

Supplementary Materials

**Supplementary Table 1: Comparison of Analytic Sample vs. Excluded Sample**

Characteristic	Included (N=88)	Excluded (N=33)	p-value
Age (y)	60.1 (9.0)	58.6 (9.2)	0.4149
Sex (female)	73 (83.0 %)	23 (69.7%)	0.1087
Race (White)	45 (51.1%)	20 (60.6%)	0.3522
BMI (kg/m <sup>2</sup> )	34.4 (5.3)	36.5 (5.6)	0.0619
Weight (kg)	94.1 (16.7)	100.3 (16.2)	0.0694
Time from last cancer treatment (y) <sup>a</sup>	6.0 (3.0, 13.0)	6.0 (2.0, 10.0)	0.8623
Treatment Group			0.5248
Self-Directed	31 (35.2%)	9 (27.3%)	
Metformin	28 (31.8%)	14 (42.4%)	
Coach-Directed	29 (33.0%)	10 (30.3%)	
Diet			
Fiber (g/day)	10.6 (4.8)	12.3 (4.5)	0.0923
Energy from Fat (%) <sup>b</sup>	33.1 (3.4)	32.4 (5.3)	0.4179
Inflammation			
hsCRP (mg/dL)	3.7 (2.0, 6.4)	2.9 (1.5, 4.7)	0.1128
IL-6 (pg/mL)	3.5 (2.3, 5.0)	3.5 (1.8, 4.5)	0.4406

P-value is for T-test, Wilcoxon two sample test, or chi-square test as appropriate.

<sup>a</sup> N=86 in Included and N=31 in Excluded

<sup>b</sup> N=32 in excluded group

**Supplementary Table 2: Baseline Spearman correlations of LBP with characteristics**

Variable	LBP r
Age (y)	-0.15
BMI (kg/m <sup>2</sup> )	0.07
Weight (kg)	-0.04
Time from last cancer treatment (y) <sup>a</sup>	-0.07
Fiber (g/day)	-0.28 †
Energy from Fat (%) <sup>b</sup>	0.12
hsCRP (mg/dL)	0.09
IL-6 (pg/mL)	-0.04

<sup>a</sup>: N = 86

<sup>b</sup>: significant testing performed on the transformed log<sub>2</sub>(% energy fat/% energy nonfat)

†: p < 0.05

**Supplementary Table 3: Change from baseline in weight, LBP, fiber, %kcal from fat, and inflammatory biomarkers**

Characteristic	Self-Directed (N=31)		Metformin (N=28)		Coach-Directed (N=29)	
	6-months	12-months	6-months	12-months	6-months	12-months
Δ Weight (% baseline)	-1.0 (3.3)	0.3 (3.8)	-2.5 (4.4)	-3.0 (6.2) <sup>†</sup>	-3.7 (5.0)	-3.0 (4.8) <sup>†</sup>
Δ LBP (μg/mL)	1.2 (2.6)	1.0 (4.7)	0.6 (3.2)	1.0 (3.6)	-0.5 (4.4)	-1.0 (4.1)
Δ Fiber (g/day)	0.3 (4.3)	-0.8 (4.5)	-1.0 (2.8)	-2.1 (3.6)	0.7 (3.4)	-0.3 (3.0)
Δ Energy from Fat (%) <sup>a</sup>	-0.8 (-2.5, 0.6)	-1.2 (-2.1, 2.0)	-0.6 (-3.0, 1.3)	-0.1 (-2.4, 1.5)	-0.9 (-2.3, -0.0)	-1.3 (-3.1, 0.3)
Δ hsCRP (mg/dL)	-0.7 (-1.9, 0.7)	-0.7 (-2.1, 0.8)	-0.1 (-0.6, 1.0)	-0.0 (-0.9, 1.9)	-0.4 (-1.6, -0.1)	-0.4 (-1.4, 0.9) <sup>c</sup>
Δ IL-6 (pg/mL)	0.1 (-1.5, 0.8)	-0.1 (-0.9, 0.6)	0.3 (-0.4, 1.3)	0.1 (-0.5, 1.2)	-0.1 (-0.9, 0.4)	-0.7 (-1.1, 0.3)

Data presented as mean (std dev) or median (IQR).

