

Supporting Information

Prevention effects of black soybean polyphenols on non-alcoholic fatty liver disease in three different model mice

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Supplementary Table 1A. Composition of the diets for Experiment 1

ingredient	g/100 g diet	
	AIN-93M	CDAHFD
casein	14.0	0
L-cysteine/L-cystine	0.18	0.56
L-methionine	-	0.11
other amino acid	-	22.4
cornstarch	46.6	0
dextrin/maltodextrin	15.5	17.2
sucrose	10.0	9.09
soybean oil	4.0	3.31
cellulose	5.0	6.61
mineral mix	3.5	1.32
vitamin mix	1	1.32
choline bitartrate	0.25	0
lard	0	32.4
others	0.0008	5.63
energy density	348 kcal/100 g diet	520 kcal/100 g diet

CDAHFD: choline-deficient and L-amino acid-defined high-fat diet

Supplementary Table 1B. Composition of the diets for Experiment 2

ingredient	g/100 g diet	
	Control diet	Western diet
casein, 80 mesh	16.3	19.5
DL-methionine	0.25	0.30
corn starch	41.8	4.99
maltodextrin 10	28.9	9.99
sucrose	0	34
cellulose, BW200	4.18	4.99
milk fat, anhydrous	0	20
corn oil	4.39	9.98
ethoxyquin	0.003	0.004
mineral mix S10001	2.92	3.50
calcium carbonate	0.33	0.40
vitamin mix V10001	0.84	1.00
choline bitartrate	0.17	0.20
cholesterol	0	0.15
energy density	391 kcal/100 g diet	468 kcal/100 g diet

Supplementary Table 1C. Composition of the diets for Experiment 3

ingredient	g/100 g diet	
	Control diet	Western diet +20% Lard
casein, 80 mesh	16.3	16.3
DL-methionine	0.25	0.30
corn starch	41.8	4.16
maltodextrin 10	28.9	8.28
sucrose	0	28
cellulose, BW200	4.18	4.19
milk fat, anhydrous	0	16.7
corn oil	4.39	0.83
ethoxyquin	0.003	0.00
mineral mix S10001	2.92	2.89
calcium carbonate	0.33	0.30
vitamin mix V10001	0.84	0.80
choline bitartrate	0.17	0.20
cholesterol	0	0.13
lard	0	16.7
energy density	391 kcal/100 g diet	547 kcal/100 g diet

Supplementary Table 2. Changes in the body weight, food intake, and serum and hepatic lipid contents in Experiment 1

<i>3 weeks</i>	BE (%)	AIN93M		CDAHFD	
		0	0	1.0	2.0
Initial body wt (g)		21.2±0.4	21.2±0.5	20.8±0.4	20.9±0.4
Final body wt (g)		22.7±0.6 ^a	19.4±0.4 ^b	19±0.4 ^b	18.7±0.4 ^b
Food intake (g/head)		2.54±0.19 ^a	1.95±0.05 ^b	2.00±0.06 ^b	2.10±0.08 ^b
Plasma triglyceride (mg/dl)		113±19 ^a	69±6 ^a	84±16 ^a	107±15 ^a
Plasma cholesterol (mg/dl)		88±6 ^a	68±4 ^a	91±15 ^a	73±8 ^a
Liver weight (g/100g body wt)		4.10±0.30 ^a	7.88±0.14 ^b	8.00±0.37 ^b	8.40±0.22 ^b
Liver total lipids (mg/g liver)		64.7±7.9 ^a	229±12 ^b	209±18 ^b	254±13 ^b
<i>6 weeks</i>	BE (%)	AIN93M		CDAHFD	
		0	0	1.0	2.0
Initial body wt (g)		18.8±0.4	18.7±0.6	19.0±0.4	18.8±0.7
Final body wt (g)		29.0±0.8 ^a	19.2±0.3 ^b	20.3±0.5 ^b	19.8±0.6 ^b
Food intake (g/head)		2.68±0.16 ^a	1.65±0.04 ^b	1.90±0.04 ^b	1.86±0.05 ^b
Plasma triglyceride (mg/dl)		112±6 ^a	71±6 ^b	64±5 ^b	64±9 ^b
Plasma cholesterol (mg/dl)		79±13 ^a	24±3 ^b	22±4 ^b	21±2 ^b
Liver weight (g/100g body wt)		4.82±0.22 ^a	9.62±0.20 ^b	10.3±0.15 ^b	10.3±0.22 ^b
Liver total lipids (mg/g liver)		72.4±12.4 ^a	134±7 ^b	150±6 ^b	170±14 ^b
<i>12 weeks</i>	BE (%)	AIN93M		CDAHFD	
		0	0	1.0	2.0
Initial body wt (g)		18.5±0.5	18.8±0.6	18.6±0.5	18.5±0.4
Final body wt (g)		33.4±0.9 ^a	21.3±0.2 ^b	21.3±0.3 ^b	20.4±0.2 ^b
Food intake (g/head)		2.65±0.11 ^a	1.81±0.04 ^b	1.90±0.03 ^b	1.79±0.03 ^b
Plasma triglyceride (mg/dl)		87±7 ^a	47±7 ^b	50±6 ^b	56±4 ^b
Plasma cholesterol (mg/dl)		105±12 ^a	15±7 ^b	10±1 ^b	11±3 ^b
Liver weight (g/100g body wt)		4.34±0.24 ^a	9.83±0.18 ^b	10.4±0.41 ^b	10.7±0.25 ^b
Liver total lipids (mg/g liver)		99.6±3.7 ^a	140±6 ^b	143±6 ^b	135±2 ^b

The results are represented as the mean ± SE (n = 5). Values without a common letter differ significantly among groups ($p < 0.05$, Tukey-Kramer multiple-comparison test).

