SUPPLEMENTARY DATA

RESEARCH DESIGN AND METHODS

Physical Activity and Dietary Assessment

Trained bi-lingual (English/Spanish) interviewers administered both physical activity and dietary questionnaires. The amount and intensity of physical activity was assessed by questionnaires developed in the Hawaii-Los Angeles Multi-ethnic Cohort Study (1; 2). This questionnaire is comprised of a list of structured questions describing various types of activity (sitting, strenuous sports, vigorous work, and moderate activities including sports and work) during the past year. Responses were then used to estimate the total minutes of moderate and vigorous activity per week**.** Dietary intake was assessed using the 126-item semi-quantitative Harvard food-frequency questionnaire (FFQ). The FFQ consisted of a list of foods with a standardized serving size and a selection of 9 frequency categories ranging from never or <1 serving per month to > 6 servings per day, during the past year. An open-ended free text section was utilized to capture food items that did not appear on the standard list, and included information on usual serving size and number of servings consumed per week for incorporation in the dietary intake calculation for each subject. Total caloric and nutrient intakes were calculated by the Harvard Channing Laboratory.

Contextual Variables

Contextual variables were collected to characterize the social-economic status of participants. Demographic data including median household income, poverty rate, unemployment rate, proportion of respondents over age 25 with highest attained education (no education, lower than or equal to high school, some college or technical school, more than 4 years of college) were obtained from the U.S. Bureau of Census website (http://www.census.gov/) for all the counties within the U.S. that contained at least one geocoded address. The spatial analysis tools in ArcGIS (version 10.2) were used to calculate the proportion of the 2000 Census block groups that fell within 300 m buffers of each of the geocoded addresses. The proportions were applied to the demographic data to compute the average numbers, rates, and proportions within the 300 m radius area around each residence.

Additional data for fast foods, grocery stores, and parks and recreation areas were extracted from Esri's Business Analyst database (version 2013). The ArcGIS buffer tool was used to create 500 m buffers for each residential address, and the numbers of fast food and grocery stores, and proportions of parks or recreation areas located inside these buffers were calculated and assigned to each geocoded address. Crime data was extracted from Esri's Community Analyst database (version 2013) at the ZIP code level. The same spatial tools in ArcGIS were used to calculate the proportion of each ZIP code that fell within each of the 500 m buffers and a crime index (based on information about murder, rape, robbery, assault, burglary, and motor vehicle theft) was then calculated by delineating and summing the portions inside the buffer area and assigning these values to the appropriate address.

SUPPLEMENTARY DATA

Supplementary Tabel S1. Physiological meanings of FSIGT and oGTT measured metabolic outcomes.

Metabolic Outcomes	Physiological Meanings
Measurements obtained from FSIGT	
Insulin sensitivity (S_I, $\times 10^{-5} min^{-1}$ per pmol/l)	Developed from minimal model and directly measured the whole body insulin sensitivity
Acute insulin response (AIRg, pmol/l×10 min)	It was calculated using the trapezoid rule as the incremental area under the insulin curve during the first 10 min after the glucose injection, which measures how efficiently beta-cell secrete insulin under glucose challenge.
Disposition index ($DI = S_I \times AIRg$)	The product of insulin sensitivity and acute insulin response, which reflects the beta-cell function of each subject
Insulin metabolic clearance rate (MCR, ml/min/m^2)	This measurement reflects the total body clearance rate of insulin after the injection of insulin
Insulin fractional disappearance rate (FDR, $min^{-1} \times 100$)	This measurement estimates the rate of endogenous insulin disappearance after the glucose injection challenge.
Measurements obtained from oGTT	
Fasting glucose (mmol/l)	Basal blood glucose concentrations. Type 2 diabetes is defined as fasting glucose≥7.0mmol/l.
2-hr glucose (mmol/l)	Glucose concentrations after 2-hours of a 75-gram oral glucose intake. Type 2 diabetes is defined as 2-hr glucose≥11.1mmol/l.
Fasting insulin (pmol/l)	Basal blood insulin concentrations. Higher than normal insulin profile suggests insulin resistance.
2-hr insulin (pmol/l)	Insulin concentrations after 2-hours of a 75-gram oral glucose intake.
HOMA-IR (mmol/l×mU/l)	The HOMA-IR index was developed using fasting glucose (FPG, in mmol/l) and insulin levels (FPI, in mU/l) under an approximation formulae [HOMA-IR=(FPI×FPG)/22.5] of HOMA models. It is a surrogate index of insulin resistance, and is less accurate than direct measurements, such as S_I from FSIGT.

SUPPLEMENTARY DATA

Supplementary Table S2. Regression associations of short-term exposures to $PM_{2.5}$ with metabolic traits adjusted for traffic-related air pollution modeled as freeway-NO_x (TRAP) among 874 BetaGene participants.

		Model with $PM_{2.5}$ Only	Joint Model with $PM_{2.5}$ and TRAP		Model with $PM_{2.5}$ Only	Joint Model with $PM_{2.5}$ and TRAP	
	Lag period*	Short-term* $PM_{2.5}$	Short-term* $PM_{2.5}$	TRAP	12-month avg. $PM_{2.5}$	12-month avg. $PM_{2.5}$	TRAP
		β† (p)	β‡ (p)	β‡ (p)	β† (p)	β‡ (p)	β‡ (p)
Measurements obtained from FSIGT‖							
Insulin sensitivity (S_I, $\times 10^{-5} min^{-1}$ per pmol/l)§	40	-5.36 (**0.010**)	-5.26 (**0.011**)	1.99 (0.21)	-1.02 (0.72)	-1.45 (0.61)	2.30 (0.22)
Acute insulin response (AIRg, pmol/l×10 min)§	34	-1.17 (0.45)	-1.05 (0.50)	0.63 (0.59)	-1.48 (0.41)	-1.56 (0.39)	0.67 (0.57)
Disposition index (DI= S_I×AIRg)§	8	-2.49 (0.12)	-2.48 (0.11)	2.11 (0.11)	-1.72 (0.38)	-1.96 (0.31)	2.14 (0.11)
Insulin metabolic clearance rate (MCR, ml/min/m^2)§	36	-5.18 (**0.047**)	-5.15 (**0.049**)	-0.69 (0.73)	-2.56 (0.45)	-2.32 (0.50)	-0.07 (0.97)
Insulin fractional disappearance rate (FDR, min^{-1}×100)§	58	-6.68 (**0.008**)	-6.74 (**0.008**)	-1.47 (0.45)	-4.25 (0.18)	-3.91 (0.22)	-0.76 (0.73)
Measurements obtained from oGTT ¶							
Fasting glucose (mmol/l)	7	0.05 (**0.047**)	0.05 (**0.047**)	0.03 (0.12)	0.09 (**0.003**)	0.09 (**0.004**)	0.02 (0.27)
2-hr glucose (mmol/l)	3	0.05 (0.52)	0.06 (0.49)	-0.01 (0.83)	-0.22 (**0.03**)	-0.16 (0.08)	-0.01 (0.90)
Fasting insulin (pmol/l)§	40	9.13 (**0.025**)	9.16 (**0.025**)	0.60 (0.83)	0.55 (0.92)	0.76 (0.88)	-1.12 (0.74)
2-hr isulin (pmol/l)§	57	0.85 (0.80)	0.90 (0.79)	0.47 (0.85)	-4.93 (0.19)	-5.08 (0.18)	0.31 (0.91)
HOMA-IR (mmol/l×mU/l)§	40	6.90 (**0.022**)	6.93 (**0.022**)	1.04 (0.63)	2.18 (0.58)	2.30 (0.56)	-0.36 (0.88)
Lipids#							
Cholesterol (mg/dl)**	3	0.77 (0.57)	0.76 (0.57)	-1.21 (0.28)	3.14 (0.06)	3.20 (0.06)	-1.44 (0.20)
HDL cholesterol (HDL-C, mg/dl)**	4	-0.37 (0.41)	-0.40 (0.37)	0.03 (0.93)	-0.11 (0.85)	-0.17 (0.78)	0.09 (0.81)
LDL cholesterol (LDL-C, mg/dl)**	4	1.46 (0.21)	1.42 (0.22)	-0.85 (0.36)	3.89 (**0.007**)	3.96 (**0.007**)	-1.10 (0.24)
HDL-C-to-LDL-C ratio×100§	7	-2.39 (0.10)	-2.36 (0.10)	0.21 (0.85)	-4.34 (**0.018**)	-4.46 (**0.015**)	0.68 (0.57)
Triglycerides (mg/dl) §, ††	14	-2.77 (0.26)	-2.82 (0.25)	-1.39 (0.47)	-3.38 (0.27)	-3.21 (0.29)	-1.22 (0.53)

*Various cumulative average daily lagged periods were selected for different outcomes as short-term exposures using AIC to achieve best model fitting.

