Associations of smoking and alcohol intake with NMR-measured lipid and metabolic biomarkers in over 100,000 Mexican adults

Supplementary Material 1

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Table S1. Baseline characteristics of 106,257 participants aged 35-84 years at recruitment, by age group

	35-54 years (n=82,717)	55-84 years (n=23,540)	Overall (n=106,257)
Age, Years	44.8 (7.0)	68.9 (6.5)	50.1 (12.1)
Socioeconomic status and lifestyle			
Resident of Coyoacán	34551 (42%)	9338 (40%)	43889 (41%)
University or high school educated	16503 (20%)	1365 (6%)	17868 (17%)
Any leisure-time physical activity	18539 (22%)	5490 (23%)	24029 (23%)
Average fruit/veg intake (days/week)	4.4 (1.8)	4.4 (1.8)	4.4 (1.8)
Smoking			
Never smokers	38920 (47%)	12659 (54%)	51579 (49%)
Former smokers	13709 (17%)	6074 (26%)	19783 (19%)
Current smokers			
<Daily	11198 (14%)	1224 (5%)	12422 (12%)
<10 cigs/day	13157 (16%)	2329 (10%)	15486 (15%)
≥10 cigs/day	5733 (7%)	1254 (5%)	6987 (7%)
Alcohol			
Never drinkers	14747 (18%)	5527 (23%)	20274 (19%)
Former drinkers	8874 (11%)	4241 (18%)	13115 (12%)
Occasional drinkers (less than monthly)	45454 (55%)	10852 (46%)	56306 (53%)
Regular drinkers			
<70 g/wk	8044 (10%)	1525 (6%)	9569 (9%)
≥70 to <140 g/wk	2407 (3%)	477 (2%)	2884 (3%)
≥140 to 210 g/wk	1223 (1%)	445 (2%)	1668 (2%)
>210 g/wk	1968 (2%)	473 (2%)	2441 (2%)
Physical measurements			
Systolic BP, mmHg	123.3 (14.4)	135.0 (17.8)	125.9 (16.0)
Diastolic BP, mmHg	81.9 (9.8)	85.2 (10.4)	82.6 (10.0)
Weight, kg	71.2 (13.1)	67.7 (12.8)	70.4 (13.1)
Height, cm	156.7 (8.9)	153.5 (9.3)	156.0 (9.0)
Body mass index, kg/m^2	29.0 (4.9)	28.7 (5.0)	29.0 (4.9)
Waist circumference, cm	92.8 (11.4)	96.6 (11.3)	93.7 (11.5)
Hip circumference, cm	104.4 (10.3)	104.5 (10.8)	104.4 (10.4)
Waist-hip ratio	0.89 (0.07)	0.93 (0.08)	0.90 (0.08)
Fasting duration, hours	4.0 (4.4)	3.7 (3.9)	3.9 (4.3)
Selected NMR biomarkers			
LDL Cholesterol, mmol/L	1.71 (0.47)	1.71 (0.49)	1.71 (0.47)
HDL Cholesterol, mmol/L	1.01 (0.20)	1.01 (0.21)	1.01 (0.20)
Total Triglycerides, mmol/L	1.53 (0.61)	1.52 (0.56)	1.53 (0.60)
Apolipoprotein B, g/L	0.89 (0.20)	0.90 (0.21)	0.89 (0.20)
Apolipoprotein A1, g/L	1.22 (0.19)	1.22 (0.19)	1.22 (0.19)
Omega-3 fatty acids, mmol/L	0.28 (0.14)	0.27 (0.15)	0.28 (0.15)
Omega-6 fatty acids, mmol/L	4.77 (0.84)	4.76 (0.84)	4.77 (0.84)
Glucose, mmol/L	4.10 (1.29)	4.54 (1.39)	4.20 (1.32)
Creatinine, µmol/L	64.35 (14.74)	69.12 (19.96)	65.41 (16.17)
Albumin, g/L	38.27 (4.19)	37.12 (4.13)	38.02 (4.20)
GlycA, mmol/L	0.85 (0.13)	0.85 (0.13)	0.85 (0.13)

Mean (SD) or n (%) shown. BP= Blood Pressure. cigs= cigarettes. g= grams. Wk= week

Table S2. Alcohol intake of 34,782 men and 71,475 women aged 35-84 years at recruitment, by smoking status

MEN

	Never smokers (n=7,264)	Former smokers (n=9,873)	Current Smokers			All current smokers (n=17,645)	Overall (n=34,782)
			< Daily (n=5,707)	<10 cigs/day (n=7,397)	≥10 cigs/day (n=4,541)		
Alcohol Intake							
Never drinkers	1,027 (14%)	498 (5%)	129 (2%)	264 (4%)	184 (4%)	577 (3%)	2,102 (6%)
Former drinkers	895 (12%)	2,137 (22%)	535 (9%)	1,081 (15%)	891 (20%)	2,507 (14%)	5,539 (16%)
Occasional drinkers *	3,492 (48%)	4,408 (45%)	2,707 (47%)	3,192 (43%)	1,806 (40%)	7,705 (44%)	15,605 (45%)
Regular drinkers †							
<70 g/week	1,076 (15%)	1,514 (15%)	1,122 (20%)	1,324 (18%)	593 (13%)	3,039 (17%)	5,629 (16%)
≥70 to <140 g/week	318 (4%)	540 (5%)	506 (9%)	616 (8%)	381 (8%)	1503 (9%)	2361 (7%)
≥140 to 210 g/week	197 (3%)	325 (3%)	242 (4%)	331 (4%)	196 (4%)	769 (4%)	1,291 (4%)
>210 g/week	259 (4%)	451 (5%)	466 (8%)	589 (8%)	490 (11%)	1,545 (9%)	2,255 (6%)
All current drinkers	5,342 (74%)	7,238 (73%)	5,043 (88%)	6,052 (82%)	3,466 (76%)	14,561 (83%)	27,141 (78%)

WOMEN

	Never smokers (n=44,315)	Former smokers (n=9,910)	Current Smokers			All current smokers (n=17,250)	Overall (n=71,475)
			< Daily (n=6,715)	<10 cigs/day (n=8,089)	≥10 cigs/day (n=2,446)		
Alcohol Intake							
Never drinkers	14,441 (33%)	1,673 (17%)	695 (10%)	1,022 (13%)	341 (14%)	2,058 (12%)	18,172 (25%)
Former drinkers	4,305 (10%)	1,580 (16%)	543 (8%)	858 (11%)	290 (12%)	1,691 (10%)	7,576 (11%)
Occasional drinkers *	23,668 (53%)	5,824 (59%)	4,657 (69%)	5,143 (64%)	1,409 (58%)	11,209 (65%)	40,701 (57%)
Regular drinkers †							
<70 g/week	1557 (4%)	674 (7%)	650 (10%)	794 (10%)	265 (11%)	1709 (10%)	3940 (6%)
≥70 to <140 g/week	153 (<0.5%)	88 (1%)	78 (1%)	130 (2%)	74 (3%)	282 (1%)	523 (1%)
≥140 to 210 g/week	125 (<0.5%)	55 (1%)	65 (1%)	91 (1%)	41 (2%)	197 (1%)	377 (1%)
>210 g/week	66 (<0.5%)	16 (<0.5%)	27 (<0.5%)	51 (1%)	26 (1%)	104 (1%)	186 (<0.5%)
All current drinkers	25,569 (58%)	6,657 (67%)	5,477 (8%)	6,209 (77%)	1,815 (74%)	13,501 (78%)	45,727 (64%)

Percentages (%) indicate column percentages.

* Occasional drinkers are those who reported drinking alcohol on a less than monthly basis. † Regular drinkers are those who reported drinking alcohol at least on a monthly basis. Those reporting to drink at least monthly but less than weekly are included in the <70g/week category. For reference, 140g pure alcohol is about equivalent to 3l beer, 1.5 bottles of wine or 350ml spirits.

cigs = cigarettes, g= grams.

Table S3. Baseline characteristics of 106,257 participants aged 35-84 years at recruitment, by smoking status

	Never smokers (n=51,579)	Former smokers (n=19,783)	Current Smokers			All current smokers (n=34,895)	Overall (n=106,257)
			< Daily (n=12,422)	<10 cigs/day (n=15,486)	≥10 cigs/day (n=6,987)		
Age, Years	51.0 (12.4)	53.1 (13.0)	45.6 (9.6)	47.7 (10.9)	49.3 (10.7)	47.3 (10.5)	50.1 (12.1)
Socioeconomic status and lifestyle							
Resident of Coyoacan	19,684 (38%)	8,553 (43%)	5,263 (42%)	6,959 (45%)	3,430 (49%)	15,652 (45%)	43,889 (41%)
University or High School educated	6,869 (13%)	3,927 (20%)	2,587 (21%)	2,886 (19%)	1,599 (23%)	7,072 (20%)	17,868 (17%)
Any leisure-time physical activity	10,181 (20%)	5,443 (28%)	3,315 (27%)	3,668 (24%)	1,422 (20%)	8,405 (24%)	24,029 (23%)
Average fruit/veg intake (days/week)	4.5 (1.8)	4.5 (1.8)	4.3 (1.8)	4.3 (1.8)	4.0 (2.0)	4.2 (1.9)	4.4 (1.8)
Current drinkers	30,911 (60%)	13,895 (70%)	10,520 (85%)	12,261 (79%)	5,281 (76%)	28,062 (80%)	72,868 (69%)
Body Measurements and Blood Pressure							
Systolic BP, mmHg	126.5 (16.5)	127.2 (16.1)	123.7 (14.4)	123.9 (15.3)	125.5 (15.3)	124.1 (15.0)	125.9 (16.0)
Diastolic BP, mmHg	82.7 (10.1)	83.3 (10.0)	82.1 (9.7)	81.8 (10.0)	82.6 (10.1)	82.1 (9.9)	82.6 (10.0)
Weight, kg	68.6 (12.7)	72.4 (13.2)	73.0 (13.1)	71.4 (13.1)	72.0 (13.7)	72.1 (13.3)	70.4 (13.1)
Height, cm	152.9 (8.0)	158.1 (9.1)	158.4 (8.8)	158.9 (8.8)	162.0 (8.8)	159.3 (8.9)	156.0 (9.0)
Body mass index, kg/m^2	29.3 (5.0)	29.0 (4.8)	29.1 (4.7)	28.3 (4.8)	27.4 (4.8)	28.4 (4.8)	29.0 (4.9)
Waist circumference, cm	93.4 (11.6)	95.2 (11.4)	94.0 (11.3)	92.8 (11.3)	93.1 (11.8)	93.3 (11.4)	93.7 (11.5)
Hip circumference, cm	105.4 (10.8)	104.2 (10.1)	104.2 (10.0)	103.0 (9.9)	101.5 (9.7)	103.1 (9.9)	104.4 (10.4)
Waist-hip ratio	0.89 (0.07)	0.91 (0.08)	0.90 (0.08)	0.90 (0.08)	0.92 (0.08)	0.91 (0.08)	0.90 (0.08)
Fasting duration, hours	3.9 (4.2)	3.9 (4.3)	4.0 (4.5)	4.0 (4.4)	4.1 (4.5)	4.0 (4.4)	3.9 (4.3)
Key NMR Biomarkers							
LDL Cholesterol, mmol/L	1.70 (0.48)	1.71 (0.48)	1.71 (0.46)	1.71 (0.47)	1.72 (0.48)	1.71 (0.47)	1.71 (0.47)
HDL Cholesterol, mmol/L	1.03 (0.20)	1.00 (0.20)	1.00 (0.20)	0.99 (0.20)	0.95 (0.19)	0.98 (0.20)	1.01 (0.20)
Total Triglycerides, mmol/L	1.50 (0.58)	1.54 (0.60)	1.56 (0.63)	1.56 (0.62)	1.60 (0.64)	1.57 (0.63)	1.53 (0.60)
Apolipoprotein B, g/L	0.89 (0.21)	0.89 (0.20)	0.89 (0.20)	0.89 (0.20)	0.90 (0.21)	0.89 (0.20)	0.89 (0.20)
Apolipoprotein A1, g/L	1.24 (0.19)	1.21 (0.18)	1.22 (0.18)	1.20 (0.18)	1.17 (0.18)	1.20 (0.19)	1.22 (0.19)
Omega-3 fatty acids, mmol/L	0.28 (0.14)	0.28 (0.15)	0.28 (0.14)	0.28 (0.14)	0.30 (0.15)	0.29 (0.15)	0.28 (0.15)
Omega-6 fatty acids, mmol/L	4.78 (0.84)	4.76 (0.83)	4.78 (0.83)	4.75 (0.84)	4.71 (0.83)	4.75 (0.83)	4.77 (0.84)
Glucose, mmol/L	4.25 (1.30)	4.24 (1.37)	4.13 (1.29)	4.10 (1.33)	4.05 (1.38)	4.10 (1.33)	4.20 (1.32)
Creatinine, µmol/L	62.04 (14.72)	69.01 (18.12)	66.88 (15.31)	68.08 (15.95)	71.53 (16.97)	68.34 (16.03)	65.41 (16.17)
Albumin, g/L	37.64 (4.18)	38.12 (4.22)	38.52 (4.17)	38.45 (4.20)	38.66 (4.11)	38.52 (4.17)	38.02 (4.20)
GlycA, mmol/L	0.85 (0.13)	0.85 (0.13)	0.85 (0.13)	0.85 (0.13)	0.87 (0.13)	0.86 (0.13)	0.85 (0.13)

Percentages (%) indicate column percentages.
cigs = cigarettes,

Table S4. Baseline characteristics of 106,257 participants aged 35-84 years at recruitment, by alcohol intake

