Table S1. Example daily meal plan for each of the experimental diets.

High-Carbohydrate Diet	Amount g	Energy kcal	Protein g	Carb g	Fat g	Chol mg	SFA g	MUFA g	PUFA g	Fiber g	Sugar g
Breakfast (Cereal and Eggs)											
Cinnamon life cereal	60.0	235.3	5.6	46.9	2.8	0.0	0.0	0.9	0.9	3.8	15.0
Reduced sugar vanilla almond milk	150.0	40.0	0.3	6.9	1.3	0.0	0.0	0.6	0.0	0.0	6.9
Egg beaters	150.0	68.9	14.8	2.5	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Gouda cheese	42.5	151.1	10.6	0.9	11.7	48.5	7.5	3.3	0.3	0.0	0.9
Green pepper	35.0	8.4	0.4	1.6	0.1	0.0	0.0	0.0	0.0	0.6	
Orange juice	248.0	114.6	1.7	25.8	0.5	0.0	0.1	0.1	0.1	0.5	20.8
Morning Snack											
Pretzels	30.0	110.1	3.2	24.3	0.0	0.0	0.0	0.0	0.0	1.1	0.5
Grape juice	240.0	148.2	0.9	35.4	0.3	0.0	0.1	0.0	0.1	0.5	34.1
Lunch (Loaded Baked Potato)											
Russet potato	300.0	292.4	7.9	64.3	0.4	0.0	0.1	0.0	0.2	6.9	3.2
Diced ham	42.5	56.3	6.7	1.5	2.6	22.4	0.7	1.5	0.3	0.0	0.7
Broccoli	50.0	16.5	1.4	2.4	0.1	0.0	0.0	0.0	0.1	1.5	0.7
I can't believe it's not butter, light	5.0	16.1	0.0	0.0	1.8	0.0	0.5	0.4	0.9	0.0	0.0
Light sour cream	20.0	27.6	0.7	1.4	2.1	7.0	1.3	0.6	0.1	0.0	0.0
Cheddar cheese	42.5	172.5	10.2	0.6	14.4	43.4	8.2	3.6	0.6	0.0	0.1
Apple slices	100.0	57.8	0.3	13.8	0.2	0.0	0.0	0.0	0.1	2.4	10.4
Marshmallow fluff	33.0	110.0	0.0	27.5	0.0		0.0	0.0	0.0		16.5
Afternoon Snack											
Gouda cheese	42.5	151.1	10.6	0.9	11.7	48.5	7.5	3.3	0.3	0.0	0.9
Deli turkey	56.0	57.0	10.0	2.0	1.0	15.0	0.0	0.6	0.5	0.0	1.0
Dinner (BBQ Turkey Chili)											
Russet potato	150.0	119.7	3.0	26.6	0.1	0.0	0.0	0.0	0.1	2.3	1.2
Onion	37.0	11.6	0.3	2.5	0.0	0.0	0.0	0.0	0.0	0.7	
BBQ sauce	45.0	60.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
Prego sauce	61.0	22.5	0.5	5.2	0.0	0.0	0.0	0.0	0.0	1.4	3.3
Worcestershire sauce	4.5	3.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Cheddar cheese	42.5	172.5	10.2	0.6	14.4	43.4	8.2	3.6	0.6	0.0	0.1
Ground turkey	95.0	106.2	22.4	0.0	1.9	52.3	0.5	0.5	0.6	0.0	0.0
Green beans	85.0	33.3	1.5	6.4	0.2	0.0	0.0	0.0	0.1	2.2	1.9
Fig Newton's	29.0	92.0	1.0	22.0	0.0	0.0	0.0	0.0	0.0	1.0	12.0
Mandarin oranges	80.0	32.8	0.6	7.5	0.0	0.0	0.0	0.0	0.0	1.0	6.6

