

Web Material:**Residential Proximity to Major Roadways, Fine Particulate Matter, and Hepatic Steatosis:****The Framingham Heart Study**

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Web Table 1. The associations of 2003 annual PM_{2.5}^a with liver-to-phantom ratio (LPR) and presence of hepatic steatosis stratified by median age at the time of multi-detector computed tomography (MDCT) scan, sex, and education levels in the Framingham MDCT Study (2002-2005), Boston, Massachusetts.

	Liver-to-phantom ratio			Hepatic steatosis ^b		
	β	95% CI	<i>P</i>	PR	95% CI	<i>P</i>
Median age ^c						
≤ 50 yr	0.001	-0.001, 0.004	0.25	0.93	0.83, 1.05	0.33
> 50 yr	-0.001	-0.004, 0.002		1.01	0.91, 1.13	
Sex ^d						
Women	-0.001	-0.004, 0.002	0.15	1.05	0.95, 1.17	0.06
Men	0.002	-0.001, 0.005		0.91	0.82, 1.02	
Educational level ^e						
\leq High school	0.002	-0.003, 0.006	0.59	1.00	0.83, 1.21	0.74
\geq College	0.000	-0.002, 0.002		0.97	0.88, 1.06	

Abbreviation: MDCT, multi-detector computed tomography; CI, confidence intervals; PR, prevalence ratio.

^a Results from PM_{2.5} analyses were scaled to be as equivalent to per 1.4 $\mu\text{g}/\text{m}^3$ increase in 2003 annual PM_{2.5} concentrations.

^b Defined as liver-to-phantom ratio ≤ 0.33 .

^c Models were additionally adjusted for age at MDCT scan, and (age at MDCT scan)²; sex; smoking status (current, former, or never); pack years; alcohol intake; educational level; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density (population/km²) in the census tract; cardiovascular disease; diabetes; and an exam identifier.

^d Models were additionally adjusted for age at MDCT scan, and (age at MDCT scan)²; smoking status (current, former, or never); pack years; alcohol intake; educational level; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density (population/km²) in the census tract; cardiovascular disease; diabetes; and an exam identifier.

^e Models were additionally adjusted for age at MDCT scan, and (age at MDCT scan)²; sex; smoking status (current, former, or never); pack years; alcohol intake; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density (population/km²) in the census tract; cardiovascular disease; diabetes; and an exam identifier.

Web Table 2. The associations of distance to the nearest major roadway ^a with liver-to-phantom ratio (LPR) and presence of hepatic steatosis stratified by median age at the time of multi-detector computed tomography (MDCT) scan, sex, and education levels in the Framingham mdct Study (2002-2005), Boston, Massachusetts.

	Liver-to-phantom ratio			Hepatic steatosis ^b		
	β	95% CI	<i>P</i>	PR	95% CI	<i>P</i>
Median age ^c						
≤ 50 yr	-0.002	-0.005, 0.002	0.25	1.09	0.92, 1.29	0.33
> 50 yr	-0.005	-0.008, -0.001		1.21	1.07, 1.37	
Sex ^d						
Women	-0.005	-0.008, -0.001	0.29	1.37	1.20, 1.56	0.001
Men	-0.002	-0.006, 0.002		0.98	0.84, 1.14	
Educational level ^e						
\leq High school	-0.005	-0.010, 0.000	0.39	1.29	1.11, 1.51	0.15
\geq College	-0.003	-0.006, 0.000		1.11	0.98, 1.26	

Abbreviation: MDCT, multi-detector computed tomography; CI, confidence intervals; PR, prevalence ratio.

^a Results were scaled to approximate comparing participants who lived 58 m (25th percentile) from the nearest major roadway to those who lived 416 m (75th percentile) from the nearest major roadway.

^b Defined as liver-to-phantom ratio ≤ 0.33 .

^c Models were additionally adjusted for age at MDCT scan, and (age at MDCT scan)²; sex; smoking status (current, former, or never); pack years; alcohol intake; educational level; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density (population/km²) in the census tract; cardiovascular disease; diabetes; and an exam identifier.

^d Models were additionally adjusted for age at MDCT scan, and (age at MDCT scan)²; smoking status (current, former, or never); pack years; alcohol intake; educational level; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density (population/km²) in the census tract; cardiovascular disease; diabetes; and an exam identifier.

^e Models were additionally adjusted for age at MDCT scan, and (age at MDCT scan)²; sex; smoking status (current, former, or never); pack years; alcohol intake; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density (population/km²) in the census tract; cardiovascular disease; diabetes; and an exam identifier.

Web Table 3. Summary of Results from Sensitivity Analyses Conducted for the Associations of Distance to Major Roadways and 2003 Annual Average PM_{2.5} with Liver-to-Phantom Ratio (LPR) and Presence of Hepatic Steatosis in the Framingham Multi-Detector Computed Tomography (MDCT) Study (2002-2005), Boston, Massachusetts.