SUPPLEMENTARY DATA

† Associations of $PM_{2.5}$ with metabolic outcomes after adjusting for age, sex, percent body fat and contextual variables in the restricted sample of 874 subjects with complete TRAP and $PM_{2.5}$ data. For short-term exposures to $PM_{2.5}$, associations were additionally adjusted for seasonality. For outcomes including fasting and 2-hr glucose, total cholesterol, HDL-C and LDL-C, β represents the absolute changes in the outcome associated with one standard deviation change of the exposure variables. For other log transformed outcomes, β represents the percent change in the outcome associated with one standard deviation change of the exposure variables. P-values were derived from likelihood ratio tests.

‡ Associations were analyzed by including $PM_{2.5}$ and annual-average TRAP as multiple exposures, and adjusting for aforementioned covariates. For outcomes including fasting and 2-hr glucose, total cholesterol, HDL-C and LDL-C, β represents the absolute changes in the outcome associated with one standard deviation change of the exposure variables. For other log transformed outcomes, β represents the percent change in the outcome associated with one standard deviation change of the exposure variables. P-values were derived from likelihood ratio tests.

§ Variables were log transformed in the association analysis.

|| FSIGT represents frequently-sampled intra-venous glucose tolerance test. Detailed description of the test is in RESEARCH DESIGN AND METHODS.

¶ oGTT represents oral glucose tolerance test. Detailed description of the test is in RESEARCH DESIGN AND METHODS.

Lipid concentrations were measured using fasting blood.

** To convert measurements from conventional units to Système International (SI) units, it needs to time a conversion factor of 0.02586.

†† To convert measurements from conventional units to Système International (SI) units, it needs to time a a conversion factor of 0.01129.

SUPPLEMENTARY DATA

Supplementary Table S3. Comparisons between exposures to PM2.5 and percent body fat or BMI as to their regression association effect sizes with metabolic outcomes.

Exposures	$PM_{2.5}$ (ppb, scaled to 1SD)			Percent Body Fat	BMI
	Short-term*		Annual avg.†		
Outcomes	**Lagged period***	***β*‡**	***β*§**	***β*‡**	***β*‡**
Measurements obtained from FSIGT ¶					
Insulin sensitivity (S_I, $\times 10^{-5} min^{-1}$ per pmol/l)‖	40	-4.60§§	-1.63	-4.84¶¶	-5.17¶¶
Acute insulin response (AIRg, pmol/l×10 min)‖	34	1.23	-0.05	1.48¶¶	1.35¶¶
Disposition index (DI= $S_I \times$AIRg)‖	8	-1.25	-0.40	-1.07¶¶	-1.40¶¶
Insulin metabolic clearance rate (MCR, ml/min/m^2)‖	36	-5.65§§	-3.86	-5.48¶¶	-5.99¶¶
Insulin fractional disappearance rate (FDR, $min^{-1} \times 100$)‖	58	-5.77§§	-5.06§§	-5.03¶¶	-5.08¶¶
Measurements obtained from oGTT #					
Fasting glucose (mmol/l)	7	0.04§§	0.08¶¶	0.02¶¶	0.03¶¶
2-hr glucose (mmol/l)	3	0.06	-0.05	0.08¶¶	0.08¶¶
Fasting insulin (pmol/l)‖	40	9.31§§	5.84	9.48¶¶	11.00¶¶
2-hr isulin (pmol/l)‖	57	2.92	0.78	5.47¶¶	4.66¶¶
HOMA-IR (mmol/l×mU/l)‖	40	6.99§§	5.81§§	6.89¶¶	8.02¶¶
Lipids**					
Cholesterol (mg/dl)††	3	2.25§§	1.98	0.80¶¶	0.56¶¶
HDL cholesterol (HDL-C, mg/dl)††	4	-0.35	-0.15	-0.41¶¶	-0.51¶¶
LDL cholesterol (LDL-C, mg/dl)††	4	2.66§§	2.07§§	0.77¶¶	0.57¶¶
HDL-C-to-LDL-C ratio×100‖	7	-3.17§§	-2.38	-1.55¶¶	-1.67¶¶
Triglycerides (mg/dl)‖,‡‡	14	-1.59	-2.35	2.70¶¶	2.93¶¶

*Various cumulative average daily lagged periods were selected for different outcomes as short-term exposures using AIC to achieve best model fitting.

† 12-month average ambient air pollutant exposures were selected as representative of long-term exposures.

‡ Associations of short-term exposures to air pollutants with metabolic traits were adjusted for age, sex, percent body fat, seasonality and contextual variables. For outcomes including fasting and 2-hr glucose, total cholesterol, HDL-C and LDL-C, β represents the absolute changes in the outcome associated with one standard deviation change of the exposure variables. For other log transformed outcomes, β represents the percent change in the outcome associated with one standard deviation change of the exposure variables. P-values were derived from likelihood ratio tests.

§ Associations between 12-month average pollutants levels and metabolic traits were adjusted for age, sex, percent body fat, and contextual variables.

‖ Variables were log transformed in the association analysis.

¶ FSIGT represents frequently-sampled intra-venous glucose tolerance test. Detailed description of the test is in RESEARCH DESIGN AND METHODS.

SUPPLEMENTARY DATA

oGTT represents oral glucose tolerance test. Detailed description of the test is in RESEARCH DESIGN AND METHODS.
** Lipid concentrations were measured using fasting blood.
†† To convert measurements from conventional units to Système International (SI) units, it needs to time a conversion factor of 0.02586.
‡‡ To convert measurements from conventional units to Système International (SI) units, it needs to time a a conversion factor of 0.01129.
§§ $p<0.05$, ¶¶ $p\leq0.001$

SUPPLEMENTARY DATA

Supplementary Table S4. Regression associations between $PM_{2.5}$ with diabetes-related metabolic traits among 931 BetaGene participants who lived less than or equal to 10km away from the nearest monitor

Outcomes \ Exposures	$PM_{2.5}$		
	Short-term*		Annual avg.†
	Lagged period*	β‡ (p)	β§ (p)
Measurements obtained from FSIGT ¶			
Insulin sensitivity (S_I, $\times 10^{-5} min^{-1}$ per pmol/l)‖	40	-6.09 (**0.002**)	-1.68 (0.45)
Acute insulin response (AIRg, pmol/l×10 min)‖	34	0.70 (0.65)	0.78 (0.64)
Disposition index (DI= S_I×AIRg)‖	8	-0.72 (0.66)	0.54 (0.76)
Insulin metabolic clearance rate (MCR, ml/min/m^2)‖	36	-6.04 (**0.011**)	-5.35 (**0.038**)
Insulin fractional disappearance rate (FDR, min^{-1}×100)‖	58	-6.84 (**0.003**)	-6.44 (**0.010**)
Measurements obtained from oGTT #			
Fasting glucose (mmol/l)	7	0.02 (0.38)	0.06 (0.05)
2-hr glucose (mmol/l)	3	-0.001 (0.99)	-0.03 (0.21)
Fasting insulin (pmol/l)‖	40	7.44 (0.05)	2.12 (0.61)
2-hr isulin (pmol/l)‖	57	1.30 (0.68)	-1.16 (0.73)
HOMA-IR (mmol/l×mU/l)‖	40	5.16 (0.07)	2.65 (0.39)
Lipids**			
Cholesterol (mg/dl)††	3	2.14 (0.10)	2.62 (0.10)
HDL cholesterol (HDL-C, mg/dl)††	4	-0.60 (0.16)	-0.18 (0.74)
LDL cholesterol (LDL-C, mg/dl)††	4	2.81 (**0.011**)	3.17 (**0.021**)
HDL-C-to-LDL-C ratio×100‖	7	-3.71 (**0.007**)	-3.61 (**0.032**)
Triglycerides (mg/dl)‖,‡‡	14	-1.95 (0.41)	-2.23 (0.41)

*Various cumulative average daily lagged periods were selected for different outcomes as short-term exposures using AIC to achieve best model fitting.

† 12-month average ambient air pollutant exposures were selected as representative of long-term exposures.

‡ Associations of short-term exposures to air pollutants with metabolic traits were adjusted for age, sex, percent body fat, seasonality and contextual variables. For outcomes including fasting and 2-hr glucose, total cholesterol, HDL-C and LDL-C, β represents the absolute changes in the outcome associated with one standard deviation change of the exposure variables. For other log transformed outcomes, β represents the percent change in the outcome associated with one standard deviation

change of the exposure variables. P-values were derived from likelihood ratio tests.

