

Supplemental Material

Short-term Exposure to Ambient Air Pollution and Biomarkers of Systemic Inflammation: The Framingham Heart Study

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Supplemental Table I. Characteristics of the 1- to 7-day moving averages of measured pollutants among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011).

	Day Moving Average	N	Mean	Standard Deviation	Interquartile Range
PM _{2.5} , µg/m ³	1	6800	9.7	5.8	5.7
	2	6812	9.6	5.1	5.1
	3	6812	9.6	4.5	4.9
	5	6814	9.6	3.8	4.3
	7	6814	9.6	3.5	4.0
BC, µg/m ³	1	6793	0.8	0.4	0.5
	2	6801	0.7	0.4	0.5
	3	6797	0.7	0.3	0.4
	5	6814	0.7	0.3	0.4
	7	6814	0.7	0.2	0.3
SO ₄ ²⁻ , µg/m ³	1	5921	2.9	2.4	2.2
	2	6256	2.9	2.1	2.0
	3	6141	2.9	1.9	1.8
	5	6232	2.9	1.6	1.7
	7	6027	2.9	1.5	1.5
NO _x , ppb	1	6510	36.5	20.0	19.0
	2	6510	35.3	17.3	18.3
	3	6510	34.8	15.4	17.4
	5	6510	34.4	13.3	15.9
	7	6500	34.9	12.5	15.3
O ₃ , ppb	1	6805	23.7	10.9	14.4
	2	6812	24.1	9.9	13.7
	3	6812	24.3	9.2	13.2
	5	6814	24.4	8.5	12.8
	7	6814	24.2	8.1	12.5

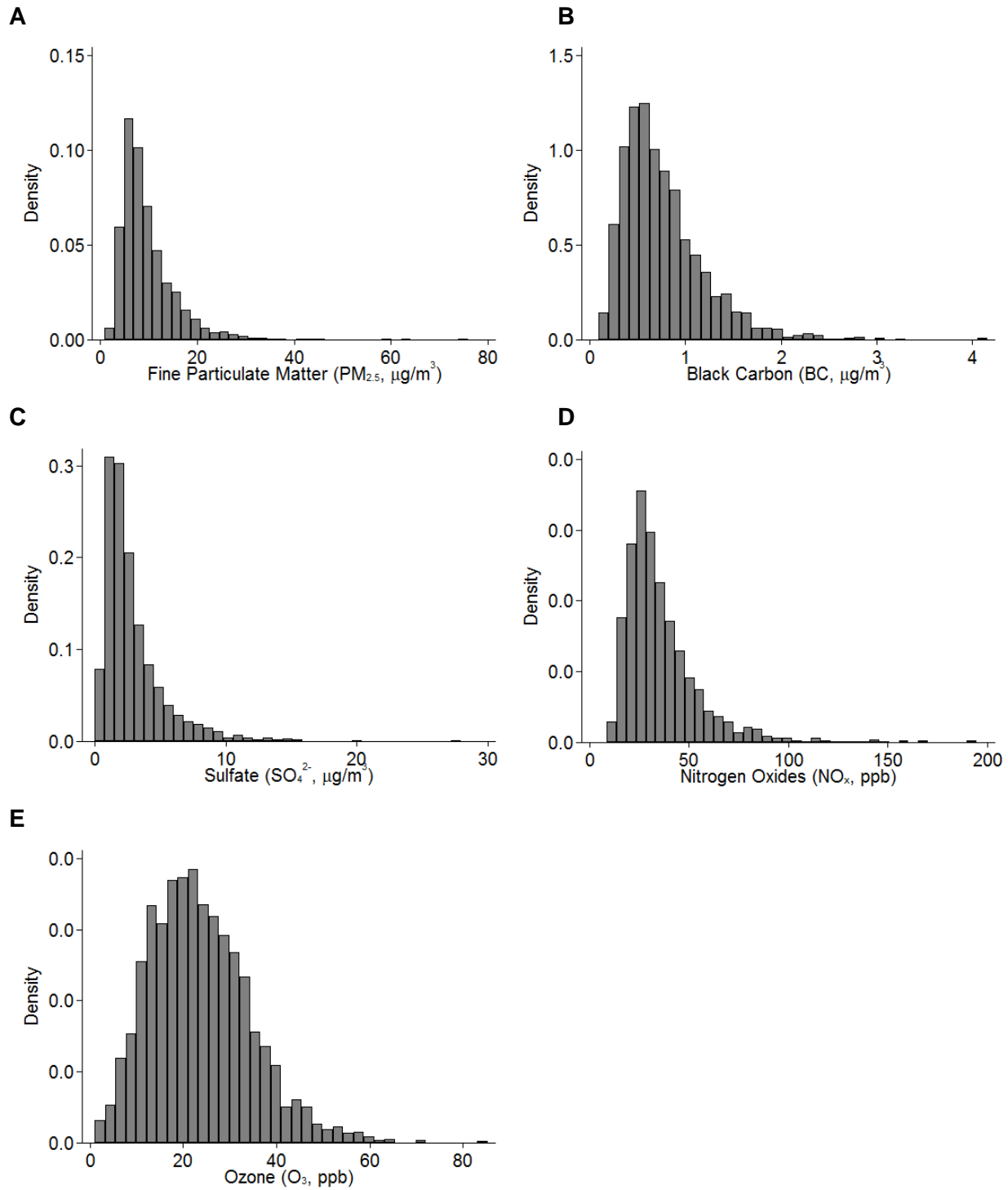
Abbreviation: PM_{2.5}, fine particulate matter; BC, black carbon; SO₄²⁻, sulfate; NO_x, nitrogen oxides; O₃, ozone.

Supplemental Table II. Spearman correlation coefficients between moving averages of measured air pollutants among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011).

