

Supplementary Materials

Table S1. Diet Compositions.

		Diet			
Experiment 1 (PKOB) Diet#	195	196	197	198	199
Experiment 2 (AFB) Diet#	200	201	202	203	204
CHO:fat:protein %energy	70:10:20	60:20:20	50:30:20	40:40:20	20:60:20
CHO/Fat %energy ratio	7.0	3.0	1.7	1.0	0.3
kcal/g as dry weight	4.0	4.2	4.5	4.8	5.5
Gload (units/2000 kcal)	293	252	210	167	84
Ingredient	g/kg				
Protein					
Casein	100	106	112	120	138
Lactalbumin	100	106	112	120	138
CHO					
Dextrose	349	315	281	238	138
Cornstarch	288 (+60 gel)*	256 (+60 gel)*	222 (+60 gel)*	178 (+60 gel)*	78 (+60 gel)*
Fat					
Experiment 1 – PKOB** ^a	44	95	148	214	369
Experiment 2 – AFB (%fat)** ^b	46 (44)	100 (95)	156 (148)	225 (214)	388 (369)
Mineral mix (Ausman-Hayes) ^c	44	47	49	53	61
Vitamin mix (Hayes-Cathcart) ^c	11	12	12	13	15
Choline Chloride	3	3	3	3	3
Cholesterol – Experiment 1	0.6	0.6	0.6	0.6	0.6
Cholesterol – Experiment 2	0.6 (+0.05)**	0.6 (+0.10)**	0.6 (+0.16)**	0.6 (+0.23)**	0.6 (+0.41)**

^aPKOB composition: 31% Palm Kernel Oil, 33% Soybean Oil, 36% Canola oil; ^bAFB composition: 21% Butter, 46% beef tallow, 15% lard, 18% Soybean oil; ^cLeow et al. (2016) [40]; *60g cornstarch added to 800mL water to form gel; **Pre-made PKOB had 20% water content while PKOB formulated in the lab is 100% fat; ***AFB is adjusted to butter having 20% water with cholesterol contributed by animal fats.

Table S2. Fatty Acid Profile of the Fat in each Diet.

		Diet	
Experiment		Experiment 1	Experiment 2
Fat Composition		PKOB ¹	AFB ²
Saturated fatty acid profile [^]		Fatty acid Percentage (%)	
Acetic Acid + Propionic Acid	2:0+3:0	n/a	n/a
Butyric Acid + Caproic Acid	4:0+6:0	0.1	1.2
Caprylic Acid	8:0	3.3	0.3
Capric Acid	10:0	1.1	0.5
Lauric Acid	12:0	14.9	0.7
Myristic Acid	14:0	5.1	4
Palmitic Acid	16:0	7.5	22.6
Stearic Acid	18:0	2.8	13.8
Unsaturated fatty acid profile			
Oleic acid	n9** 18:1(n-9)	34.0	36.3
Palmitoleic acid	n7** 16:1(n-7)	2.5	2.6
Linoleic acid	n6** 18:2(n-6)	26.7	13.0
α-Linoleic acid	n3** 18:3(n-3)	5.7	1.8
Total saturated fatty acids		32.5	44.7
Total monounsaturated fatty acids		34.1	40.2
Total polyunsaturated fatty acids		33.5	14.8
P/S* ratio		1.00	0.35
S:M:P in diet		33:34:33	9:8:3
CHO:fat:protein %energy ratio		18:2(n-6)**	(total polyunsaturated fatty acid) %energy
70:10:20		2.7 (3.4)	1.3 (1.5)
60:20:20		5.3 (6.7)	2.6 (3.0)
50:30:20		8.0 (10.1)	3.9 (4.4)
40:40:20		10.7 (13.4)	5.2 (5.9)
20:60:20		16.0 (20.1)	7.8 (8.9)

¹PKOB = 31% Palm Kernel Oil, 33% Soybean Oil, 36% Canola Oil. S:M:P ratio is balanced to 1:1:1 with an ideal P/S ratio of 1.0; ²AFB = 21% Butter, 46% Tallow, 15% Lard, 18% Soybean oil. S:M:P ratio is 9:8:3. with P/S ratio of 0.35 typical of saturated fat in the American diet; *18:2+18:3 /8:0-18:0; ** n3, n6, n7 and n9 refer to omega 3, 6, 7 and 9, respectively. [^]Diet fatty acids were calculated from published data on fatty acid compositions of fats and oils. [see USDA Handbook 8. Food compositions] and diet compositions in Table S1.

Table S3. Diabetic assessment of 3week old male Nile rats fed PKOB diets with different CHO:fat ratios and GLoads for 10 weeks (Experiment 1) – Unsplit by T2DM.

Diet#	Diet				
	195	196	197	198	199
n=	14	14	13	14	14
CHO:fat:protein %energy	70:10:20	60:20:20	50:30:20	40:40:20	20:60:20
P/S ratio	1.00	1.00	1.00	1.00	1.00
Resistant/susceptible (% susceptible)					
10 week RBG <75mg/dl>	8/6 (43%)	5/9 (64%)	7/6 (46%)	9/5 (36%)	11/3 (21%)
10 week 30' OGTT <175mg/dl>	6/8 (57%)	2/12 (86%)	6/7 (54%)	6/8 (57%)	11/3 (21%)
10 week FBG <60mg/dl>	12/2 (14%)	10/4 (29%)	9/4 (31%)	7/7 (50%)	8/6 (43%)
kcal/g	4.0	4.2	4.5	4.8	5.5
CHO:fat %energy ratio	7	3	1.7	1	0.3
Fat:protein %energy ratio	0.5	1.0	1.5	2.0	3.0
GLoad (g/2000 kcal)	280	245	204	162	82
RBW (g)					
Initial (3 weeks of age)	31±6	31±3	32±6	31±3	32±4
After 3 weeks	70±8	72±6	74±8	71±5	69±8
After 6 weeks	85±8	91±8	90±11	88±8	88±10
After 10 weeks	97±8 ^a	106±9 ^a	104±12	104±9	103±11
BW gain/day (g/day)	0.88±0.12 ^a	1.00±0.12 ^a	0.95±0.15	0.97±0.12	0.97±0.19
Energy intake					
g/day	16.0±3.0 ^{abcd}	14.5±0.7 ^{aef}	13.9±1.6 ^{bgh}	12.1±0.7 ^{cegi}	10.5±0.7 ^{dghi}
kcal/day					
week 2	25±4	26±2	27±2	24±2	26±2
week 8	28±8	27±3	28±4	24±1	26±2
10 week average	26±5	26±1	27±3	24±1	26±2
kcal/kg BW /10 week	265±44	247±20	259±26	227±12	250±20
18:2(n-6) %energy	2.7	5.3	8.0	10.7	16.0
GLoad					
/rat/day	3.6±0.7 ^{abcd}	3.2±0.2 ^{aefg}	2.7±0.3 ^{behi}	1.9±0.1 ^{cfhj}	1.1±0.1 ^{dgiij}
/kg BW at 10 weeks	37±6 ^{abcd}	30±2 ^{aefg}	26±3 ^{behi}	18±1 ^{cfhj}	10±1 ^{dgiij}
Cumulative, 10 weeks	253±48 ^{abcd}	223±11 ^{aefg}	191±22 ^{behi}	134±7 ^{cfhj}	74±5 ^{dgiij}
cumGLoad/rat/kcal	0.14 ^{abcd}	0.12 ^{aefg}	0.10 ^{behi}	0.08 ^{cfhj}	0.04 ^{dgiij}
10th Week Water Intake (ml)	81±158	57±56	78±80	36±15	40±10
Food efficiency (g BW gained/1000 kcal)					
1-6 weeks	46±8	50±6	46±5	50±8	46±6
1-10 weeks	35±6	38±4	36±4	41±5	37±6
RBG (mg/dl)					
After 6 weeks	190±174 ^{abc}	101±68 ^a	129±124	71±19 ^b	66±12 ^c
After 10 weeks	144±167	159±126 ^a	168±165 ^b	110±80	64±10 ^{ab}
Severity (> 75mg/dl)	+69	+89	+93	+35	-11
OGTT (BG mg/dl)					