§ Associations between 12-month average pollutants levels and metabolic traits were adjusted for age, sex, percent body fat, and contextual variables. For outcomes including fasting and 2-hr glucose, total cholesterol, HDL-C and LDL-C, β represents the absolute changes in the outcome associated with one standard deviation change of the exposure variables. For other log transformed outcomes, β represents the percent change in the outcome associated with one standard deviation change of the exposure variables. P-values were derived from likelihood ratio tests.

|| Variables were log transformed in the association analysis.

¶ FSIGT represents frequently-sampled intra-venous glucose tolerance test. Detailed description of the test is in RESEARCH DESIGN AND METHODS.

oGTT represents oral glucose tolerance test. Detailed description of the test is in RESEARCH DESIGN AND METHODS.

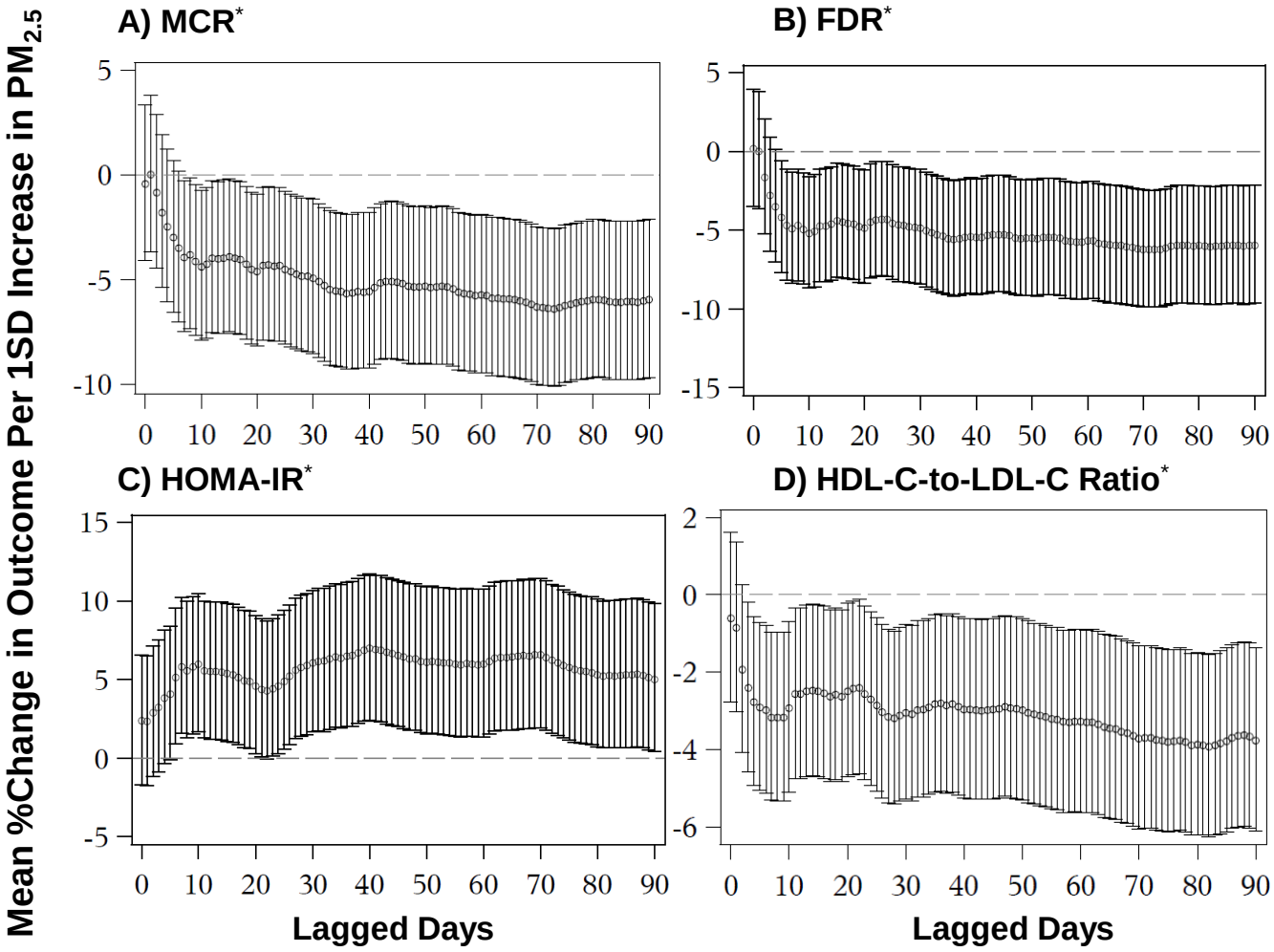
** Lipid concentrations were measured using fasting blood.

†† To convert measurements from conventional units to Système International (SI) units, it needs to time a conversion factor of 0.02586

‡‡ To convert measurements from conventional units to Système International (SI) units, it needs to time a a conversion factor of 0.01129.

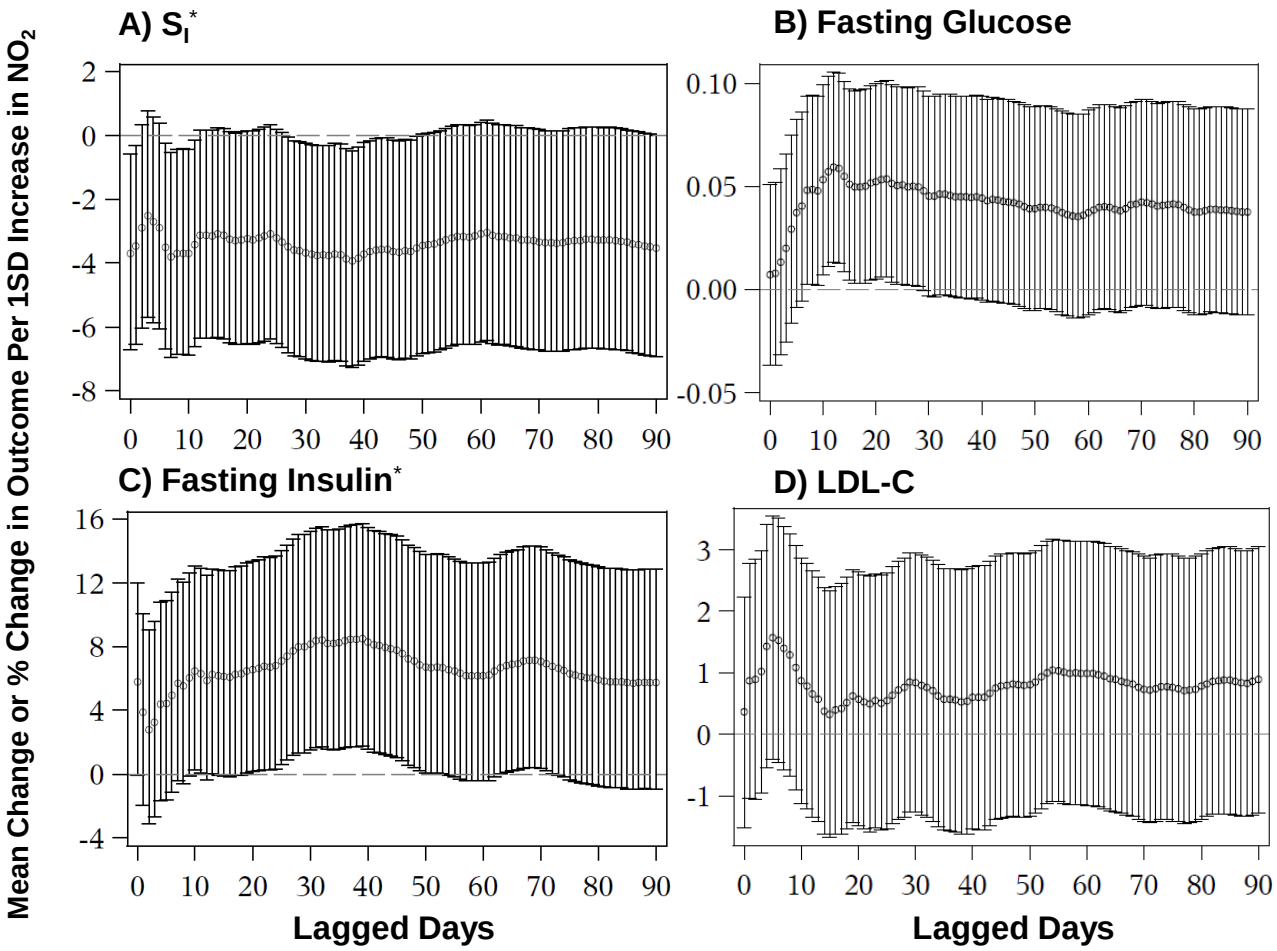
SUPPLEMENTARY DATA

Supplementary Figure S1. Associations between cumulative averages of daily $PM_{2.5}$ and selected metabolic outcomes over 90 days prior to FSIGT date. All associations were adjusting for age, sex, contextual variables, and seasons of FSIGT measurements. Percent body fat was additionally adjusted for in the associations for outcome MCR, FDR and HMA-IR. Mean percent changes in outcome per one standard deviation increase in $PM_{2.5}$ and 95% confidence intervals are presented in four outcome panels: A) MCR (ml/min/m^2), B) FDR (min^{-1}×100), C) HOMA-IR (mmol/l×mU/l) and D) HDL-C-to-LDL-C ratio. *Outcomes were log transformed in the association analysis.