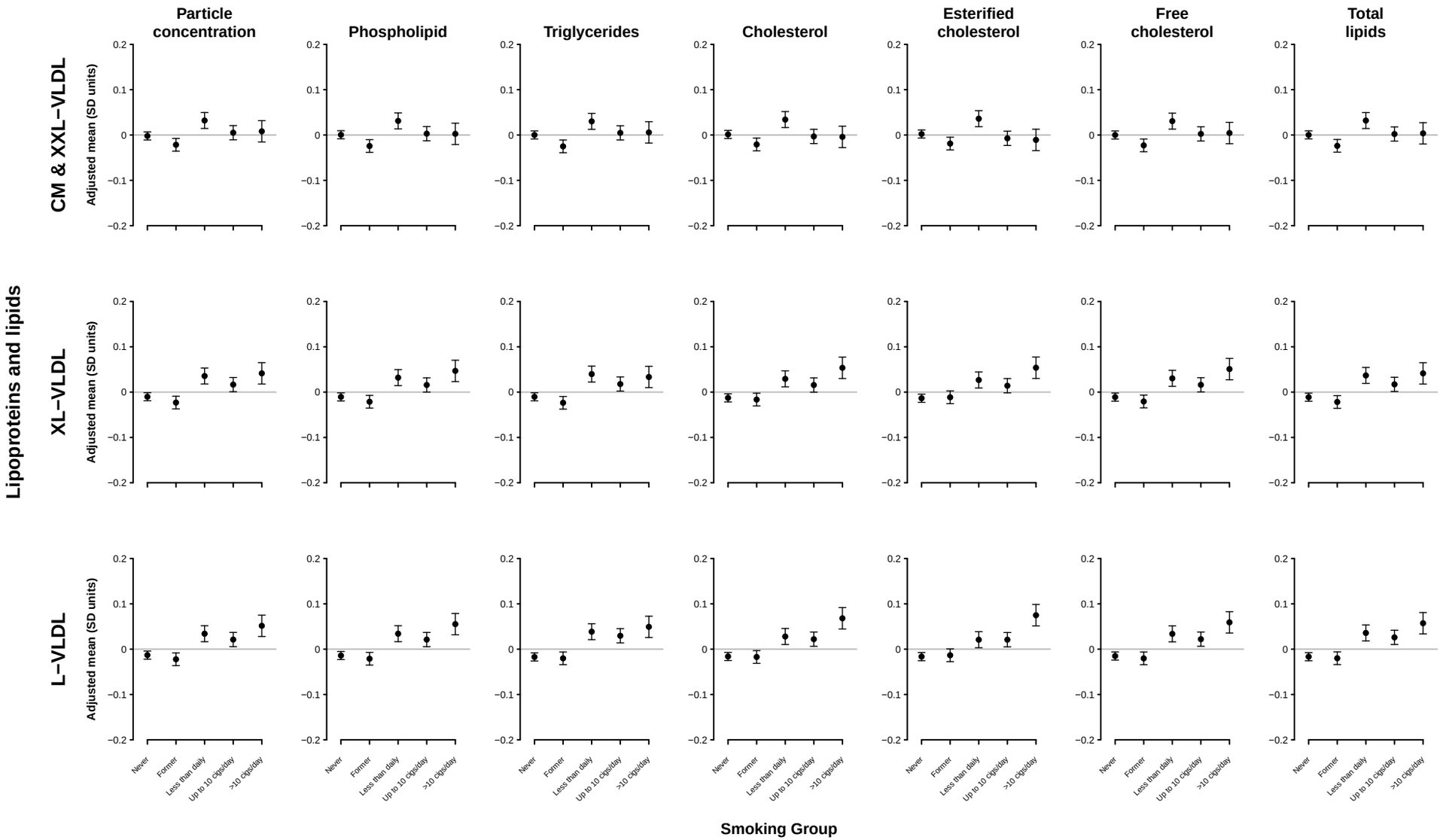
	Never drinkers (n=20,274)	Former drinkers (n=13,115)	Occasional drinkers* (n= 56,306)	Regular Drinkers †				All current drinkers (n=34,895)	Overall (n=106,257)
				<70 g/week (n=9,569)	≥70 to <140 g/week (n=2,884)	≥140 to 210 g/week (n=1,668)	>210 g/week (n=2,441)		
Age, Years	51.4 (13.2)	53.6 (13.3)	49.3 (11.5)	48.3 (10.8)	48.4 (11.0)	51.8 (12.6)	49.0 (11.5)	49.2 (11.4)	50.1 (12.1)
Socioeconomic status and lifestyle									
Resident of Coyoacan	6,609 (33%)	5,136 (39%)	22,953 (41%)	5,417 (57%)	1,591 (55%)	912 (55%)	1,271 (52%)	32,144 (44%)	43889 (41%)
University or High School educated	2,365 (12%)	1,392 (11%)	9,461 (17%)	2,988 (31%)	768 (27%)	477 (29%)	417 (17%)	14,111 (19%)	17868 (17%)
Any leisure-time physical activity	3,379 (17%)	2,635 (20%)	12,739 (23%)	3,152 (33%)	924 (32%)	544 (33%)	656 (27%)	18,015 (25%)	24029 (23%)
Average fruit/veg intake (days/week)	4.5 (1.8)	4.3 (1.9)	4.5 (1.8)	4.5 (1.8)	4.2 (1.9)	4.3 (1.9)	3.8 (2.0)	4.5 (1.8)	4.4 (1.8)
Current smokers	2,635 (13%)	4,198 (32%)	18,914 (34%)	4,748 (50%)	1,785 (62%)	966 (58%)	1,649 (68%)	28,062 (39%)	34895 (33%)
Body Measurements and Blood Pressure									
Systolic BP, mmHg	126.7 (17.0)	127.6 (16.8)	125.1 (15.6)	125.0 (14.8)	126.3 (14.4)	127.8 (15.7)	128.3 (15.0)	125.3 (15.5)	125.9 (16.0)
Diastolic BP, mmHg	82.5 (10.3)	83.2 (10.2)	82.3 (9.9)	82.6 (9.7)	83.6 (9.6)	84.0 (10.1)	84.6 (9.9)	82.5 (9.9)	82.6 (10.0)
Weight, kg	67.8 (13.1)	70.6 (13.2)	70.5 (12.9)	72.6 (12.8)	74.8 (12.9)	73.2 (13.2)	74.7 (13.6)	71.2 (13.0)	70.4 (13.1)
Height, cm	152.2 (7.8)	156.2 (9.2)	155.5 (8.7)	160.8 (9.0)	163.2 (8.3)	162.4 (8.8)	163.7 (7.7)	157.0 (9.1)	156.0 (9.0)
Body mass index, kg/m^2	29.2 (5.2)	29.0 (5.0)	29.2 (4.9)	28.1 (4.4)	28.0 (4.3)	27.7 (4.4)	27.8 (4.5)	28.9 (4.8)	29.0 (4.9)
Waist circumference, cm	93.2 (11.9)	94.9 (11.4)	93.5 (11.5)	93.1 (11.0)	94.8 (10.5)	94.6 (11.0)	95.2 (10.9)	93.6 (11.4)	93.7 (11.5)
Hip circumference, cm	105.3 (11.1)	104.0 (10.5)	104.9 (10.5)	102.7 (9.0)	101.8 (8.7)	101.6 (8.9)	100.9 (8.7)	104.3 (10.2)	104.4 (10.4)
Waist-hip ratio	0.89 (0.07)	0.91 (0.08)	0.89 (0.08)	0.91 (0.08)	0.93 (0.07)	0.93 (0.07)	0.94 (0.07)	0.90 (0.08)	0.90 (0.08)
Fasting duration, hours	3.9 (4.2)	3.9 (4.3)	3.9 (4.3)	3.9 (4.3)	4.0 (4.6)	4.0 (4.5)	4.2 (4.8)	3.9 (4.3)	3.9 (4.3)
Key NMR Biomarkers									
LDL Cholesterol, mmol/L	1.68 (0.47)	1.67 (0.48)	1.71 (0.47)	1.75 (0.48)	1.74 (0.47)	1.73 (0.48)	1.66 (0.50)	1.72 (0.47)	1.71 (0.47)
HDL Cholesterol, mmol/L	1.02 (0.20)	0.98 (0.20)	1.01 (0.20)	1.00 (0.20)	0.99 (0.20)	1.01 (0.22)	1.01 (0.23)	1.01 (0.20)	1.01 (0.20)
Total Triglycerides, mmol/L	1.49 (0.59)	1.52 (0.59)	1.52 (0.59)	1.57 (0.63)	1.66 (0.68)	1.66 (0.67)	1.73 (0.73)	1.54 (0.61)	1.53 (0.60)
Apolipoprotein B, g/L	0.88 (0.20)	0.88 (0.21)	0.89 (0.20)	0.90 (0.21)	0.90 (0.20)	0.90 (0.21)	0.87 (0.21)	0.89 (0.20)	0.89 (0.20)
Apolipoprotein A1, g/L	1.23 (0.19)	1.19 (0.19)	1.22 (0.19)	1.22 (0.19)	1.22 (0.19)	1.24 (0.20)	1.24 (0.22)	1.22 (0.19)	1.22 (0.19)
Omega-3 fatty acids, mmol/L	0.27 (0.14)	0.27 (0.14)	0.28 (0.14)	0.30 (0.15)	0.30 (0.15)	0.31 (0.16)	0.32 (0.16)	0.28 (0.15)	0.28 (0.15)
Omega-6 fatty acids, mmol/L	4.76 (0.84)	4.72 (0.85)	4.78 (0.83)	4.78 (0.82)	4.79 (0.82)	4.74 (0.81)	4.74 (0.85)	4.78 (0.83)	4.77 (0.84)
Glucose, mmol/L	4.29 (1.27)	4.28 (1.35)	4.19 (1.31)	4.01 (1.40)	4.05 (1.40)	4.13 (1.37)	4.17 (1.36)	4.16 (1.33)	4.20 (1.32)
Creatinine, µmol/L	61.89 (16.36)	67.14 (16.87)	64.55 (15.75)	69.96 (15.29)	73.02 (14.42)	72.75 (14.65)	73.17 (14.74)	66.07 (15.85)	65.41 (16.17)
Albumin, g/L	37.50 (4.19)	37.73 (4.28)	38.00 (4.14)	38.85 (4.17)	39.20 (4.22)	38.83 (4.21)	38.98 (4.51)	38.21 (4.18)	38.02 (4.20)
GlycA, mmol/L	0.86 (0.13)	0.85 (0.13)	0.85 (0.12)	0.84 (0.13)	0.86 (0.13)	0.85 (0.13)	0.87 (0.14)	0.85 (0.13)	0.85 (0.13)

Percentages (%) indicate column percentages.

* Occasional drinkers are those who reported drinking alcohol on a less than monthly basis. † Regular drinkers are those who reported drinking alcohol at least on a monthly basis. Those reporting to drink at least monthly but less than weekly are included in the <70g/week category. For reference, 140g pure alcohol is about equivalent to 3l beer, 1.5 bottles of wine or 350ml spirits.

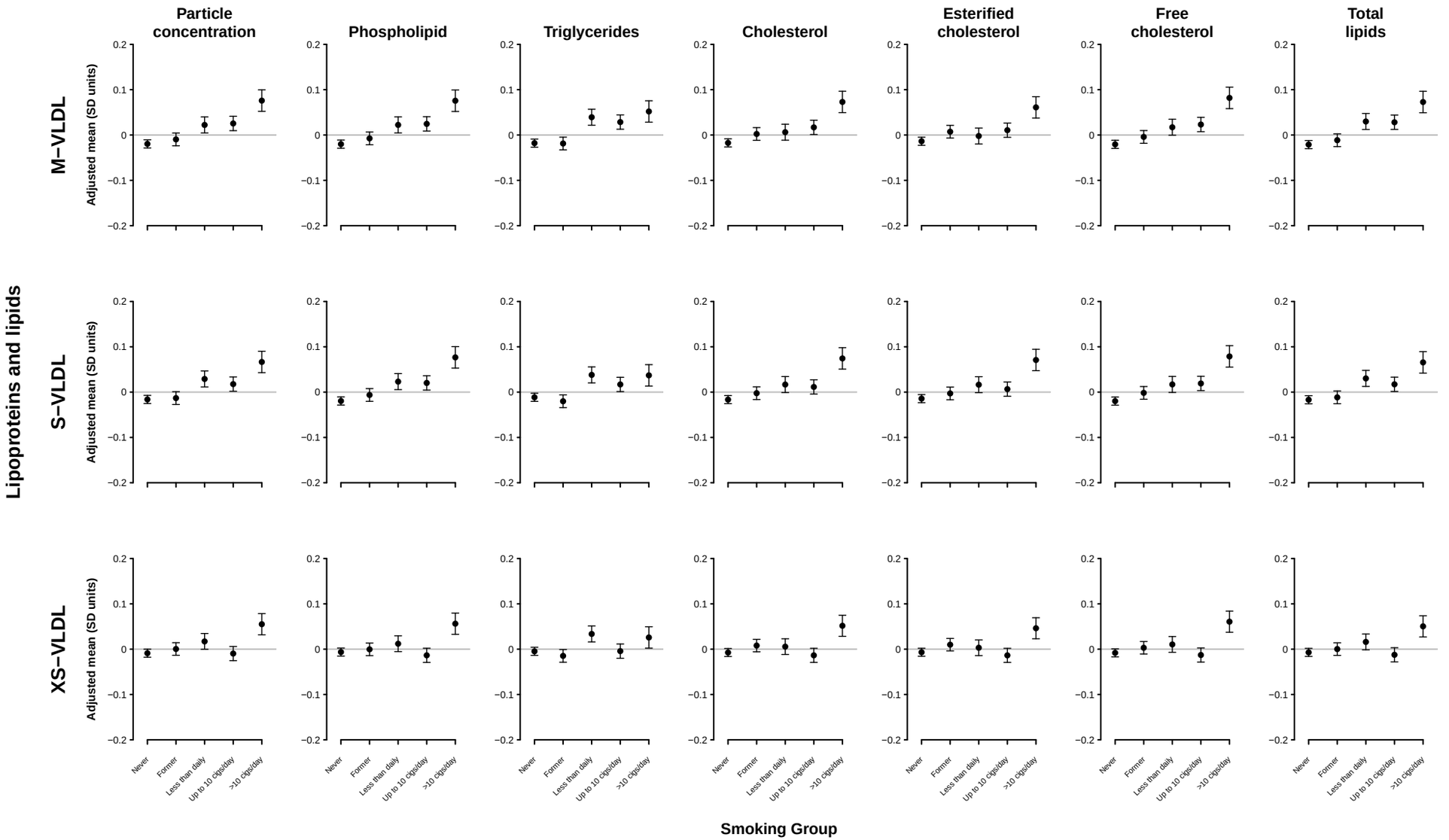
g= grams.

Figure S1. Adjusted mean concentrations of NMR biomarkers by smoking status.



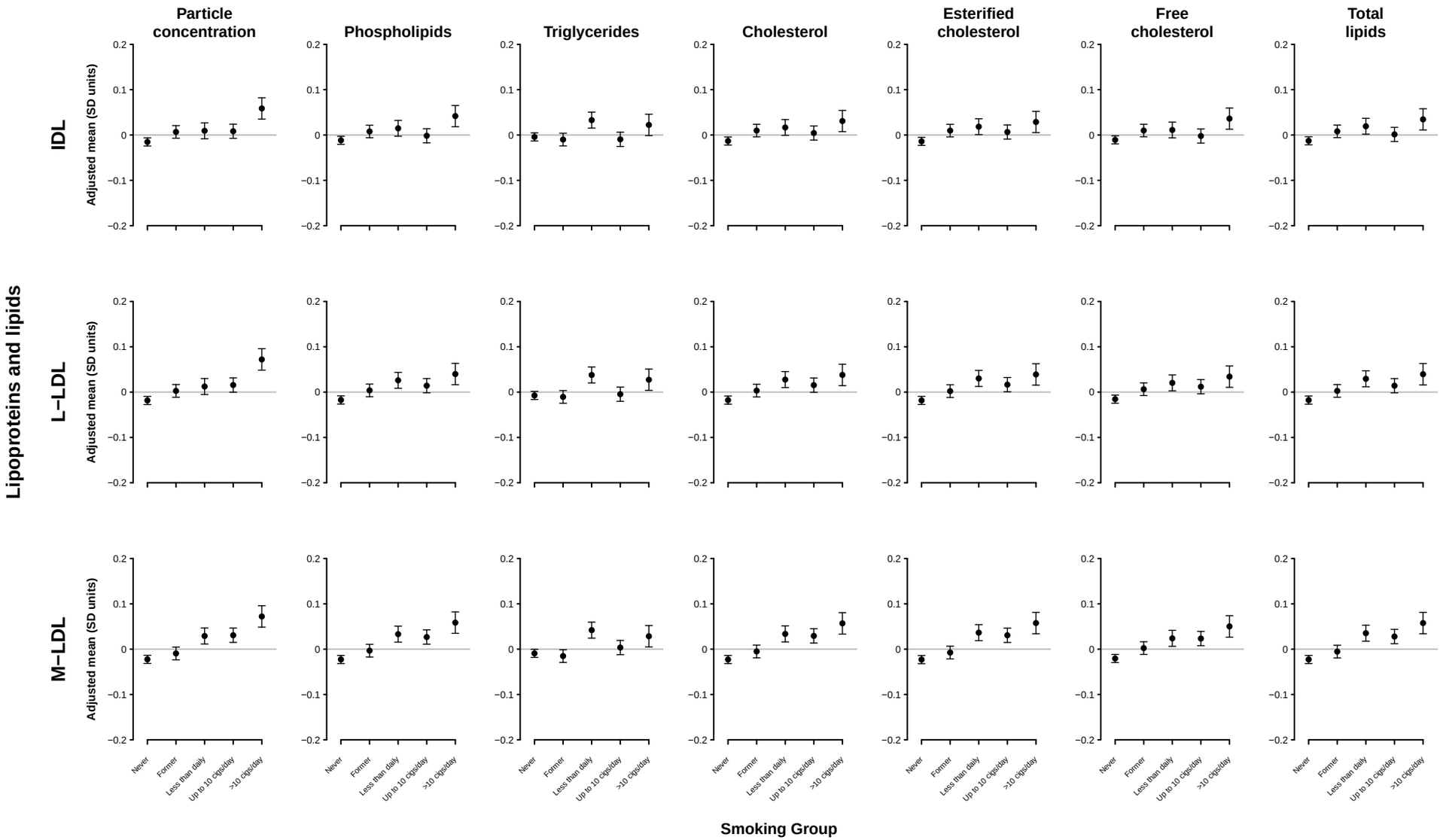
Points represent adjusted means of RINT−transformed NMR biomarkers with 95% confidence intervals.
Estimates are adjusted for age, sex, district of residence, education, and fasting duration.