<sup>a</sup>: significant testing performed on the change in transformed log2(% energy fat/% energy nonfat); absolute change values reported in this table

<sup>b</sup>: N=27 for 6-month change in % energy from fat in Metformin group

<sup>c</sup>: N=28 for 12-month change in hsCRP in Coach-Directed group

<sup>†</sup>: significantly different from self-directed by Tukey test

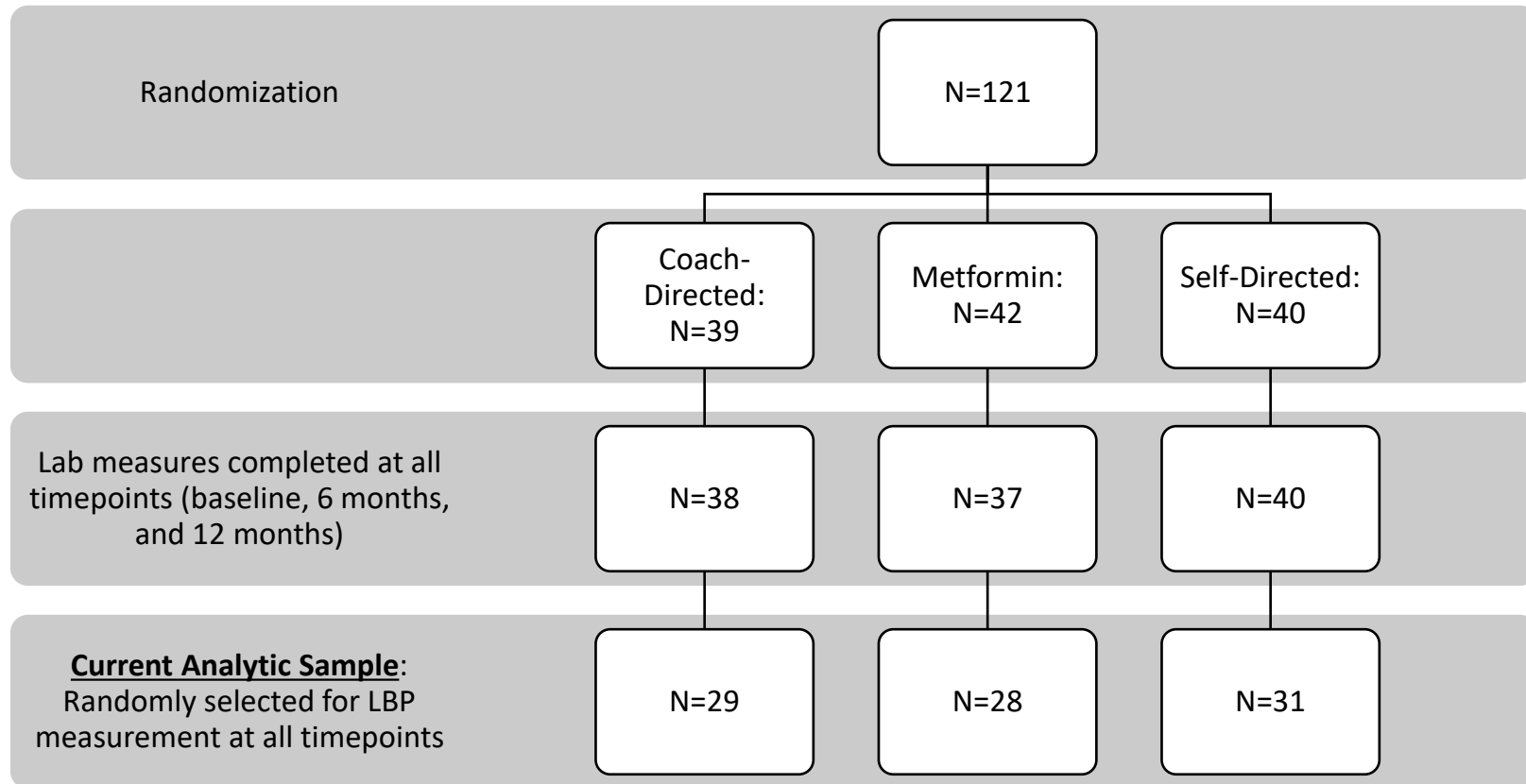
**Supplementary Table 4: Correlations Over Time in coach-directed behavioral weight loss intervention (N=29)**