Supplementary Table 3. Changes in the body weight, food intake, white adipose tissue weight, and serum lipid contents in Experiment 2

	Control	WD	WD+0.02%EC	WD+0.1%EC	WD+2.0%BE
Initial body wt (g)	17.7±0.7	18.1±0.7	18.1±0.6	18.1±0.7	18.2±0.8
Final body wt (g)	25.7±0.9 ^a	34.1±1.6 ^b	36.2±1.6 ^b	34.9±1.1 ^b	31.0±0.9 ^b
Food intake (g/head)	2.22±0.07	2.32±0.06	2.32±0.04	2.33±0.05	2.15±0.03
Total white adipose tissue wt (g/100g body wt)	8.8±0.8 ^a	20.3±1.6 ^b	20.6±1.6 ^b	18.2±1.4 ^b ^c	12.3±1.8 ^a ^c
Epididymal (g/100g body wt)	2.19±0.16 ^a	4.62±0.28 ^b	4.70±0.13 ^b	4.76±0.50 ^b	3.43±0.38 ^a ^b
Mesenteric (g/100g body wt)	0.94±0.09 ^a	2.13±0.18 ^b	2.17±0.18 ^b	2.01±0.09 ^b	1.31±0.19 ^a
Perirenal (g/100g body wt)	0.92±0.09 ^a	2.18±0.07 ^b	2.21±0.09 ^b	1.91±0.19 ^b ^c	1.55±0.21 ^c
Subcutaneous (g/100g body wt)	4.70±0.54 ^a	11.4±1.10 ^b	11.5±1.42 ^b	9.52±0.90 ^b ^c	5.97±1.12 ^a ^c
Liver wt (g/100g body wt)	4.54±0.23	5.29±0.37	4.60±0.27	4.20±0.24	4.26±0.16
Liver total lipids (mg/g liver)	119±5 ^a	161±12 ^b	145±5 ^a	149±3 ^a	128±11 ^a
Plasma triglyceride (mg/dl)	107±7	94±7	96±7	84±11	95±6
Plasma cholesterol (mg/dl)	99±4 ^a	208±3 ^b	184±9 ^b	189±5 ^b	150±6 ^a

The results are represented as the mean ± SE (n = 5). Values without a common letter differ significantly among groups ($p < 0.05$, Tukey-Kramer multiple-comparison test).

Supplementary Table 4. Changes in the body weight, food intake, white adipose tissue weight, and serum lipid contents in Experiment 3

	Corn Oil				CCl ₄			
	Control	WD	WD +1.0%BE	WD +2.0%BE	Control	WD	WD +1.0%BE	WD +2.0%BE
Initial body wt (g)	17.3±0.6	16.7±0.8	17.3±0.6	17.3±0.5	17.3±0.6	17.0±0.8	17.3±0.5	17.3±0.5
Final body wt (g)	24.3±0.9 ^d	32.2±0.6 ^a	30.3±0.3 ^{ab}	27.0±0.9 ^{bcd}	25.0±0.3 ^{cd}	28.3±0.8 ^{bc}	27.2±1.4 ^{bcd}	26.6±0.9 ^{cd}
Food intake (g/head)	2.20±0.08 ^{ab}	1.96±0.06 ^{bc}	1.85±0.04 ^c	1.96±0.05 ^{bc}	2.36±0.07 ^a	2.04±0.09 ^{bc}	1.87±0.05 ^c	1.85±0.05 ^c
Total white adipose tissue wt (g/100g body wt)	10.2±1.1 ^d	21.2±1.01 ^{1a}	19.1±1.1 ^{ab}	12.3±1.0 ^{cd}	10.2±1.4 ^d	15.8±1.3 ^{bc}	16.2±1.9 ^{abc}	15.0±1.1 ^{bcd}
Epididymal (g/100g body wt)	2.46±0.19 ^d	5.36±0.24 ^a	4.59±0.19 ^{ab}	3.25±0.30 ^{cd}	2.22±0.26 ^d	4.22±0.20 ^{abc}	4.32±0.51 ^{abc}	4.01±0.35 ^{bc}
Mesenteric (g/100g body wt)	1.26±0.12 ^{ab}	1.85±0.16 ^a	1.67±0.12 ^{ab}	1.13±0.14 ^b	1.44±0.16 ^{ab}	1.41±0.10 ^{ab}	1.53±0.23 ^{ab}	1.31±0.07 ^{ab}
Perirenal (g/100g body wt)	0.94±0.11 ^{cd}	2.44±0.08 ^a	2.22±0.12 ^a	1.40±0.14 ^{bc}	0.82±0.11 ^d	1.55±0.12 ^b	1.52±0.16 ^b	1.52±0.08 ^b
Subcutaneous (g/100g body wt)	5.59±0.67 ^b	11.5±0.61 ^a	10.6±0.81 ^a	6.50±0.47 ^b	5.74±0.88 ^b	8.65±0.90 ^{ab}	8.83±1.07 ^{ab}	8.16±0.69 ^{ab}
Plasma triglyceride (mg/dl)	110±9 ^a	78±5 ^{ab}	64±4 ^b	74±4 ^{ab}	89±13 ^{ab}	95±7 ^{ab}	78±13 ^{ab}	69±9 ^b
Plasma cholesterol (mg/dl)	100±6 ^c	147±9 ^a	136±7 ^{ab}	110±3 ^{bc}	90±5 ^c	99±8 ^c	122±15 ^{abc}	110±6 ^{bc}

The results are represented as the mean ± SE (n = 5). Values without a common letter differ significantly among groups ($p < 0.05$, Tukey-Kramer multiple-comparison test).