108.9, 129.0)	100.7(66.7, 151.4)		0.51
MV2	119.1(108.9, 130.3)	100.5(64.7, 154.5)		0.44
MV3	119.1(109.9, 130.3)	92.8(60.9, 142.6)		0.26
MV4	117.9(109.9, 125.2)	107.8(78.3, 148.4)		0.59

Least squares mean (95% confidence interval) values for VFA are shown. The values of VFA were log-transformed. Univariate analysis and multiple regression analyses were used to evaluate the relationships between lifestyle factors and VFA.

MV1 model: not adjusted.

MV2 model: adjusted for age and sex.

MV3 model: plus further adjusted for HbA1c.

MV4 model: plus further adjusted for body mass index.

MV= multivariate-adjusted model.

VFA; visceral fat area.

**Table S3. Relationships between the number of meals consumed per day and intra-pancreatic fat deposition (P–S)**

Number of meals (/day)	P-S (95%CI)		P
	Two	Three	
MV	-15.8(-21.8, -10.9)	-9.7(-11.1, -8.2)	0.02
MV + FPG	-15.8(-22.1, -10.9)	-9.7(-11.1, -8.2)	0.02
MV + AMY	-17.4(-24.1, -12.0)	-10.1(-11.8, -8.4)	0.01
MV + HDL-C	-15.8(-22.1, -10.9)	-9.7(-11.3, -8.2)	0.02
MV + exercise	-15.3(-21.2, -10.5)	-8.7(-10.5, -7.3)	0.01
MV + nightwork shift	-14.3(-22.5, -8.2)	-9.9(-15.3, -5.5)	0.14
MV + insulin	-16.0(-22.1, -10.9)	-9.7(-11.5, -8.0)	0.02
MV + GLP-1	-17.4(-25.2, -11.3)	-11.1(-15.3, -7.5)	0.03
MV + tube voltage	-15.8(-21.8, -11.1)	-9.7(-11.1, -8.2)	0.02

Least squares mean (95% confidence interval) data for P–S values are shown.

MV model: adjusted for age, sex, HbA1c, and body mass index.

We additionally adjusted for exercise habits, fasting plasma glucose concentration, amylase activity, HDL-C concentration, night-shift working, the use of insulin, the use of GLP-1 receptor agonist, and tube voltage.

MV= multivariate-adjusted model.

FPG, fasting plasma glucose; AMY, amylase activities; HDL-C, high density lipoprotein cholesterol; GLP-1, glucagon-like peptide-1 receptor agonist.

**Table S4. Relationships between lifestyle factors and intra-pancreatic fat deposition (P-S) and liver ectopic fat accumulation (L-S) after additional adjustment for night-shift working**

	P-S (95%CI)			P	L-S (95%CI)			P
	Two	Three			Two	Three		
<b>Number of meals (/day)</b>								
MV	-15.8(-21.8, -10.9)	-9.7(-11.1, -8.2)		0.02	5.5(0.9, 9.5)	4.7(2.9, 6.4)		0.73
MV + nightwork shift	-14.3(-22.5, -8.2)	-9.9(-15.3, -5.5)		0.14	6.2(0.04, 10.9)	4.2(-1.2, 8.7)		0.50
<b>Snack</b>	-	+			-	+		
MV	-8.4(-12.4, -4.9)	-10.5(-12.2, -8.9)		0.33	5.0(0.3, 9.1)	4.7(3.2, 6.4)		0.94
MV + nightwork shift	-9.3(-16.8, -3.9)	-11.8(-17.7, -7.1)		0.34	5.2(-1.8, 10.9)	4.7(-0.3, 8.9)		0.83
<b>Exercise</b>	-	+			-	+		
MV	-10.3(-12.4, -8.4)	-8.4(-10.7, -6.3)		0.22	4.7(2.6, 6.9)	4.5(1.8, 6.9)		0.79
MV + nightwork shift	-12.0(-18.2, -7.1)	-9.9(-16.3, -4.9)		0.26	6.0(0.9, 9.9)	5.2(-0.6, 9.9)		0.75
<b>Exercise at work</b>	-	+			-	+		
MV	-9.5(-11.3, -7.8)	-13.3(-19.1, -8.7)		0.15	4.2(2.3, 6.2)	5.0(-0.3, 9.1)		0.83
MV + nightwork shift	-10.3(-15.8, -6.0)	-15.0(-23.8, -8.5)		0.12	5.0(-0.3, 9.3)	4.5(-2.1, 9.7)		0.83
<b>Smoke</b>	never	previous	current		never	previous	current	
MV	-11.1(-13.6, -9.1)	-8.9(-11.8, -6.6)	-9.1(-12.6, -6.1)	0.25	4.5(2.3, 6.7)	6.2(3.4, 8.7)	4.0(0.04, 7.6)	0.98
MV + nightwork shift	-12.9(-19.1, -8.0)	-8.9(-14.5, -4.4)	-10.7(-18.2, -5.2)	0.22	4.0(-1.5, 8.2)	6.7(1.5, 10.9)	3.4(-4.1, 9.3)	0.81
<b>Alcohol intake</b>	none	intermediate	large		none	intermediate	large	
MV	-10.7(-12.9, -8.7)	-10.5(-13.6, -7.8)	-8.0(-11.3, -5.0)	0.23	6.2(4.2, 8.0)	2.3(-1.2, 5.2)	5.0(1.2, 8.5)	0.31
MV + nightwork shift	-11.5(-17.4, -7.1)	-11.5(-18.2, -6.4)	-7.8(-14.5, -2.9)	0.20	5.7(0.9, 9.9)	2.9(-3.1, 7.8)	6.9(0.3, 12.0)	0.93
<b>Insomnia</b>	-	+			-	+		
MV	-10.5(-12.0, -8.9)	-9.1(-13.8, -5.5)		0.60	5.0(3.4, 6.4)	5.2(0.6, 9.1)		0.91
MV + nightwork shift	-12.0(-17.7, -7.5)	-6.8(-13.8, -1.7)		0.06	4.7(0.04, 8.7)	5.5(-2.1, 11.3)		0.80
<b>Sleep apnea syndrome</b>	-	+			-	+		
MV	-10.7(-12.6, -8.9)	-9.1(-13.3, -5.6)		0.52	5.2(3.4, 7.1)	2.9(-2.5, 7.1)		0.34
MV + nightwork shift	-12.4(-19.1, -7.3)	-10.3(-18.2, -4.6)		0.47	6.7(1.5, 10.9)	3.4(-4.5, 9.5)		0.25

Least squares mean (95% confidence interval) data for P-S, L-S values are shown.

MV model: adjusted for age, sex, HbA1c, and body mass index.

MV + nightwork model: plus further adjusted for night-shift working.

MV= multivariate-adjusted model.