Total		2487.9	124.8	345.4	67.5	280.2	34.9	18.9	5.7	25.6	151.2

Moderate-Carbohydrate Diet	Amount g	Energy kcal	Protein g	Carb g	Fat g	Chol mg	SFA g	MUFA g	PUFA g	Fiber g	Sugar g
Breakfast (Veggie Skillet)											
Olive oil	6.8	61.2	0.0	0.0	6.8	0.0	0.9	5.0	0.7	0.0	0.0
Butter	7.0	51.4	0.1	0.0	5.7	15.1	3.6	1.5	0.2	0.0	0.0
Hash browns	106.0	89.8	2.2	18.8	0.7		0.2	0.0	0.3	1.5	
Breakfast sausage	45.0	129.7	6.9	0.4	11.2	31.5	3.4	4.4	2.0	0.0	0.4
White mushrooms	24.0	6.8	0.7	0.8	0.1	0.0	0.0	0.0	0.0	0.2	0.5
Green pepper	25.0	6.0	0.3	1.1	0.1	0.0	0.0	0.0	0.0	0.4	
Egg beaters	100.0	45.9	9.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Mrs. Dash	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gouda cheese	42.5	151.1	10.6	0.9	11.7	48.5	7.5	3.3	0.3	0.0	0.9
Mandarin oranges	95.0	39.0	0.7	8.9	0.0	0.0	0.0	0.0	0.0	1.1	7.8
Reduced sugar vanilla almond milk	240.0	64.0	0.5	11.0	2.0	0.0	0.0	1.0	0.0	0.0	11.0
Morning Snack											
Red pepper	74.5	23.1	0.7	4.5	0.2	0.0	0.0	0.0	0.1	1.6	3.2
Ranch seasoning	1.9	4.2	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sour cream	29.0	57.2	0.6	0.8	5.7	15.1	3.3	1.5	0.2	0.0	0.8
Gouda cheese	42.5	151.1	10.6	0.9	11.7	48.5	7.5	3.3	0.3	0.0	0.9
Lunch (Salsa Chicken)											
Chicken thigh	110.0	127.3	21.6	0.0	4.5	103.4	1.2	1.6	1.0	0.0	0.0
Taco seasoning	2.8	7.0	0.1	1.6	0.0	0.0	0.0	0.0	0.0	0.4	0.3
Salsa	64.0	15.5	0.0	3.9	0.0	0.0	0.0	0.0	0.0	1.0	3.9
Cheddar cheese	42.5	172.5	10.2	0.6	14.4	43.4	8.2	3.6	0.6	0.0	0.1
Butter	6.0	44.0	0.1	0.0	4.9	12.9	3.1	1.3	0.2	0.0	0.0
Onion	5.0	1.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	
Corn	30.0	30.6	0.9	6.2	0.2	0.0	0.0	0.1	0.1	0.6	0.8
Rice	35.0	129.2	2.7	28.8	0.3	0.0	0.1	0.1	0.1	0.7	0.0
Chicken broth	30.0	1.3	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Water	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salsa	27.0	6.5	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.4	1.6
Olive oil	5.0	54.0	0.0	0.0	6.0	0.0	0.8	4.4	0.6	0.0	0.0
Afternoon Snack											
Strawberry preserves	20.0	52.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0

Wheat thin crackers	31.0	146.0	2.0	21.0	6.0	0.0	1.0	1.5	3.5	1.0	4.0
Dinner (Cheeseburger Meatloaf)											
Ground beef	113.0	139.2	24.6	0.0	4.5	69.2	2.1	1.8	0.3	0.0	0.0
Bread crumbs	10.1	38.9	1.3	7.2	0.5	0.0	0.1	0.1	0.2	0.5	0.6
Onion	13.0	4.1	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.2	
Egg beaters	15.0	6.9	1.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cheddar cheese	42.5	172.5	10.2	0.6	14.4	43.4	8.2	3.6	0.6	0.0	0.1
Ketchup	30.0	34.4	0.3	8.2	0.0	0.0	0.0	0.0	0.0	0.1	6.4
Corn	60.0	61.2	1.8	12.4	0.5	0.0	0.1	0.1	0.2	1.3	1.5
I can't believe it's not butter, light	7.0	22.5	0.0	0.0	2.5	0.0	0.8	0.5	1.3	0.0	0.0
Potatoes	113.0	90.1	2.3	20.0	0.1	0.0	0.0	0.0	0.0	1.7	0.9
Heavy cream	15.0	52.9	0.3	0.4	5.6	20.6	3.5	1.6	0.2	0.0	0.4
Olive ol	5.0	45.0	0.0	0.0	5.0	0.0	0.7	3.6	0.5	0.0	0.0
Butter	5.0	36.7	0.0	0.0	4.1	10.8	2.6	1.1	0.2	0.0	0.0
Applesauce	100.0	72.1	0.2	17.5	0.2	0.0	0.0	0.0	0.1	1.2	14.7
Total		**2444.5**	**124.3**	**195.6**	**129.5**	**462.0**	**59.0**	**44.9**	**13.9**	**13.9**	**73.9**