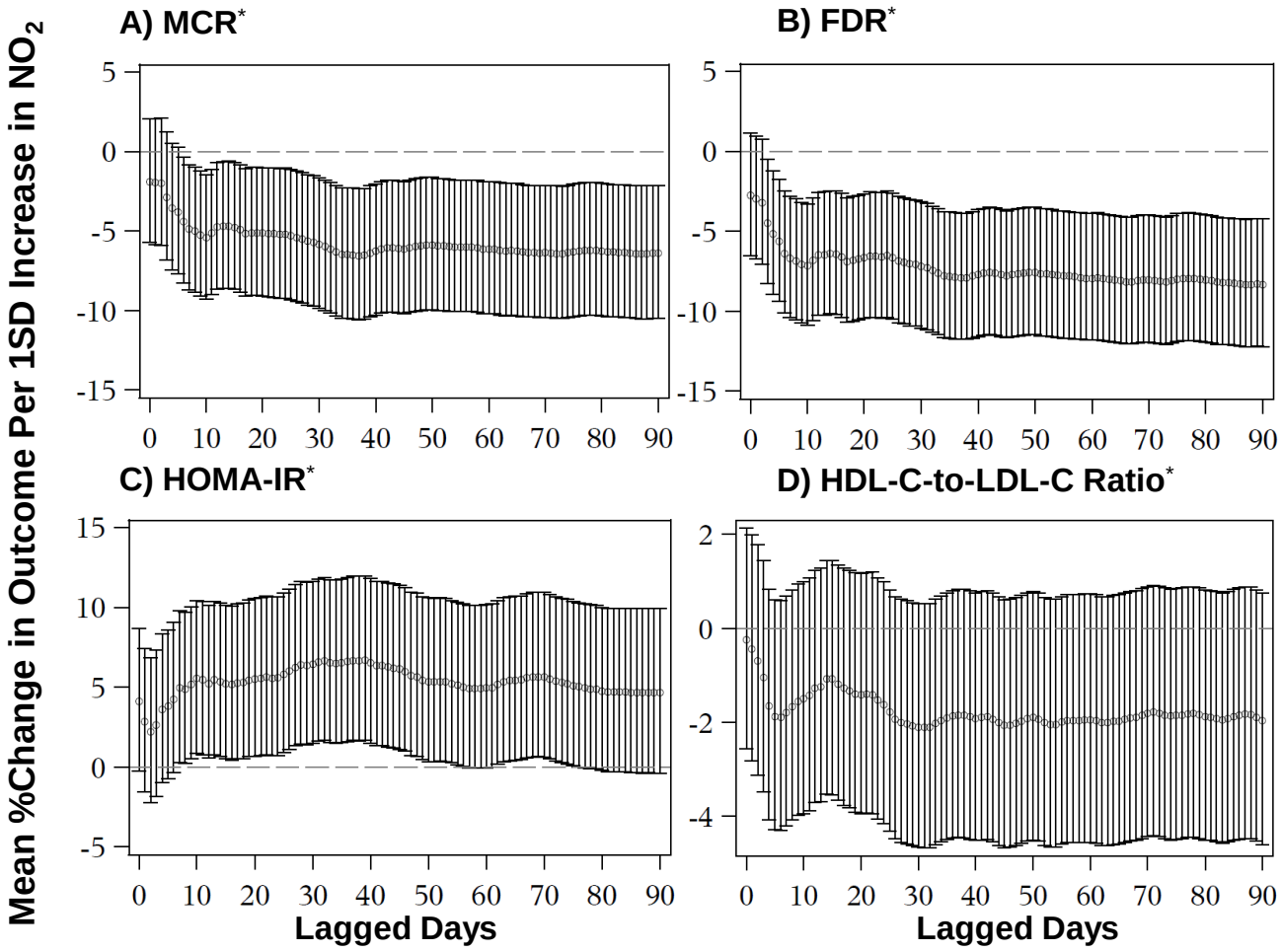
SUPPLEMENTARY DATA

Supplementary Figure S2. Associations between cumulative averages of daily NO_2 and selected metabolic outcomes over 90 days prior to FSIGT date. Associations were adjusting for age, sex, percent body fat, contextual variables, and seasons of FSIGT measurements. Mean changes in fasting glucose and LDL-C and mean percent changes in S_I and fasting insulin per one standard deviation change in NO_2 and 95% confidence intervals are presented in four outcome panels: A) S_I ($\times 10^{-5} min^{-1}$ per pmol/l), B) fasting glucose (mmol/l), C) fasting insulin (pmol/l) and D) LDL-C (mg/dl). *Outcomes were log transformed in the association analysis.



