



Figure S1. Flow diagram of the present study.

	Measure ment	SCR		During intervention				
		(Visit 1) 1st	(Visit 2) 2nd	(Visit 3) Before start of intake	(Visit 4) 4 weeks after intake	(Visit 5) 8 weeks after intake	(Visit 6) 12 weeks after intake	(Visit 7) 16 weeks after intake
Physical measurement	Height	○						
	Weight	○	○	○	○	○	○	○
	BMI	○	○	○	○	○	○	○
	Vital signs	○	○	○	○	○	○	○
Urinalysis	pH	○	○	○	○	○	○	○
	Specific gravity	○	○	○	○	○	○	○
	Protein	○	○	○	○	○	○	○
	Glucose	○	○	○	○	○	○	○
	Urobilino gen	○	○	○	○	○	○	○
	Occult blood reaction	○	○	○	○	○	○	○
	Bilirubin	○	○	○	○	○	○	○
	Ketone bodies	○	○	○	○	○	○	○
Hematology	WBC	○	○	○	○	○	○	○
	RBC	○	○	○	○	○	○	○
	Hb	○	○	○	○	○	○	○
	Ht	○	○	○	○	○	○	○
	MCV	○	○	○	○	○	○	○
	MCH	○	○	○	○	○	○	○
	MCHC	○	○	○	○	○	○	○
	Plt	○	○	○	○	○	○	○

	Measur ement	SCR		During intervention				
		(Visit 1) 1st	(Visit 2) 2nd	(Visit 3) Before start of intake	(Visit 4) 4 weeks after intake	(Visit 5) 8 weeks after intake	(Visit 6) 12 weeks after intake	(Visit 7) 16 weeks after intake
Blood biochemistry test	TG	○	○	○	○	○	○	○
	T-Cho	○	○	○	○	○	○	○
	BUN	○	○	○	○	○	○	○
	T-Bil	○	○	○	○	○	○	○
	TP	○	○	○	○	○	○	○
	ALB	○	○	○	○	○	○	○
	ALP	○	○	○	○	○	○	○
	LDH	○	○	○	○	○	○	○
	γ-GTP	○	○	○	○	○	○	○
	AST	○	○	○	○	○	○	○
	ALT	○	○	○	○	○	○	○
	Cr	○	○	○	○	○	○	○
	UA	○	○	○	○	○	○	○
	LDL- Cho	○	○	○	○	○	○	○
	HDL- Cho	○	○	○	○	○	○	○
	HbA1c	○	○	○	○	○	○	○
	BS	○	○	○	○	○	○	○

Table S1. Schedule of the visit

Table S2. Baseline (0 week) characteristics of study participants.

Values are mean \pm SE. None of the characteristics was significantly different

	Active(<i>n</i> = 50)			Placebo(<i>n</i> = 50)		
	Mean	\pm	SE	Mean	\pm	SE
Gender (M = 1,F = 2)	1.28	\pm	0.06	1.24	\pm	0.06
Age	51.02	\pm	1.22	50.30	\pm	1.18
γ -GTP(U/L)	36.74	\pm	2.75	36.10	\pm	1.99
AST(U/L)	24.90	\pm	0.76	25.00	\pm	0.66
ALT(U/L)	30.80	\pm	0.99	30.80	\pm	0.99

Table S4. Urinalysis (Active $n = 48$ Placebo $n = 50$) * $P < 0.05$ vs Placebo. # $P < 0.05$ vs 0w