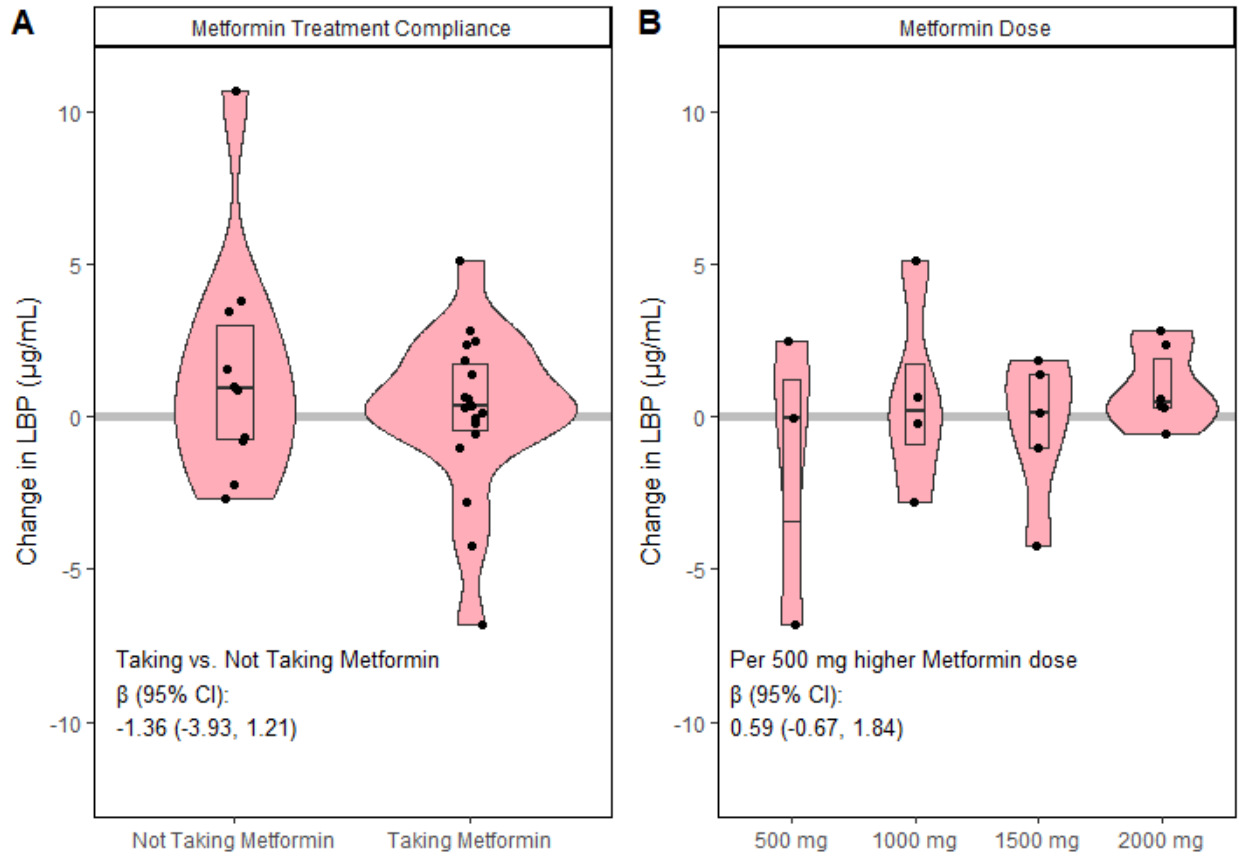
<b>Variable</b>	<b>LBP r</b>	<b>p-value</b>
Weight (% baseline)	0.29	0.0480
Fiber (g/day)	-0.18	0.1623
Energy from Fat (%) <sup>a</sup>	0.11	0.3735
log hsCRP (mg/dL) <sup>b</sup>	0.28	0.0171
log IL-6 (pg/mL)	-0.16	0.1913

<sup>a</sup>: significant testing performed on the transformed  $\log_2(\% \text{ energy fat}/\% \text{ energy nonfat})$

<sup>b</sup>: N=28

Supplementary Figure 1: SPIRIT participant flow chart from randomization to current analytic sample





**Supplementary Figure 2: 6-month change in LBP in the metformin vs. self-directed weight loss arm by metformin usage.** (A) 6-month change in LBP within the metformin arm, stratified by those taking metformin at 6 months and those who discontinued use at 6 months; regression coefficient for the compliance indicator is included (B) 6-month change in LBP among those taking metformin at 6 months, by dosage of metformin; regression coefficient for dose as a continuous variable representing a per-500 mg higher metformin dosage.