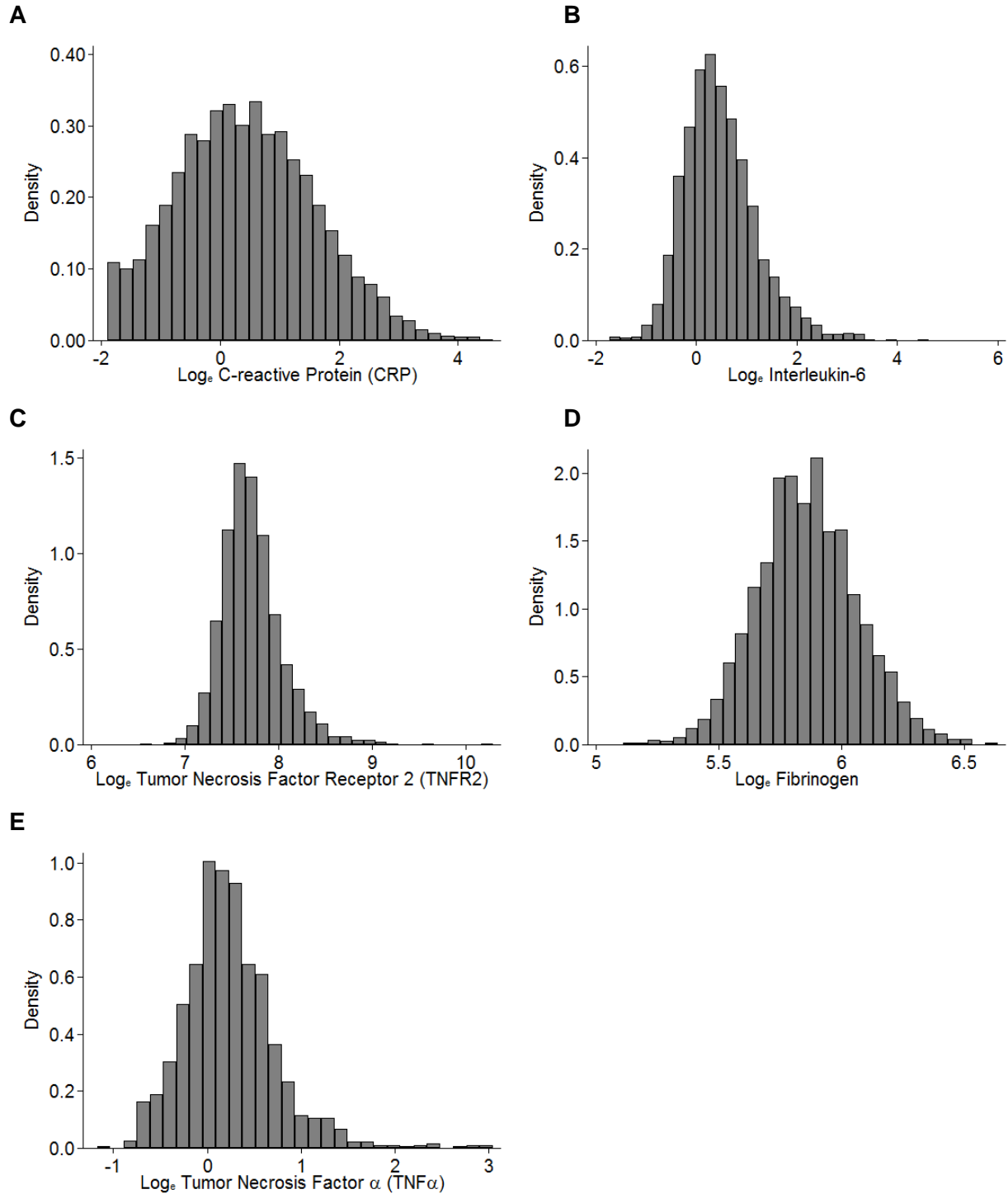
Day Moving Average	PM _{2.5}				BC					SO ₄ ²⁻					NO _x					O ₃					
	2	3	5	7	1	2	3	5	7	1	2	3	5	7	1	2	3	5	7	1	2	3	5	7	
PM _{2.5}	1	0.84	0.69	0.56	0.51	0.73	0.63	0.52	0.42	0.37	0.82	0.62	0.50	0.39	0.34	0.43	0.42	0.34	0.25	0.21	0.02	0.00	0.00	0.02	0.02
	2	1	0.90	0.73	0.66	0.64	0.73	0.68	0.54	0.48	0.74	0.81	0.70	0.54	0.45	0.31	0.41	0.40	0.29	0.24	0.04	0.03	0.02	0.03	0.04
	3		1	0.86	0.77	0.55	0.67	0.73	0.64	0.56	0.63	0.77	0.82	0.66	0.56	0.24	0.33	0.38	0.32	0.27	0.04	0.04	0.04	0.05	0.05
	5			1	0.92	0.46	0.56	0.64	0.73	0.66	0.52	0.64	0.75	0.81	0.70	0.18	0.25	0.29	0.34	0.31	0.03	0.03	0.04	0.05	0.05
	7				1	0.41	0.50	0.58	0.69	0.73	0.47	0.56	0.67	0.76	0.80	0.15	0.20	0.24	0.28	0.31	0.04	0.04	0.05	0.07	0.07
BC	1				1	0.87	0.74	0.61	0.55	0.55	0.44	0.37	0.30	0.25	0.58	0.51	0.39	0.26	0.21	-0.25	-0.21	-0.16	-0.10	-0.08	
	2					1	0.91	0.74	0.66	0.50	0.55	0.48	0.38	0.31	0.44	0.55	0.47	0.32	0.26	-0.18	-0.22	-0.19	-0.12	-0.10	
	3						1	0.86	0.76	0.44	0.54	0.57	0.46	0.38	0.33	0.45	0.50	0.37	0.30	-0.15	-0.18	-0.20	-0.14	-0.11	
	5							1	0.92	0.35	0.44	0.52	0.56	0.49	0.23	0.31	0.36	0.42	0.36	-0.14	-0.16	-0.17	-0.17	-0.15	
	7								1	0.29	0.37	0.45	0.51	0.53	0.19	0.25	0.29	0.34	0.37	-0.13	-0.15	-0.15	-0.15	-0.15	
SO ₄ ²⁻	1									1	0.84	0.70	0.57	0.51	0.32	0.34	0.31	0.24	0.20	0.12	0.10	0.09	0.09	0.11	
	2										1	0.89	0.72	0.63	0.20	0.28	0.29	0.23	0.18	0.13	0.14	0.12	0.12	0.13	
	3											1	0.86	0.75	0.15	0.21	0.26	0.24	0.19	0.13	0.15	0.16	0.15	0.15	
	5												1	0.90	0.09	0.13	0.16	0.21	0.20	0.13	0.15	0.16	0.17	0.17	
	7													1	0.05	0.07	0.09	0.13	0.16	0.16	0.18	0.20	0.20	0.22	
NO _x	1														1	0.88	0.77	0.68	0.65	-0.54	-0.49	-0.44	-0.40	-0.39	
	2															1	0.93	0.80	0.76	-0.44	-0.53	-0.51	-0.45	-0.45	
	3																1	0.89	0.84	-0.40	-0.48	-0.53	-0.49	-0.49	
	5																	1	0.951	-0.39	-0.45	-0.50	-0.54	-0.54	
	7																		1	-0.38	-0.43	-0.48	-0.51	-0.55	
O ₃	1																			1	0.89	0.81	0.75	0.72	
	2																				1	0.94	0.86	0.82	
	3																					1	0.93	0.89	
	5																						1	0.97	
	7																							1	

Abbreviation: PM_{2.5}, fine particulate matter; BC, black carbon; SO₄²⁻, sulfate; NO_x, nitrogen oxides; O₃, ozone.

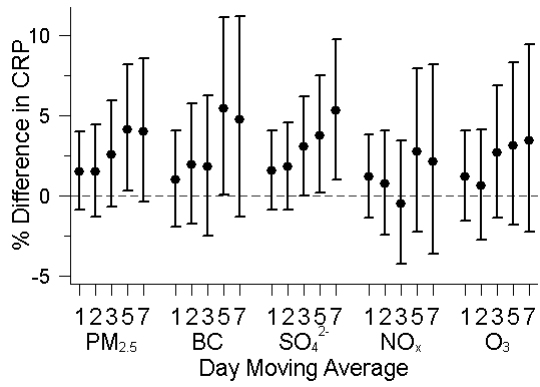
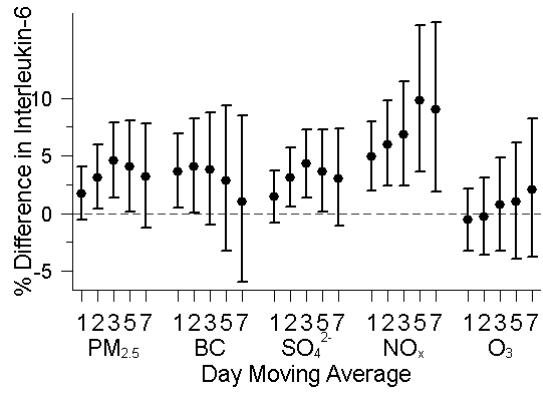
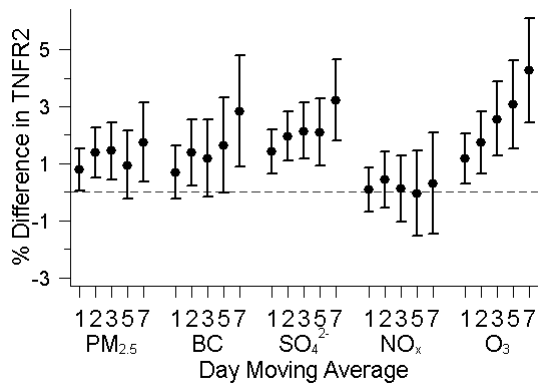
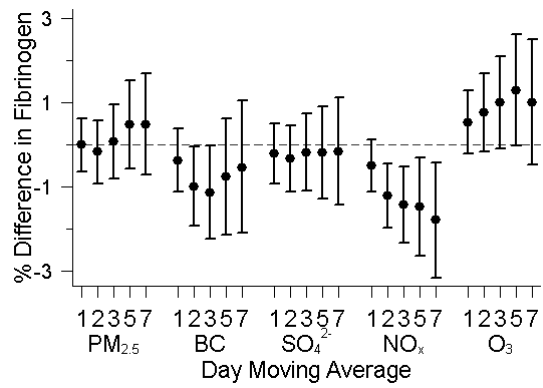
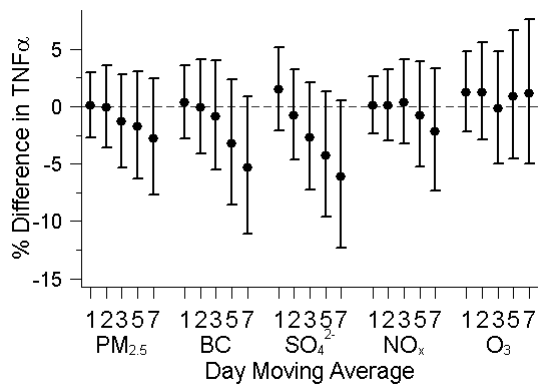
Supplemental Figure I. Histograms of the 1-day moving average of: (A) fine particulate matter (PM_{2.5}), (B) black carbon (BC), (C) sulfate (SO₄²⁻), (D) nitrogen oxides (NO_x), and (E) ozone (O₃) among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011).