After 6 weeks					
FBG, 0 min	57±18	60±24	52±15	53±12	53±9
30 min	268±129	292±95 ^a	250±137	227±62	201±60 ^a
After 10 weeks					
FBG, 0 min	48±9 ^a	55±9	54±19	60±18	62±21 ^a
30 min	213±101	279±152 ^a	245±150	209±85	172±51 ^a
60 min	147±109	183±114	202±153	190±92	151±58
Organ weight (%BW)					
Liver	3.7±0.7	3.6±0.5	3.8±0.7	3.4±0.4	3.6±0.4
Kidney	0.8±0.2 ^{abc}	0.7±0.1 ^a	0.7±0.1	0.7±0.1 ^b	0.7±0.1 ^c
Cecum	1.3±0.5 ^{abcd}	1.0±0.2 ^a	1.1±0.3 ^b	1.0±0.1 ^c	1.1±0.2 ^d
Adipose					
Epididymal	2.4±0.7 ^{abc}	2.9±0.5 ^a	2.9±0.7	3.1±0.4 ^b	3.3±0.8 ^c
Perirenal	1.4±0.6 ^a	1.9±0.5	1.8±0.5	2.0±0.8 ^a	1.6±0.5
BAT	1.8±0.6 ^{ab}	2.4±0.5 ^{ac}	2.2±0.6 ^b	2.0±0.4	1.9±0.5 ^c
Total fat	5.6±1.7 ^{abcd}	7.2±0.9 ^a	6.9±1.1 ^b	7.1±1.3 ^c	6.9±1.4 ^d
Carcass	74±2	74±2	74±1	74±2	73±2
Body length (cm)	13.3±0.3	13.4±0.3	13.4±0.4	13.3±0.4	13.4±0.7
BMI (kg/m²)	5.4±0.4	5.7±0.4	5.6±0.5	5.7±0.4	5.5±0.5
Plasma					
TC (mg/dl)	103±42	112±25	96±18	94±21	96±17
TG (mg/dl)	73±26 ^a	87±33 ^{bc}	79±21 ^d	66±17 ^b	53±10 ^{acd}

Values are mean±SD (n=13–14); ^{a,b,c}. Means in a row sharing a common superscript differ (p<0.05) by one-way ANOVA and Fisher's PLSD test.

Table S4. Diabetic assessment of 3 week old male Nile rats fed AFB diets with different CHO:fat ratios and GLoads for 10 weeks (Experiment 2) – Unsplit by T2DM.

Diet #	Diets				
	200	201	202	203	204
n=	14	14	14	13	14
CHO:fat:protein %energy	70:10:20	60:20:20	50:30:20	40:40:20	20:60:20
P/S ratio	0.35	0.35	0.35	0.35	0.35
Resistant/susceptible (% susceptible)					
10 week RBG <75mg/dl>	10/4 (29%)	10/4 (29%)	7/7 (50%)	11/2 (15%)	11/3 (21%)
10 week 30' OGTT <175mg/dl>	10/4 (29%)	7/7 (50%)	6/8 (57%)	8/5 (38%)	7/7 (50%)
10 week FBG <60mg/dl>	12/2 (14%)	8/6 (43%)	9/5 (36%)	10/3 (23%)	10/4 (29%)
kcal/g	4.0	4.2	4.5	4.8	5.5
CHO:fat ratio	7	3	1.7	1	0.3
Fat:protein %energy ratio	0.5	1.0	1.5	2.0	3.0
GLoad (g/2000 kcal)	280	245	204	162	82
RBW (g)					
Initial (3 weeks of age)	32±5	32±4	32±4	31±4	32±6
After 3 weeks	70±6	71±7	72±7	71±9	67±12
After 6 weeks	85±8	87±9	88±9	85±11	84±12
After 10 weeks	98±10	100±12	103±10	99±14	95±14
BW gain/day (g/day)	0.87±0.11	0.90±0.14	0.94±0.14	0.89±0.16	0.84±0.15
Food intake (g BW gained/1000 kcal)					
g/day	14.3±1.6 ^{abc}	13.4±1.0 ^{de}	13.2±1.1 ^{afg}	11.4±1.0 ^{bdf}	10.6±1.3 ^{ceg}
kcal/day					
week 2	24±3 ^a	25±2	27±2 ^{ab}	24±2 ^{bc}	26±3 ^c
week 8	23±4 ^a	24±3 ^b	25±3 ^c	23±2 ^d	28±4 ^{abcd}
10 week average	23±3 ^{ab}	24±2 ^c	26±2 ^{ad}	22±2 ^{de}	26±3 ^{bce}
kcal/kg BW /10 week	235±23 ^a	242±22 ^b	250±21 ^{cd}	226±20 ^{ce}	277±34 ^{abde}
18:2(n-6) %energy	1.3	2.6	3.9	5.2	7.8
GLoad					
/rat/day	3.2±0.4 ^{abcd}	2.9±0.2 ^{aefg}	2.6±0.3 ^{behi}	1.8±0.2 ^{cfhj}	1.0±0.1 ^{dgij}
/kg BW at 10weeks	33±3 ^{abcd}	30±3 ^{aefg}	25±3 ^{behi}	18±2 ^{cfhj}	11±2 ^{dgij}
Cumulative, 10 weeks	225±25 ^{abcd}	206±16 ^{aefg}	180±20 ^{behi}	126±11 ^{cfhj}	71±9 ^{dgij}
cumGLoad/ rat/kcal	0.14 ^{abcd}	0.12 ^{aefg}	0.10 ^{behi}	0.08 ^{cfhj}	0.04 ^{dgij}
10th Week Water Intake (ml)	46±37	29±10	42±30	32±6	38±20
Food efficiency (g BW gained/1000 kcal)					
1-6 weeks	47±5	48±5 ^a	45±6 ^b	50±8 ^{bc}	43±7 ^{ac}
1-10 weeks	38±5 ^a	38±4 ^b	37±6 ^c	40±5 ^d	32±5 ^{abcd}
RBG (mg/dl)					
After 6 weeks	102±111	73±25	71±26	64±17	74±60
After 10 weeks	120±113	86±67^a	167±172^{abc}	66±12^b	78±62^c
Severity (> 75mg/dl)	+45	+11	+92	-9	+3
OGTT (BG mg/dl)					

After 6 weeks					
FBG, 0 min	48±11	48±12	48±7	47±14	54±16
30 min	213±116	187±82	220±82	185±59	225±89
After 10 weeks					
FBG, 0 min	54±30	55±14	54±13	49±18	57±23
30 min	177±127	192±105	231±106	165±73	196±71
60 min	127±76	105±63	184±135	127±81	185±148
Organ weight (%BW)					
Liver	3.5±0.7	3.4±0.4	3.6±0.6	3.2±0.3	3.5±0.4
Kidney	0.9±0.6	0.7±0.1	0.7±0.1	0.7±0.1	0.8±0.1
Cecum	1.1±0.3	1.1±0.1	1.1±0.2	1.1±0.2	1.2±0.4
Adipose					
Epididymal	2.7±0.5	2.5±0.5	2.9±0.7	2.7±0.7	2.7±0.9
Perirenal	1.6±0.5	1.7±0.4	1.8±0.3	1.6±0.5	1.4±0.5
BAT	2.1±0.7	2.1±0.5	2.2±0.5	2.1±0.6	1.8±0.7
Total fat	6.4±1.5	6.3±1.2	6.9±1.2	6.5±1.5	6.0±1.7
Carcass	74±2	74±2	74±2	75±2	74±2
Body length (cm)	13.3±0.8	13.2±0.3	13.3±0.3	13.3±0.7	13.2±0.5
BMI (kg/m²)	5.38±0.47	5.52±0.56	5.69±0.56	5.35±0.51	5.32±0.48
Plasma					
TC (mg/dl)	127±40 ^a	119±29 ^b	121±20 ^c	98±11 ^{abcd}	120±19 ^d
TG (mg/dl)	98±47 ^a	93±26 ^b	135±74 ^{abcd}	75±20 ^c	72±30 ^d

Values are mean±SD (n=13-14); ^{a,b,c} Means in a row sharing a common superscript differ (p<0.05) by one-way ANOVA and Fisher's PLSD test.

Table S5. Diabetic assessment of 3 week old male Nile rats fed PKOB diets with different CHO:fat ratios and GLoads for 10 weeks (Experiment 1) – Split into resistant or susceptible to T2DM based on RBG.