Figure S1. Adjusted mean concentrations of NMR biomarkers by smoking status.



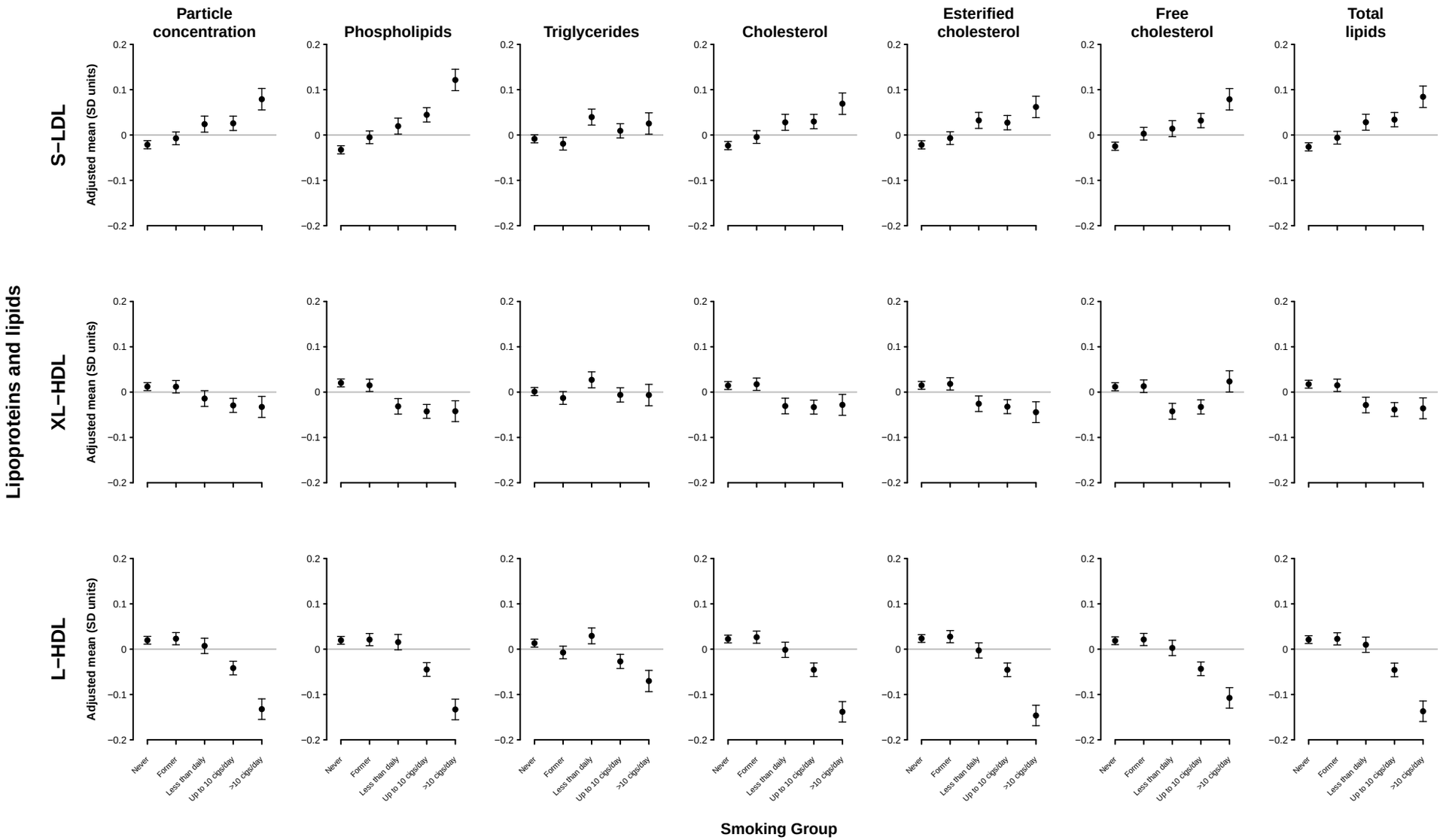
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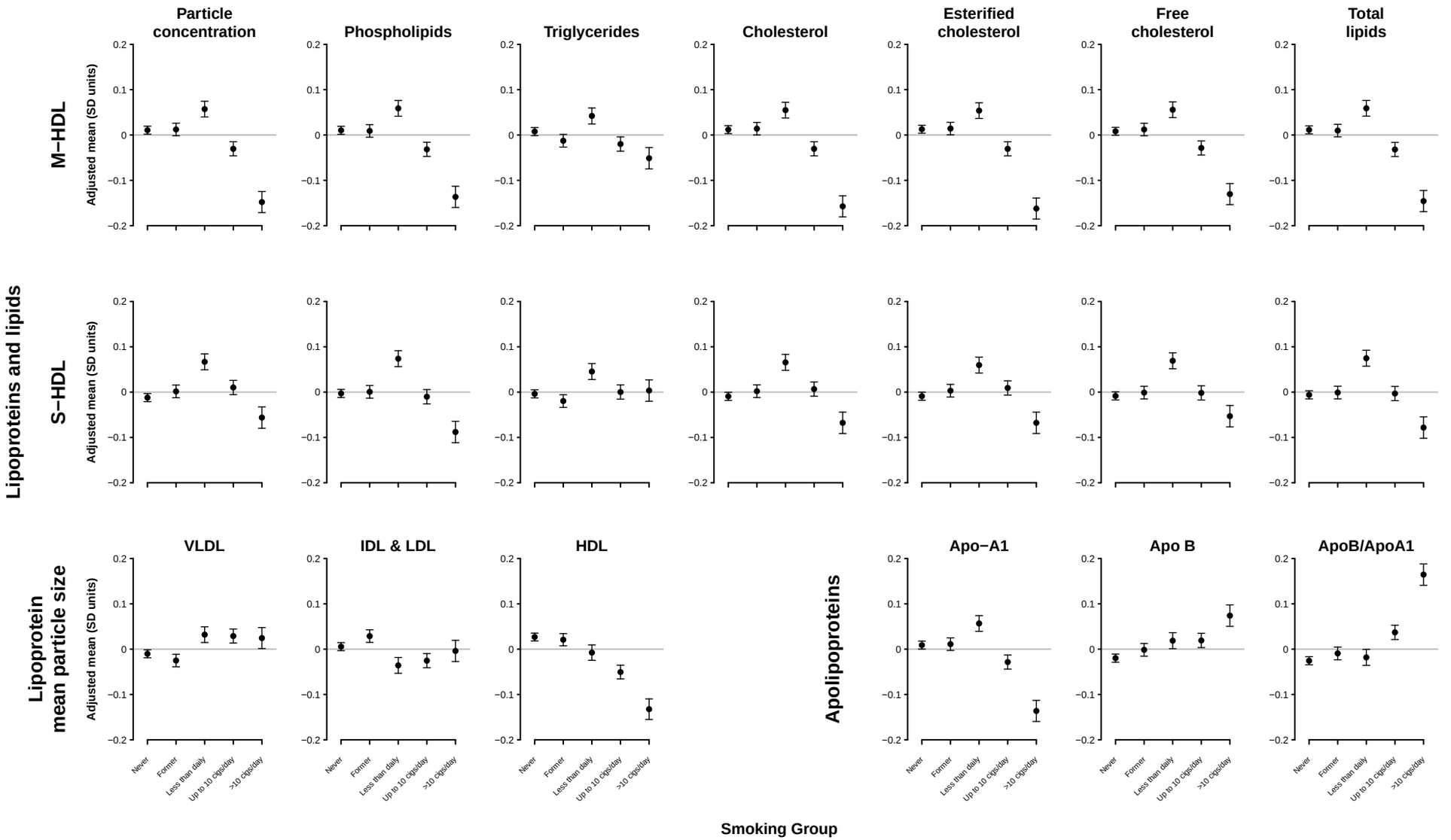
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Estimates are adjusted for age, sex, district of residence, education, and fasting duration.

Figure S1. Adjusted mean concentrations of NMR biomarkers by smoking status.



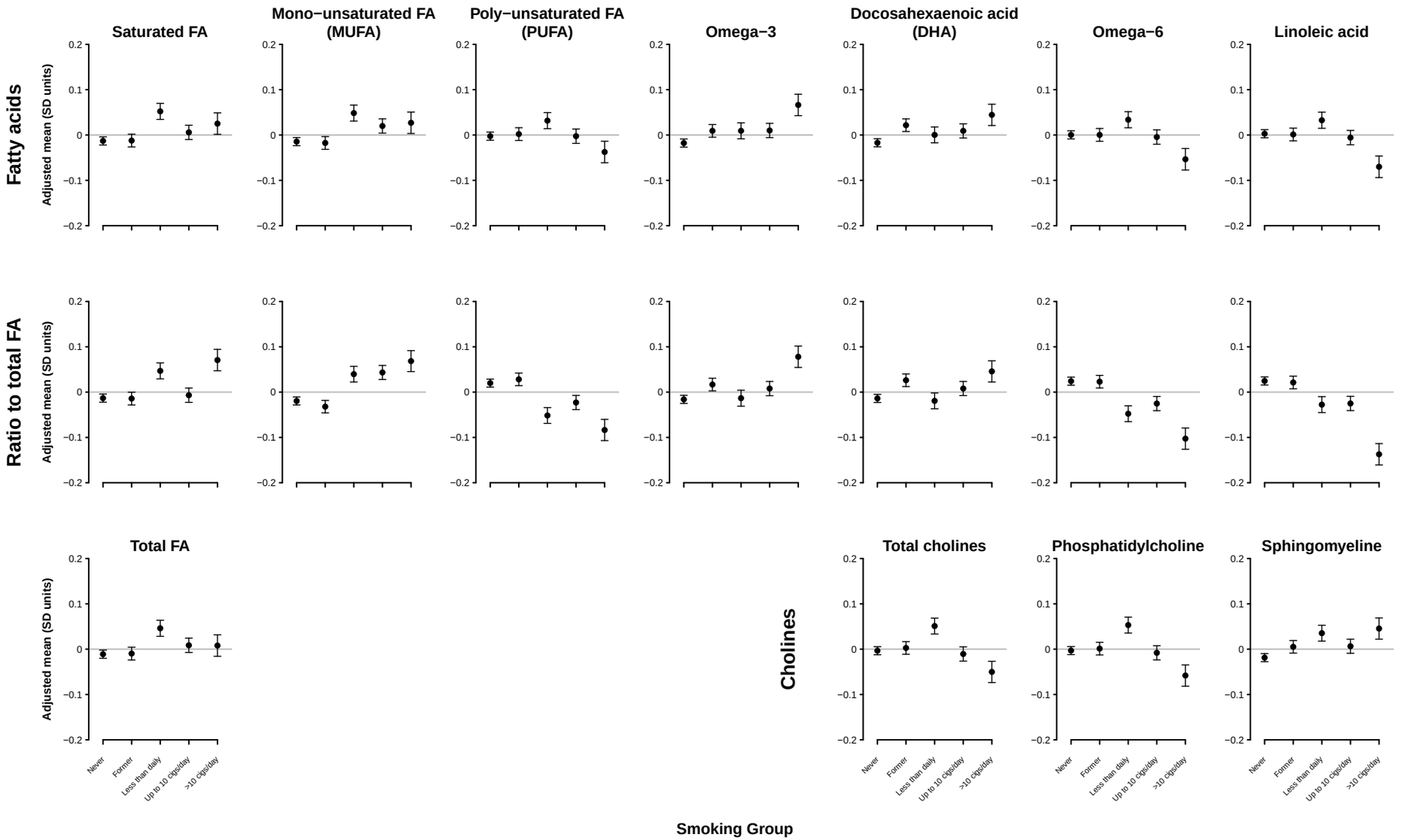
Points represent adjusted means of RINT−transformed NMR biomarkers with 95% confidence intervals.
Estimates are adjusted for age, sex, district of residence, education, and fasting duration.