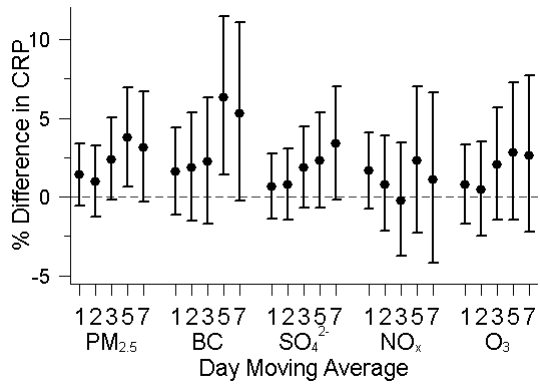
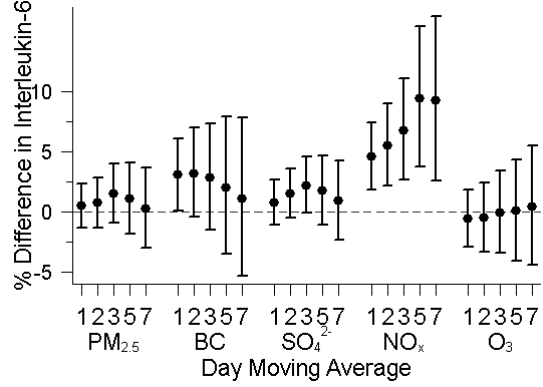
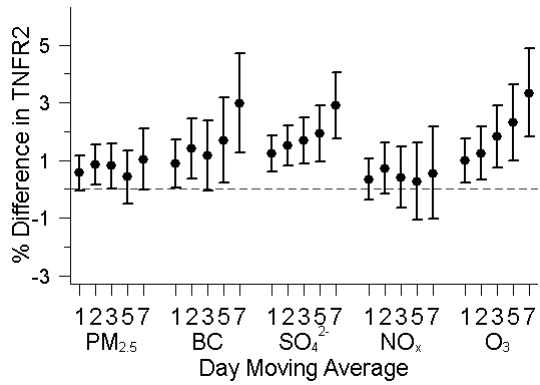
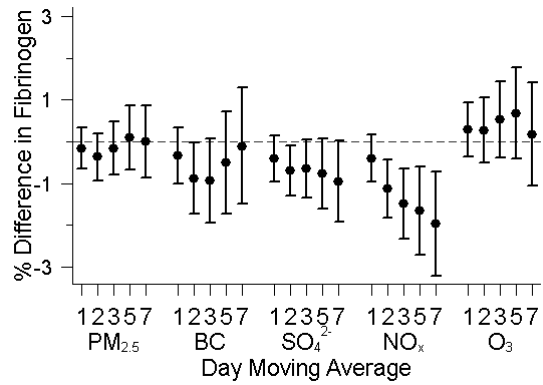
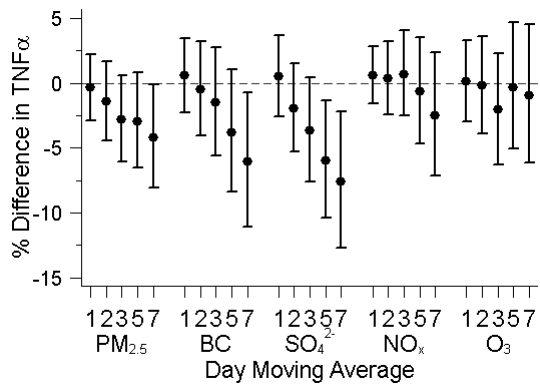
Supplemental Figure II. Histograms of: A) \log_e C-reactive protein (CRP); B) \log_e interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011)



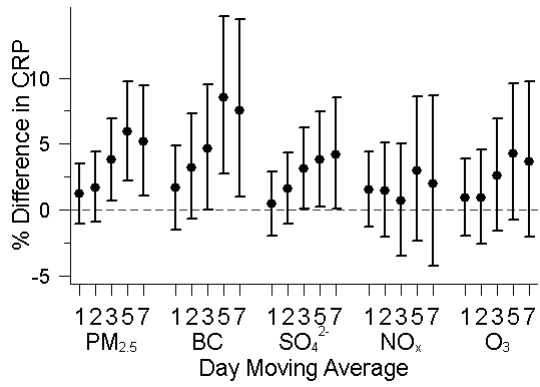
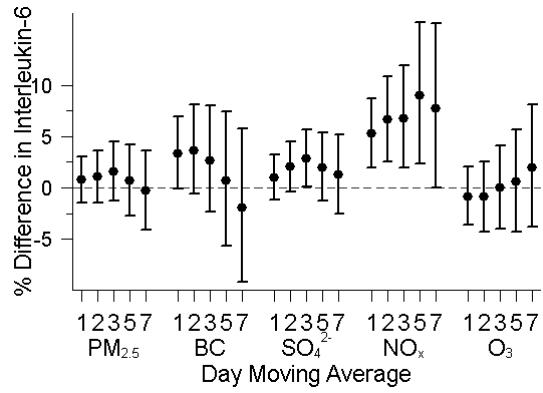
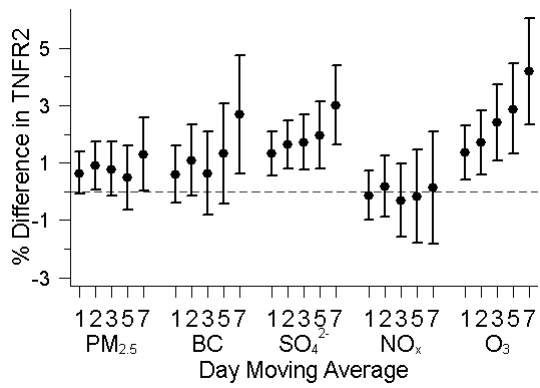
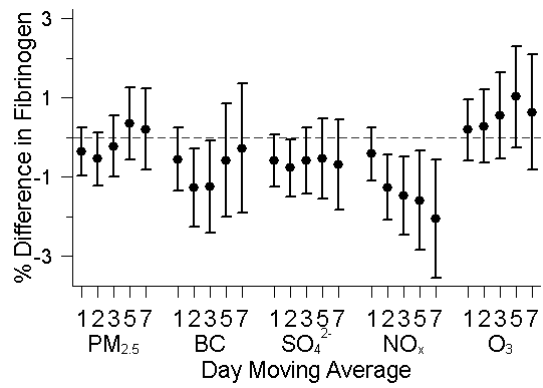
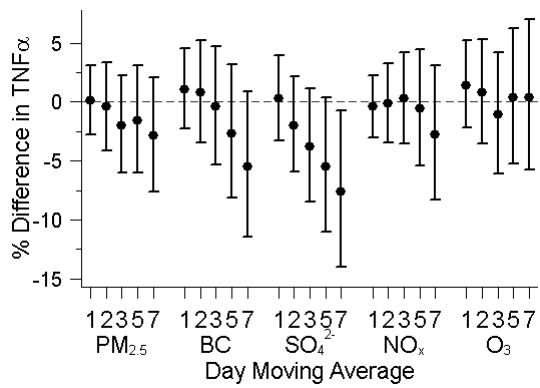
Supplemental Figure III. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. **We excluded observations with any one of the 7 days before exam that had PM_{2.5}>35 $\mu\text{g}/\text{m}^3$.** An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.

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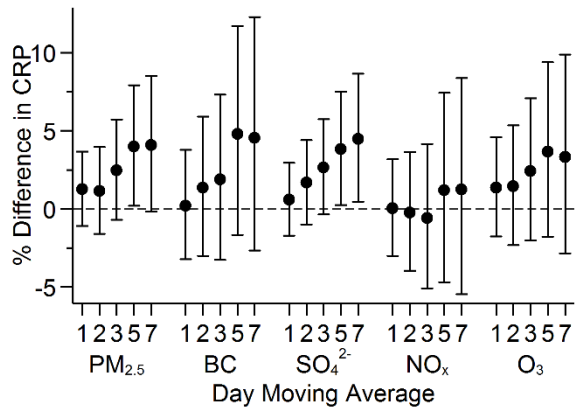
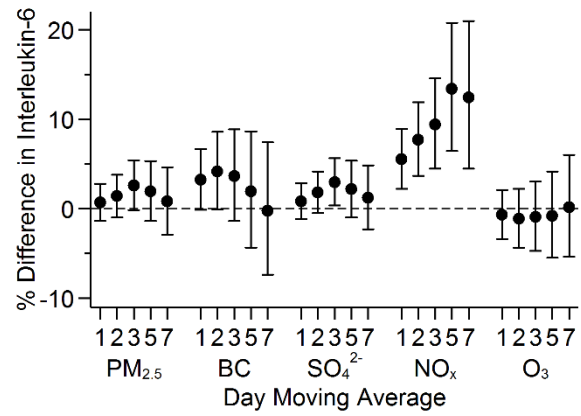
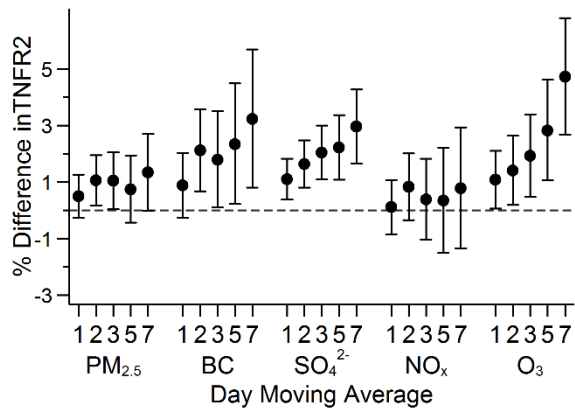
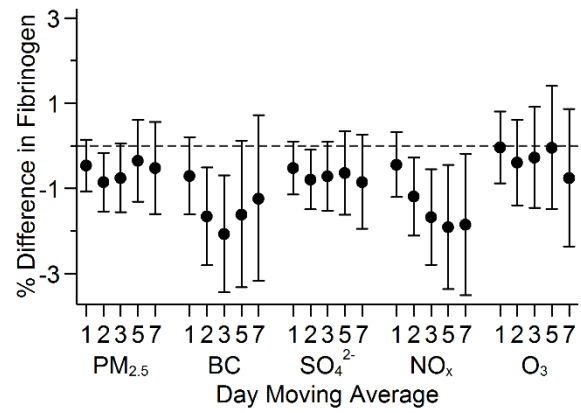
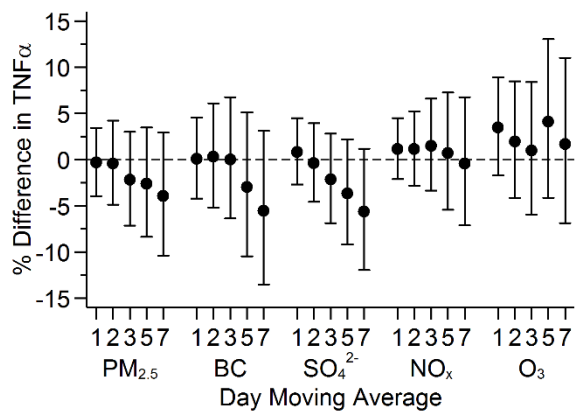
Supplemental Figure IV. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. **We included participants who were current smokers at the time of exam.** An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.