	Group	0w		4w		8w		12w		16w																					
		Mean	± SD	Mean	± SD	Mean	± SD	Mean	± SD	Mean	± SD																				
pH	Active	6.1	± 0.7	6.1	± 0.7	6.1	± 0.8	6.2	± 0.7	6.0	± 0.6																				
	Placebo	6.1	± 0.8	6.2	± 0.7	6.2	± 0.7	6.3	± 0.7	6.2	± 0.7																				
Specific gravity	Active	1.017	± 0.007	1.015	± 0.007	1.017	± 0.007	1.017	± 0.008	1.017	± 0.007																				
	Placebo	1.015	± 0.008	1.016	± 0.008	1.016	± 0.008	1.017	± 0.007	1.018	± 0.009																				
		0w		4w		8w		12w		16w																					
	Group	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)	(−) (±) (1+) (2+) (3+) (4+)																				
Protein	Active	43	5	0	0	0	45	2	1	0	0	47	1	0	0	43	4	1	0	0	45	3	0	0	0	0					
	Placebo	43	6	1	0	0	0	44	5	1	0	0	0	46	4	1	0	0	0	47	2	1	0	0	0	42	8	0	0	0	
Glucose	Active	48	0	0	0	0	0	48	0	0	0	0	48	0	0	0	0	48	0	0	0	0	47	1	0	0	0	0			
	Placebo	50	0	0	0	0	0	50	0	0	0	0	50	0	0	0	0	50	0	0	0	0	50	0	0	0	0	0			
Urobilinogen	Active	−	48	0	0	0	0	−	48	0	0	0	0	−	48	0	0	0	0	−	48	0	0	0	0	−	48	0	0	0	
	Placebo	−	50	0	0	0	0	−	50	0	0	0	0	−	50	0	0	0	0	−	50	0	0	0	0	−	50	0	0	0	
Occult blood reaction	Active	45	2	1	0	0	0	46	1	0	0	1	0	48	0	0	0	0	*	46	1	0	1	0	0	46	0	1	1	0	0
	Placebo	43	4	2	1	0	0	42	5	2	1	0	0	45	3	0	1	1	0	47	2	1	0	0	0	43	6	0	0	1	0
Bilirubin	Active	48	0	0	0	0	0	48	0	0	0	0	48	0	0	0	0	48	0	0	0	0	48	0	0	0	0	0	0		
	Placebo	50	0	0	0	0	0	50	0	0	0	0	50	0	0	0	0	50	0	0	0	0	50	0	0	0	0	0	0		
Ketone bodies	Active	48	0	0	0	0	0	48	0	0	0	0	48	0	0	0	0	48	0	0	0	0	48	0	0	0	0	0	0		
	Placebo	49	0	0	1	0	0	49	0	0	1	0	0	50	0	0	0	0	50	0	0	0	0	49	0	0	0	0	0		

	Group	0w			4w			8w			12w			16w		
		Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean	±	SD
WBC (/μL)	Active	5408.33	±	164.70	5404.17	±	170.37	5493.75	±	180.41	5410.42	±	185.57	5341.67	±	161.66
	Placebo	5568.00	±	217.81	5592.00	±	216.27	5474.00	±	160.00	5400.00	±	153.38	5378.00	±	199.82
RBC (× 10 ⁴ /μL)	Active	477.90	±	6.56	472.67	±	6.93	471.33	±	6.63	472.56	±	6.64	466.50	±	6.04
	Placebo	483.00	±	6.22	481.26	±	6.52	475.52	±	5.87	475.02	±	5.87	475.42	±	5.46
Hb (g/dL)	Active	14.48	±	0.18	14.35	±	0.19	14.17	±	0.17	14.26	±	0.18	14.12	±	0.18
	Placebo	14.78	±	0.17	14.77	±	0.17	14.52	±	0.15	14.50	±	0.15	14.54	±	0.14
Ht (%)	Active	44.23	±	0.54	43.81	±	0.51	44.09	±	0.51	43.73	±	0.50	43.46	±	0.50
	Placebo	44.82	±	0.50	44.77	±	0.51	44.62	±	0.44	44.42	±	0.44	44.68	±	0.42
MCV (fl)	Active	92.74	±	0.68	93.00	±	0.75	93.80	±	0.74	92.78	±	0.71	93.35	±	0.70
	Placebo	92.96	±	0.53	93.22	±	0.56	94.05	±	0.60	93.72	±	0.56	94.15	±	0.49
MCH (pg)	Active	30.35	±	0.24	30.44	±	0.25	30.15	±	0.26	30.25	±	0.26	30.31	±	0.25
	Placebo	30.66	±	0.20	30.78	±	0.21	30.61	±	0.20	30.59	±	0.20	30.64	±	0.20
MCHC (%)	Active	32.73	±	0.13	32.74	±	0.14	32.15	±	0.13	32.59	±	0.12	32.48	±	0.13
	Placebo	32.97	±	0.12	33.01	±	0.10	32.56	±	0.12	32.64	±	0.10	32.54	±	0.10
Plt (× 10 ⁴ /μL)	Active	25.85	±	0.70	25.78	±	0.70	25.39	±	0.70	25.98	±	0.72	25.06	±	0.71
	Placebo	25.87	±	0.68	26.14	±	0.70	25.92	±	0.80	25.72	±	0.69	24.91	±	0.61

Table S5. Blood biochemistry test (Active $n = 48$ Placebo $n = 50$)