	Diet									
Diet #	195		196		197		198		199	
n=	14		14		14		14		14	
CHO:fat:protein %energy	70:10:20		60:20:20		50:30:20		40:40:20		20:60:20	
P/S Ratio	1.00		1.00		1.00		1.00		1.00	
Resistant/susceptible (% susceptible)										
10 week RBG <75mg/dl>	8/6 (43%)		5/9 (64%)		7/6 (46%)		9/5 (36%)		11/3 (21%)	
10 week 30'OGTT <175mg/dl>	6/8 (57%)		2/12 (86%)		6/7 (54%)		6/8 (57%)		11/3 (21%)	
10 week FBG <60mg/dl>	12/2 (14%)		10/4 (29%)		9/4 (31%)		7/7 (50%)		8/6 (43%)	
kcal/g	4.0		4.2		4.5		4.8		5.5	
CHO:fat %energy ratio	7.0		3.0		1.7		1.0		0.3	
Fat:protein %energy ratio	0.5		1		1.5		2		3	
GLoad/2000 kcal	280		245		204		162		82	
Data Split into resistant and susceptible rats										
	Resist	Suscept	Resist	Suscept.	Resist.	Suscept.	Resist.	Suscept.	Resist.	Suscept.
Kcal/day	24±3	28±7	25±1	27±1	25±2	29±3	23±1	25±1	26±2	25±1
10 week RBG (mg/dl)	59±12	257±213	63±4	212±131	61±7	293±176	62±8	197±76	60±7	79±2
n=	6	8	5	9	7	6	9	5	11	3
RBW (g)										
Initial (3 weeks of age)	31±6	32±6	32±2	31±3	30±5	35±6	30±3	32±4	33±5	30±3
After 3 weeks	69±7	71±10	71±5	73±7	70±8	79±4	70±5	74±4	70±8	64±2
After 6 weeks ^a	86±9	84±8	86±8	94±7	85±11	96±9	84±6	94±6	90±10	81±8
After 10 weeks	97±8	97±9	101±7	109±9	100±12	109±11	100±7	112±6	105±11	96±6
BW gain/day (g/day)	0.88±0.1	0.87±0.1	0.92±0.1	1.04±0.1	0.92±0.1	0.98±0.2	0.92±0.1	1.06±0.1	1.00±0.1	0.85±0.1
Energy intake										
g/day ^{bc}	15.0±1.6	17.4±4.1	14.0±0.4	14.9±0.6	12.9±1.2	15.0±1.3	11.8±0.6	12.6±0.5	10.6±0.7	10.0±0.2
kcal/day										
week 2 ^b	23±2	25±3	25±1	25±2	26±3	28±1	23±2	24±1	26±2	25±1
week 8	23±3	27±6	25±3	25±1	24±2	28±3	23±3	25±1	27±3	24±2
10 week average ^{bc}	24±3	28±7	25±1	27±1	25±2	29±3	23±1	25±1	26±2	25±1
kcal/kg BW /10 week ^b	249±19	287±60	248±11	246±24	251±18	268±32	232±11	219±8	249±22	256±9
18:2(n-6) %energy	2.7		5.3		8		10.7		16	
GLoad										
/rat/day ^{bc}	3.4±0.3	3.9±0.9	3.1±0.1	3.3±0.1	2.5±0.2	2.9±0.2	1.9±0.1	2.0±0.1	1.1±0.1	1.0±0.0
/kg BW at 10 weeks ^b	35±3	40±8	30±1	30±3	26±2	27±3	19±1	18±1	10±1	11±0
Cumulative, 10 weeks ^{bc}	237±25	274±64	215±7	228±10	178±16	206±18	131±7	139±5	75±5	70±2
cumGLoad/rat/kcal	0.14	0.14	0.12	0.12	0.1	0.1	0.08	0.08	0.04	0.04
10 th Week Water Intake (ml) ^c	37±15	140±239	28±10	73±65	36±13	126±100	33±6	40±26	41±8	37±17
Food efficiency (g BW gained/1000 kcal)										
1-6 weeks	49±6	43±8 ^a	45±5	52±5 ^a	46±5	45±6	52±7	48±10	46±5	44±9
1-10 weeks ^b	37±4	32±7	36±4	39±4	37±3	34±6	40±5	43±3	38±6	34±3
RBG (mg/dl)										

After 6 weeks ^{bc}	141±102	254±236	77±18	114±83	71±8	198±162	70±21	74±17	66±10	65±21
After 10 weeks ^c	59±12	257±213	63±4	212±131	61±7	293±176	62±8	197±76	60±7	79±2
Severity (mg/dl > 75)	-16	+182	-12	+137	-14	+217	-13	+125	-15	+4
After 6 weeks										
FBG, 0 min	56±18	57±19	54±7	64±29	47±8	58±20	50±9	58±15	53±9	50±7
30 min ^c	216±86	336±151	244±34	319±109	175±57	338±156	205±57	266±56	215±59	149±16
After 10 weeks										
FBG, 0 min ^{bc}	48±12	47±6	53±8	57±10	49±20	60±17	58±17	63±21	57±13	82±37
30 min ^c	165±80	278±95	178±11	336±166	176±56	326±188	170±53	278±91	175±58	161±13
60 min ^c	120±120	182±88	95±41	233±113	116±44	302±177	160±71	244±107	148±58	158±66
Organ weight (%BW)										
Liver ^c	3.5±0.4	4.0±0.9	3.5±0.1	3.7±0.7	3.5±0.5	4.2±0.9	3.2±0.3	3.7±0.4	3.7±0.4	3.2±0.2
Kidney ^b	0.7±0.1	0.9±0.3	0.7±0.1	0.7±0.1	0.7±0.1	0.8±0.1	0.7±0.0	0.7±0.1	0.7±0.1	0.7±0.1
Cecum ^b	1.2±0.1	1.5±0.7	1.0±0.1	1.1±0.2	1.1±0.2	1.1±0.4	1.1±0.1	1.0±0.1	1.1±0.2	1.0±0.1
Adipose										
Epididymal ^b	2.5±0.5	2.3±0.9	3.2±0.5	2.8±0.4	2.8±0.6	3.0±1.0	3.1±0.4	3.2±0.5	3.4±0.9	3.2±0.8
Perirenal ^{ab}	1.5±0.6	1.4±0.7	1.8±0.4	1.9±0.5	1.7±0.5	1.9±0.5	1.6±0.5	2.7±0.6	1.7±0.5	1.3±0.1
BAT ^b	1.9±0.6	1.6±0.6	2.2±0.5	2.4±0.5	2.1±0.5	2.3±0.8	1.8±0.3	2.3±0.4	2.0±0.6	1.7±0.4
Total fat ^b	5.8±1.4	5.4±2.1	7.1±1.0	7.2±0.9	6.6±1.0	7.2±1.3	6.4±1.0	8.2±0.7	7.1±1.5	6.2±0.4
Carcass	75±2	74±2	74±2	73±2	74±1	73±1	74±2	73±1	73±2	74±1
Body length (cm)										
	13.3±0.2	13.2±0.5	13.3±0.2	13.4±0.3	13.2±0.3	13.6±0.4	13.3±0.5	13.4±0.4	13.6±0.7	13.0±0.3
BMI (kg/m²)										
	5.3±0.5	5.4±0.3	5.5±0.5	5.9±0.3	5.5±0.5	5.7±0.5	5.5±0.3	6.0±0.2	5.5±0.5	5.5±0.4
Plasma										
TC (mg/dl) ^{a,c,d}	84±14	128±55	96±16	121±26	91±9	101±25	102±20	79±13	95±17	101±22
TG (mg/dl) ^{a,c,d}	69±17	78±35	65±15	100±33	71±15	88±26	59±14	79±16	54±10	50±13

Values are mean±SD (n=3-11); ^aSignificant (P < 0.05) interaction term for diet x diabetes class (RBG <75 mg/dl) revealed by two-way ANOVA;

^bSignificant (P < 0.05) effect of diet (GLoad) by two-way ANOVA; ^cSignificant (P < 0.05) increase due to diabetes (RBG >75 mg/dl) by two-way ANOVA; ^dSignificant (P < 0.05) decrease due to diabetes (RBG >75 mg/dl) by two-way ANOVA.

Table S6. Diabetic assessment of 3 week old male Nile rats fed AFB diets with different CHO:fat ratios and GLoads for 10 weeks (Experiment 2) – Split into resistant or susceptible to T2DM.