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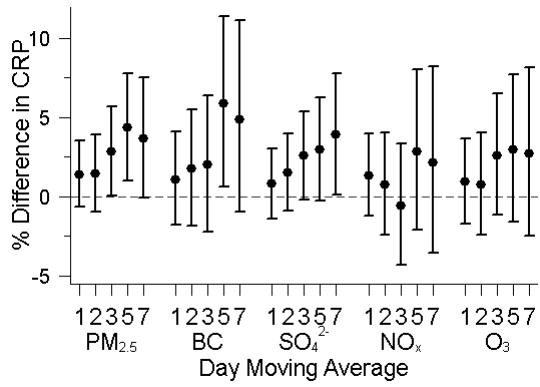
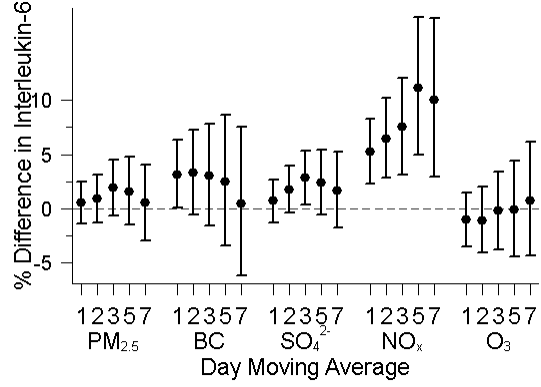
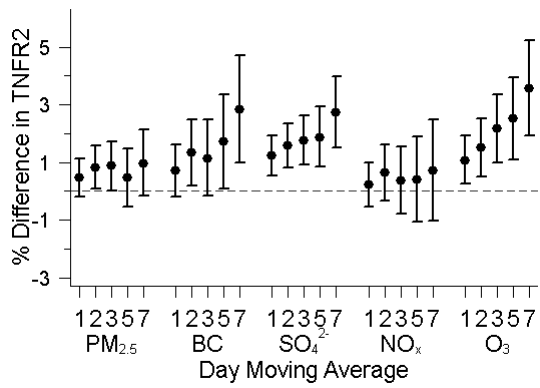
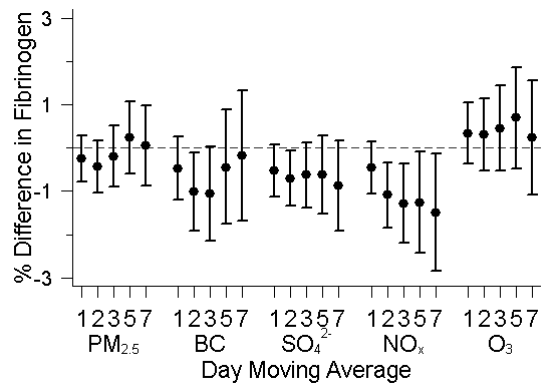
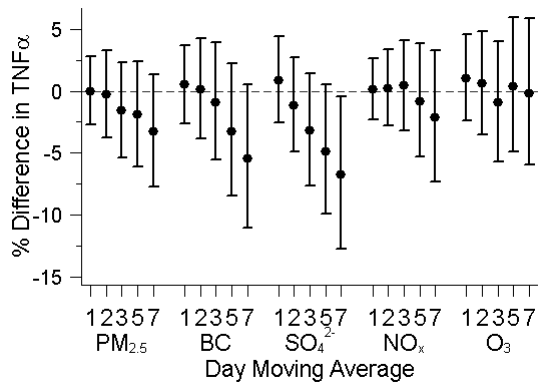
Supplemental Figure V. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. **We restricted to those who lived within 40 km from the central monitoring station.** An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.

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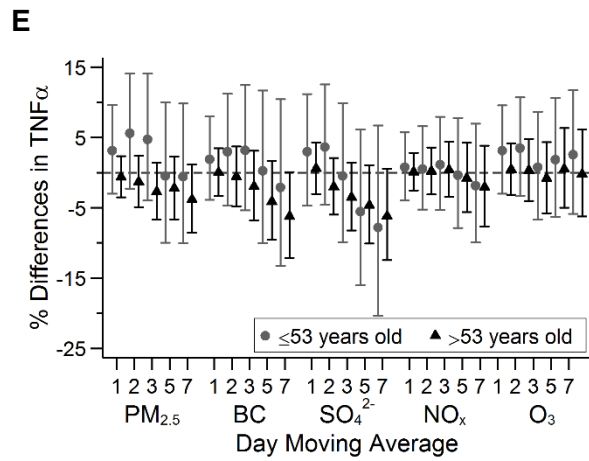
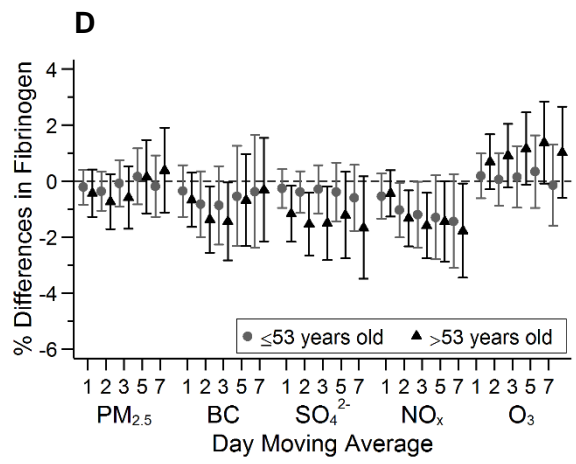
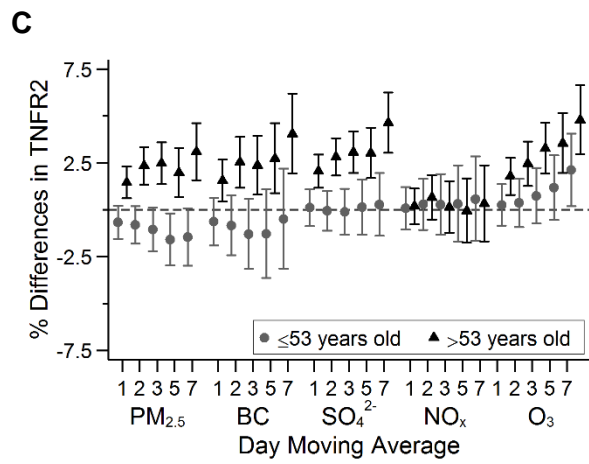
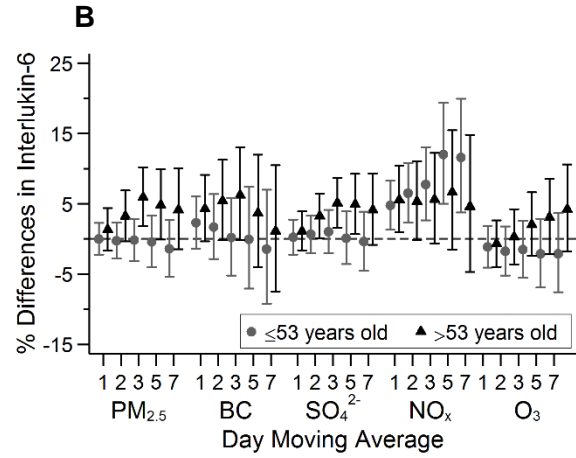
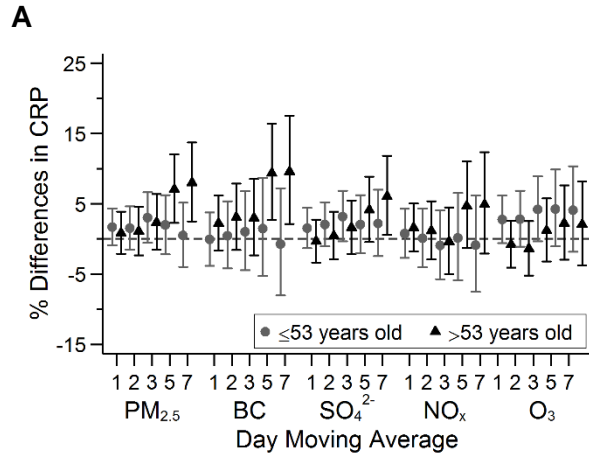
Supplemental Figure VI. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. **We restricted the analyses of each pollutant to participants who had complete data for all moving averages.** An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.