Moderate-Carbohydrate Diet	**Amount**	**Energy kcal**	**Protein g**	**Carb g**	**Fat g**	**Chol mg**	**SFA g**	**MUFA g**	**PUFA g**	**Fiber g**	**Sugar g**
Breakfast (Breakfast Scramble)											
Spinach	39.0	14.2	1.4	1.6	0.2	0.0	0.0	0.0	0.0	1.1	0.3
Bacon	30.0	123.8	3.8	0.4	11.9	19.8	4.0	5.2	1.9	0.0	0.3
Butter	7.1	52.1	0.1	0.0	5.8	15.3	3.6	1.5	0.2	0.0	0.0
Eggs	125.0	173.4	15.7	0.9	11.9	465.0	3.9	4.6	2.4	0.0	0.5
Heavy cream	30.0	105.7	0.6	0.8	11.1	41.1	6.9	3.2	0.4	0.0	0.8
Butter	7.1	52.1	0.1	0.0	5.8	15.3	3.6	1.5	0.2	0.0	0.0
Cheddar cheese	42.5	172.5	10.2	0.6	14.4	43.4	8.2	3.6	0.6	0.0	0.1
Unsweetened vanilla almond milk	150.0	19.1	0.6	0.6	1.6	0.0	0.0	0.9	0.3	0.3	0.0
Morning Snack											
Roasted almonds	28.0	182.6	5.9	5.0	15.4	0.0	1.2	9.7	3.8	2.9	1.3
Bouillon	5.0	5.7	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Butter	7.5	55.0	0.1	0.0	6.1	16.1	3.9	1.6	0.2	0.0	0.0
Lunch (Tuna Salad)											
Canned tuna	90.0	171.3	26.2	0.0	7.4	16.2	1.4	2.7	2.6	0.0	0.0
Celery	40.0	6.5	0.3	1.2	0.1	0.0	0.0	0.0	0.0	0.6	0.5
Mayonnaise	40.0	271.9	0.4	0.2	29.9	16.8	4.7	6.7	17.9	0.0	0.2

Slivered almonds	13.5	83.7	2.9	2.9	6.7	0.0	0.5	4.3	1.7	1.7	0.6
Cherry tomatoes	50.0	10.4	0.4	1.9	0.1	0.0	0.0	0.0	0.0	0.6	1.3
Cucumber	60.0	10.9	0.4	2.2	0.1	0.0	0.0	0.0	0.0	0.3	1.0
Cheddar cheese	56.7	230.1	13.6	0.8	19.2	57.8	11.0	4.8	0.8	0.0	0.2
Sugar free jello	89.0	4.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Afternoon Snack											
Red pepper	74.5	22.9	0.7	4.5	0.2	0.0	0.0	0.0	0.1	1.6	3.1
Ranch seasoning	1.9	4.2	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sour cream	29.0	57.2	0.6	0.8	5.7	15.1	3.3	1.5	0.2	0.0	0.8
Gouda cheese	42.5	151.1	10.6	0.9	11.7	48.5	7.5	3.3	0.3	0.0	0.9
Dinner (Ranch Cheddar Chicken)											
Chicken Thigh	114.0	131.9	22.4	0.0	4.7	107.2	1.3	1.7	1.1	0.0	0.0
Mayonnaise	27.6	187.6	0.3	0.2	20.7	11.6	3.2	4.6	12.3	0.0	0.2
Ranch seasoning	7.0	15.6	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Garlic powder	0.5	1.8	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cheddar cheese	28.4	115.3	6.8	0.4	9.6	29.0	5.5	2.4	0.4	0.0	0.1
Spinach	30.0	7.1	0.7	1.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Cucumber	15.0	2.7	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Cherry tomatoes	20.0	4.2	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.2	0.5
Italian dressing	20.0	48.0	0.1	2.4	4.2	0.0	0.6	1.1	2.2	0.0	2.2
Total		**2494.8**	**126.3**	**37.5**	**204.4**	**918.0**	**74.4**	**64.9**	**49.7**	**10.2**	**15.2**

SFA = saturated fat, MUFA=monounsaturated fat, PUFA=polyunsaturated fat

Table S2. Visceral and liver fat responses obtained by magnetic resonance imaging (MRI).