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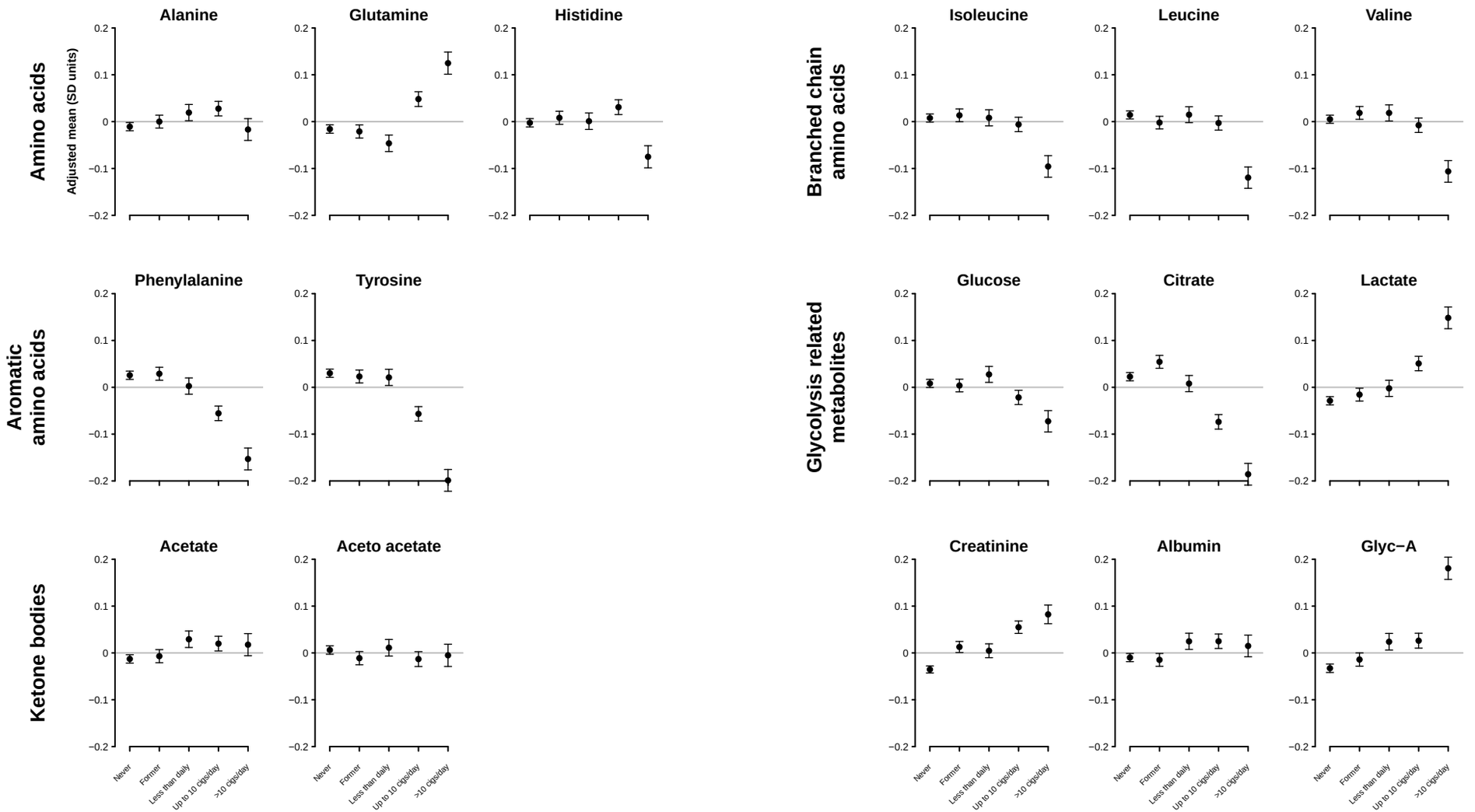
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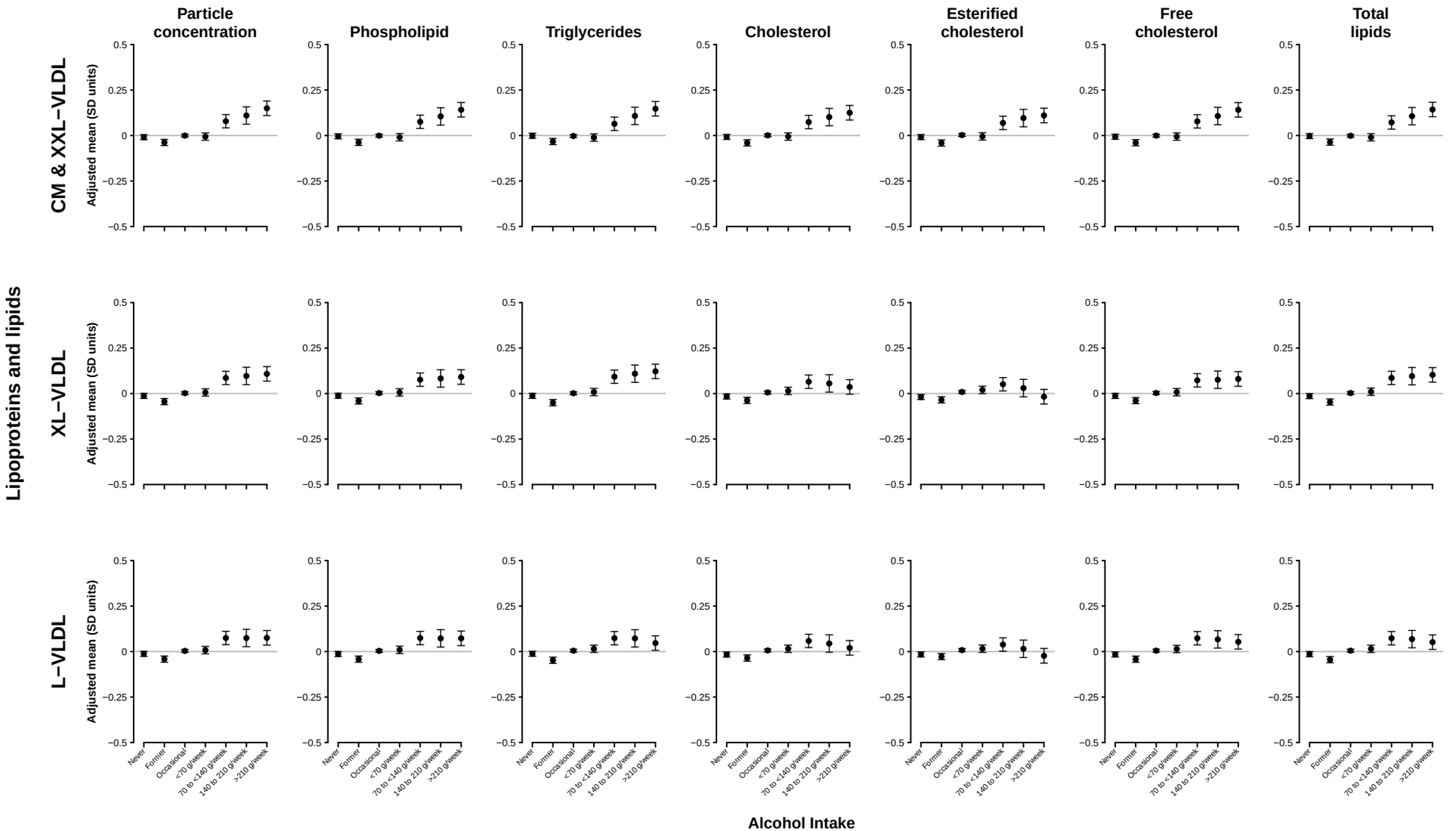
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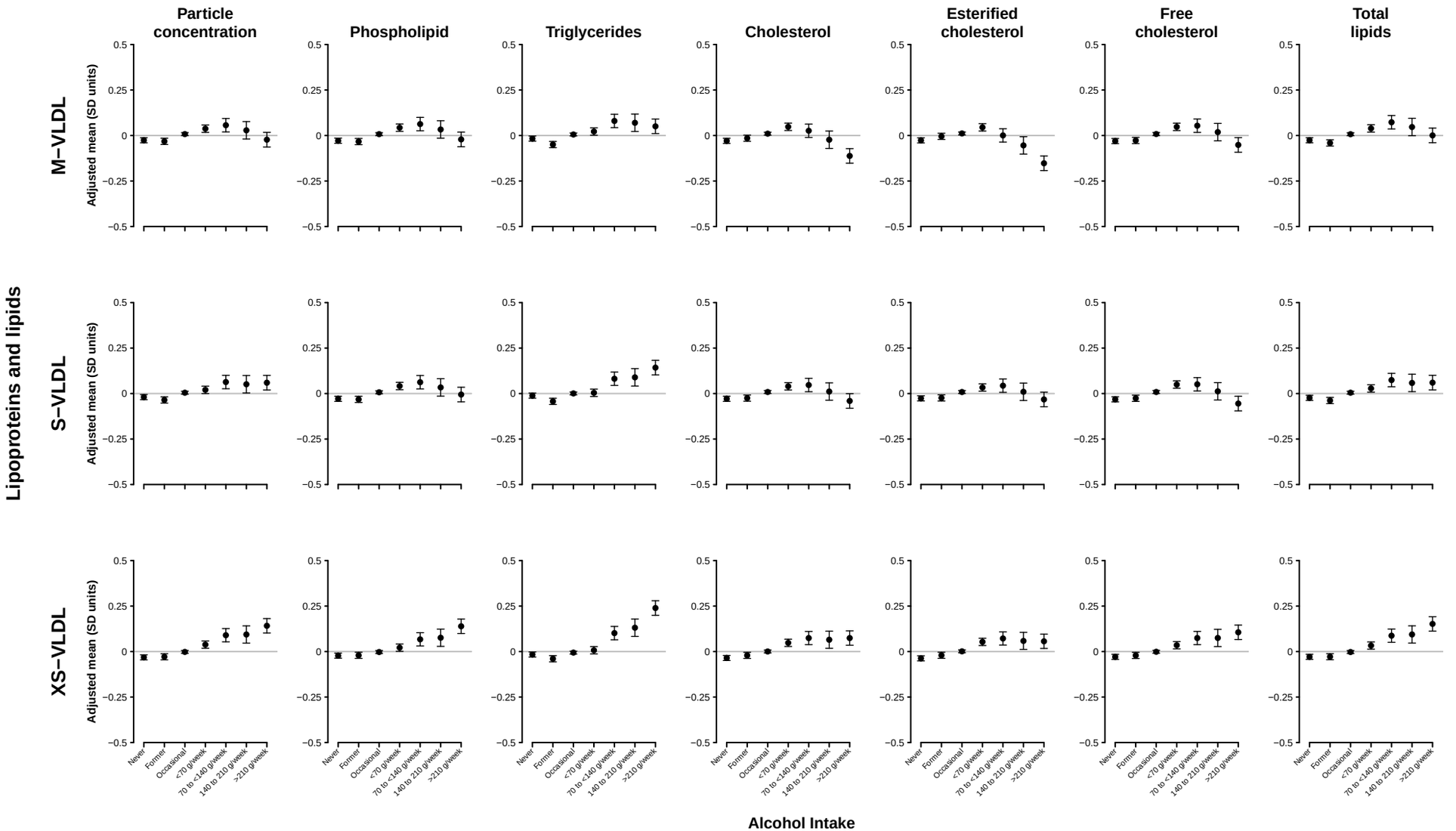
Points represent adjusted means of RINT−transformed NMR biomarkers with 95% confidence intervals.
Estimates are adjusted for age, sex, district of residence, education, and fasting duration.

Figure S2. Adjusted mean concentrations of NMR biomarkers by alcohol intake.