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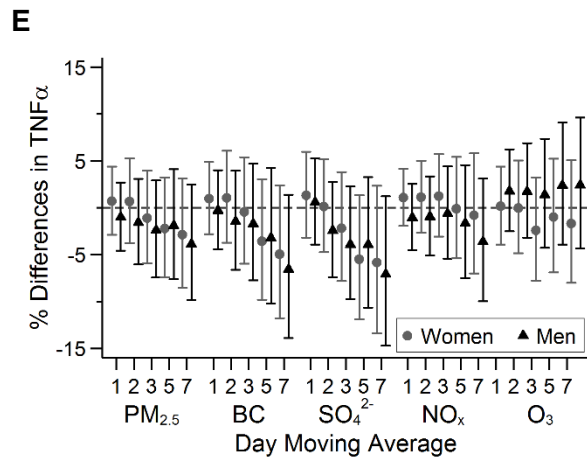
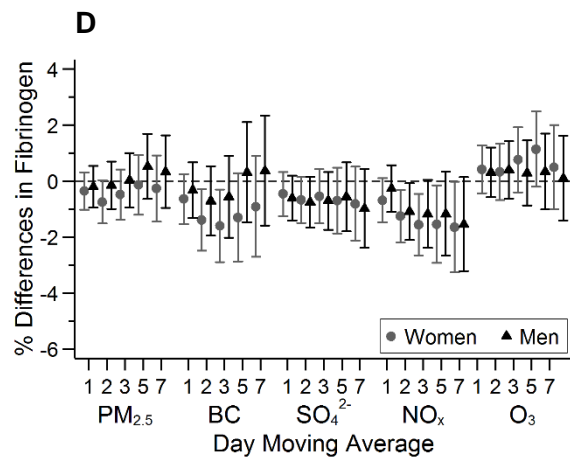
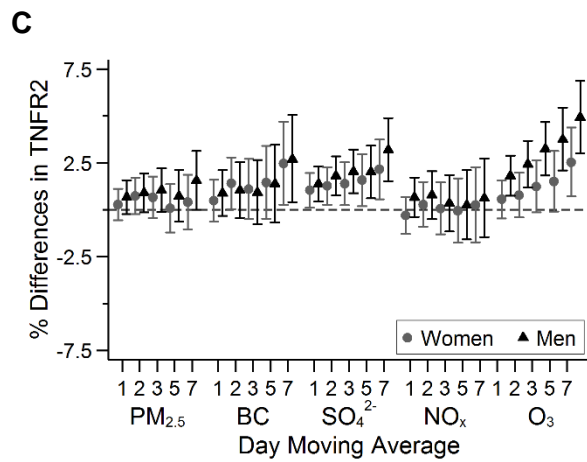
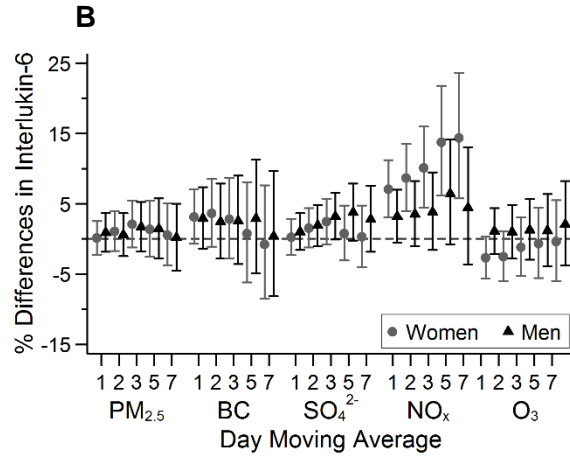
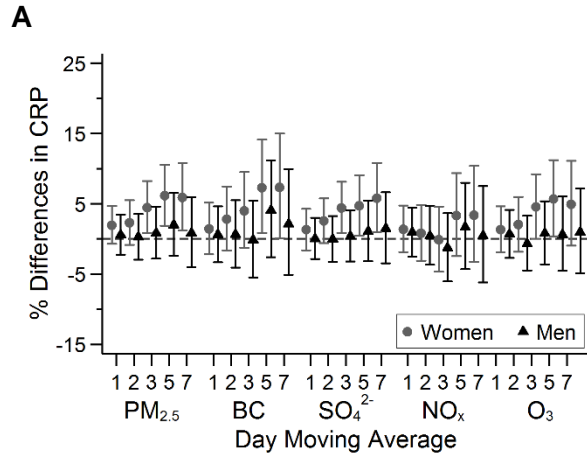
Supplemental Figure VII. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, relative humidity, **physical activity, usual occupation, census tract median value of owner occupied housing units, census tract population density, cardiovascular disease status, antihypertensives use, and statin use**. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.

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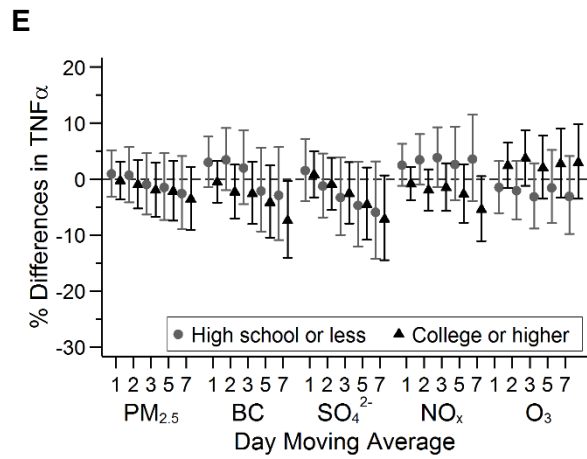
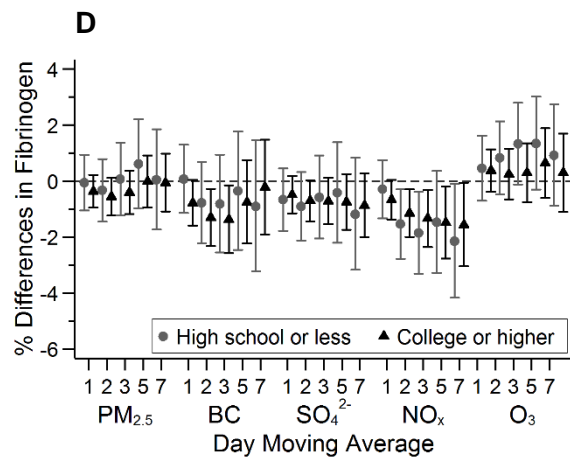
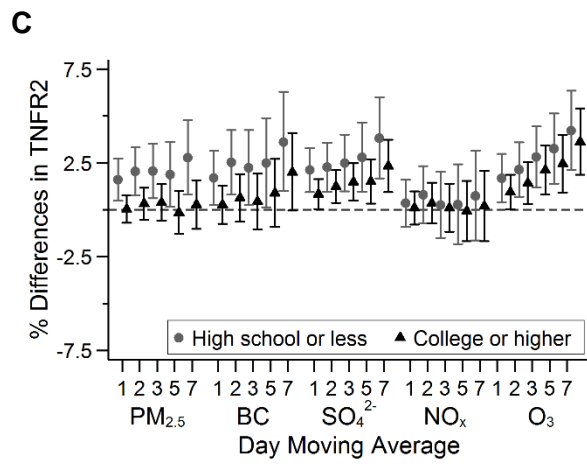
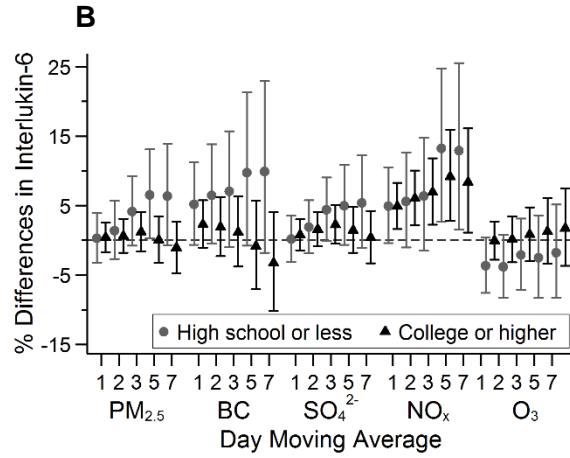
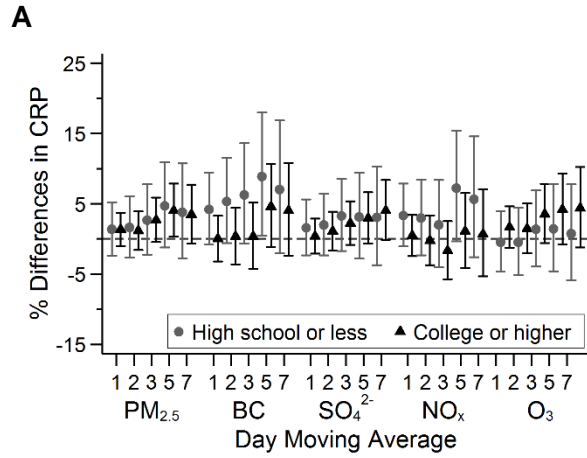
Supplemental Figure VIII. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by median age** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: ≤ 53 years old. Black triangle: > 53 years old.