	BL	LC	MC	HC	P Value
MRI					
VAT (%)	5188 ± 1643	4849 ± 1563	4913 ± 1606	4806 ± 1560	0.818
Total Liver AT (%)	13.9 ± 7.4	10.3 ± 6.0	10.3 ± 5.6	11.6 ± 6.0	0.188
Lobe 1 (%)	11.9 ± 7.8	9.4 ± 6.3	8.4 ± 4.9	10.1 ± 5.8	0.151
Lobe 2 (%)	12.7 ± 7.8	10.1 ± 6.5	9.2 ± 5.1	10.3 ± 5.7	0.388
Lobe 3 (%)	13.4 ± 7.7	9.7 ± 5.9	9.2 ± 5.6	10.9 ± 5.3	0.420
Lobe 4a (%)	12.7 ± 7.6	9.7 ± 6.2	8.9 ± 5.6	9.8 ± 5.2	0.545
Lobe 4b (%)	13.2 ± 8.1	9.8 ± 6.6	9.2 ± 6.7	10.7 ± 7.1	0.347
Lobe 5 (%)	14.5 ± 7.0	10.9 ± 6.0	10.6 ± 5.8	11.9 ± 5.7	0.308
Lobe 6 (%)	15.3 ± 7.2	12.3 ± 6.7	11.4 ± 5.9	12.8 ± 6.2	0.381
Lobe 7 (%)	15.8 ± 7.4	12.2 ± 6.5	11.8 ± 6.2	13.3 ± 6.4	0.264
Lobe 8 (%)	15.3 ± 7.2	11.8 ± 6.4	11.3 ± 6.0	12.8 ± 6.0	0.192

Values are mean ± SD. All MRI data n=14. Two patients failed to complete all MRI protocols due to claustrophobic feelings (n=1) and inability to remove body jewelry (n=1)
Diets: LC, low-carbohydrate; MC, moderate-carbohydrate; HC, high-carbohydrate
MRI = magnetic resonance imaging; VAT = visceral adipose tissue
P value from 3-way (LC, MC, HC) repeated measures ANOVA

Table S3. Number of metabolic syndrome characteristics present at baseline and after each diet.

ID#	Sex	Baseline	Low-Carbohydrate	Moderate-Carbohydrate	High-Carbohydrate
1	F	3 (W,B,T)	3 (W,H,T)	4 (W,B,G,T)	5 (W,B,H,G,T)
2	F	4 (W,H,T)	2 (W,H)	3 (H,H,T)	4 (W,B,H,T)
3	M	4 (W,B,H,T)	2 (W,H)	4 (W,B,H,G)	5 (W,B,H,G,T)
4	F	3 (W,H,G)	2 (W,H)	2 (W,H)	4 (W,B,H,T)
5	M	5 (W,B,H,G,T)	2 (W,T)	4 (W,B,H,T)	3 (W,H,T)
6	M	3 (W,B,H)	2 (B,H)	1 (H)	2 (B,H)
7	M	5 (W,B,H,G,T)	3 (W,H,T)	3 (W,H,T)	4 (W,B,H,T)
8	M	3 (B,G,T)	1 (G)	2 (G,T)	3 (B,G,T)
9	M	4 (W,H,G,T)	2 (W,H)	4 (W,H,G,T)	4 (W,H,G,T)
10	M	4 (W,B,H,G)	3 (W,B,H)	3 (W,H,G)	4 (W,B,H,G)
11	M	4 (W,B,G,T)	3 (W,H,G)	4 (W,B,H,G)	5 (W,B,H,G,T)
12	F	3 (W,H,T)	1 (W)	4 (W,B,H,T)	3 (W,B,H)
13	F	3 (W,B,G)	2 (W,G)	3 (W,B,G)	5 (W,B,H,G,T)
14	F	3 (W,H,T)	3 (W,H,T)	4 (W,H,G,T)	3 (W,H,T)
15	M	5 (W,B,H,G,T)	4 (W,H,G,T)	5 (W,B,H,G,T)	4 (W,H,G,T)
16	M	4 (W,H,G,T)	3 (W,H,G)	3 (W,H,T)	4 (W,H,G,T)

F=female, M=male, W=waist circumference, BP=blood pressure, H=HDH-cholesterol, G=glucose, T=triglycerides

Table S4. Circulating cholesterol and lipoprotein particle responses.