Liver-to-Phantom Ratio	Living closer to major roadways ^a		PM _{2.5} ^a	
	β	95% CI	β	95% CI
Primary results	-0.003	-0.006, -0.001	0.000	-0.002, 0.002
Adjust for BMI ^b	-0.003	-0.006, 0.000	0.000	-0.002, 0.002
Further exclusion alcohol intake ^c	-0.003	-0.006, 0.000	0.000	-0.002, 0.003
Adjust for time covariates ^d	-0.003	-0.006, -0.001	0.000	-0.002, 0.002
Exclude those who changed addresses ^e	-0.003	-0.006, -0.001	0.000	-0.002, 0.003
Exclude participants with CVD or diabetes ^f	-0.003	-0.006, -0.001	0.001	-0.002, 0.003
Same sample size for PM _{2.5} and distance analyses	-0.003	-0.006, -0.001	0.000	-0.002, 0.003
2003-2005 annual average PM _{2.5}	--	--	0.000	-0.002, 0.002
Hepatic Steatosis^g	PR	95% CI	PR	95% CI
Primary results	1.16	1.05, 1.28	0.97	0.89, 1.06
Adjust for BMI ^b	1.17	1.05, 1.29	0.98	0.90, 1.07
Further exclusion alcohol intake ^c	1.16	1.04, 1.30	0.98	0.89, 1.07
Adjust for time covariates ^d	1.16	1.05, 1.29	0.98	0.90, 1.06
Exclude those who changed addresses ^e	1.17	1.05, 1.29	0.97	0.89, 1.06
Exclude participants with CVD or diabetes ^f	1.15	1.03, 1.29	0.98	0.89, 1.07
Same sample size for PM _{2.5} and distance analyses	1.16	1.05, 1.28	0.97	0.88, 1.07
2003-2005 annual average PM _{2.5}	--	--	0.97	0.90, 1.05

Abbreviation: MDCT, multi-detector computed tomography; BMI, body mass index; CI, confidence interval; PM_{2.5}, fine particulate matter; PR, prevalence ratio.

a Models were adjusted for age at MDCT scan, and (age at MDCT scan)², sex; an exam identifier; smoking status; pack years; alcohol intake; educational level; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density in the census tract, cardiovascular disease and diabetes. Results from distance analyses were scaled to approximate contrasting participants who lived 58 m (25th percentile) from the nearest major roadway to those who lived 416 m (75th percentile) from the nearest major roadway. And results from PM_{2.5} analyses were scaled to be equivalent to per 1.4 $\mu\text{g}/\text{m}^3$ increase in 2003 annual PM_{2.5} concentrations.

b Additionally adjusted for BMI

c Further excluded men who reported > 14 drinks/week and women who reported > 7 drinks/week.

d Additionally adjusted for date of MDCT scan, days between physical examination date and MDCT examination date, and the year of MDCT scan.

e Excluded participants who changed their addresses between Offspring examination 6 and 7.

f Excluded participants who had cardiovascular disease or diabetes.

g Hepatic steatosis defined as having liver-to-phantom ratio ≤ 0.33 .

Web Table 4. Comparison of the Associations of Distance to Major Roadways and 2003 Annual Average PM_{2.5} with Liver-to-Phantom Ratio (LPR) and Presence of Hepatic Steatosis before and after including Participants Who Lived > 1000 m from Major Roadways in the Framingham Multi-Detector Computed Tomography (MDCT) Study (2002-2005), Boston, Massachusetts.

Liver-to-Phantom Ratio	Primary analyses ^a		Include participants who lived \geq 1000 m ^a	
	β	95% CI	β	95% CI
Log _e Distance ^b	-0.003	-0.006, -0.001	-0.002	-0.005, 0.000
Distance Categories, m				
<50	-0.004	-0.010, 0.002	-0.002	-0.008, 0.003
50-99.9	-0.010	-0.018, -0.003	-0.009	-0.017, -0.002
100-199.9	-0.002	-0.008, 0.004	-0.001	-0.007, 0.005
200-399.9	0.000	-0.006, 0.005	0.001	-0.004, 0.006
Reference	0		0	
Hepatic Steatosis ^c	PR	95% CI	PR	95% CI
Log _e Distance ^b	1.16	1.05, 1.28	1.12	1.02, 1.23
Distance Categories, m				
<50	1.21	0.94, 1.55	1.16	0.92, 1.45
50-99.9	1.44	1.05, 1.98	1.39	1.03, 1.87
100-199.9	1.09	0.81, 1.46	1.04	0.79, 1.36
200-399.9	0.95	0.72, 1.25	0.91	0.71, 1.17
Reference group	0		0	

Abbreviation: MDCT, multi-detector computed tomography; PR, prevalence ratio; CI, confidence interval.

^a Models were adjusted for age at MDCT scan, and (age at MDCT scan)², sex; an exam identifier; smoking status; pack years; alcohol intake; educational level; usual occupation; physical activity; anti-hypertensive medication use; statin use; quartile of median household income in the participant's census tract in 2000; median value of owner occupied housing units in the census tract; population density in the census tract, cardiovascular disease and diabetes.

^b Results from distance analyses were scaled to approximate contrasting participants who lived 58 m (25th percentile) from the nearest major roadway to those who lived 416 m (75th percentile) from the nearest major roadway.

^c Hepatic steatosis defined as having liver-to-phantom ratio \leq 0.33.