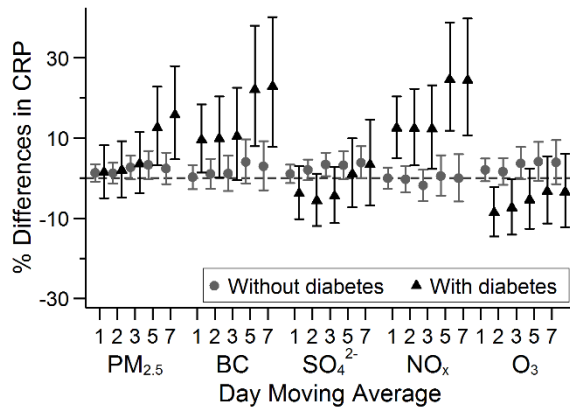
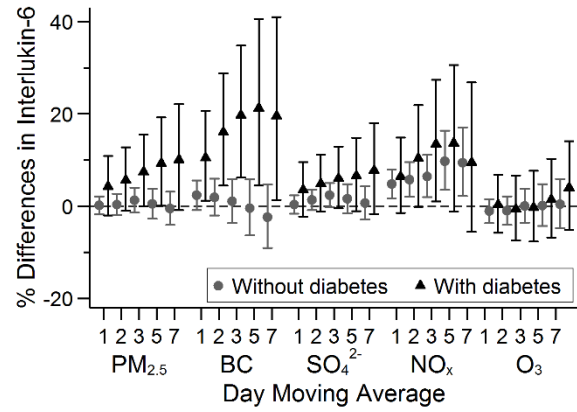
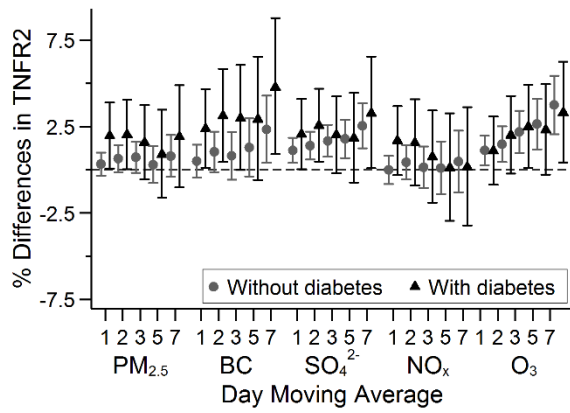
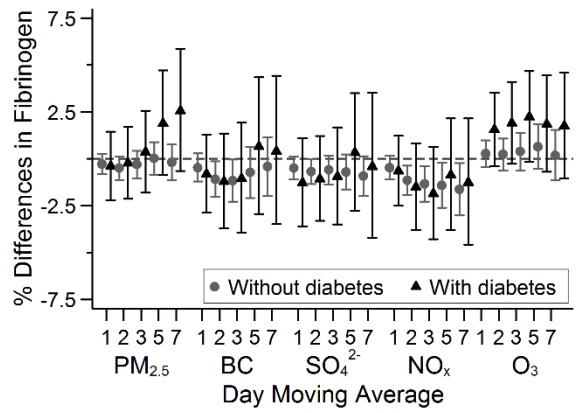
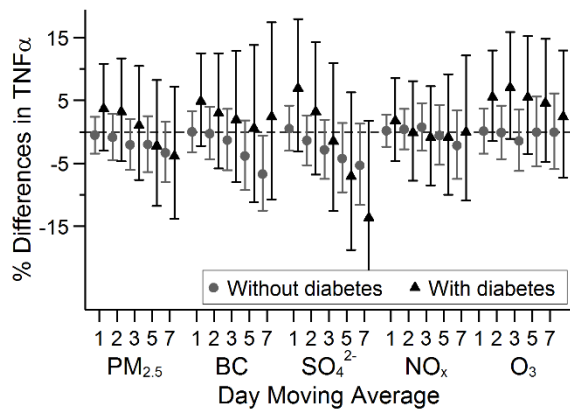
Supplemental Figure IX. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by sex** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: women. Black triangle: men.



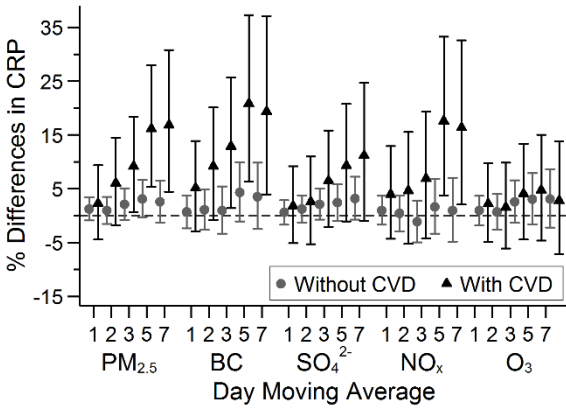
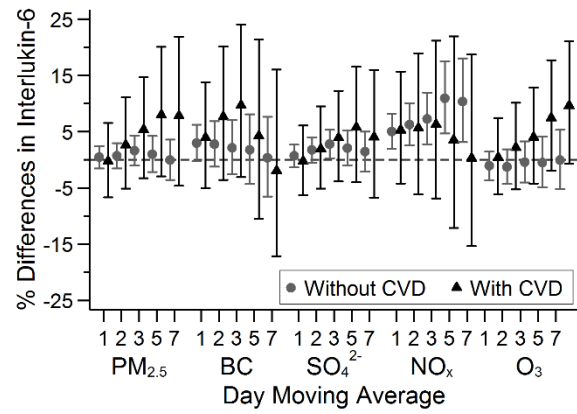
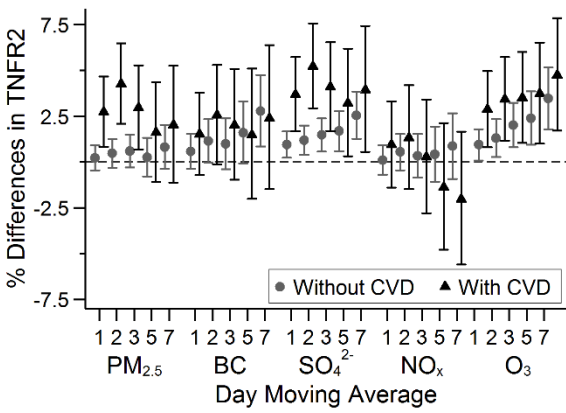
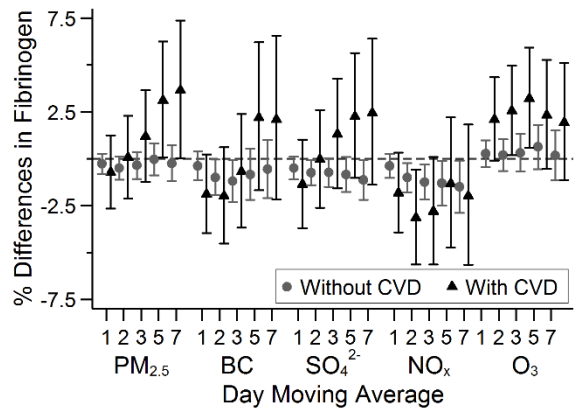
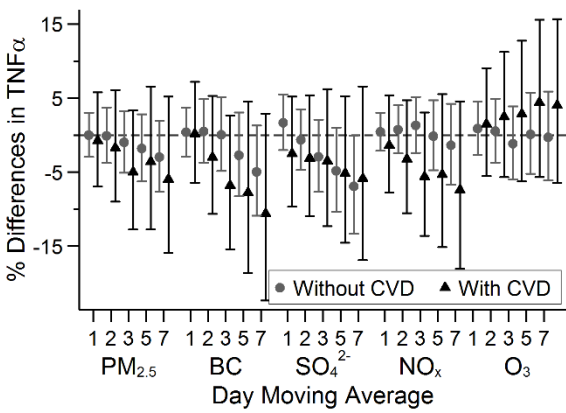
Supplemental Figure X. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by educational attainment** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: high school or less. Black triangle: college or higher.