Diet # n=	Diets									
	200 14	201 14	202 14	203 13	204 14					
CHO:fat:protein %en	70:10:20	60:20:20	50:30:20	40:40:20	20:60:20					
P/S ratio	0.35	0.35	0.35	0.35	0.35					
Resistant/susceptible (% susceptible)										
10 week RBG <75mg/dl>	10/4 (29%)	10/4 (29%)	7/7 (50%)	11/2 (15%)	11/3 (21%)					
10 week 30'OGTT <175mg/dl>	10/4 (29%)	7/7 (50%)	6/8 (57%)	8/5 (38%)	7/7 (50%)					
10 week FBG <60mg/dl>	12/2 (14%)	8/6 (43%)	9/5 (36%)	10/3 (23%)	10/4 (29%)					
kcal/g	4.0	4.2	4.5	4.8	5.5					
CHO:fat %en ratio	7.0	3.0	1.7	1.0	0.3					
Fat:protein %en ratio	(0.5)	(1.0)	(1.5)	(2.0)	(3.0)					
GLoad/2000 kcal	280	245	204	162	82					
Data Split into resistant and susceptible rats										
	Resist	Suscept	Resist	Suscept	Resist	Suscept	Resist	Suscept	Resist	Suscept
kcal/day	22±2	25±3	23±2	26±1	25±2	26±2	22±2	23±0	26±3	27±5
10 week RBG (mg/dl)	63±9	262±132	57±8	160±96	58±7	275±192	62±6	89±6	58±9	151±121
n=	10	4	10	4	7	7	11	2	11	3
RBW (g)										
Initial(3 weeks old) ^c	31±4	34±5	32±4	32±4	31±3	33±4	30±4	37±0	30±6	37±4
After 3 weeks ^c	68±6	74±5	69±7	74±3	70±6	73±9	70±9	77±5	64±10	77±15
After 6 weeks ^c	82±8	93±3	85±9	93±6	87±8	88±10	83±11	93±10	80±9	98±13
After 10 weeks ^c	95±10	107±6	96±11	109±7	103±10	103±10	97±15	109±11	92±11	108±21
BW gain/day (g/day)										
	0.8±0.1	1.0±0.1	0.9±0.1	1.0±0.1	1.0±0.1	0.9±0.1	0.9±0.1	0.9±0.1	0.8±0.1	0.9±0.2
Food intake										
g/day ^{bc}	13.7±1.1	15.7±1.7	13.0±0.9	14.4±0.5	12.8±1.0	13.7±0.9	11.3±1.1	11.8±0.2	10.5±1.2	11.0±1.9
kcal/day										
week 2 ^c	23±3	26±1	25±3	26±1	26±2	28±2	23±2	25±2	26±3	27±4
week 8 ^{bc}	22±2	26±4	23±3	26±3	24±3	26±3	23±3	24±0	28±4	29±6
10 week average ^{bc}	22±2	25±3	23±2	26±1	25±2	26±2	22±2	23±0	26±3	27±5
kcal/kg BW/10 week ^b	234±17	238±36	244±23	238±20	240±21	259±18	228±20	213±17	283±33	253±34
18:2(n-6) %energy	1.5		3		4.5		6		9	
GLoad										
/rat/day ^{bc}	3.1±0.3	3.5±0.4	2.9±0.2	3.2±0.1	2.5±0.3	2.7±0.2	1.8±0.2	1.9±0.0	1.0±0.1	1.0±0.1
/kg BW at 10 weeks ^b	33±2	33±5	30±3	29±2	24±3	26±2	18±2	17±1	11±1	9±2
Cumulative, 10weeks ^{bc}	216±18	248±27	199±14	221±8	171±23	189±13	125±12	131±2	72±9	68±7
cumGLoad/rat/kcal	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.08	0.04	0.04
10 th Week Water Intake (ml) ^c										
	34±14	77±60	29±9	30±11	30±14	54±38	31±5	35±11	33±13	52±35

Food efficiency (g BW gained/1000 kcal)

1- 6 weeks	46±4	49±8	48±6	48±5	47±5	43±7	50±8	50±7	41±7	49±3
1-10 weeks	38±4	38±9	37±5	39±4	39±5	34±5	40±5	40±6	32±5	34±6
RBG (mg/dl)										
After 6 weeks ^{abc}	64±13	199±188	68±20	88±35	61±13	82±33	65±18	59±5	60±9	125±135
After 10 weeks ^{abc}	63±9	262±132	57±8	160±96	58±7	275±192	62±6	89±6	58±9	151±121
Severity (mg/dl >75)	-12	+87	-18	+85	-17	+200	-13	+14	-17	+76
OGTT (BG mg/dl)										
After 6 weeks										
FBG, 0 min ^c	44±9	56±13	49±13	47±11	45±7	51±5	45±14	58±11	52±16	63±18
30 min ^c	167±46	327±168	161±56	253±107	187±66	253±88	181±56	206±97	197±37	328±156
After 10 weeks										
FBG, 0 min ^c	44±13	78±49	53±11	59±21	54±18	54±8	44±15	74±22	56±26	62±5
30 min ^c	121±48	316±165	167±63	253±170	180±60	282±122	151±60	240±126	172±37	283±108
60 min ^{bc}	101±35	194±115	93±32	135±113	124±71	244±161	105±47	246±150	135±67	370±233
Organ weight (%BW)										
Liver ^c	3.4±0.3	4.0±1.1	3.3±0.2	3.7±0.5	3.2±0.2	4.0±0.7	3.3±0.3	3.1±0.2	3.5±0.3	3.9±0.8
Kidney	0.9±0.7	0.8±0.2	0.7±0.1	0.8±0.2	0.7±0.0	0.8±0.1	0.8±0.2	0.6±0.1	0.7±0.0	0.8±0.1
Cecum	1.1±0.2	1.2±0.4	1.1±0.1	1.0±0.2	1.0±0.1	1.1±0.2	1.01±0.2	1.0±0.2	1.1±0.4	1.2±0.6
Adipose										
Epididymal	2.7±0.6	2.6±0.4	2.6±0.6	2.5±0.1	2.8±0.4	3.0±1.0	2.6±0.7	3.2±0.0	2.5±0.8	3.5±1.1
Perirenal ^c	1.5±0.5	1.9±0.5	1.6±0.5	1.9±0.2	1.7±0.4	1.8±0.3	1.5±0.3	2.4±0.1	1.3±0.4	2.0±0.5
BAT ^c	1.9±0.6	2.5±0.7	1.9±0.4	2.6±0.3	2.4±0.6	2.1±0.5	2.0±0.6	2.7±0.3	1.6±0.5	2.5±0.9
Total fat ^c	6.1±1.5	7.0±1.5	6.1±1.3	6.9±0.3	6.9±1.3	6.9±1.1	6.1±1.3	8.4±0.3	5.4±1.4	8.0±0.8
Carcass ^d	75±2	72±1	75±2	74±1	74±1	74±3	75±2	74±1	75±2	72±1
Body length (cm)^c	13.1±0.9	13.6±0.6	13.1±0.3	13.5±0.1	13.1±0.2	13.4±0.4	13.2±0.6	14.4±0.2	13.1±0.4	13.5±0.5
BMI (kg/m²)	5.3±0.5	5.6±0.5	5.4±0.6	5.7±0.3	5.8±0.6	5.5±0.5	5.4±0.5	5.1±0.3	5.2±0.4	5.6±0.8
Plasma										
TC (mg/dl) ^c	116±26	151±59	113±19	136±44	113±21	129±17	99±12	94±4	116±19	132±10
TG (mg/dl) ^{bc}	75±19	151±51	84±25	116±11	97±27	172±89	70±17	102±7	64±24	101±34

Values are mean±SD (n=2-11); ^aSignificant (P < 0.05) interaction term for diet x diabetes class (RBG <75 mg/dl) revealed by two-way ANOVA;

^bSignificant (P < 0.05) effect of diet (GLoad) by two-way ANOVA; ^cSignificant (P < 0.05) increase due to diabetes (RBG >75 mg/dl) by two-way ANOVA; ^dSignificant (P < 0.05) decrease due to diabetes (RBG >75 mg/dl) by two-way ANOVA.

Table S7. Diabetic assessment of 3 week old male Nile rats fed PKOB diets with different CHO:fat ratios and GLoads for 10 weeks sorted into Quintiles of Average kcal/day (Experiment 1) – Unsplit by T2DM.