	BL	LC	MC	HC	P Value
Total Cholesterol (mg/dL)	195 ± 28	182 ± 39	193 ± 33	195 ± 39	0.061
LDL-C (mg/dL)	122 ± 26	118 ± 35	124 ± 31	122 ± 34	0.560
HDL (nmol/L)					
Large	4439 ± 462	4563 ± 852	4442 ± 613	4591 ± 747	0.762
Small	13677 ± 1431	13463 ± 1860	13706 ± 1820	14114 ± 2606	0.573
LDL Peak Diameter (Å)	214.9 ± 6.1	220 ± 4.8^{c}	216.2 ± 5.5^{b}	213.2 ± 6.3^{a}	<0.001
LDL (nmol/L)					
I (Largest)	203 ± 79	272 ± 90^{b}	234 ± 80^{a}	209 ± 111^{a}	0.004
IIa	176 ± 62	226 ± 68	201 ± 62	179 ± 104	0.058
IIb	235 ± 78	237 ± 81	245 ± 72	232 ± 98	0.815
IIIa	247 ± 93	163 ± 58^{b}	234 ± 102^{a}	251 ± 74^{a}	<0.001
IIIb	105 ± 60	56 ± 27^{b}	95 ± 58^{a}	119 ± 64^{a}	<0.001
IVa	96 ± 71	68 ± 39^{b}	81 ± 41^{ab}	113 ± 84^{a}	0.033
IVb	66 ± 26	63 ± 22	60 ± 18	69 ± 28	0.368
IVc (Smallest)	76 ± 16	76 ± 18	74 ± 15	80 ± 18	0.382
IDL (nmol/L)					
Large	165 ± 33	158 ± 49	171 ± 47	180 ± 59	0.072
Small	154 ± 43	185 ± 57	174 ± 46	171 ± 60	0.426
VLDL (nmol/L)					
Large	28 ± 12	22 ± 16^{b}	29 ± 17^{ab}	36 ± 17^{a}	0.016
Medium	71 ± 22	59 ± 27^{b}	71 ± 24^{ab}	86 ± 37^{a}	0.011
Small	66 ± 14	58 ± 17^{b}	62 ± 18^{ab}	71 ± 29^{a}	0.045

Values are mean ± SD; n=16

Diets: LC, low-carbohydrate; MC, moderate-carbohydrate; HC, high-carbohydrate

P value from 3-way (LC, MC, HC) repeated measures ANOVA. Values not sharing a common letter are different (P<0.05)

Table S5. Plasma triglyceride and phospholipid fatty composition responses expressed as weight percent (wt%).

	BL	LC	MC	HC	P Value
Triglyceride (wt%)					
14:0	2.05 ± 0.59	1.57 ± 0.59^{c}	2.37 ± 0.58^{b}	2.76 ± 0.71^{a}	<0.001
15:0	0.29 ± 0.07	0.35 ± 0.09^{b}	0.40 ± 0.35^{a}	0.42 ± 0.07^{a}	0.018
16:0	26.24 ± 1.80	26.26 ± 1.31^{b}	26.41 ± 2.22^{b}	28.19 ± 2.06^{a}	0.001
16:1n7	3.91 ± 1.18	2.85 ± 0.75^{c}	3.69 ± 1.04^{b}	4.57 ± 1.34^{a}	<0.001
17:0	0.35 ± 0.08	0.43 ± 0.15	0.39 ± 0.04	0.38 ± 0.06	0.353
Phytanic	0.28 ± 0.11	0.36 ± 0.18	0.32 ± 0.18	0.27 ± 0.12	0.079
18:0	3.58 ± 0.51	4.11 ± 0.56	3.85 ± 0.62	3.60 ± 0.83	0.086
18:1n9	33.45 ± 2.62	36.14 ± 3.14^{b}	35.36 ± 2.90^{b}	33.18 ± 2.20^{a}	0.006
18:2n6	20.70 ± 2.90	18.93 ± 3.31^{b}	18.36 ± 2.97^{b}	16.86 ± 3.86^{a}	0.018
18:3n6	0.38 ± 0.29	0.34 ± 0.14	0.37 ± 0.26	0.30 ± 0.30	0.652
18:3n3	1.34 ± 0.30	1.01 ± 0.23^{b}	1.16 ± 0.20^{b}	0.49 ± 0.65^{a}	<0.001
20:2n6	0.28 ± 0.08	0.26 ± 0.08	0.27 ± 0.08	0.28 ± 0.08	0.514
20:3n6	0.38 ± 0.07	0.28 ± 0.06^{b}	0.35 ± 0.08^{a}	0.38 ± 0.08^{a}	<0.001
20:4n6	1.57 ± 0.51	1.93 ± 0.63^{b}	1.44 ± 0.55^{a}	1.40 ± 0.48^{a}	0.003
20:5n3	0.22 ± 0.12	0.20 ± 0.11	0.21 ± 0.12	0.20 ± 0.12	0.744
22:4n6	0.20 ± 0.05	0.21 ± 0.06	0.21 ± 0.05	0.23 ± 0.04	0.211
22:5n3	0.32 ± 0.07	0.34 ± 0.11	0.33 ± 0.08	0.34 ± 0.10	0.781
22:6n3	0.33 ± 0.11	0.53 ± 0.16^{b}	0.32 ± 0.09^{a}	0.29 ± 0.12^{a}	<0.001
SFA	32.68 ± 1.92	32.88 ± 2.04^{b}	33.64 ± 2.96^{b}	35.50 ± 3.01^{a}	0.008
MUFA	38.07 ± 2.91	39.72 ± 2.91	39.90 ± 2.36	38.68 ± 2.34	0.407
PUFA	25.92 ± 3.09	24.29 ± 4.18^{b}	23.23 ± 3.52^{ab}	21.65 ± 4.72^{a}	0.031
Phospholipid (%wt)					
14:0	0.43 ± 0.10	0.39 ± 0.09^{c}	0.50 ± 0.09^{b}	0.56 ± 0.12^{a}	<0.001
15:0	0.19 ± 0.04	0.24 ± 0.04^{b}	0.27 ± 0.04^{a}	0.27 ± 0.06^{a}	0.020
16:0	25.24 ± 0.86	26.34 ± 1.05	25.83 ± 0.67	26.37 ± 0.80	0.051
16:1n7	0.75 ± 0.20	0.57 ± 0.11^{c}	0.76 ± 0.15^{b}	0.91 ± 0.19^{a}	<0.001
17:0	0.33 ± 0.05	0.40 ± 0.03	0.40 ± 0.05	0.40 ± 0.05	0.974
Phytanic	0.28 ± 0.11	0.32 ± 0.12	0.30 ± 0.12	0.30 ± 0.09	0.469