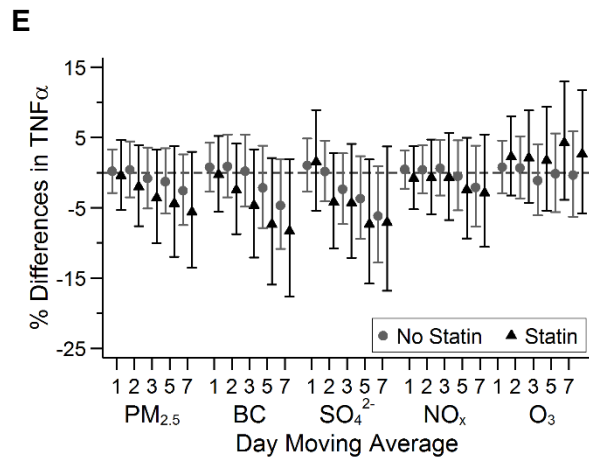
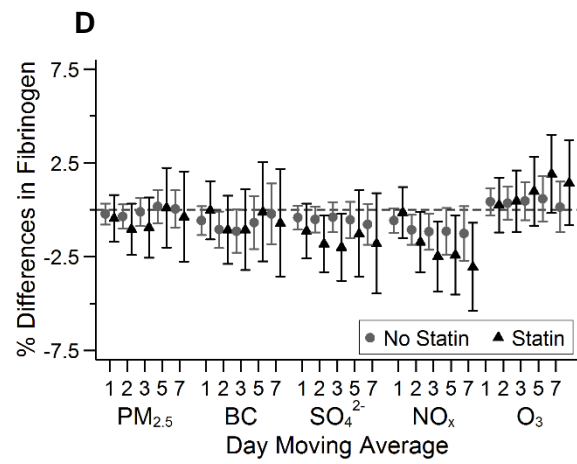
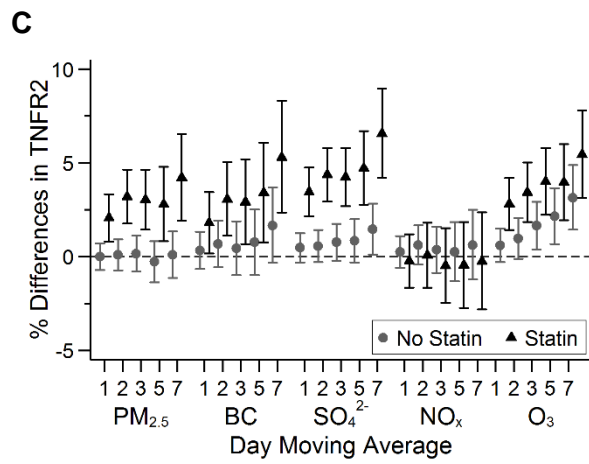
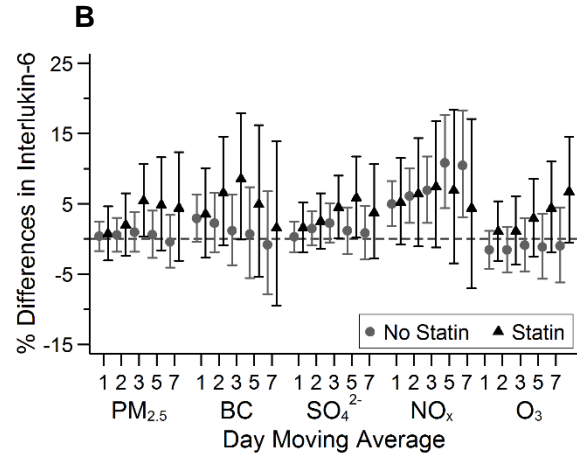
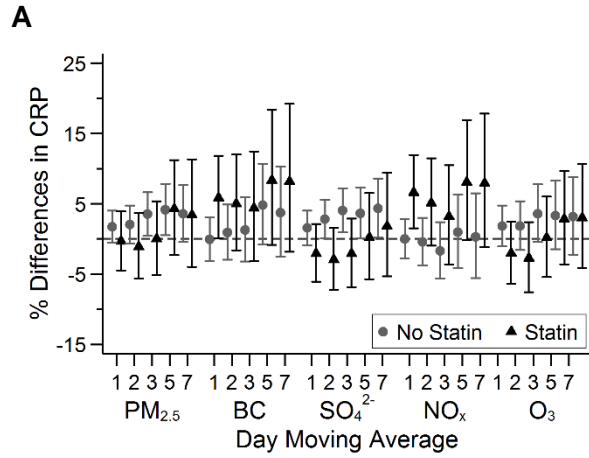
Supplemental Figure XI. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by diabetes status** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: participants who did not have diabetes. Black triangle: participants who had diabetes.

A**B****C****D****E**

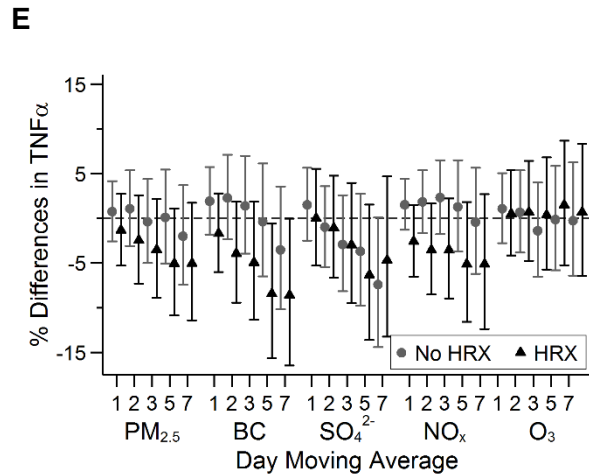
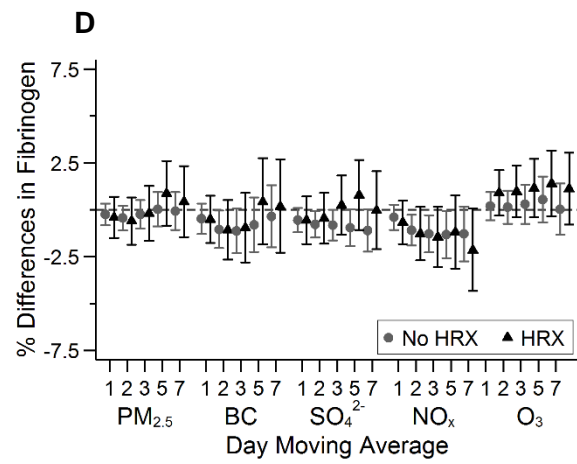
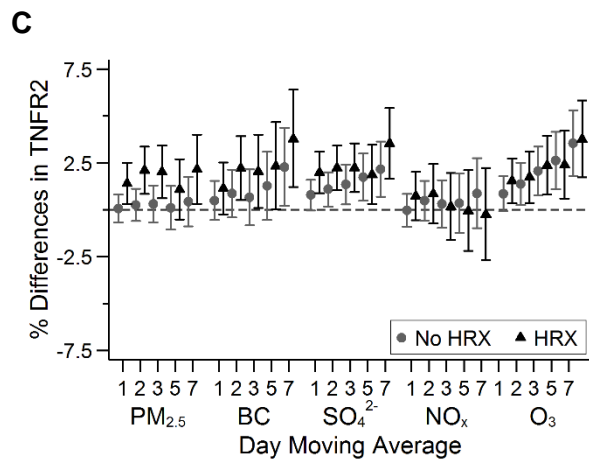
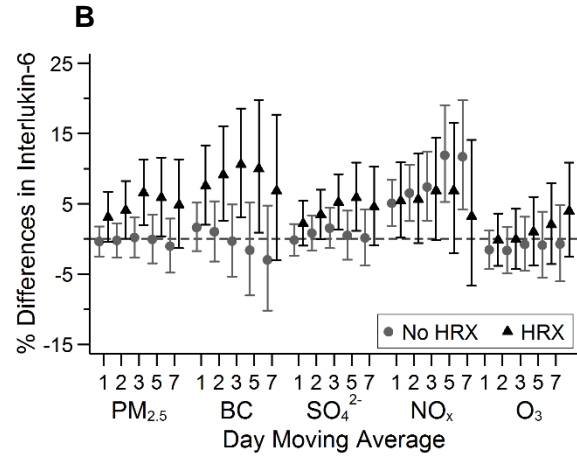
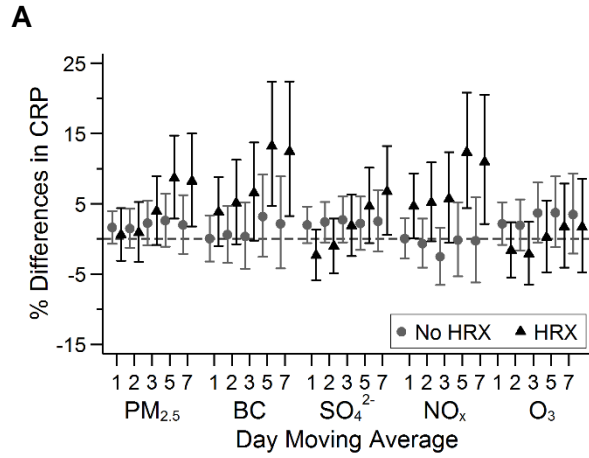
Supplemental Figure XII. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by cardiovascular disease (CVD) status** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: participants who did not have cardiovascular disease. Black triangle: participants who had cardiovascular disease.