Q_{kcal}	Quintiles (kcal/day)				
	1	2	3	4	5
n=	13	14	14	14	14
kcal/day	22.2±1.1	24.1±0.3	25.1±0.3	26.4±0.6	29.8±3.0
P/S Ratio	1.00	1.00	1.00	1.00	1.00
Resistant/susceptible (% susceptible)					
10 week RBG <75mg/dl>	11/2 (15%)	9/5 (36%)	8/6 (43%)	8/6 (43%)	4/10 (71%)
10 week 30' OGTT <175mg/dl>	11/2 (15%)	9/5 (36%)	6/8 (57%)	4/10 (71%)	1/13
10 week FBG <60mg/dl>	10/3 (30%)	10/4 (29%)	8/6 (43%)	11/3 (21%)	8/6 (43%)
Diet Code	5, 0, 1, 7, 0	2, 2, 2, 4, 4	2, 4, 2, 1, 5	1, 6, 2, 2, 3	4, 2, 6, 0, 2
CHO:fat Score	3.4±3.0	2.0±2.3	2.3±2.3	2.2±1.8	3.2±2.6
est. CHO:fat:protein %energy	63:17:20	60:20:20	56:24:20	56:24:20	51:29:20
est. GLoad/2000 kcal	227±55 ^a	196±76	191±64	198±68	166±78 ^a
RBW (g)					
Initial (3 weeks of age)	31±4	32±5	31±4	31±3	34±5
After 3 weeks	67±6 ^a	68±6 ^b	70±6 ^c	72±7 ^d	78±6 ^{abcd}
After 6 weeks	80±8 ^{abc}	84±7 ^{def}	90±7 ^{adg}	92±6 ^{be}	96±7 ^{cfg}
After 10 weeks	94±10 ^{abc}	99±8 ^{de}	105±9 ^a	107±8 ^{bd}	109±8 ^{ce}
BW gain/day (g/day)	0.86±0.13 ^{abc}	0.90±0.12 ^{de}	0.97±0.13 ^a	1.02±0.15 ^{bd}	1.01±0.12 ^{ce}
Energy intake					
g/day	12.3±1.2 ^a	12.2±1.8 ^b	12.7±2.1 ^c	13.7±1.7 ^d	16.1±3.2 ^{abcd}
kcal/day					
week 2	22.4±1.5 ^{abcd}	24.2±1.4 ^{aefg}	25.4±1.5 ^{beh}	26.2±1.5 ^{cfi}	28.4±1.8 ^{dghi}
week 8	23.0±1.6 ^{abc}	25.2±0.9 ^{de}	25.8±1.9 ^{af}	27.4±2.2 ^{bdg}	32.1±6.3 ^{cefg}
10 week average	22.2±1.1	24.1±0.3	25.1±0.3	26.4±0.6	29.8±3.0
kcal/kg BW /10 week	237±15 ^a	244±21 ^b	242±21 ^c	249±19 ^d	276±44 ^{abcd}
18:2(n-6) %energy	7.4±4.0	9.9±4.9	9.5±5.4	8.6±4.6	7.3±4.4
GLoad					
/rat/day	2.33±0.62 ^a	2.09±0.88 ^b	2.26±1.03 ^c	2.57±0.91	3.22±1.12 ^{abc}
/kg BW at 10 weeks	25±8	21±9 ^a	22±10 ^b	24±9	30±12 ^{ab}
Cumulative, 10 weeks	163±44 ^a	146±61 ^b	159±72 ^c	180±64	225±79 ^{abc}
cumGLoad/rat/kcal	0.10	0.09	0.10	0.10	0.09
10th Week Water Intake (ml)	29±8 ^a	35±12 ^b	38±14 ^c	51±37 ^d	135±162 ^{abcd}
Food efficiency (g BW gained/1000 kcal)					
1-6 weeks	49±8	46±7	49±5	47±5	46±7
1-10 weeks	38±4 ^a	37±5	39±5 ^b	38±6 ^c	34±6 ^{abc}
RBG (mg/dl)					
After 6 weeks	69±21 ^a	74±14 ^b	85±26 ^c	85±53 ^d	240±184 ^{abcd}
After 10 weeks	64±14^a	107±89^b	83±40^c	120±98^d	264±193^{abcd}
Severity (>75mg/dl)	-11	+32	+8	+45	+189
OGTT (BG mg/dl)					

After 6 weeks					
FBG, 0 min	56±16	54±12	48±8 ^a	54±13	63±25 ^a
30 min	183±44 ^{ab}	209±63 ^c	214±74 ^d	268±97 ^{ae}	358±121 ^{bcde}
After 10 weeks					
FBG, 0 min	49±13	57±15	60±25	53±13	59±11
30 min	139±46 ^{ab}	193±76 ^c	192±69 ^d	236±105 ^{ae}	353±142 ^{bcde}
60 min	115±64 ^a	150±90 ^b	144±70 ^c	186±100 ^d	271±135 ^{abcd}
Organ weight (%BW)					
Liver	3.3±0.3 ^a	3.4±0.3 ^b	3.5±0.3 ^c	3.6±0.4 ^d	4.3±0.7 ^{abcd}
Kidney	0.7±0.1 ^a	0.7±0.0 ^b	0.7±0.1 ^c	0.7±0.0 ^d	0.8±0.2 ^{abcd}
Cecum	1.2±0.2	1.1±0.2	1.1±0.2	1.0±0.2 ^a	1.2±0.6 ^a
Adipose					
Epididymal	2.7±0.7	3.0±0.7	3.1±0.7	3.1±0.6	2.8±0.8
Perirenal	1.2±0.3 ^{abcd}	1.8±0.6 ^a	1.9±0.7 ^b	1.7±0.5 ^c	2.0±0.6 ^d
BAT	1.6±0.4 ^{abcd}	2.0±0.4 ^a	2.3±0.6 ^b	2.1±0.3 ^c	2.2±0.7 ^d
Total fat	5.5±1.2 ^{abcd}	6.8±1.1 ^a	7.3±1.1 ^b	6.9±1.0 ^c	6.9±1.8 ^d
Carcass	75±1 ^{abc}	74±1 ^d	74±1 ^{ae}	74±1 ^{bf}	72±2 ^{cdef}
Body length (cm)					
	13.0±0.4 ^{abc}	13.3±0.3	13.4±0.3 ^a	13.5±0.6 ^b	13.5±0.3 ^c
BMI (kg/m²)					
	5.4±0.5 ^{ab}	5.4±0.4 ^c	5.6±0.4	5.7±0.5 ^a	5.8±0.3 ^{bc}
Plasma					
TC (mg/dl)	88±21 ^a	98±20	96±16	104±26	115±40 ^a
TG (mg/dl)	55±11 ^{ab}	68±19 ^c	66±22 ^d	75±20 ^{ae}	93±33 ^{bcde}

Values are mean±SD (n=13–14); Diet Code = the number of rats represented by each diet in the final group of Resistant or Susceptible, e.g. the number of 70:10, 60:20, 50:20, etc; CHO:fat Score = the 'recalculated' average CHO:Fat ratio based on the diets of rats included in the Diet Code groups; ^{a,b,c}. Means in a row sharing a common superscript differ (p<0.05) by one-way ANOVA and Fisher's PLSD test.

Table S8. Diabetic assessment of 3 week old male Nile rats fed AFB diets with different CHO:Fat ratios and GLoads for 10 weeks sorted into Quintiles of Average kcal/day (Experiment 2) – Unsplit by T2DM.