18:0	13.93 ± 1.06	12.15 ± 0.18	12.65 ± 0.90	12.68 ± 0.97	0.160
18:1n9	7.61 ± 0.97	7.34 ± 0.87^{b}	8.08 ± 1.36^{a}	8.36 ± 1.28^{a}	0.013
18:2n6	22.81 ± 2.79	21.06 ± 1.74^{ab}	21.82 ± 2.41^{b}	20.08 ± 3.06^{a}	0.021
18:3n3	0.24 ± 0.07	0.18 ± 0.05^{b}	0.23 ± 0.05^{a}	0.26 ± 0.06^{a}	<0.001
20:2n6	0.34 ± 0.05	0.32 ± 0.04^{b}	0.33 ± 0.05^{b}	0.37 ± 0.07^{a}	0.003
20:3n6	3.55 ± 0.53	2.75 ± 0.65^{c}	3.64 ± 0.68^{b}	4.18 ± 0.71^{a}	<0.001
20:4n6	13.42 ± 2.12	16.09 ± 1.43^{b}	13.90 ± 1.73^{a}	13.08 ± 1.54^{a}	<0.001
20:5n3	0.70 ± 0.25	0.64 ± 0.18^{c}	0.73 ± 0.22^{b}	0.83 ± 0.21^{a}	<0.001
22:0	0.36 ± 0.07	0.35 ± 0.05	0.36 ± 0.08	0.36 ± 0.23	0.941
22:4n6	0.62 ± 0.12	0.60 ± 0.11	0.63 ± 0.09	0.67 ± 0.11	0.104
22:5n6	0.36 ± 0.07	0.38 ± 0.07^{b}	0.32 ± 0.07^{a}	0.35 ± 0.07^{ab}	0.010
22:5n3	0.97 ± 0.14	0.82 ± 0.16^{c}	0.97 ± 0.16^{b}	1.15 ± 0.20^{a}	<0.001
24:0	0.32 ± 0.06	0.31 ± 0.05	0.33 ± 0.07	0.32 ± 0.16	0.797
22:6n3	2.59 ± 0.67	3.12 ± 0.42^{b}	2.38 ± 0.39^{a}	2.40 ± 0.63^{a}	<0.001
24:1	0.41 ± 0.07	0.50 ± 0.08	0.40 ± 0.06	0.47 ± 0.23	0.163
SFA	41.02 ± 0.75	40.40 ± 0.88^{b}	40.59 ± 1.00^{ab}	41.21 ± 0.88^{a}	0.029
MUFA	10.39 ± 0.93	10.05 ± 0.63^{b}	10.86 ± 1.18^{a}	11.51 ± 1.33^{a}	0.002
PUFA	45.88 ± 1.21	46.11 ± 1.03^{b}	45.22 ± 1.40^{b}	43.73 ± 2.60^{a}	0.001