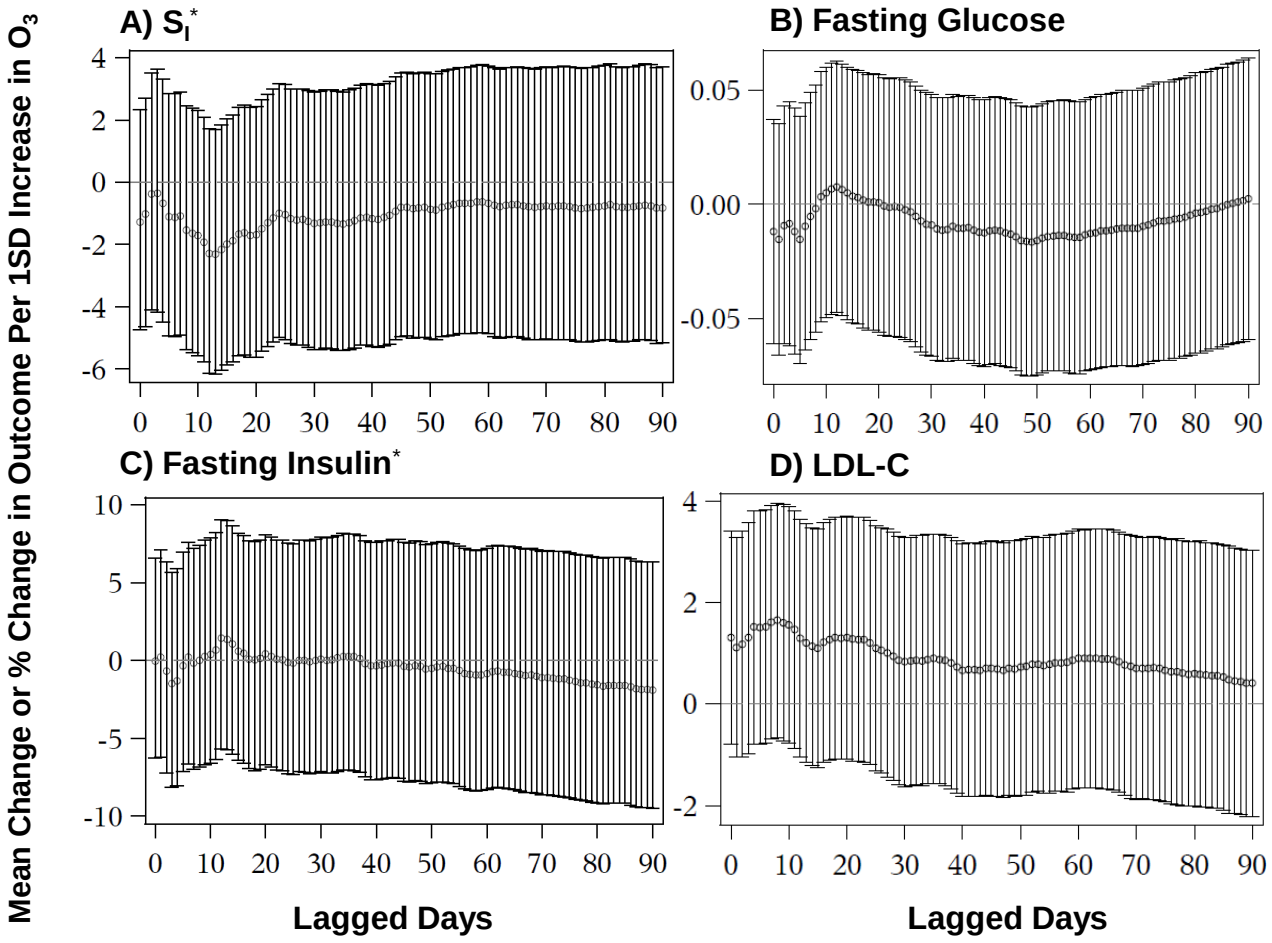
SUPPLEMENTARY DATA

Supplementary Figure S3. Associations between cumulative averages of daily NO_2 and selected metabolic outcomes over 90 days prior to FSIGT date. All associations were adjusting for age, sex, contextual variables, and seasons of FSIGT measurements. Percent body fat was additionally adjusted for in the associations for outcome MCR, FDR and HMA-IR. Mean percent changes in outcome per one standard deviation increase in NO_2 and 95% confidence intervals are presented in four outcome panels: A) MCR (ml/min/m^2), B) FDR (min^{-1}×100), C) HOMA-IR (mmol/l×mU/l) and D) HDL-C-to-LDL-C ratio. *Outcomes were log transformed in the association analysis.



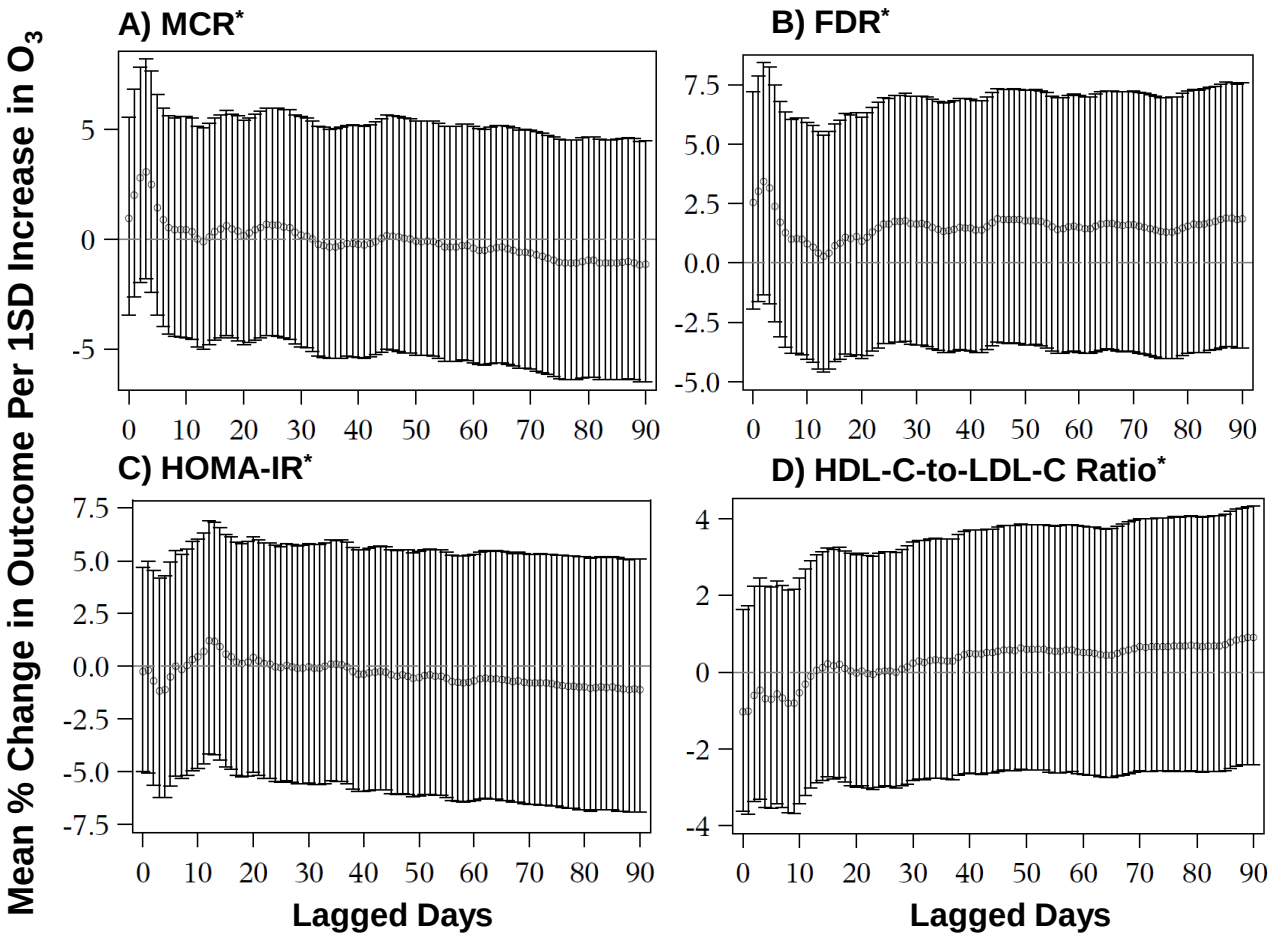
SUPPLEMENTARY DATA

Supplementary Figure S4. Associations between cumulative averages of daily O_3 and selected metabolic outcomes over 90 days prior to FSIGT date. Associations were adjusting for age, sex, percent body fat, contextual variables, and seasons of FSIGT measurements. Mean changes in fasting glucose and LDL-C and mean percent changes in S_I and fasting insulin per one standard deviation change in O_3 and 95% confidence intervals are presented in four outcome panels: A) S_I ($\times 10^{-5} min^{-1}$ per pmol/l), B) fasting glucose (mmol/l), C) fasting insulin (pmol/l) and D) LDL-C (mg/dl). *Outcomes were log transformed in the association analysis.