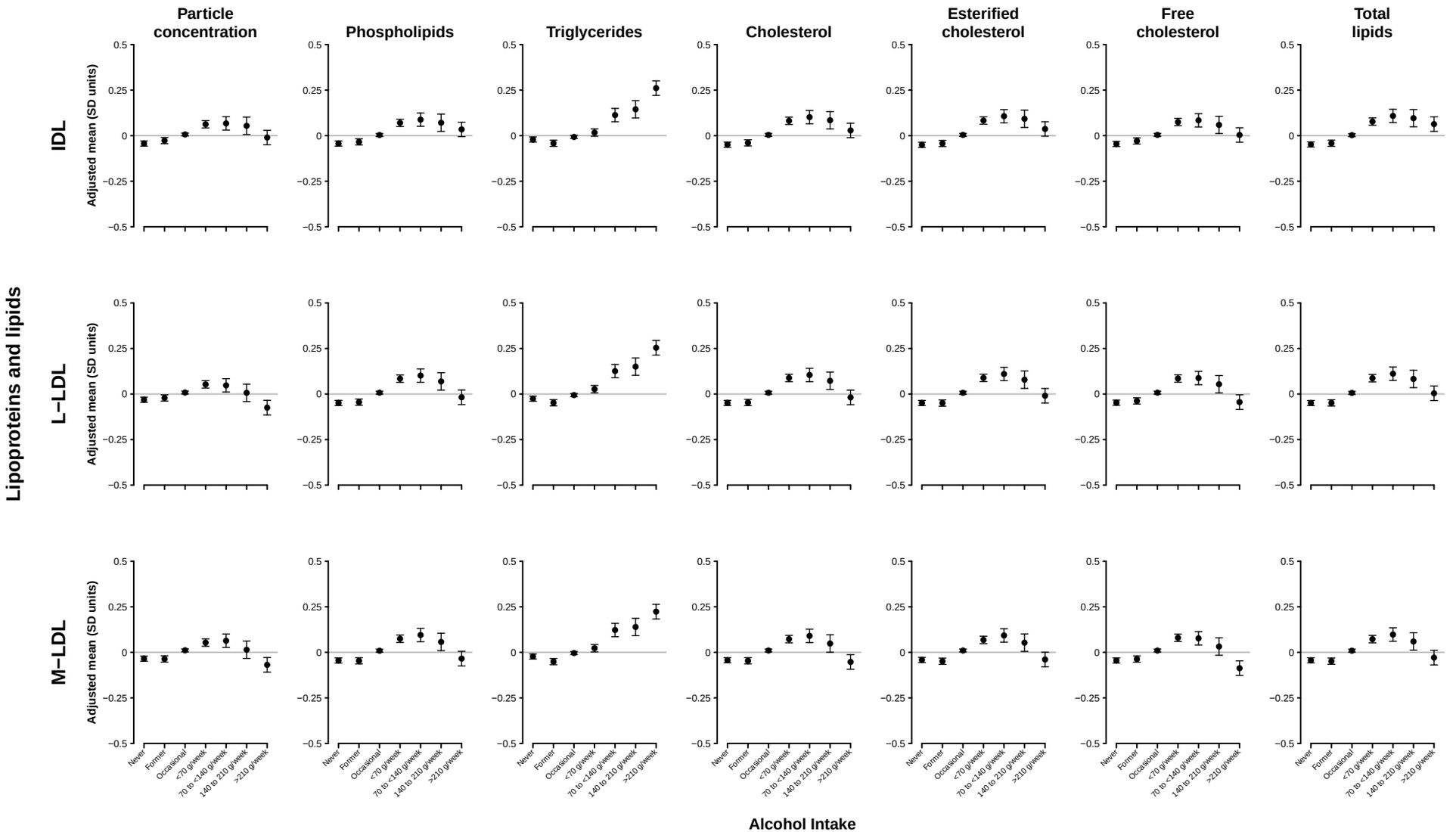
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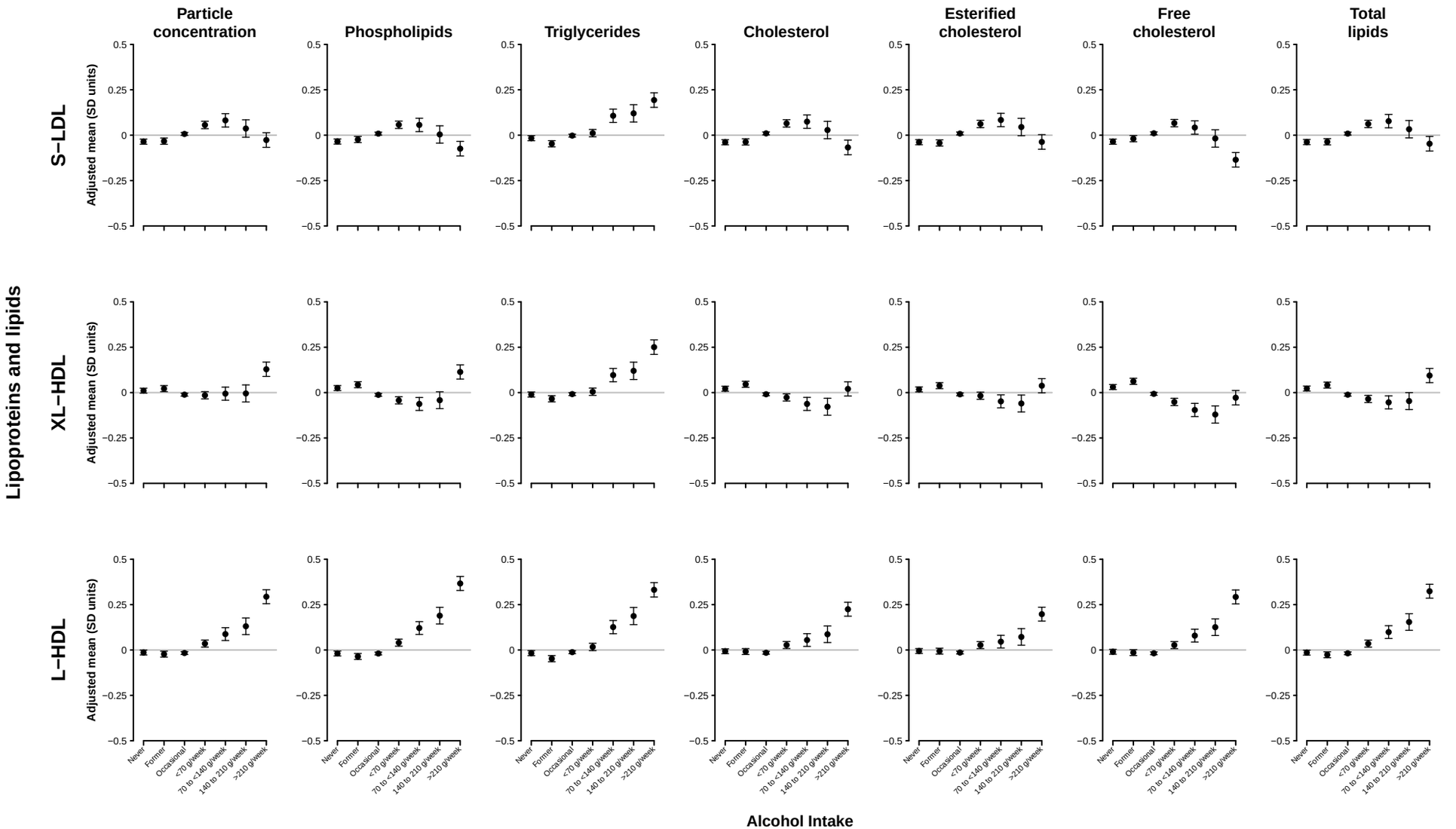
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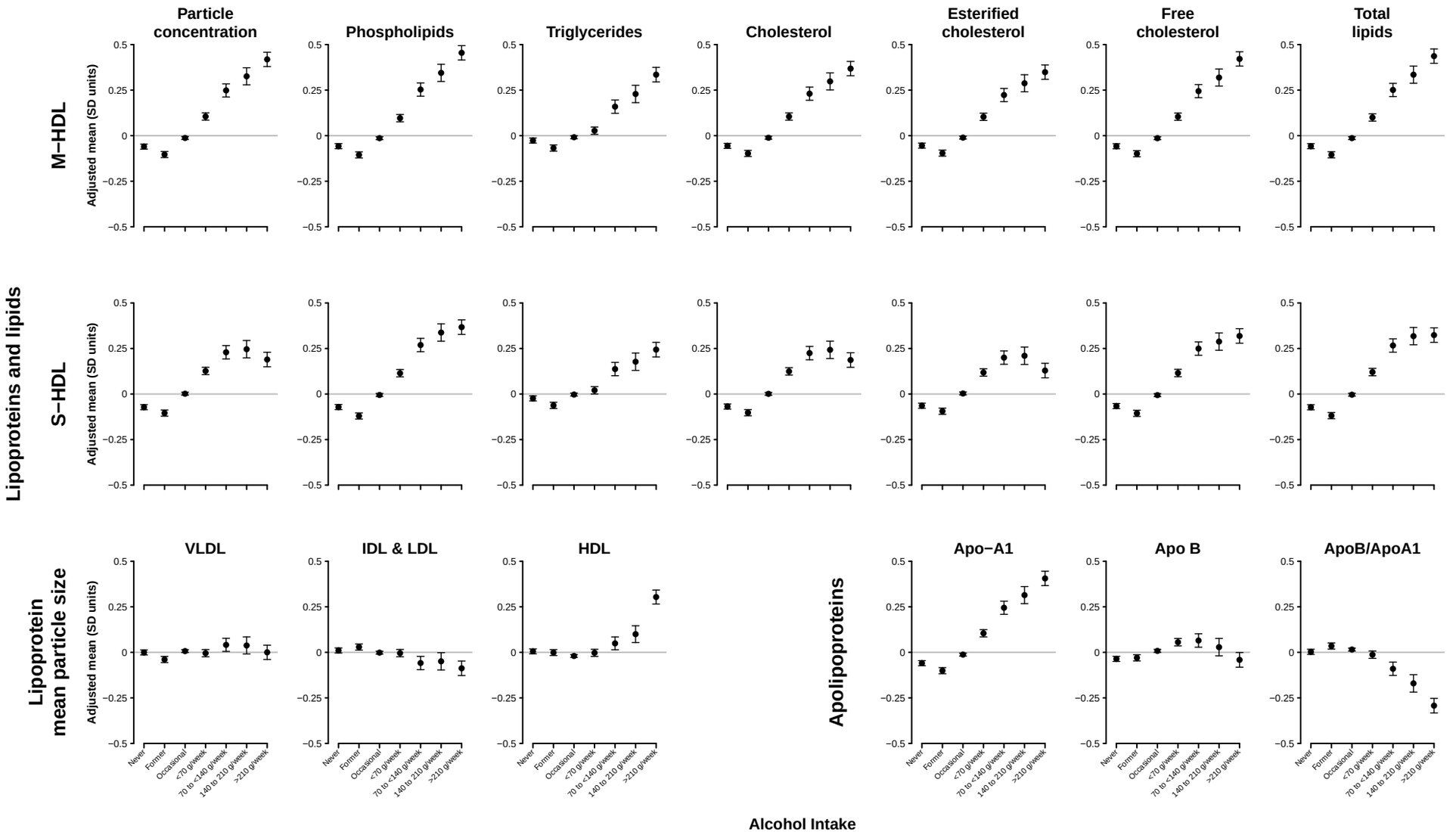
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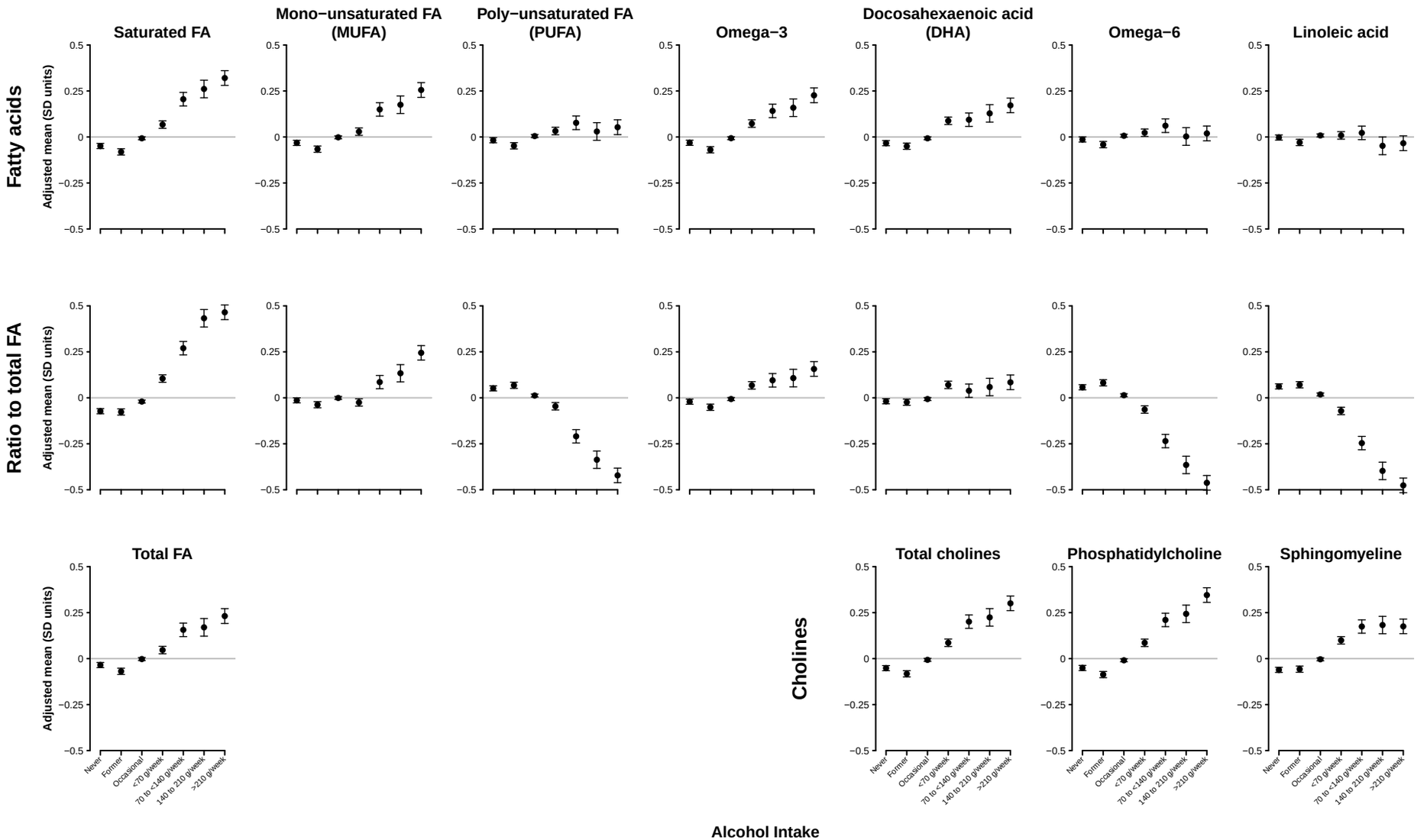
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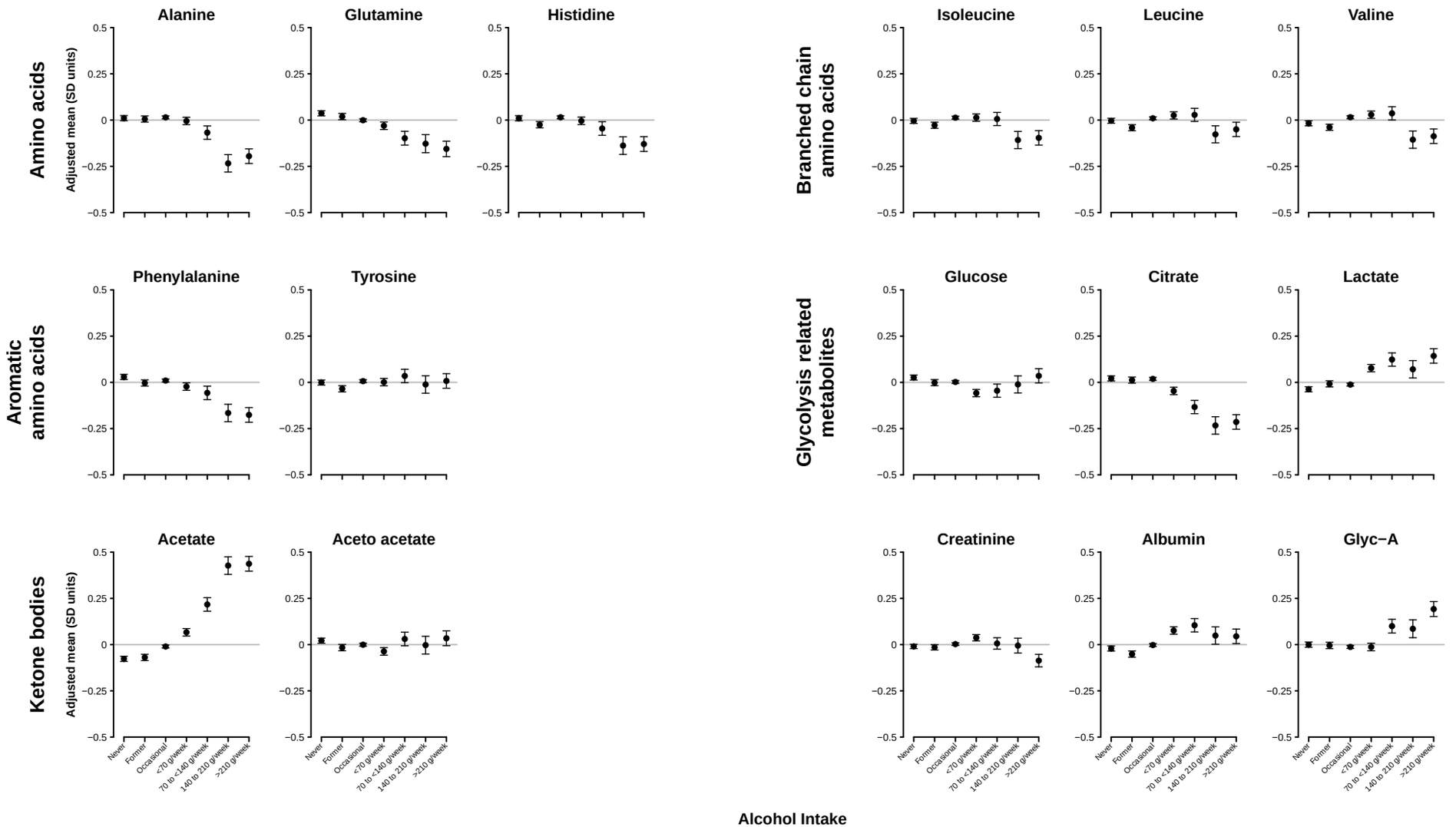
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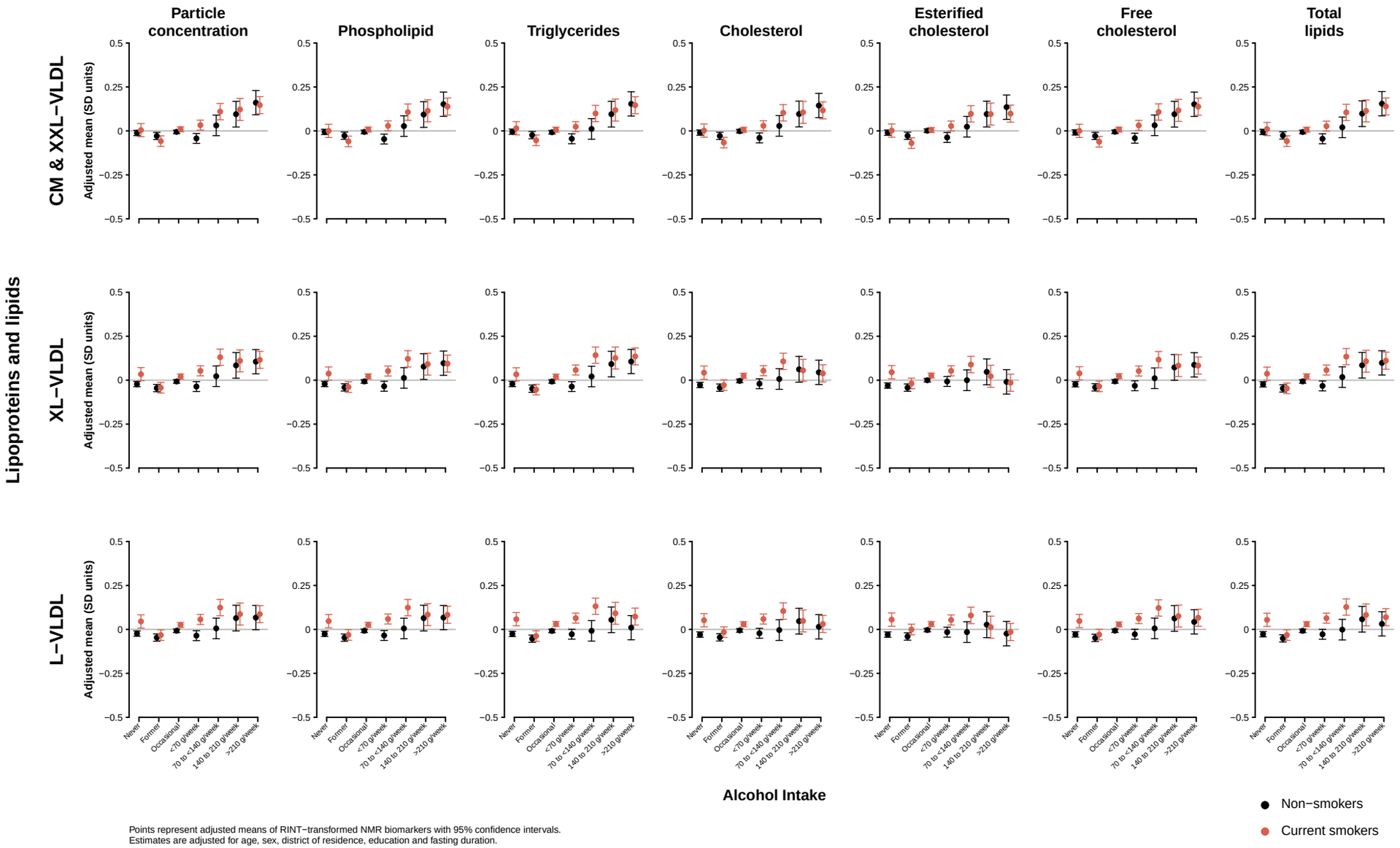
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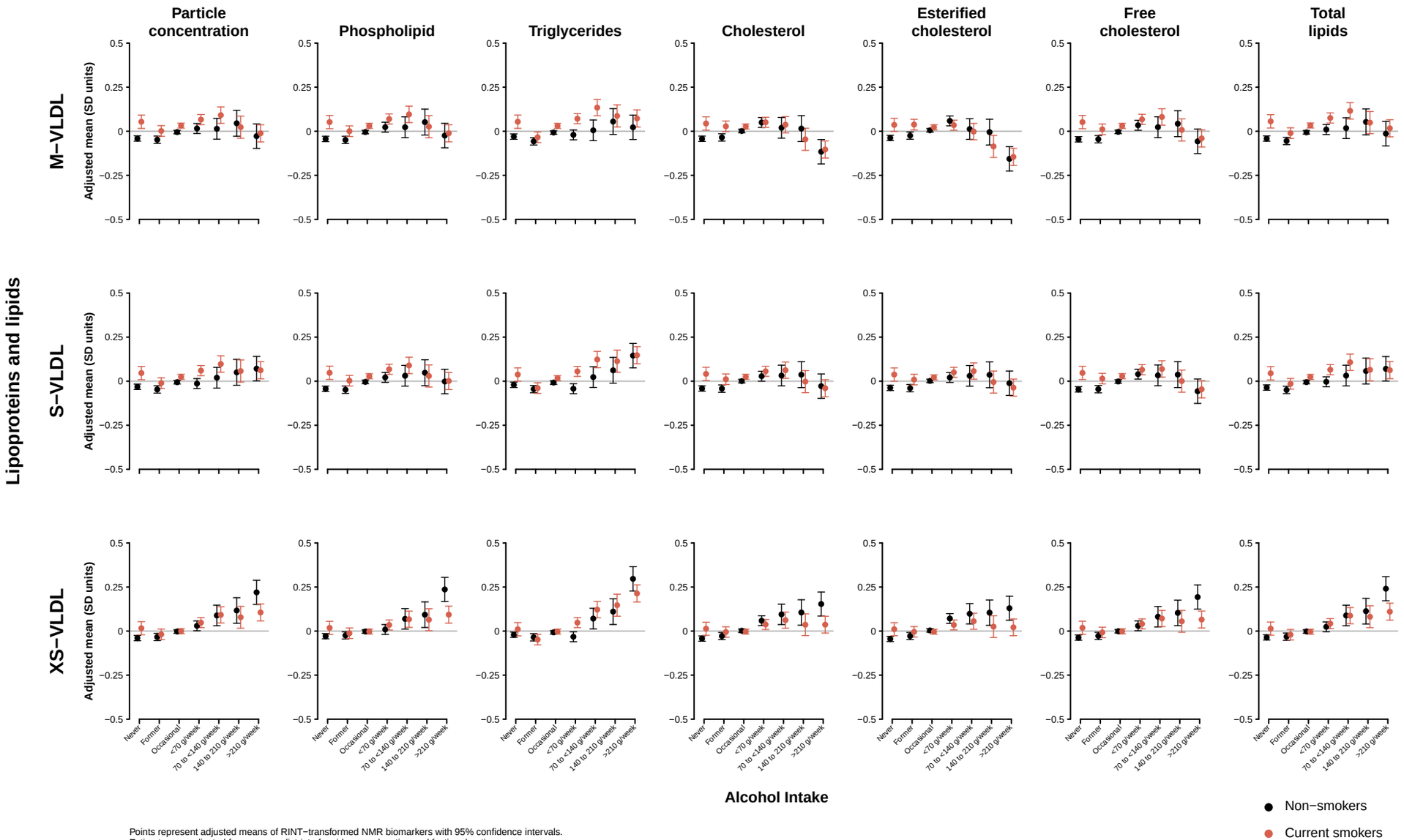
Points represent adjusted means of RINT−transformed NMR biomarkers with 95% confidence intervals.
Estimates are adjusted for age, sex, district of residence, education, and fasting duration.