Q_{kcal} n=	Quintiles (kcal/day)				
	1 13	2 14	3 14	4 14	5 14
kcal/day	20.7±1.5	22.9±0.4	23.8±0.3	25.3±0.4	28.0±2.3
P/S Ratio	0.35	0.35	0.35	0.35	0.35
Resistant/susceptible (% susceptible)					
10 week RBG <75mg/dl>	12/1 (8%)	11/3 (21%)	14/0 (0%)	6/8 (57%)	6/8 (57%)
10 week 30' OGTT <175mg/dl>	11/2 (15%)	5/9 (64%)	10/4 (29%)	8/6 (43%)	3/11 (79%)
10 week FBG <60mg/dl>	10/3 (34%)	9/5 (36%)	12/2 (14%)	9/5 (36%)	8/6 (43%)
Diet Code	5, 3, 0, 5, 0	4, 2, 2, 3, 3	2, 3, 2, 5, 2	2, 3, 6, 0, 3	1, 3, 4, 0, 6
CHO:fat Score	3.8±2.8 ^a	3.0±2.8	2.3±2.2	2.4±2.1	1.8±1.8 ^a
est CHO:fat:protein %energy	63:17:20	60:20:20	56:24:20	56:24:20	51:29:20
est. GLoad/2000 kcal	227±55 ^a	196±76	191±64	198±68	166±78 ^a
RBW (g)					
Initial (3 weeks old)	29±4 ^{abc}	32±5 ^a	31±3	33±4 ^b	33±5 ^c
After 3 weeks	64±9 ^{ab}	68±7 ^c	70±7	73±7 ^a	74±8 ^{bc}
After 6 weeks	77±9 ^{abcd}	84±8 ^{ae}	86±8 ^b	89±9 ^c	91±9 ^{de}
After 10 weeks	89±13 ^{abc}	96±11 ^d	100±9 ^a	103±10 ^b	106±10 ^{cd}
BW gain/day (g/day)	0.8±0.1 ^{abc}	0.9±0.1	0.9±0.1 ^a	0.9±0.2 ^b	0.9±0.1 ^c
Energy intake					
g/day	11.7±1.4 ^{ab}	12.1±1.8 ^c	12.5±1.4	13.1±1.7 ^a	13.6±2.1 ^{bc}
kcal/day					
week 2	22.1±2.2 ^{abcd}	23.9±1.8 ^{efg}	25.2±1.2 ^{bghi}	26.7±1.5 ^{cfh}	28.0±1.9 ^{dgi}
week 8	20.9±2.1 ^{abcd}	22.8±1.4 ^{aef}	23.8±2.0 ^{bg}	25.1±1.6 ^{ceh}	29.9±3.2 ^{dfgh}
10 week average	20.7±1.5	22.9±0.4	23.8±0.3	25.3±0.4	28.0±2.3
kcal/kg BW /10 week	236±28 ^a	241±34 ^b	240±24 ^c	248±24	266±30 ^{abc}
18:2(n-6) %energy	3.1±1.8 ^a	4.1±2.5	4.3±2.1	4.1±2.2	5.1±2.5 ^a
GLoad					
/rat/day	2.4±0.6	2.2±0.9	2.3±0.8	2.5±0.9	2.3±1.1
/kg BW at 10weeks	27±7	23±8	23±8	24±8	24±8
Cumulative, 10 weeks	164±44	154±62	159±54	174±61	159±77
cumGLoad/rat/kcal	0.11 ^a	0.10	0.09	0.10	0.08 ^a
10th Week Water Intake (ml)	32±10 ^a	30±6 ^b	33±12 ^c	34±15 ^d	60±45 ^{abcd}
Food efficiency (g BW gained/1000 kcal)					
1-6 weeks	49±6 ^a	48±7	47±8	45±7	44±6 ^a
1-10 weeks	39±5 ^a	37±6	38±6 ^b	37±6	34±4 ^{ab}
RBG (mg/dl)					
After 6 weeks	64±9 ^a	61±9 ^b	64±18 ^c	83±39	113±120 ^{abc}
After 10 weeks	82±68 ^a	64±15 ^b	60±7 ^c	122±102	191±174 ^{abc}
Severity (>75mg/dl)	+7	-11	-15	+47	+116
OGTT (BG mg/dl)					

After 6 weeks					
FBG, 0 min	46±11	49±10	50±14	52±14	50±13
30 min	175±62 ^a	186±55 ^b	182±59 ^c	215±80	271±128 ^{abc}
After 10 weeks					
FBG, 0 min	47±14	53±18	55±23	52±15	62±27
30 min	136±46 ^a	178±79 ^b	164±55 ^c	187±72 ^d	294±138 ^{abcd}
60 min	86±16 ^a	140±69 ^b	117±69 ^c	129±77 ^d	254±169 ^{abcd}
Organ weight (%BW)					
Liver	3.1±0.3 ^a	3.3±0.3 ^b	3.4±0.3 ^c	3.5±0.4 ^d	4.0±0.8 ^{abcd}
Kidney	0.8±0.2	0.8±0.6	0.7±0.0	0.7±0.1	0.8±0.1
Cecum	1.1±0.2	1.1±0.3 ^a	1.1±0.2	1.0±0.3 ^a	1.1±0.3
Adipose					
Epididymal	2.4±0.7 ^a	3.0±0.9 ^a	2.6±0.5	2.9±0.7	2.7±0.5
Perirenal	1.3±0.5 ^{abcd}	1.7±0.5 ^a	1.6±0.4 ^b	1.7±0.4 ^c	1.7±0.4 ^d
BAT	1.7±0.6 ^{ab}	2.2±0.5 ^a	2.0±0.5	2.1±0.6	2.2±0.7 ^b
Total fat	5.4±1.6 ^{abc}	6.9±1.6 ^a	6.3±1.0	6.7±1.2 ^b	6.7±1.2 ^c
Carcass	76±2 ^{abcd}	74±2 ^a	74±2 ^b	74±2 ^c	73±1 ^d
Body length (cm)					
	12.9±0.5 ^{abc}	13.3±0.8 ^a	13.3±0.3	13.4±0.5 ^b	13.3±0.4 ^c
BMI (kg/m²)					
	5.2±0.5 ^{ab}	5.3±0.6 ^c	5.5±0.4	5.5±0.6 ^a	5.7±0.4 ^{bc}
Plasma					
TC (mg/dl)	121±30	113±19	104±14 ^a	125±26 ^a	122±37
TG (mg/dl)	71±30 ^{ab}	89±26 ^c	75±17 ^d	108±48 ^a	128±76 ^{bcd}

Values are mean±SD (n=13–14); Diet Code = the number of rats represented by each diet in the final group of Resistant or Susceptible, e.g. the number of 70:10, 60:20, 50:20, etc; CHO:fat Score = the 'recalculated' average CHO:fat ratio based on the diets of rats included in the Diet Code groups; ^{a,b,c} Means in a row sharing a common superscript differ (p<0.05) by one-way ANOVA and Fisher's PLSD test.

Table S9. Diabetic assessment of 3 week old male Nile rats fed PKOB diets with different CHO:fat ratios and GLoads for 10 weeks (Experiment 1) – sorted into Quintiles of Average kcal/day and split into resistant or susceptible to T2DM.

Q _{kcal} n=	Quintiles (kcal/day)					1	2	3	4	5
	13	14	14	14	14					
kcal/day	20.7±1.5	22.9±0.4	23.8±0.3	25.3±0.4	28.0±2.3					
P/S ratio	1.00	1.00	1.00	1.00	1.00					
Resistant/susceptible (%susceptible)										
10 week RBG <75mg/dl>	11/2 (15%)	9/5 (36%)	8/6 (43%)	8/6 (43%)	4/10 (71%)					
10 week 30' OGTT <175mg/dl>	11/2 (15%)	9/5 (36%)	6/8 (57%)	4/10 (71%)	1/13					
10 week FBG <60mg/dl>	10/3 (30%)	10/4 (29%)	8/6 (43%)	11/3 (21%)	8/6 (43%)					
Data Split into resistant and susceptible rats										
n=	Resist 11	Suscept 2	Resist 9	Suscept 5	Resist 8	Suscept 6	Resist 8	Suscept 6	Resist 4	Suscept 10
est CHO:fat:protein %energy	61:19:20	64:16:20	54:26:20	52:28:20	53:27:20	58:22:20	52:28:20	58:22:20	56:24:20	62:18:20
CHO:fat Score	3.2±3.0	4.0±4.2	2.1±2.1	1.9±2.9	2.0±2.4	2.7±2.4	1.9±2.3	2.7±0.8	2.3±3.2	3.5±2.4
Diet Code*	4,0,1,6,0	1,0,0,1,0	1,2,2,2,2	1,0,0,2,2	1,2,1,0,4	1,2,1,1,1	1,1,2,1,3	0,5,0,1,0	1,0,1,0,2	3,2,5,0,0
GLoad/2000 kcal	209±58	221±83	185±70	154±81	163±89	203±72	168±79	231±34	162±97	235±35
RBW (g)										
Initial (3 weeks of age)	31±4	29±2	32±6	31±4	30±4	32±4	31±3	32±4	35±3	33±6
After 3 weeks ^c	67±5	67±11	69±6	66±6	69±7	72±4	71±6	74±8	79±6	78±6
After 6 weeks ^c	79±7	83±18	85±8	83±6	89±6	92±7	91±3	94±9	100±8	95±6
After 10 weeks ^c	94±9	96±21	99±9	99±7	103±8	107±10	105±4	110±11	112±9	108±8
BW gain/day (g/day) ^{cd}	0.9±0.1	0.9±0.2	0.9±0.1	0.9±0.1	1.0±0.1	1.0±0.1	1.0±0.2	1.0±0.1	1.0±0.1	1.00±0.1
Energy intake										
g/day ^c	12.3±1.3	12.4±0.5	12.3±1.7	11.9±2.0	12.2±2.2	13.4±1.8	13.1±2.0	14.5±0.7	13.9±2.9	17.0±2.9
kcal/d										
week 2 ^c	22.6±1.3	22.4±1.4	23.8±1.8	24.2±2.2	25.8±1.5	25.1±1.3	25.9±1.0	25.4±1.9	28.4±1.5	26.9±1.7
week 8 ^c	21.8±1.6	22.0±2.4	23.4±1.1	23.5±1.1	24.8±2.4	25.1±1.2	27.3±2.2	25.1±1.1	29.3±2.6	29.1±3.5
10 week average ^c	22.3±1.0	22.0±2.0	24.1±0.3	24.1±0.3	25.0±0.4	25.2±0.3	26.5±0.7	26.2±0.5	28.4±1.0	30.4±3.4
kcal/kg BW /10 week	237±14	233±29	244±24	245±17	244±22	238±21	254±10	242±27	254±14	284±49
18:2(n-6) %energy	7.5±3.9	6.7±5.7	9.2±4.67	11.2±5.5	10.7±5.9	8.0±4.8	10.4±5.2	6.2±2.2	10.7±6.5	5.8±2.5
GLoad										
/rat/day	2.3±0.7	2.4±0.7	2.2±0.9	1.9±1.0	2.0±1.1	2.6±0.9	2.2±1.0	3.0±0.5	2.3±1.4	3.6±0.8
/kg BW at 10 weeks	25±7	26±13	23±9	19±10	20±11	24±9	21±11	28±6	21±14	34±10
Cumulative, 10 weeks	162±45	167±48	156±60	129±67	143±78	179±64	155±72	213±33	161±96	251±57
cumGLoad/rat/kcal	0.10	0.11	0.09	0.08	0.08	0.10	0.08	0.11	0.08	0.12
10th week										
Water Intake (ml)	31±7	19±3	36±10	33±16	35±14	42±15	41±9	65±55	42±16	172±180
Food efficiency (g BWgained/1000 kcal)										
1-6 weeks	49±8	51±11	46±6	46±10	50±5	48±6	47±2	48±7	47±4	46±9
1-10 weeks	38±4	40±7	37±6	38±4	39±4	39±6	38±6	39±4	37±3	34±7