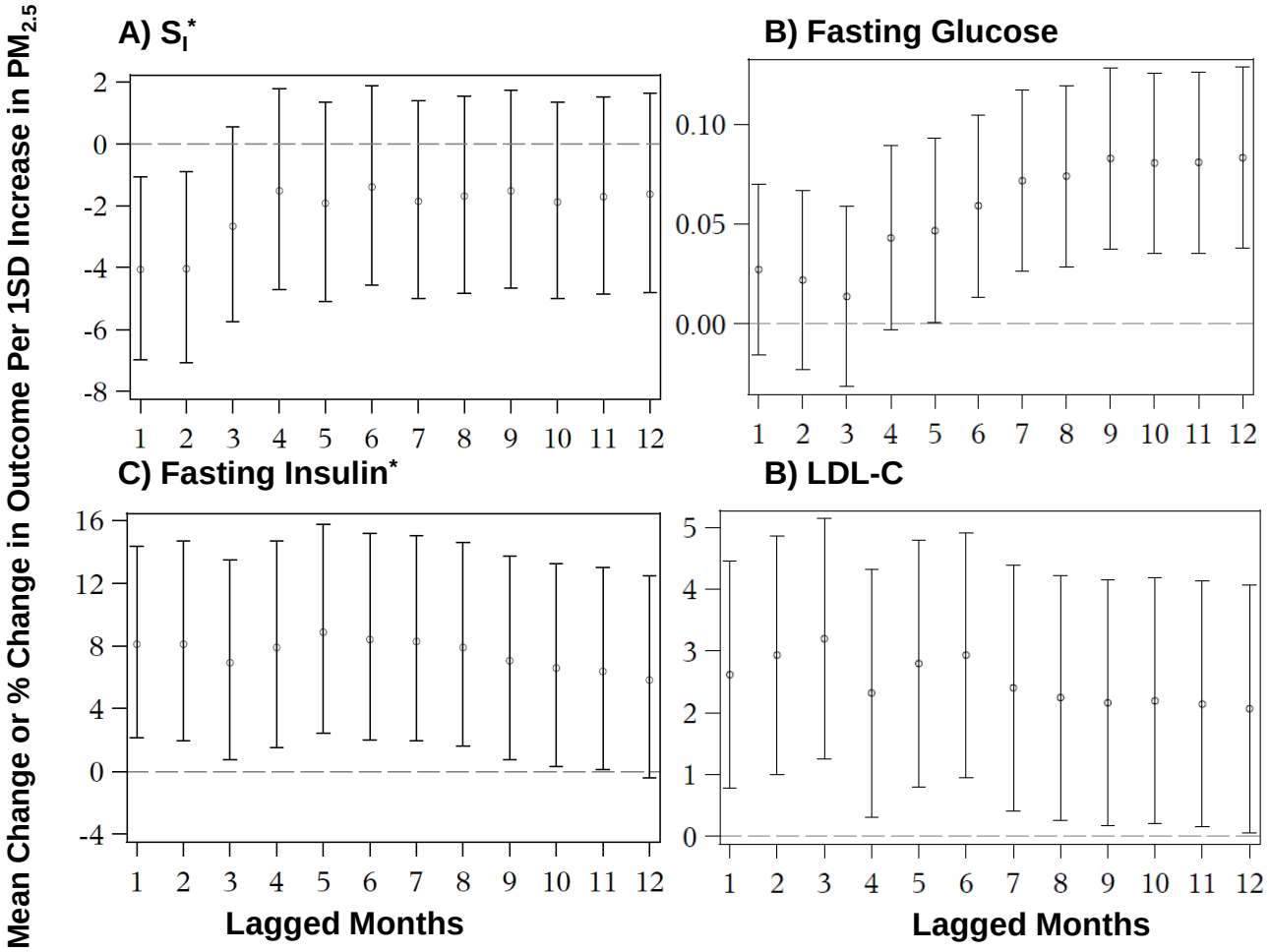
SUPPLEMENTARY DATA

Supplementary Figure S5. Associations between cumulative averages of daily O_3 and selected metabolic outcomes over 90 days prior to FSIGT date. All associations were adjusting for age, sex, contextual variables, and seasons of FSIGT measurements. Percent body fat was additionally adjusted for in the associations for outcome MCR, FDR and HMA-IR. Mean percent changes in outcome per one standard deviation increase in O_3 and 95% confidence intervals are presented in four outcome panels: A) MCR (ml/min/m^2), B) FDR (min^{-1}×100), C) HOMA-IR (mmol/l×mU/l) and D) HDL-C-to-LDL-C ratio. *Outcomes were log transformed in the association analysis.



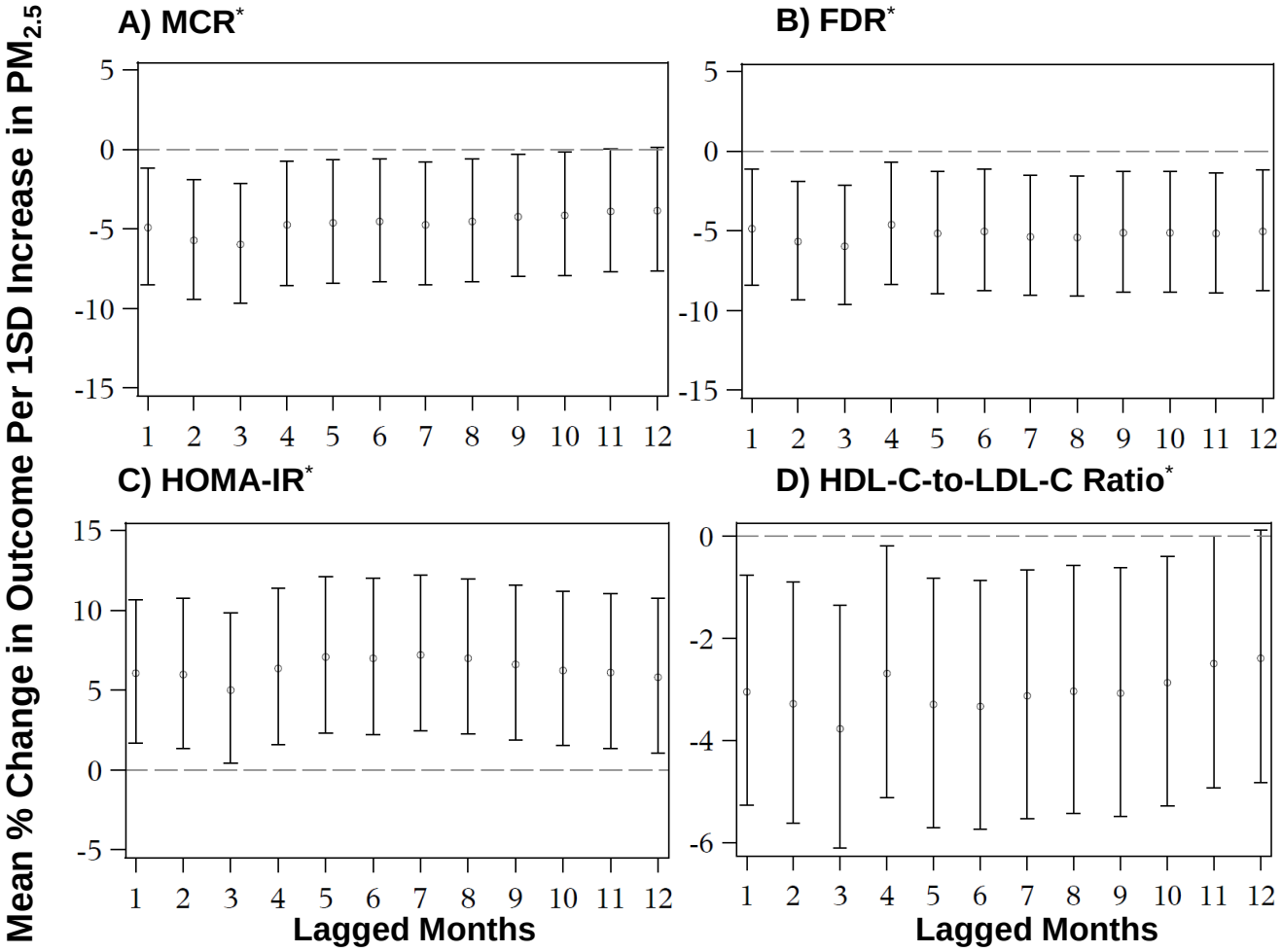
SUPPLEMENTARY DATA

Supplementary Figure S6. Associations between cumulative monthly averages of $PM_{2.5}$ and selected metabolic outcomes over 1-year prior to FSIGT date. Associations were adjusting for age, sex, percent body fat, contextual variables, and seasons of FSIGT measurements. Mean changes in fasting glucose and LDL-C and mean percent changes in S_I and fasting insulin per one standard deviation change in $PM_{2.5}$ and 95% confidence intervals are presented in four outcome panels: A) S_I ($\times 10^{-5} min^{-1}$ per pmol/l), B) fasting glucose (mmol/l), C) fasting insulin (pmol/l) and D) LDL-C (mg/dl). *Outcomes were log transformed in the association analysis.