Figure S3. Adjusted mean concentrations of NMR biomarkers by alcohol intake, stratified by current smoking status.



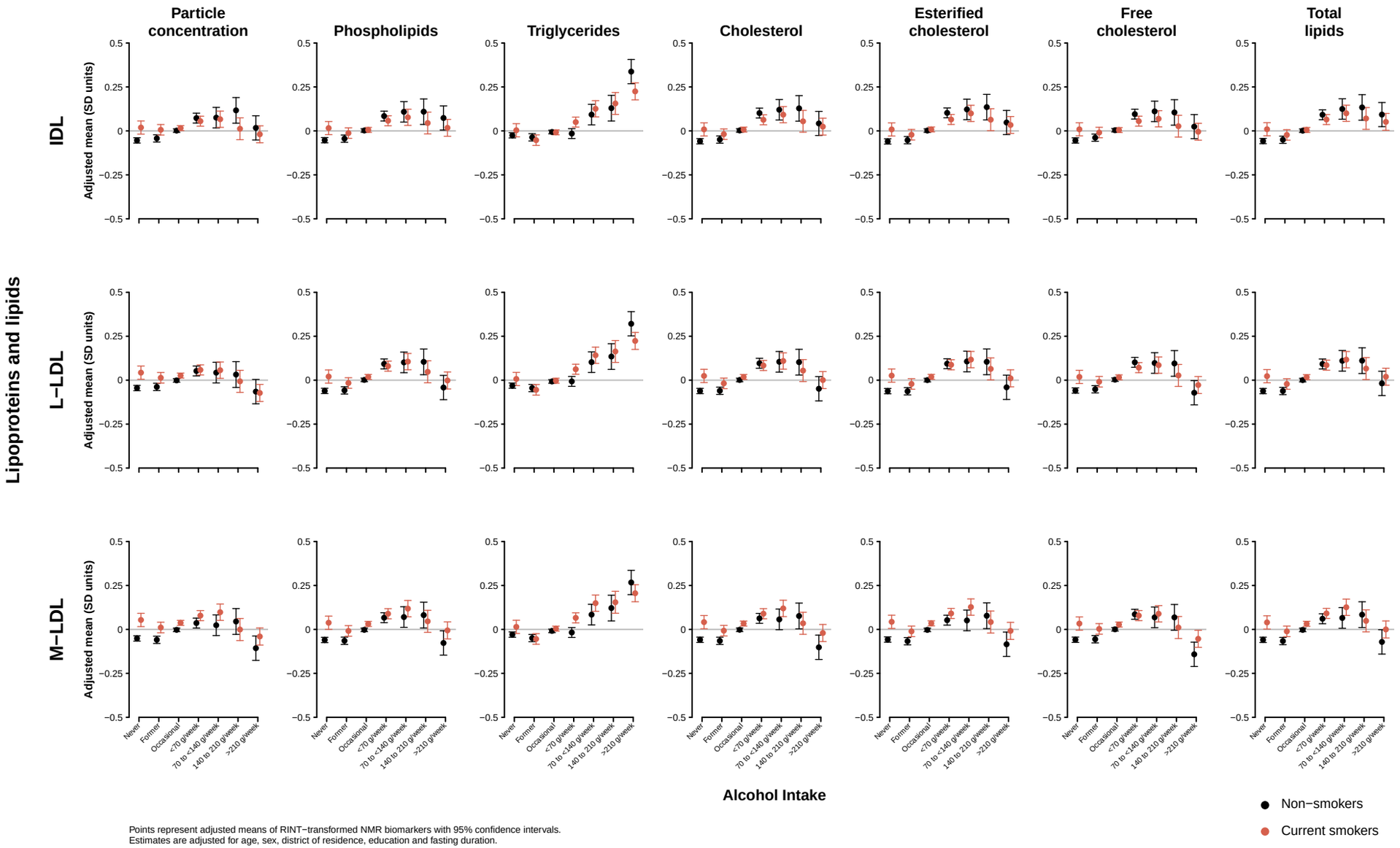
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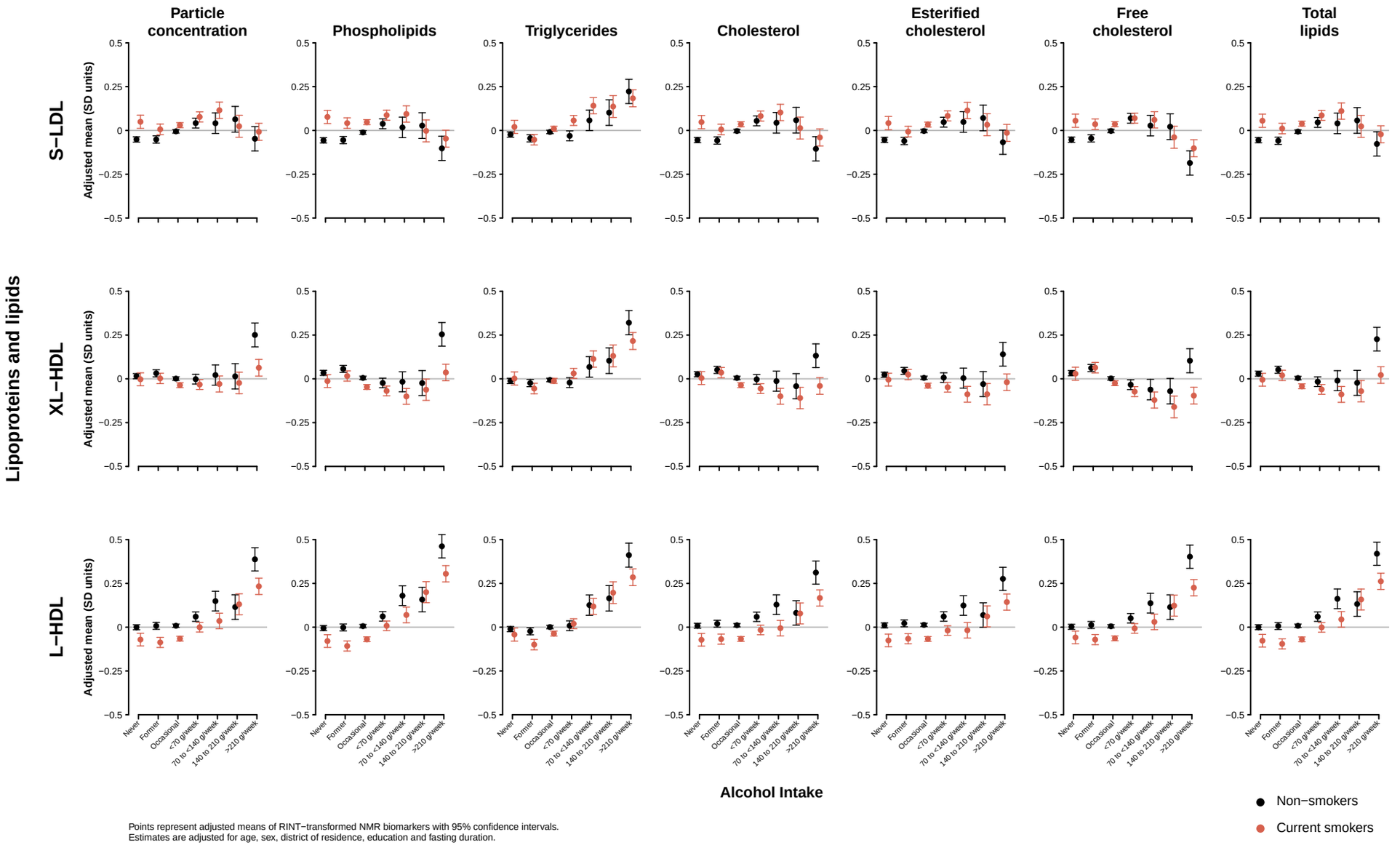
Points represent adjusted means of RINT−transformed NMR biomarkers with 95% confidence intervals.
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Figure S3. Adjusted mean concentrations of NMR biomarkers by alcohol intake, stratified by current smoking status.