RBG (mg/dl)

After 6 weeks ^c	71±23	60±1	75±15	70±11	83±21	87±33	89±69	80±22	133±137	283±188
After 10 weeks ^{abc}	61±11	86±4	59±9	193±107	62±7	111±49	62±6	196±113	59±8	346±167
Severity (>75mg/dl)	-14	+11	-16	+118	-13	+36	-13	+121	-16	+271

OGTT (BG mg/dl)**After 6 weeks**

FBG, 0 min	52±13	75±22	51±10	60±14	49±6	48±11	55±15	53±13	56±11	65±29
30 min ^{bc}	187±47	162±11	193±51	240±77	194±65	241±83	243±77	301±116	276±17	391±130

After 10 weeks

FBG, 0 min	50±14	45±2	56±17	60±14	55±17	68±34	52±16	54±10	57±6	60±13
30 min ^{bc}	138±49	144±38	152±19	265±89	168±44	222±87	198±53	286±140	270±11	386±157
60 min ^{bc}	113±66	126±81	105±50	231±92	131±55	162±89	164±114	215±76	194±40	302±149

Organ weight (%BW)

Liver ^c	3.3±0.3	3.4±0.3	3.5±0.3	3.6±0.4	4.3±0.7	3.3±0.3	3.4±0.3	3.5±0.3	3.6±0.4	4.3±0.7
Kidney	0.7±0.1	0.7±0.0	0.7±0.1	0.7±0.0	0.8±0.2	0.7±0.1	0.7±0.0	0.7±0.1	0.7±0.0	0.8±0.2
Cecum	1.2±0.2	1.1±0.2	1.1±0.2	1.0±0.2	1.2±0.6	1.2±0.3	1.1±0.2	1.1±0.2	1.0±0.2	1.2±0.6
Adipose										
Epididymal	2.7±0.7	3.0±0.7	3.1±0.7	3.1±0.6	2.8±0.8	2.7±0.8	3.0±0.8	3.1±0.5	3.1±0.4	2.8±0.9
Perirenal ^{ac}	1.2±0.3	1.8±0.6	1.9±0.7	1.7±0.5	2.0±0.6	1.2±0.3	1.8±0.6	1.9±0.7	1.7±0.5	2.0±0.6
BAT ^c	1.6±0.4	2.0±0.4	2.3±0.6	2.1±0.3	2.2±0.7	1.6±0.4	2.0±0.4	2.3±0.6	2.1±0.3	2.2±0.7
Total fat ^{ac}	5.5±1.2	6.8±1.1	7.3±1.1	6.9±1.0	6.9±1.8	5.5±1.2	6.8±1.1	7.3±1.1	6.9±1.0	6.9±1.8
Carcass ^c	75±1	74±1	74±1	74±1	72±2	75±1	74±1	74±1	74±1	72±2

Body length (cm)^{cd}	13.0±0.4	13.3±0.3	13.4±0.3	13.5±0.6	13.5±0.3	13.0±0.4	13.3±0.4	13.4±0.3	13.5±0.6	13.5±0.3
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BMI (kg/m²)	5.4±0.5	5.4±0.4	5.6±0.4	5.7±0.5	5.8±0.3	5.4±0.5	5.4±0.4	5.6±0.5	5.7±0.5	5.8±0.3
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Plasma

TC (mg/dl)	90±21	80±27	98±13	98±28	90±9	103±20	95±20	116±31	103±13	119±46
TG (mg/dl) ^{bc}	56±10	50±17	62±17	78±21	63±17	71±28	67±13	86±24	73±20	100±35

Values are mean±SD (n=13–14); Diet Code = the number of rats represented by each diet in the final group of Resistant or Susceptible, e.g. The number of 70:10, 60:20, 50:20, etc; CHO:fat Score = the 'recalculated' average CHO:fat ratio based on the diets of rats included in the Diet Code groups;

^aSignificant (P < 0.05) interaction term for quintile x diabetes class (RBG <75 mg/dl) revealed by two-way ANOVA; ^bSignificant (P < 0.05) effect of kcal/day by two-way ANOVA; ^cSignificant (P < 0.05) increase due to diabetes (RBG >75 mg/dl) by two-way ANOVA; ^dSignificant (P < 0.05) decrease due to diabetes (RBG >75 mg/dl) by two-way ANOVA.

Table S10. Diabetic assessment of 3 week old male Nile rats fed AFB diets with different CHO:fat ratios and GLoads for 10 weeks (Experiment 2) – sorted into Quintiles of Average kcal/day and split into resistant or susceptible to T2DM.