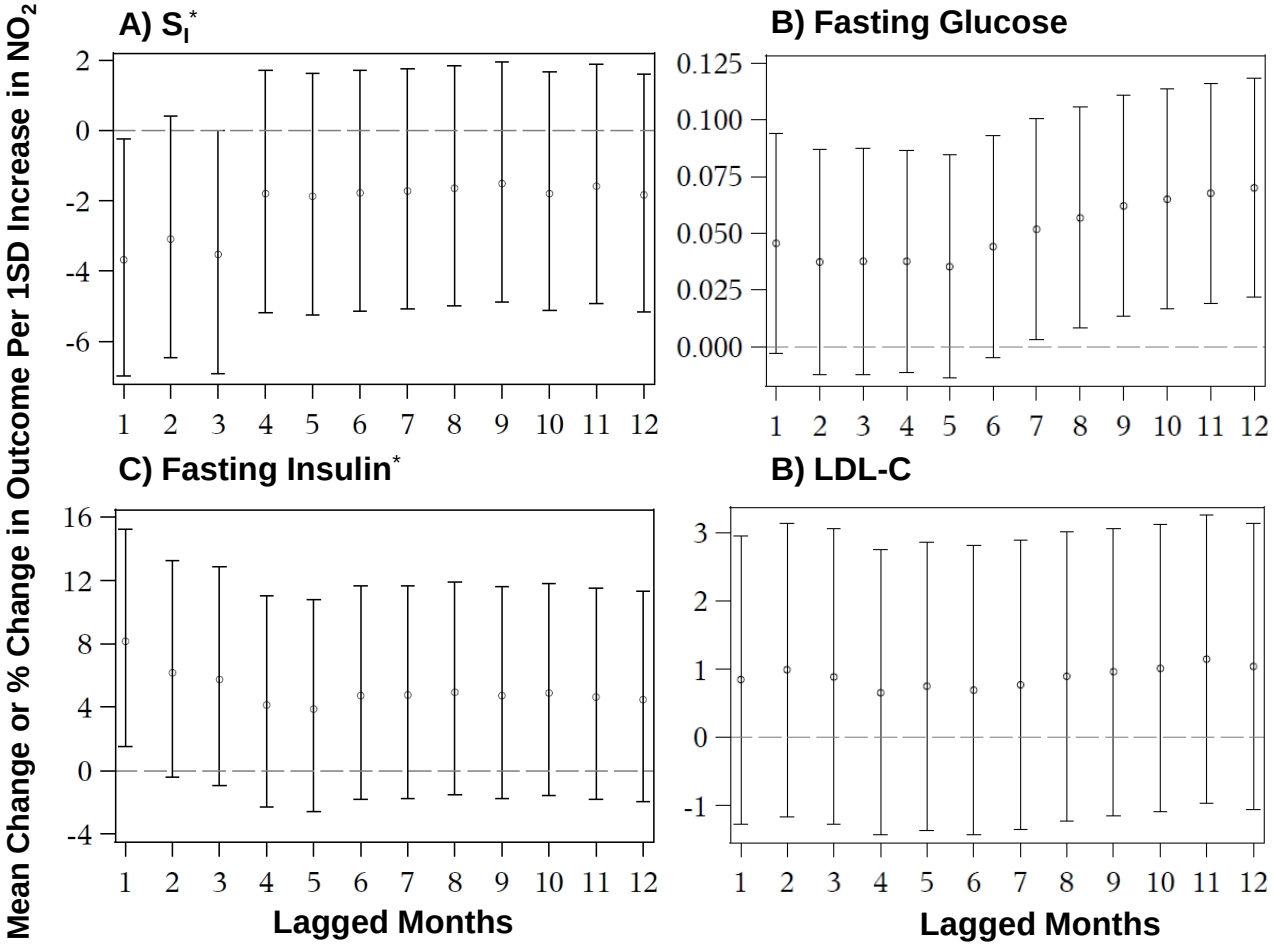
SUPPLEMENTARY DATA

Supplementary Figure S7. Associations between cumulative monthly averages of $PM_{2.5}$ and selected metabolic outcomes over 1-year prior to FSIGT date. All associations were adjusting for age, sex, contextual variables, and seasons of FSIGT measurements. Percent body fat was additionally adjusted for in the associations for outcome MCR, FDR and HMA-IR. Mean percent changes in outcome per one standard deviation increase in $PM_{2.5}$ and 95% confidence intervals are presented in four outcome panels: A) MCR (ml/min/m^2), B) FDR (min^{-1}×100), C) HOMA-IR (mmol/l×mU/l) and D) HDL-C-to-LDL-C ratio. *Outcomes were log transformed in the association analysis.



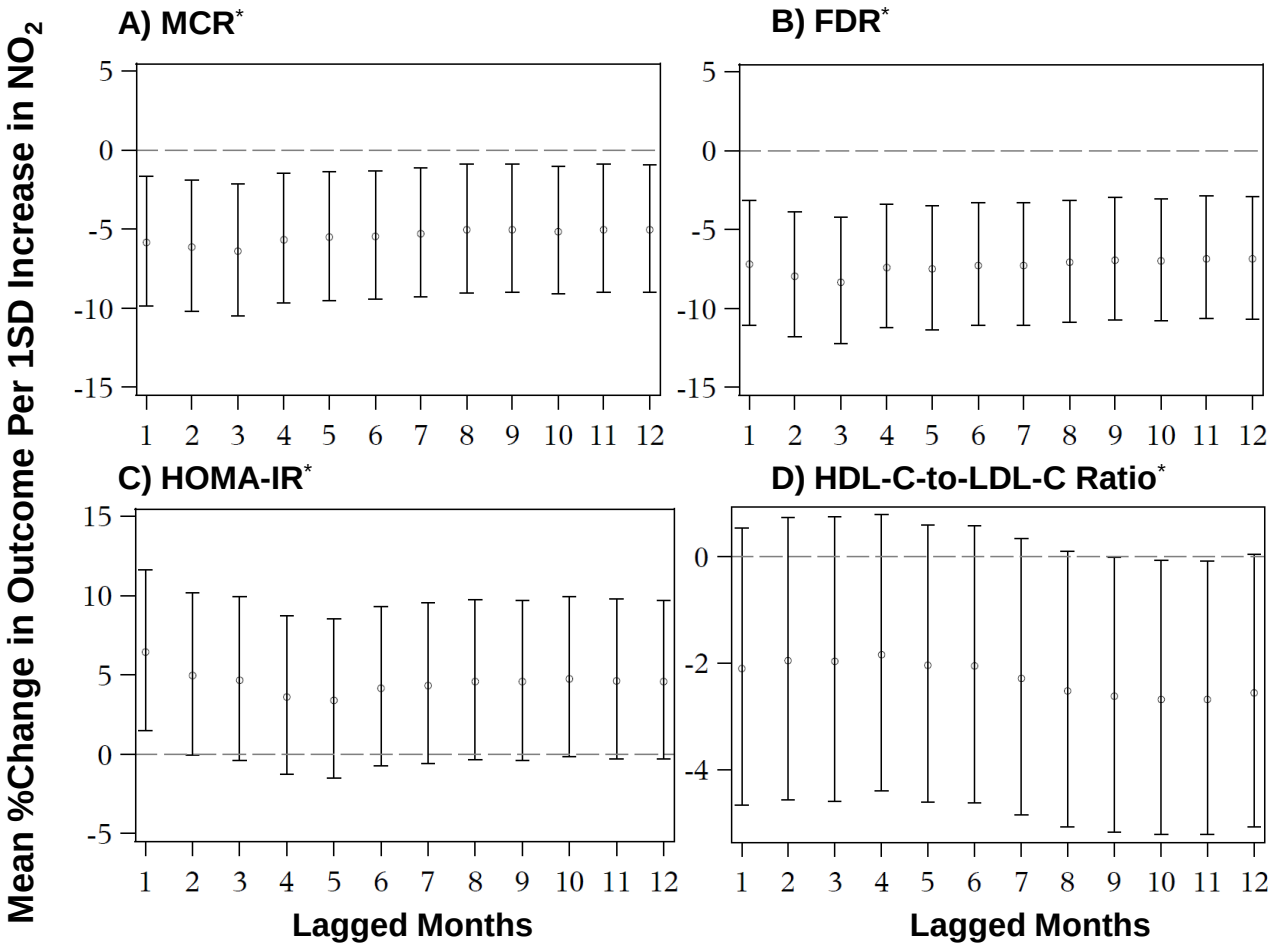
SUPPLEMENTARY DATA

Supplementary Figure S8. Associations between cumulative monthly averages of NO_2 and selected metabolic outcomes over 1-year prior to FSIGT date. Associations were adjusting for age, sex, percent body fat, contextual variables, and seasons of FSIGT measurements. Mean changes in fasting glucose and LDL-C and mean percent changes in S_I and fasting insulin per one standard deviation change in NO_2 and 95% confidence intervals are presented in four outcome panels: A) S_I ($\times 10^{-5} min^{-1}$ per pmol/l), B) fasting glucose (mmol/l), C) fasting insulin (pmol/l) and D) LDL-C (mg/dl). *Outcomes were log transformed in the association analysis.