* $P < 0.05$ vs Placebo # $P < 0.05$ vs 0w

	Group	0w			4 w			8w			12w			16w				
		Mean	±	SE	Mean	±	SE	Mean	±	SE	Mean	±	SE	Mean	±	SE		
TG	Active	108.58	±	7.00	123.71	±	11.20	118.15	±	8.60	127.46	±	10.10	121.88	±	10.40		
(mg/dL)	Placebo	102.20	±	6.80	111.42	±	9.10	113.22	±	8.00	118.20	±	8.70	110.72	±	7.40		
BUN	Active	13.96	±	0.40	13.58	±	0.40	14.39	±	0.40	14.59	±	0.50	13.77	±	0.40		
(mg/dL)	Placebo	13.18	±	0.30	13.62	±	0.40	13.52	±	0.40	13.60	±	0.40	13.90	±	0.40		
T-Bil	Active	0.78	±	0.34	0.78	±	0.29	0.78	±	0.33	0.81	±	0.36	0.86	±	0.36		
(mg/dL)	Placebo	0.75	±	0.25	0.71	±	0.26	0.72	±	0.27	0.73	±	0.24	0.76	±	0.25		
TP	Active	7.23	±	0.05	7.04	±	0.05	*,#	7.13	±	0.05	7.14	±	0.04	7.09	±	0.05	
(g/dL)	Placebo	7.28	±	0.36	7.19	±	0.36		7.19	±	0.36	7.12	±	0.34	7.15	±	0.30	
ALB	Active	4.49	±	0.32	4.40	±	0.27	*	4.38	±	0.24	4.40	±	0.25	4.40	±	0.27	
(g/dL)	Placebo	4.53	±	0.28	4.50	±	0.26		4.39	±	0.24	#	4.44	±	0.24	4.46	±	0.23
ALP	Active	66.79	±	16.06	67.38	±	16.36		67.23	±	15.38	67.35	±	16.32	65.83	±	15.60	
(U/L)	Placebo	66.88	±	15.91	66.76	±	16.35		68.78	±	25.16	64.96	±	17.53	65.00	±	16.98	
LDH	Active	188.50	±	26.65	186.19	±	29.80		186.44	±	24.91	186.21	±	28.18	187.46	±	28.08	
(U/L)	Placebo	182.42	±	25.70	179.34	±	27.83		179.32	±	26.39	176.72	±	28.40	178.54	±	27.45	
γ-GTP	Active	35.08	±	17.03	36.25	±	19.56		34.38	±	18.06	34.04	±	18.61	33.15	±	18.22	
(U/L)	Placebo	35.94	±	15.08	35.56	±	16.43		44.48	±	66.24	35.48	±	17.15	35.34	±	16.83	
AST	Active	26.02	±	7.73	25.40	±	6.78		25.85	±	8.06	24.63	±	6.62	23.88	±	6.19	
(U/L)	Placebo	24.44	±	5.79	23.46	±	4.90		23.78	±	4.84	23.88	±	5.99	25.08	±	16.61	
ALT	Active	31.13	±	11.96	30.96	±	11.64		30.42	±	11.96	28.52	±	10.92	26.79	±	9.71	
(U/L)	Placebo	30.90	±	10.39	29.40	±	8.71		31.58	±	25.02	29.30	±	11.49	31.36	±	35.94	
Cr	Active	0.80	±	0.12	0.81	±	0.13		0.79	±	0.13	0.80	±	0.13	0.82	±	0.14	
(mg/dL)	Placebo	0.76	±	0.14	0.77	±	0.15		0.76	±	0.14	0.76	±	0.14	0.78	±	0.14	
UA	Active	5.69	±	1.25	5.80	±	1.30		5.73	±	1.35	5.93	±	1.41	5.89	±	1.33	
(mg/dL)	Placebo	5.96	±	0.98	6.09	±	1.08		6.12	±	1.04	6.10	±	1.04	6.17	±	1.02	
T-Cho	Active	218.79	±	32.79	220.19	±	36.30		218.17	±	37.57	216.15	±	34.65	214.00	±	31.86	
(mg/dL)	Placebo	211.46	±	38.34	210.38	±	40.28		207.88	±	38.73	211.82	±	40.84	207.64	±	38.00	
LDL-Cho	Active	135.94	±	27.27	132.13	±	32.66		133.25	±	32.32	130.17	±	28.90	129.63	±	29.11	
(mg/dL)	Placebo	127.92	±	36.24	125.28	±	37.30		122.50	±	34.70	125.12	±	36.23	122.60	±	35.37	
HDL-Cho	Active	57.88	±	13.15	58.60	±	15.07		57.58	±	12.93	57.19	±	14.03	57.33	±	13.60	
(mg/dL)	Placebo	60.10	±	10.41	60.48	±	11.25		60.34	±	12.38	60.48	±	11.60	60.14	±	12.05	
HbA1c	Active	5.49	±	0.32	5.46	±	0.36		5.52	±	0.33	5.47	±	0.33	5.55	±	0.31	
(%)	Placebo	5.43	±	0.31	5.37	±	0.34		5.45	±	0.32	5.38	±	0.30	5.47	±	0.31	
BS	Active	94.23	±	7.62	92.67	±	8.72		92.58	±	7.19	91.85	±	7.65	92.60	±	8.75	
(mg/dL)	Placebo	92.94	±	8.46	94.20	±	8.53		93.26	±	8.26	92.34	±	7.83	92.10	±	7.54	

Table S6. Blood biochemistry test (Active $n = 48$ Placebo $n = 50$)

* $P < 0.05$ vs Placebo # $P < 0.05$ vs 0w