Values are mean ± SD; n=16

Diets: LC, low-carbohydrate; MC, moderate-carbohydrate; HC, high-carbohydrate

P value from 3-way (LC, MC, HC) repeated measures ANOVA. Values not sharing a common letter are different (P<0.05)

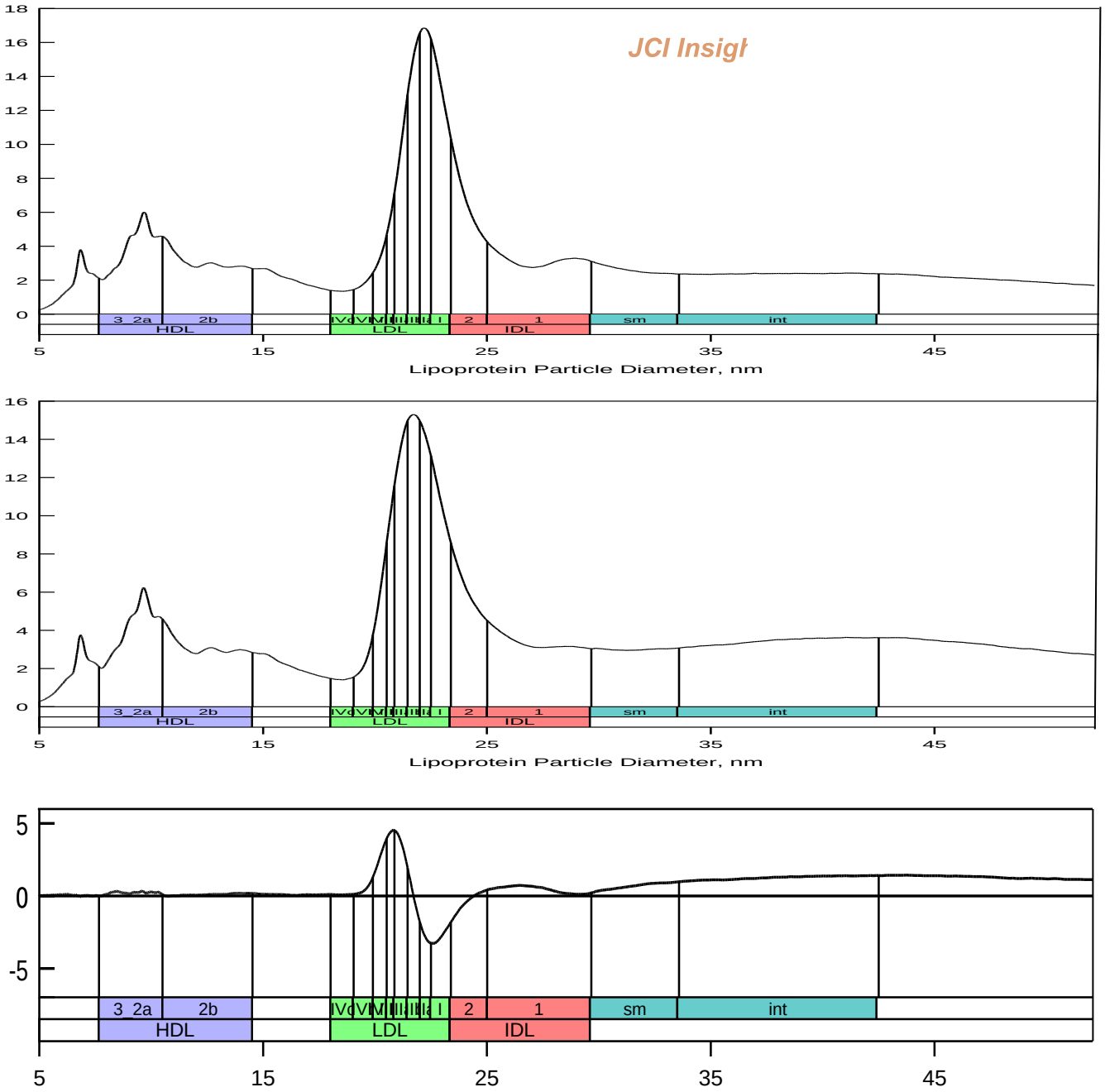

Figure S1. Plots of mass distribution of lipoprotein particles as a function of particle diameter. Panels A and B show mean results for LC and HC diets, respectively, and Panel C shows the plot of the HC minus LC difference. Y-axis scale is mass concentration, in arbitrary units, derived from particle concentrations measured as nmol/L (see Table S4).