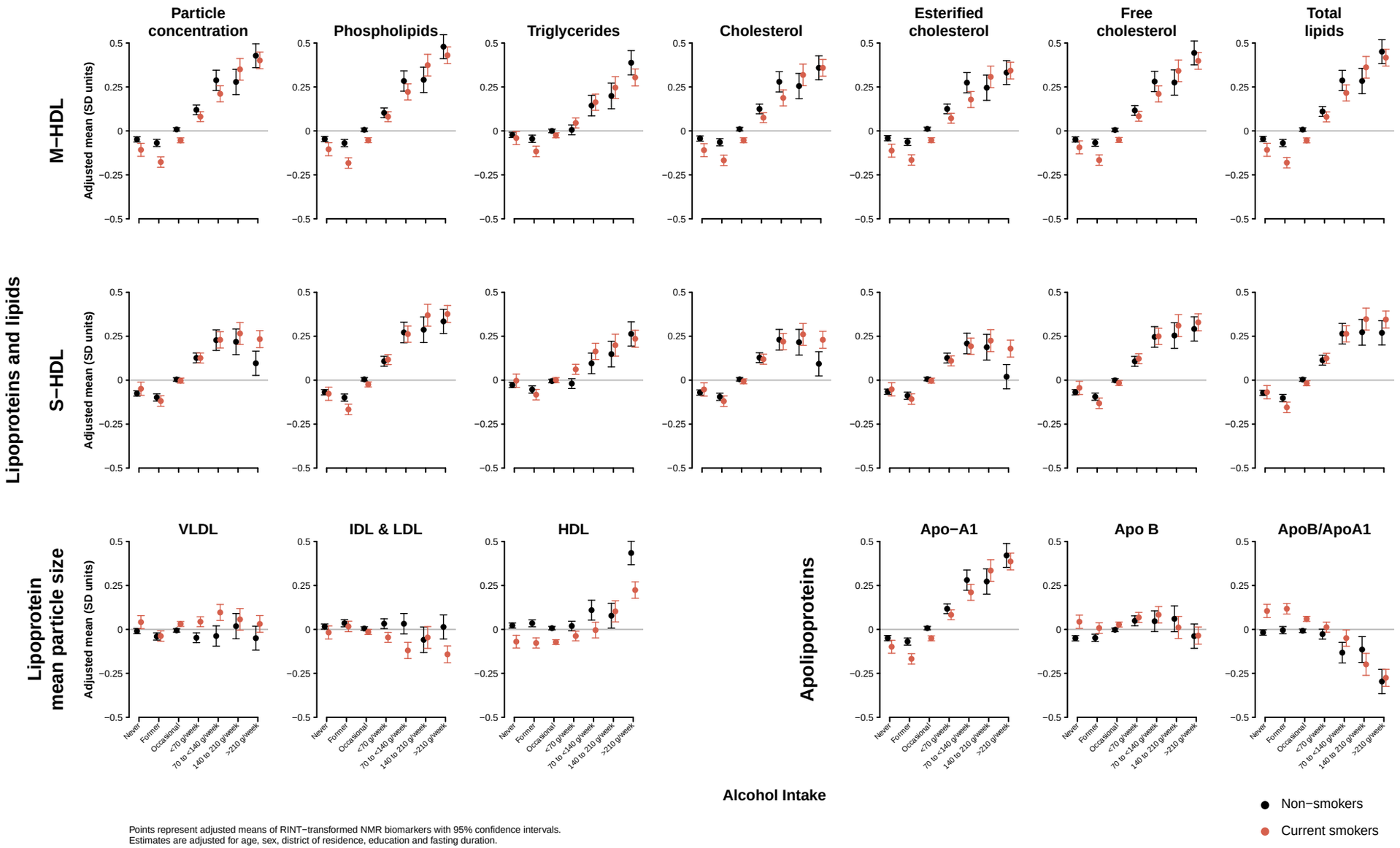
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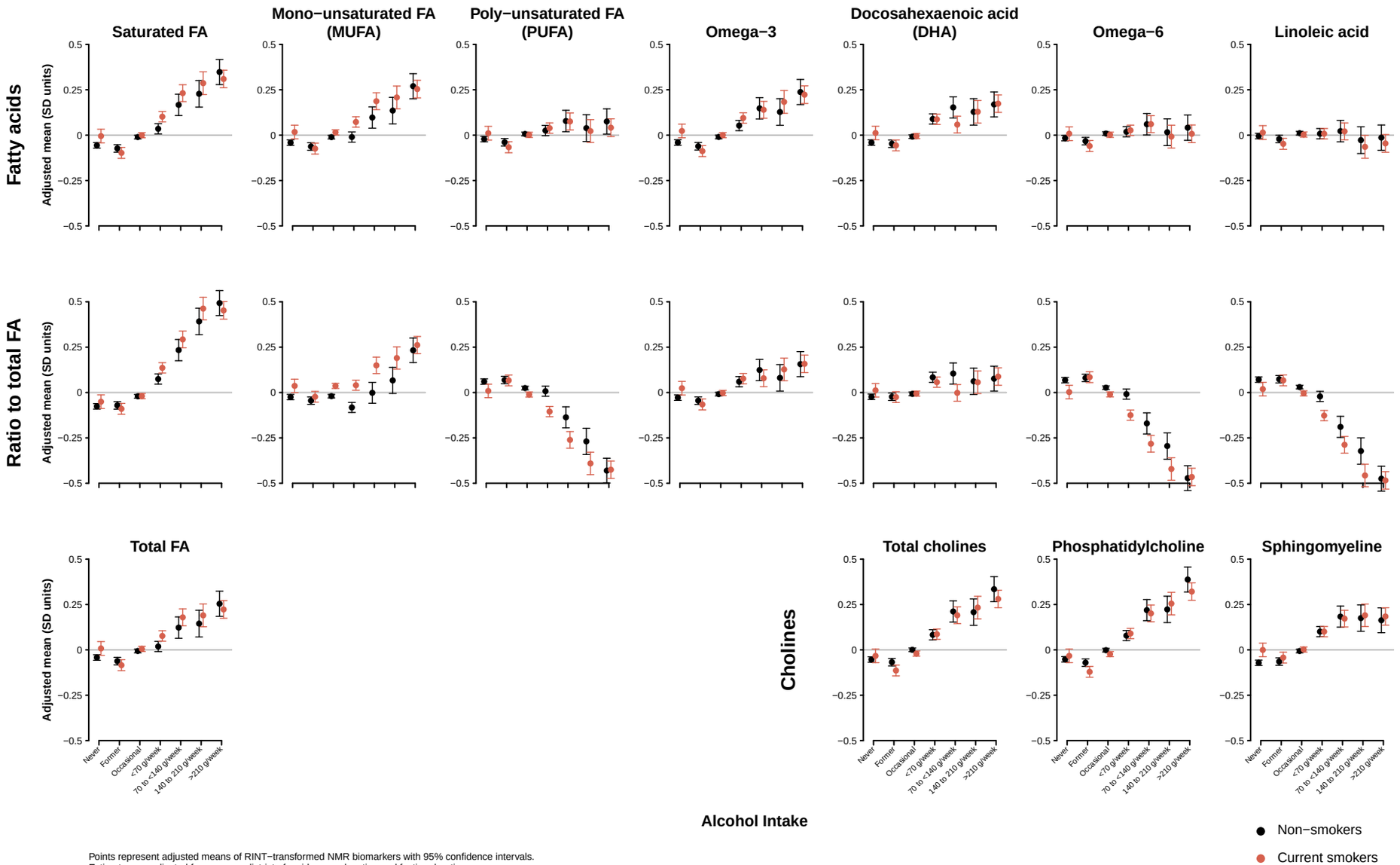
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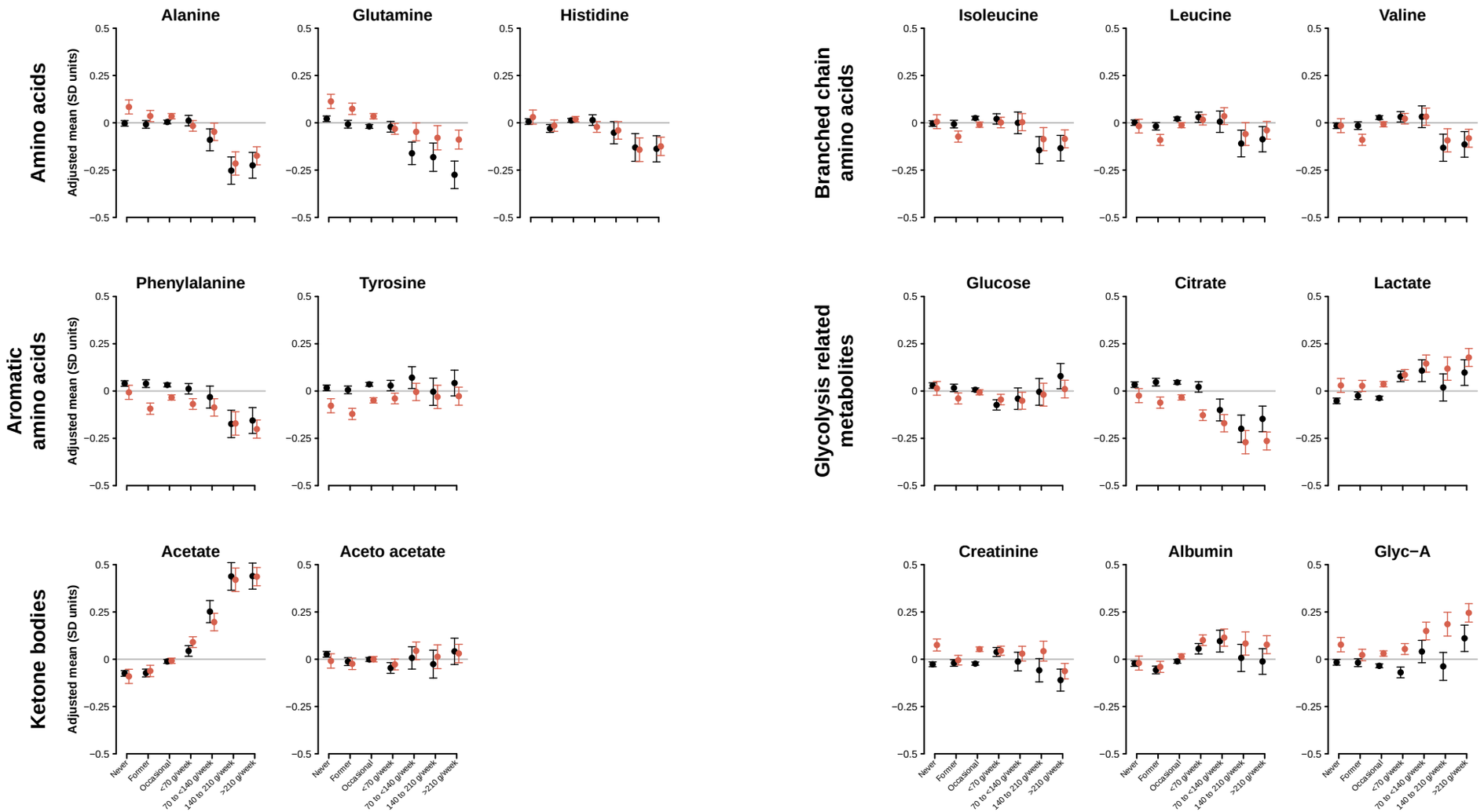
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Figure S3. Adjusted mean concentrations of NMR biomarkers by alcohol intake, stratified by current smoking status.



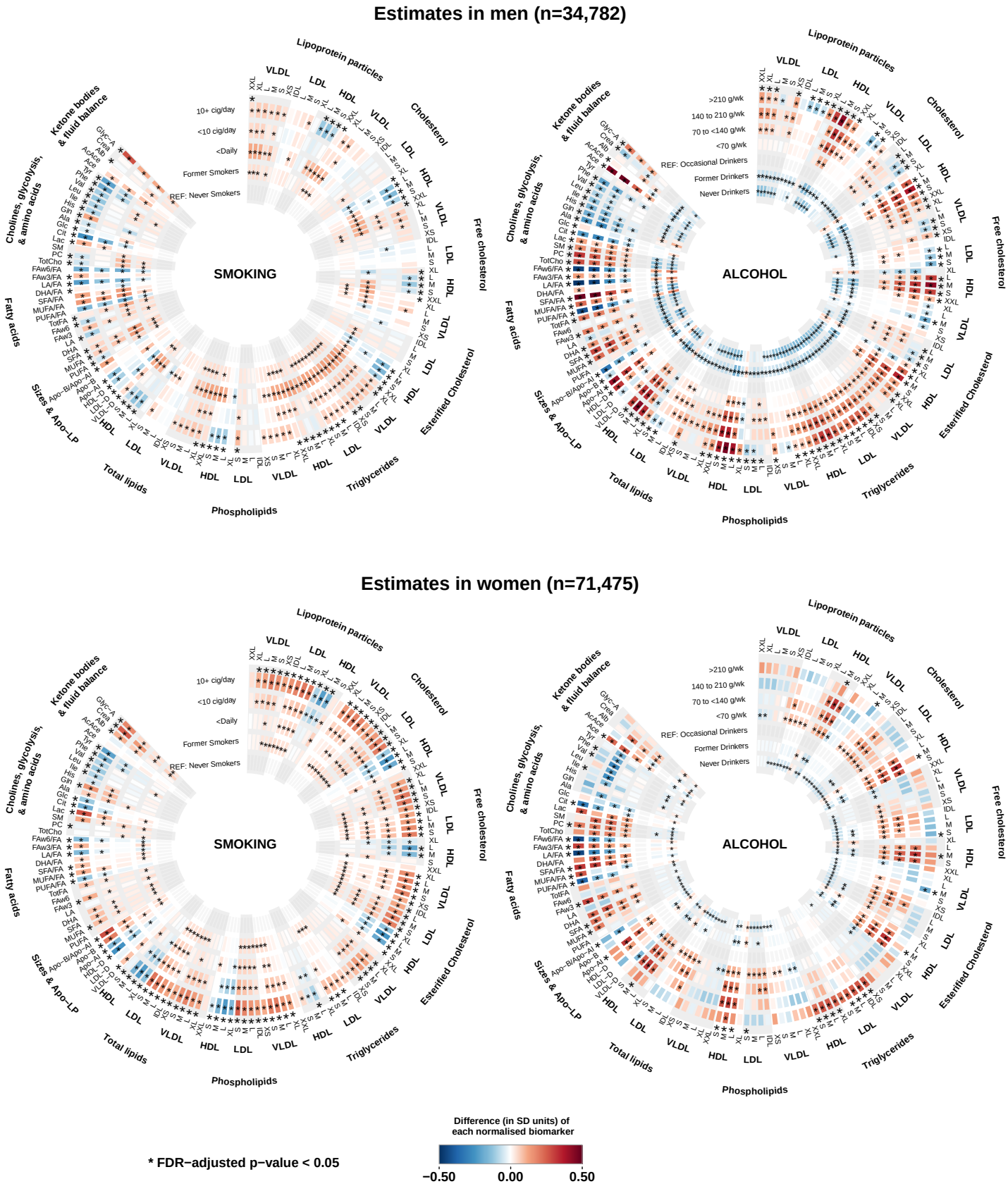
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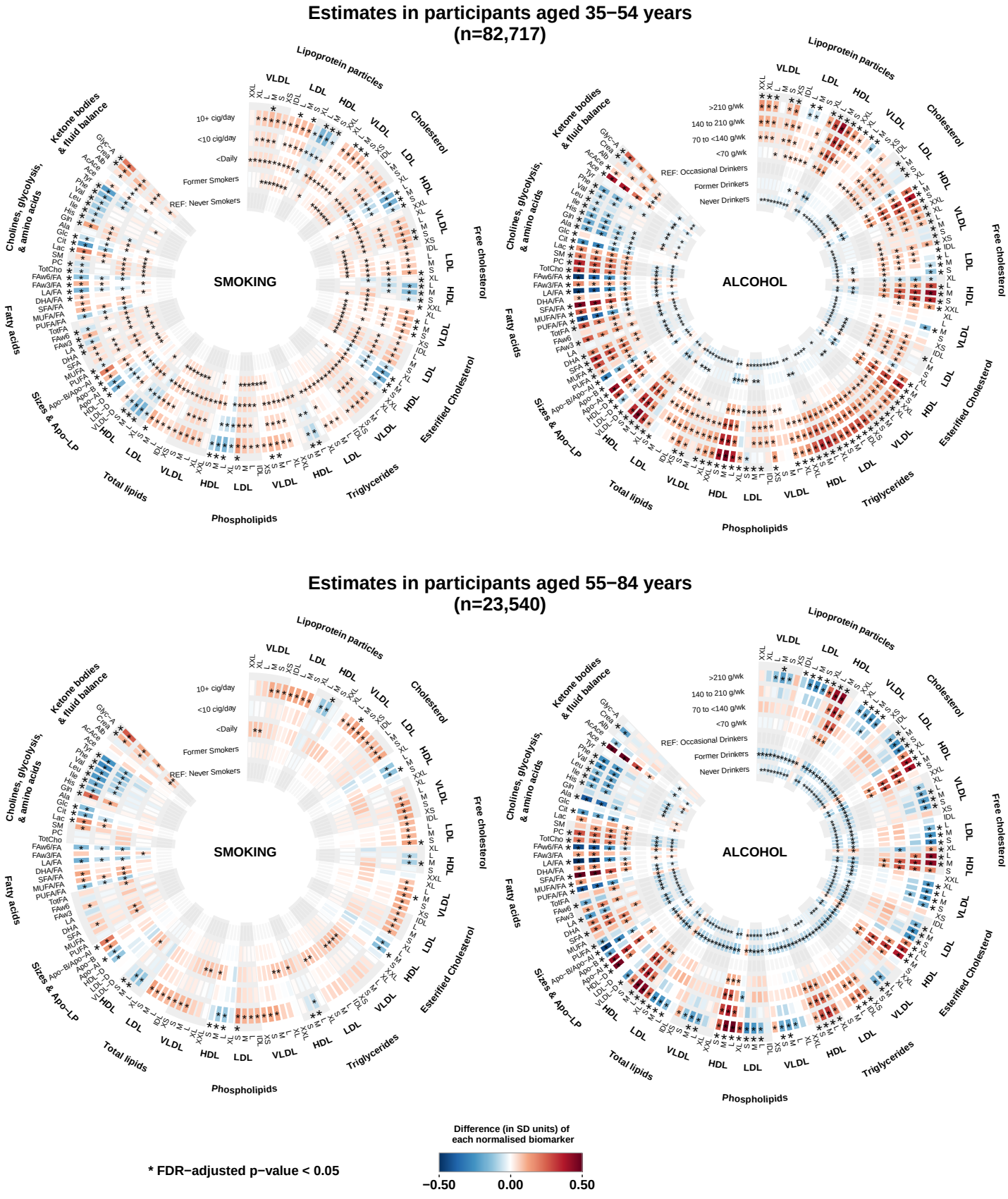
Points represent adjusted means of RINT−transformed NMR biomarkers with 95% confidence intervals.
Estimates are adjusted for age, sex, district of residence, education and fasting duration.