A**B****C****D****E**

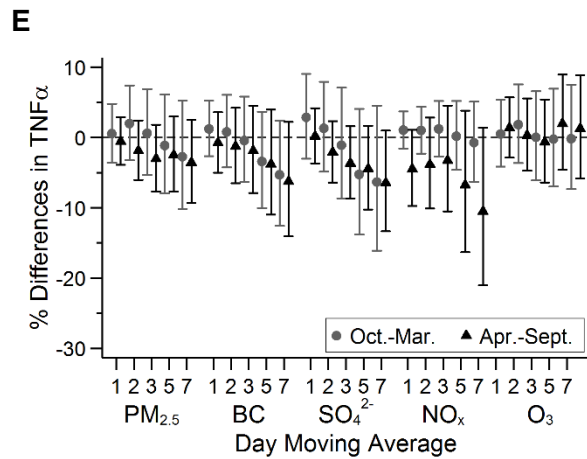
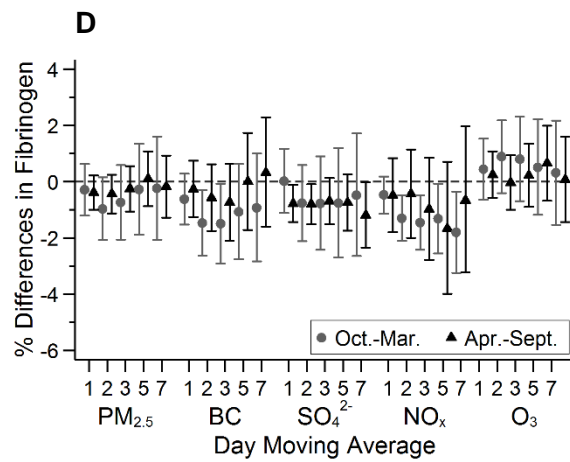
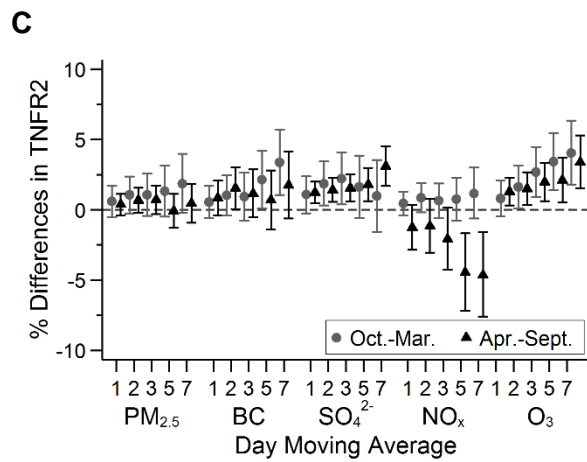
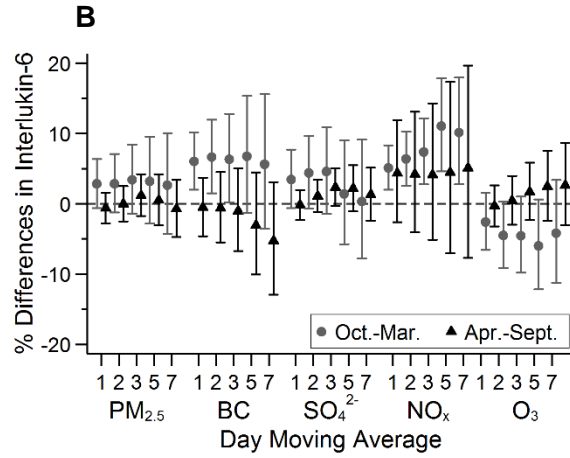
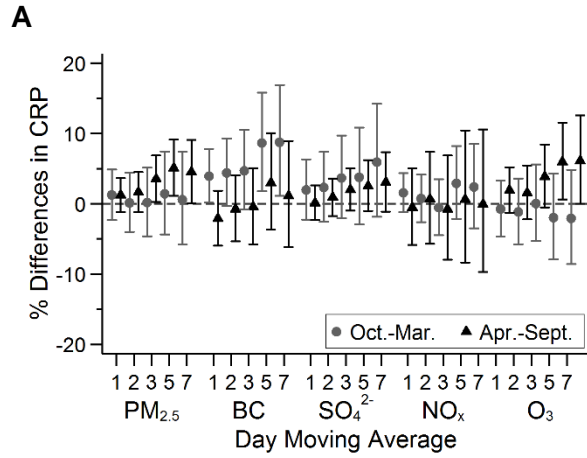
Supplemental Figure XIII. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by statins use** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: participants who did not report statins use. Black triangle: participants who reported statins use.



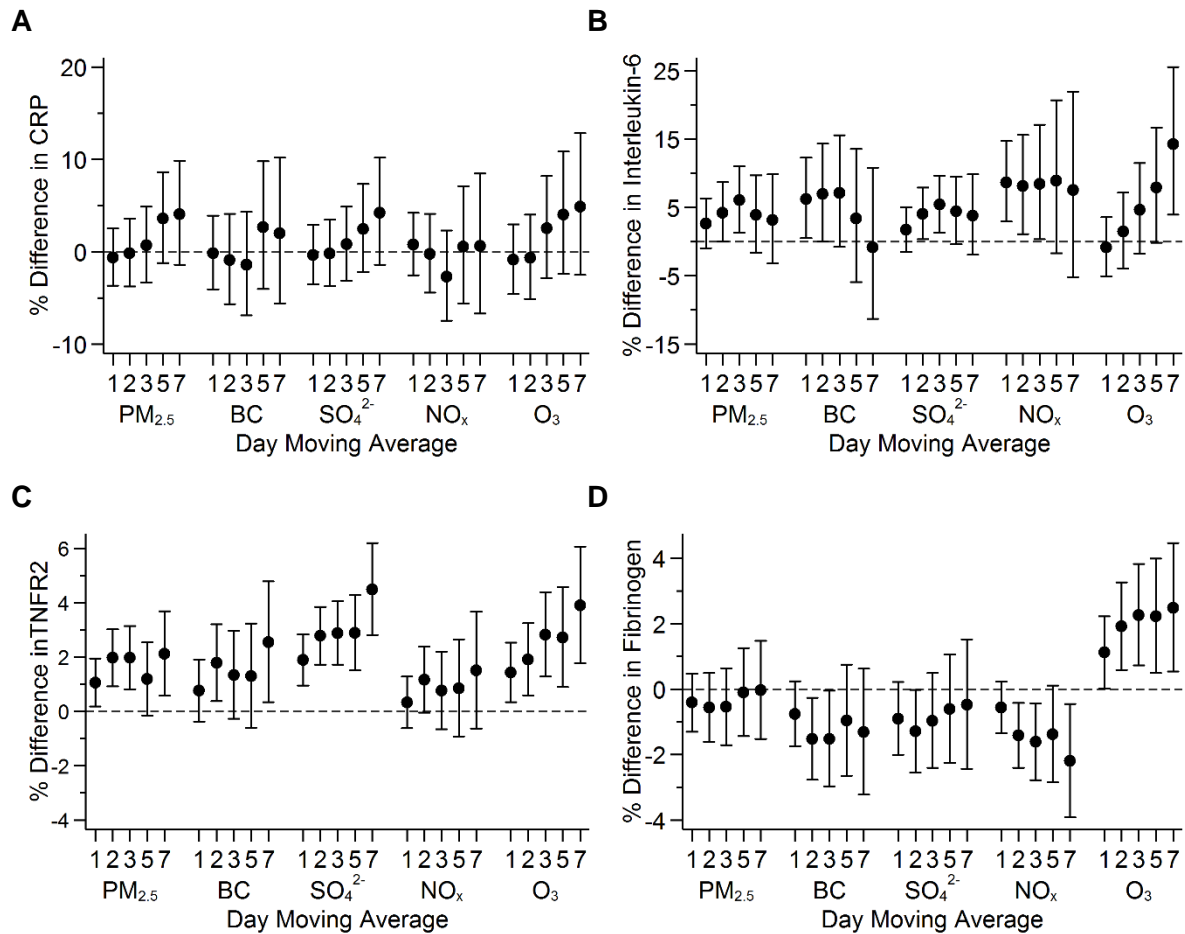
Supplemental Figure XIV. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by antihypertensives (HRX) use** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: participants who did not report using anti-hypertensives. Black triangle: participants who reported anti-hypertensives use.



Supplemental Figure XV. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); D) \log_e fibrinogen; and E) \log_e TNF α **stratified by season** among participants from the Framingham Offspring cohort examination 7 (1998-2001), examination 8 (2005-2008), Third Generation cohort examination 1 (2002-2005), and examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP, interleukin-6, TNFR2, and fibrinogen. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals. Gray circle: participants who had their visits between October and March (Oct.-Mar.). Black triangle: participants who had their visits between April and September (Apr.-Sept.).



Supplemental Figure XVI. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); and D) \log_e fibrinogen among participants from the Framingham **Offspring cohort** examination 7 (1998-2001) and/or examination 8 (2005-2008). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.



Supplemental Figure XVII. Associations of 1- to 7-day moving averages of air pollutants with A) \log_e C-reactive protein (CRP); B) \log_e Interleukin-6; C) \log_e tumor necrosis factor receptor 2 (TNFR2); and D) \log_e fibrinogen among participants from the Framingham **Third Generation cohort** examination 1 (2002-2005) and/or examination 2 (2008-2011). Models were adjusted for centered age, (centered age)², sex, body mass index, smoking status, pack years, alcohol intake, educational attainment, census tract median household income, date of examination visit, sine and cosine season, day of week, temperature, and relative humidity. An exam identifier was added for CRP. Results were scaled to 5 $\mu\text{g}/\text{m}^3$ for fine particulate matter (PM_{2.5}), 0.5 $\mu\text{g}/\text{m}^3$ for black carbon (BC), 2 $\mu\text{g}/\text{m}^3$ for sulfate (SO₄²⁻), 20 ppb for nitrogen oxides (NO_x), and 10 ppb for ozone (O₃). Error bars indicate the 95% confidence intervals.