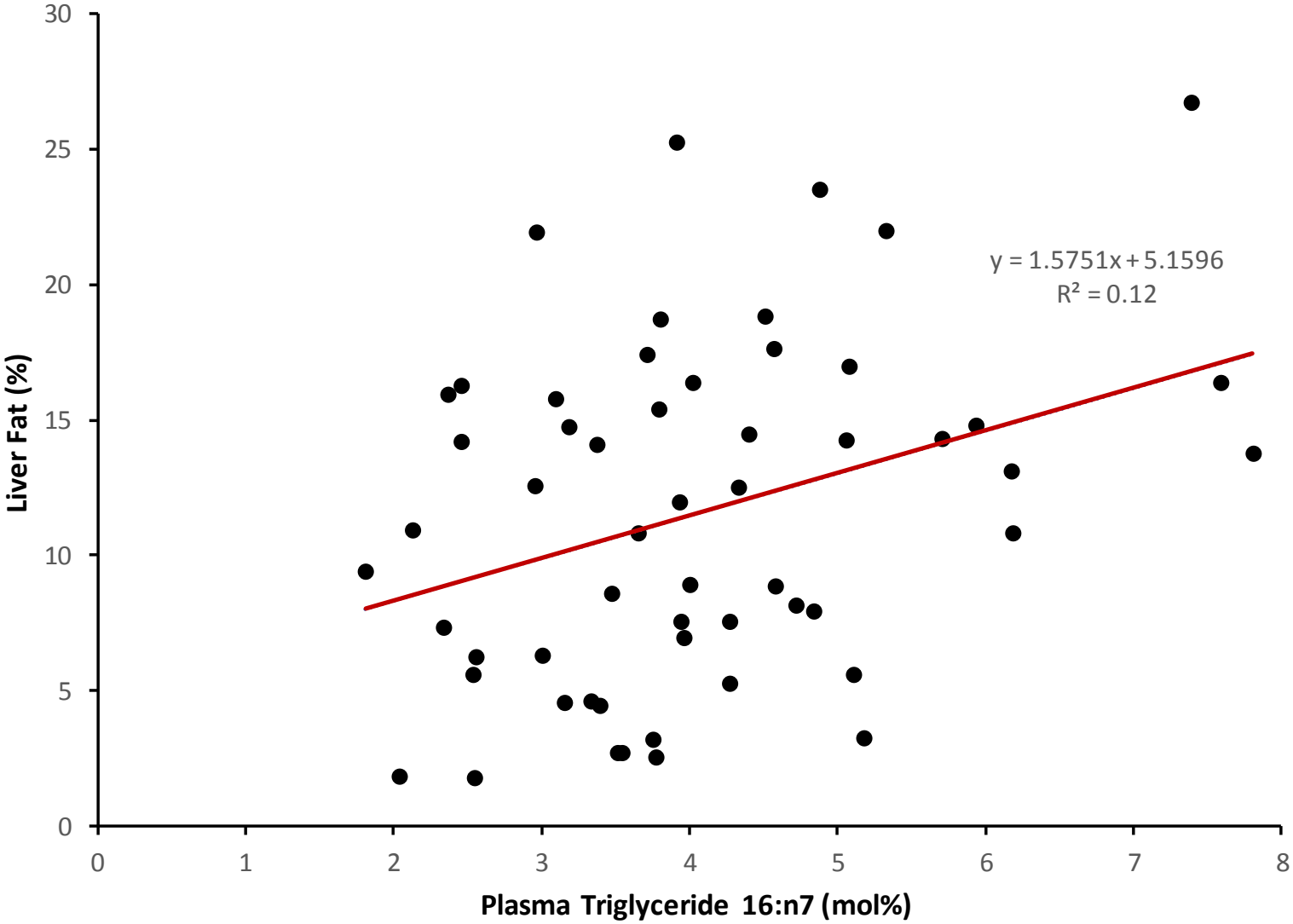

Figure S2. Association between plasma triglyceride 16:1n7 and liver fat. Paired data includes 14 subjects with liver scans obtained at baseline and after low-, moderate-, and high-carbohydrate diets.