Figure S4. Associations between smoking and alcohol intake and each NMR−biomarker, by sex.



Difference (in SD units) of each normalised NMR biomarker associated with levels of self−reported smoking or alcohol intake at baseline.
Analyses, exclusions, notation, and abbreviations as in Figure 1, except linear regression models were fitted separately in men and women. Point estimates are reported in Supplementary Data 5, 6, 7 and 8 (Supplementary Material 2).

Figure S5. Associations between smoking and alcohol intake and each NMR−biomarker, by age.

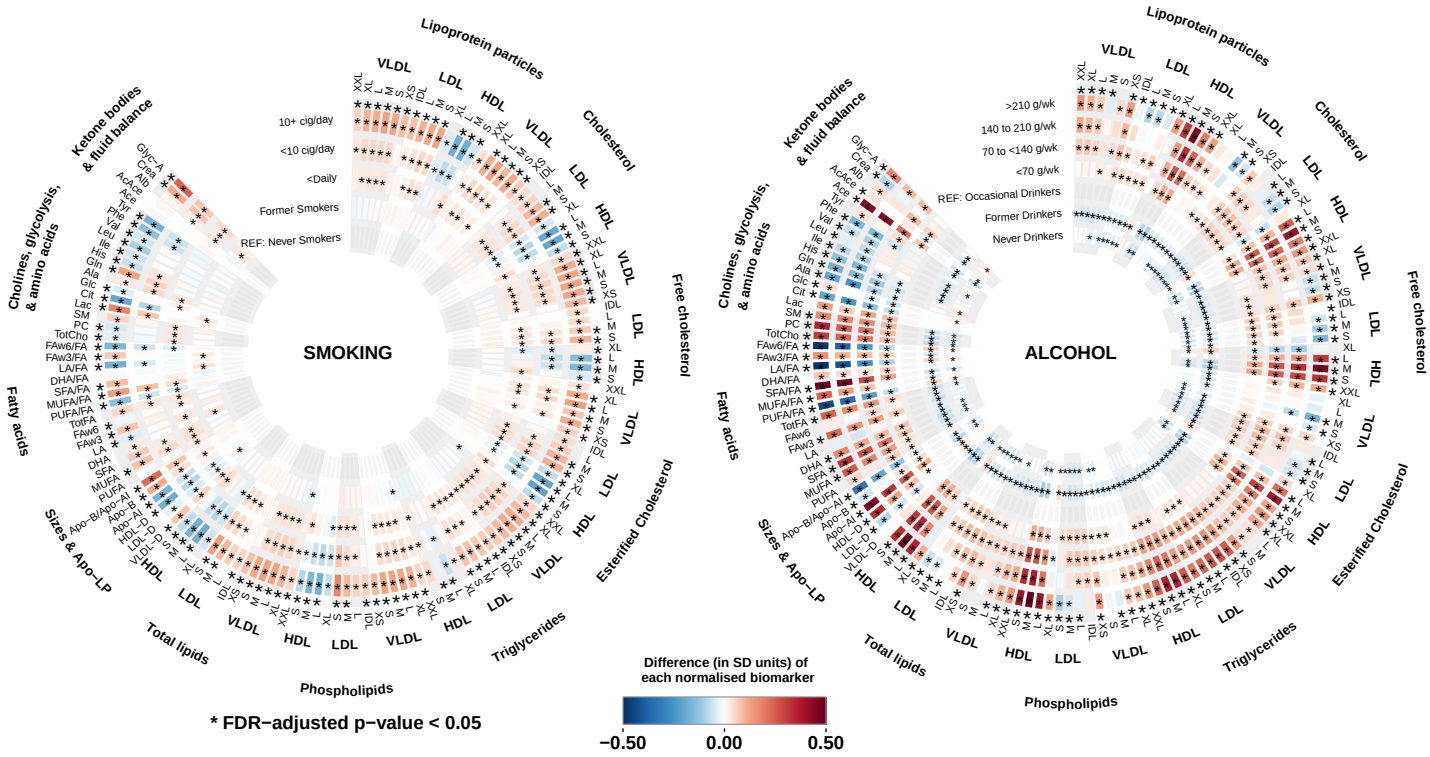


Difference (in SD units) of each normalised NMR biomarker associated with levels of self−reported smoking or alcohol intake at baseline.
Analyses, exclusions, notation, and abbreviations as in Figure 1, except linear regression models were fitted separately by age group. Point estimates are reported in Supplementary Data 9, 10, 11 and 12 (Supplementary Material 2).

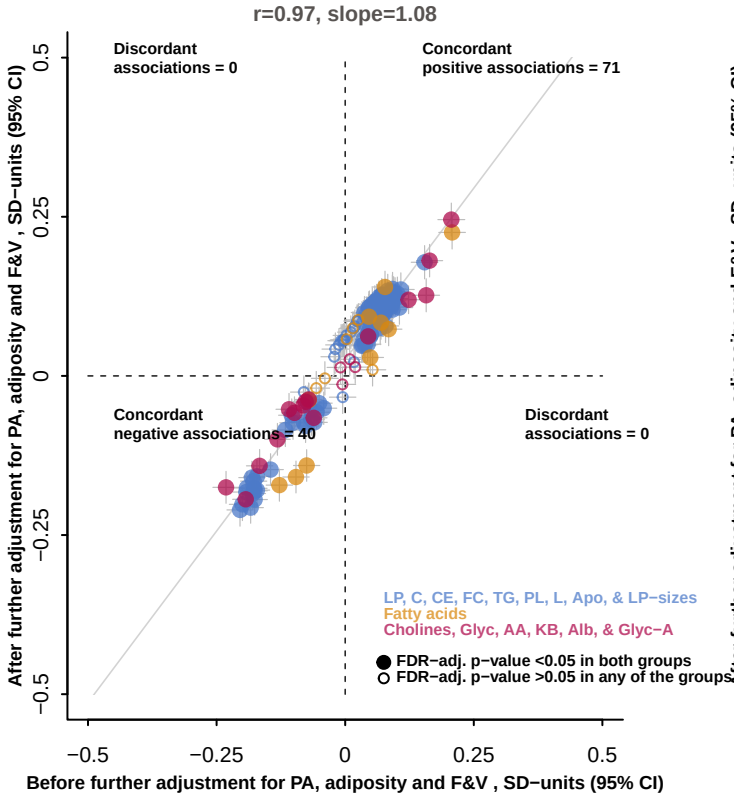
Figure S6. Associations between smoking and alcohol intake and each NMR−biomarker in 106,257 participants, further adjusted for physical activity, adiposity and F&V.

Smoking further adjusted for PA, adiposity and F&V

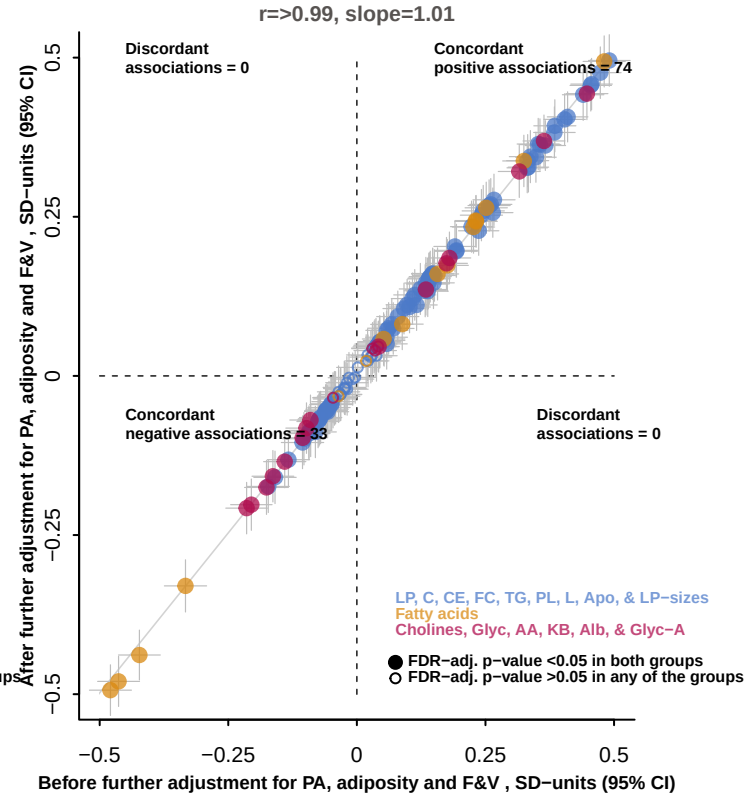
Alcohol intake further adjusted for PA, adiposity and F&V



Contrast of highest smoking category (10+ cigs/day) estimates before vs after further adjustment for PA, adiposity and F&V

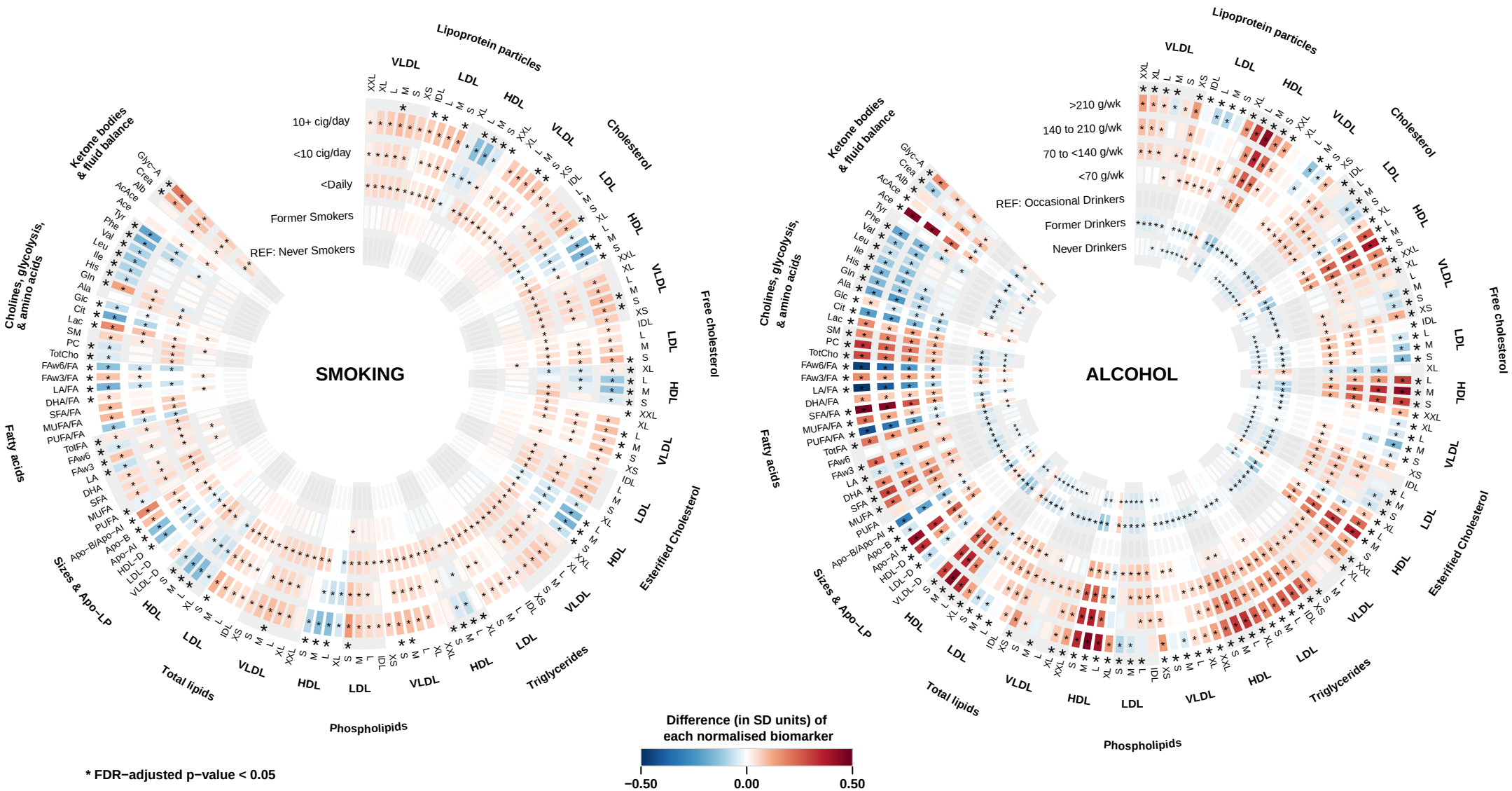


Contrast of highest alcohol intake category (>210 g/day) estimates before vs after further adjustment for PA, adiposity and F&V



Difference (in SD units) of each normalised NMR biomarker associated with levels of self−reported smoking or alcohol intake at baseline.
Analyses, exclusions, notation, and abbreviations as in Figure 1. Adjustments as in Figure 2 except linear regression models were further adjusted for physicial activity, weight, height, waist circunference and hip circunference. Vertical and horizontal bars represent 95% confidence intervals. F&V= weekly fruit and vegetable intake frequency. Point estimates are reported in Supplementary Data 13 and 14 (Supplementary Material 2).

Figure S7. Associations between smoking and alcohol intake and each NMR−biomarker, in 135,743 participants. (Repeat of Figure 1 further including participants with prior chronic disease).



Difference (in SD units) of each normalised NMR biomarker associated with levels of self−reported smoking or alcohol intake at baseline.
Analyses, exclusions, notation, and abbreviations as in Figure 1, except linear regression models were fitted further including participants with prior chronic disease. Point estimates are reported in Supplementary Data 15 and 16 (Supplementary Material 2).