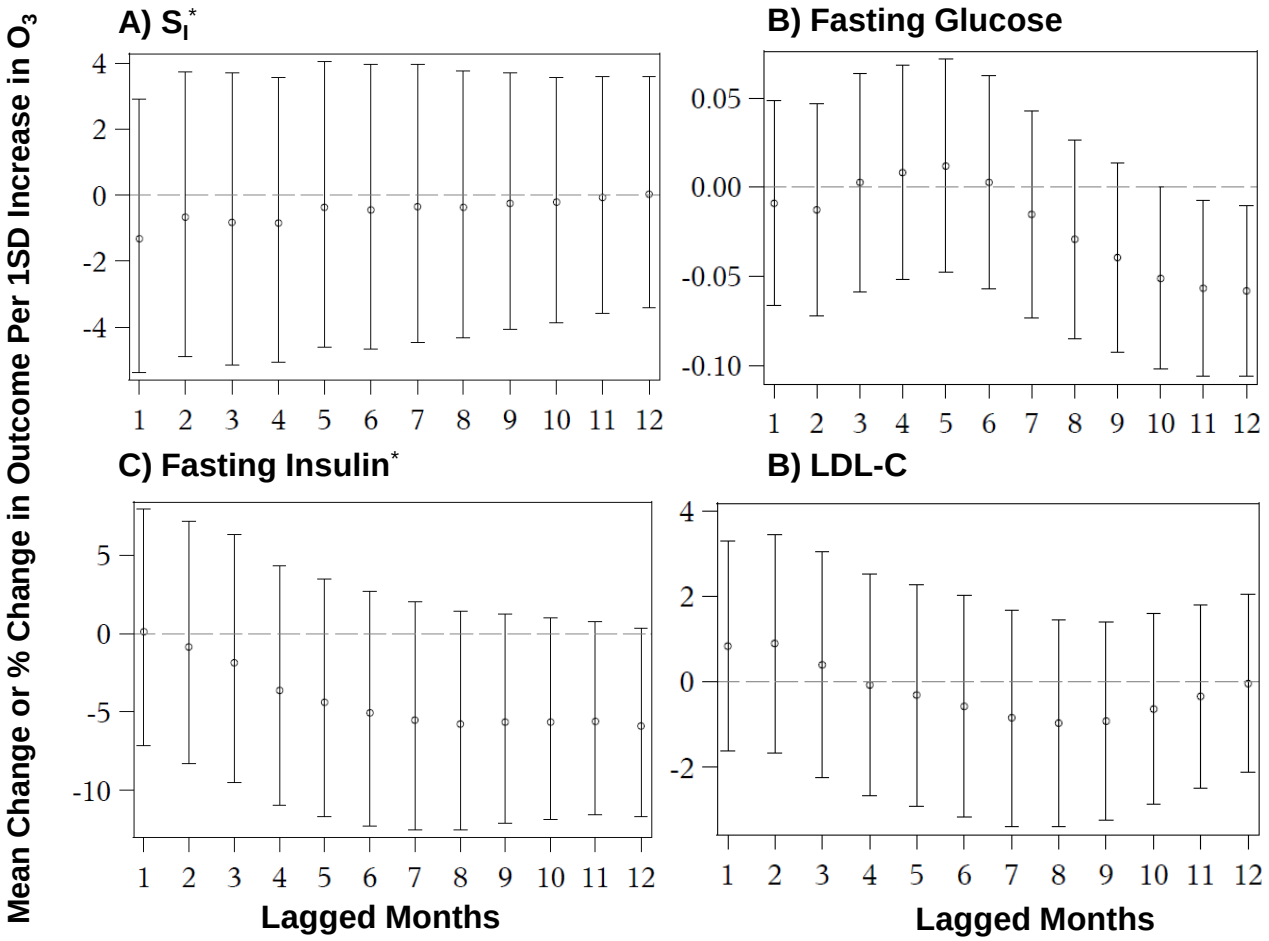
SUPPLEMENTARY DATA

Supplementary Figure S9. Associations between cumulative monthly averages of NO_2 and selected metabolic outcomes over 1-year prior to FSIGT date. All associations were adjusting for age, sex, contextual variables, and seasons of FSIGT measurements. Percent body fat was additionally adjusted for in the associations for outcome MCR, FDR and HMA-IR. Mean percent changes in outcome per one standard deviation increase in Mean percent changes in outcome per one standard deviation increase in NO_2 and 95% confidence intervals are presented in four outcome panels: A) MCR (ml/min/m^2), B) FDR (min^{-1}×100), C) HOMA-IR (mmol/l×mU/l) and D) HDL-C-to-LDL-C ratio. *Outcomes were log transformed in the association analysis.



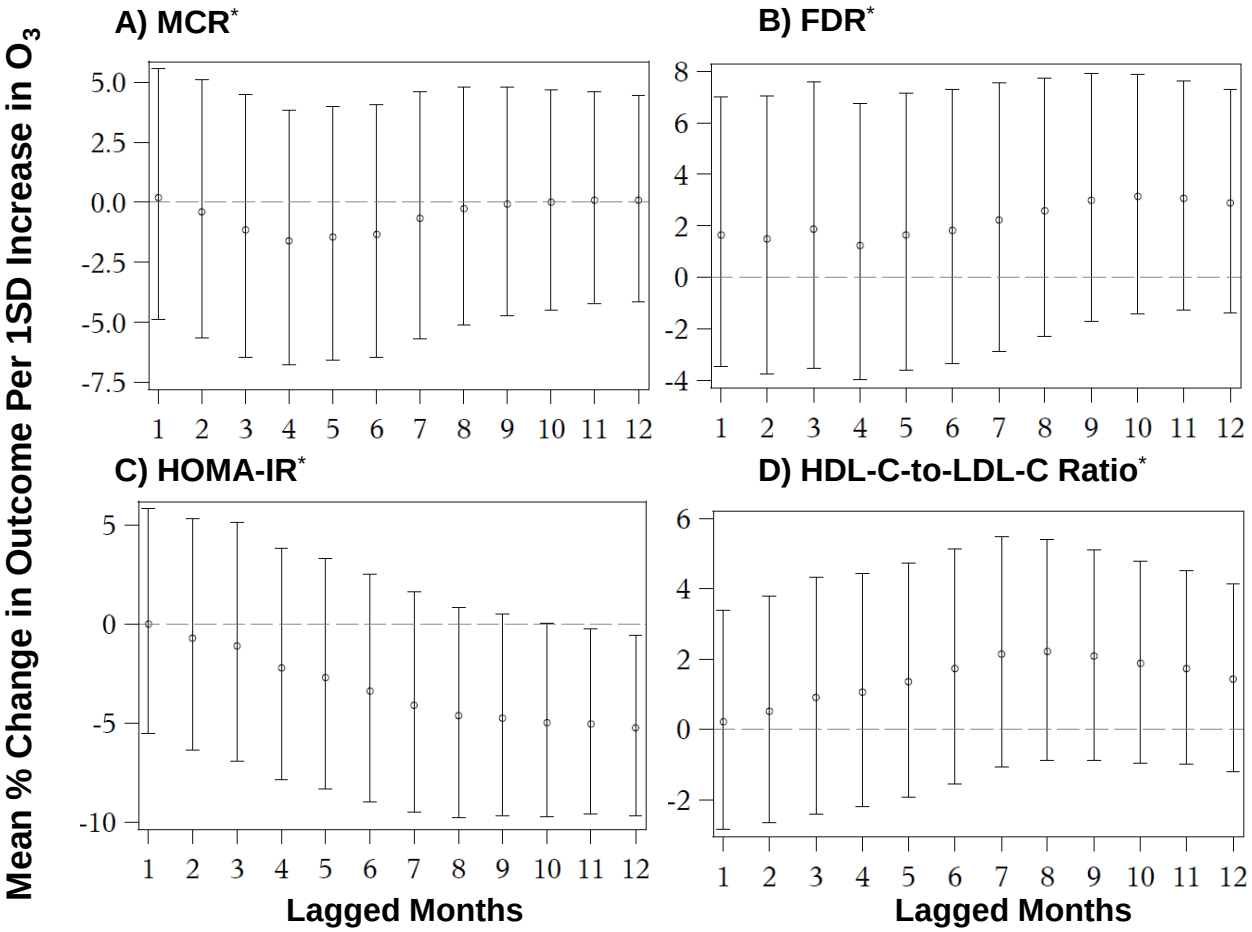
SUPPLEMENTARY DATA

Supplementary Figure S10. Associations between cumulative monthly averages of O_3 and selected metabolic outcomes over 1-year prior to FSIGT date. Associations were adjusting for age, sex, percent body fat, contextual variables, and seasons of FSIGT measurements. Mean changes in fasting glucose and LDL-C and mean percent changes in S_I and fasting insulin per one standard deviation change in O_3 and 95% confidence intervals are presented in four outcome panels: A) S_I ($\times 10^{-5} min^{-1}$ per pmol/l), B) fasting glucose (mmol/l), C) fasting insulin (pmol/l) and D) LDL-C (mg/dl). *Outcomes were log transformed in the association analysis.



SUPPLEMENTARY DATA

Supplementary Figure S11. Associations between cumulative monthly averages of O_3 and selected metabolic outcomes over 1-year prior to FSIGT date. All associations were adjusting for age, sex, contextual variables, and seasons of FSIGT measurements. Percent body fat was additionally adjusted for in the associations for outcome MCR, FDR and HMA-IR. Mean percent changes in outcome per one standard deviation increase in Mean percent changes in outcome per one standard deviation increase in O_3 and 95% confidence intervals are presented in four outcome panels: A) MCR (ml/min/m^2), B) FDR (min^{-1}×100), C) HOMA-IR (mmol/l×mU/l) and D) HDL-C-to-LDL-C ratio. *Outcomes were log transformed in the association analysis.



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