Q _{kcal} n=	Quintiles (kcal/day)									
	1 13	2 14	3 14	4 14	5 14					
Kcal/day	20.7±1.5	22.9±0.4	23.8±0.3	25.3±0.4	28.0±2.3					
P/S ratio	0.35	0.35	0.35	0.35	0.35					
Resistant/susceptible (% susceptible)										
10 week RBG <75mg/dl>	12/1 (8%)	11/3 (21%)	14/0 (0%)	6/8 (57%)	6/8 (57%)					
10 week 30' OGTT <175mg/dl>	11/2 (15%)	5/9 (64%)	10/4 (29%)	8/6 (43%)	3/11 (79%)					
10 week FBG <60mg/dl>	10/3 (34%)	9/5 (36%)	12/2 (14%)	9/5 (36%)	8/6 (43%)					
Data Split into resistant and susceptible rats										
	resist	suscept	resist	suscept	resist	sus-	resist	suscept	resist	suscept
n=	12	1	11	3	14	0	6	8	6	8
est CHO:fat:protein %energy	62:18:20	70:10:20	62:18:20	36:44:20	56:24:20	n/a	44:36:20	62:18:20	40:40:20	56:24:20
CHO:fat Score	3.5±2.7	7	3.5±2.9	0.8±0.4	2.3±2.2	n/a	1.2±1.1	3.3±2.3	1.0±1.1	2.3±2.1
Diet Code*	4,3,0,5,0	1,0,0,0,0	4,2,2,1,2	0,0,0,2,1	2,3,2,5,2	n/a	0,1,2,0,3	2,2,4,0,0	0,1,1,0,4	1,2,3,0,2
GLoad/2000 kcal	222±55	280	213±76	135±46	191±64	n/a	150±76	233±34	130±75	193±74
RBW (g)										
Initial (3 weeks old) ^b	29±4	26	31±5	35±3	31±3	n/a	35±4	32±3	29±4	36±3
After 3 weeks ^{ab}	64±9	67	67±6	71±10	70±7	n/a	75±9	71±6	67±6	79±5
After 6 weeks ^{ab}	76±9	89	82±8	90±9	86±8	n/a	90±10	89±8	85±7	96±8
After 10 weeks ^{ab}	88±13	107	95±10	100±16	100±10	n/a	102±11	104±9	100±9	110±9
BW gain/day (g/day)	0.8±0.1	1.1	0.8±0.1	0.8±0.12	0.9±0.1	n/a	0.9±0.2	0.9±0.1	0.9±0.1	1.0±0.1
Energy intake										
g/day ^c	11.5±1.4	13.7	12.4±1.8	10.9±1.5	12.5±1.4	n/a	12.0±1.8	14.0±1.1	12.5±1.9	14.4±2.0
kcal/day										
week 2 ^{abc}	21.9±2.2	24.4	23.8±1.8	24.0±2.3	25.2±1.2	n/a	26.7±1.1	26.8±1.8	27.9±2.2	28.1±1.7
week 8 ^{abc}	20.8±2.2	21.6	22.5±1.4	23.8±0.1	23.8±2.0	n/a	25.4±1.5	25.0±1.8	30.8±2.9	29.3±3.5
10 week average ^c	20.5±1.5	22.1	22.9±0.4	22.8±0.4	23.8±0.3	n/a	25.4±0.4	25.2±0.4	27.8±2.9	28.0±2.0
kcal/kg BW/day ^{bc}	244±35	189	240±18	233±32	239±20	n/a	240±20	244±23	271±36	254±27
18:2(n-6) %energy	3.25±1.80	1.3	3.55±2.47	6.07±1.50	4.27±2.07	n/a	5.63±2.42	2.93±1.15	6.28±2.39	4.23±2.38
GLoad										
/rat/day	2.29±0.61	3.09	2.38±0.90	1.55±0.55	2.27±0.77	n/a	1.90±0.98	2.94±0.42	1.78±0.97	2.64±1.09
/kg BW at 10 weeks ^a	26±7	29	25±8	15±4	23±8	n/a	18±8	28±3	17±8	25±11
Cumulative, 10 weeks	160±43	216	167±63	109±38	159±54	n/a	133±69	206±29	124±68	185±77
cumGLoad/rat/day/	0.11	0.14	0.10	0.07	0.09	n/a	0.07	0.12	0.06	0.10
10th Week Water Intake (ml)	31±9	52	29±5	36±8	33±12	n/a	35±14	33±16	35±20	76±50

Food efficiency (g BW gained/1000 kcal)

1-6 weeks	49±5	60	47±7	49±5	47±8	n/a	44±6	46±7	42±7	45±4
1-10 weeks	38±5	49	37±6	37±8	38±6	n/a	36±6	37±5	34±5	34±4

RBG (mg/dl)

After 6 weeks ^{abc}	64±9	72	64±8	53±10	64±18	n/a	69±26	93±46	57±11	155±148
After 10 weeks ^b	63±8	308	58±9	86±6	60±7	n/a	60±10	168±116	57±6	292±171
Severity (>75mg/dl)	-12	+233	-17	+11	-15	n/a	-15	+93	-18	+217

OGTT (BG mg/dl)**After 6 weeks**

FBG, 0 min	45±11	56	46±10	57±8	50±14	n/a	51±19	52±10	44±6	54±15
30 min ^{abc}	161±39	337	182±54	200±69	182±59	n/a	196±60	229±94	180±48	340±128

After 10 weeks

FBG, 0 min ^b	47±14	40	48±17	68±18	55±23	n/a	47±16	55±14	49±11	72±33
30 min ^{abc}	127±42	211	166±75	220±96	164±55	n/a	156±47	211±81	184±34	377±127
60 min ^{abc}	88±15	67	121±37	209±124	117±69	n/a	122±74	134±84	116±55	357±149

Organ weight (%BW)

Liver ^{abc}	3.1±0.2	3.5	3.4±0.2	3.1±0.2	3.4±0.3	n/a	3.3±0.2	3.6±0.4	3.5±0.3	4.4±0.8
Kidney	0.8±0.2	0.7	0.9±0.6	0.7±0.1	0.7±0.0	n/a	0.7±0.0	0.7±0.1	0.7±0.1	0.9±0.1
Cecum	1.1±0.2	1.1	1.1±0.2	1.3±0.5	1.1±0.2	n/a	1.0±0.5	1.0±0.1	1.2±0.3	1.1±0.3
Adipose										
Epididymal	2.4±0.7	2.6	2.7±0.9	3.7±0.8	2.6±0.5	n/a	2.8±0.2	2.9±0.9	2.7±0.6	2.7±0.4
Perirenal ^b	1.2±0.4	2.0	1.6±0.5	2.1±0.6	1.6±0.4	n/a	1.5±0.3	1.9±0.3	1.6±0.4	1.9±0.4
BAT ^b	1.6±0.5	2.7	2.2±0.5	2.3±0.7	2.0±0.5	n/a	1.9±0.7	2.3±0.5	2.0±0.7	2.4±0.6
Total fat ^b	5.2±1.6	7.2	6.5±1.7	8.1±0.5	6.3±1.0	n/a	6.2±1.0	7.1±1.1	6.2±1.3	7.0±1.2
Carcass ^b	76±2	72	74±2	73±2	74±2	n/a	74±1	74±2	74±1	73±1

Body length (cm)^b	12.9±0.5	13.1	13.2±0.8	13.9±0.7	13.3±0.3	n/a	13.3±0.5	13.5±0.4	13.1±0.3	13.5±0.3
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BMI (kg/m²)	5.1±0.5	6.0	5.4±0.6	4.9±0.3	5.5±0.4	n/a	5.6±0.6	5.5±0.6	5.6±0.6	5.8±0.3
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Plasma

TC (mg/dl)	116±26	178	114±18	110±27	104±14	n/a	118±10	131±34	105±30	136±37
TG (mg/dl) ^b	64±19	146	89±28	88±24	75±17	n/a	83±26	128±53	74±32	168±75

Values are mean±SD (n=13–14); Diet Code = the number of rats represented by each diet in the final group of Resistant or Susceptible e.g. The number of 70:10, 60:20, 50:20, etc; CHO:fat Score = the ‘recalculated’ average CHO:fat ratio based on the diets of rats included in the Diet Code groups; ^aSignificant (P < 0.05) interaction term for quintile x diabetes class (RBG <75 mg/dl) revealed by two-way ANOVA; ^bSignificant (P < 0.05) effect of kcal/day by two-way ANOVA; ^cSignificant (P < 0.05) increase due to diabetes (RBG >75 mg/dl) by two-way ANOVA; ^dSignificant (P < 0.05) decrease due to diabetes (RBG >75 mg/dl) by two-way ANOVA.

Table S11. Diabetic assessment of 3 week old male Nile rats fed PKOB diets with different CHO:fat ratios and GLoads for 10 weeks sorted into Quintiles of 10week RBG (Experiment 1).

Q_{RBG} n=	Quintiles (10 week RBG)				
	1 13	2 14	3 14	4 14	5 14
10week RBG	resist 51±6 ^a	resist 62±1 ^b	resist 70±3 ^c	suscept 101±40 ^d	suscept 353±110 ^{abcd}
P/S Ratio	1.00	1.00	1.00	1.00	1.00
Resistant/Susceptible (%susceptible)					
10 week RBG <75mg/dl>	13/0 (0%)	14/0 (0%)	13/1 (7%)	0/14 (100%)	0/14 (100%)
10 week 30' OGTT <175mg/dl>	10/3 (23%)	8/6 (43%)	5/9 (64%)	7/7 (50%)	0/14 (100%)
10 week FBG <60mg/dl>	9/4 (29%)	12/2 (14%)	8/6 (43%)	9/5 (36%)	9/5 (36%)
Diet Code	3, 1, 2, 3, 4	1, 2, 3, 3, 5	4, 3, 2, 3, 2	3, 4, 2, 2, 3	3, 4, 4, 3, 0
CHO:fat Score	2.4±2.7	1.6±1.8	3.1±2.7	2.8±2.5	3.0±2.3
est. CHO:fat:protein %energy	56:24:20	49:31:20	60:20:20	59:21:20	60:20:20
est. GLoad2000 kcal	177±79	163±71 ^a	208±70	200±74	223±43 ^a
RBW (g)					
Initial (3 weeks of age)	30±5 ^a	31±3	33±4	31±4	33±5 ^a
After 3 weeks	70±5	69±8 ^a	70±6	71±7	75±7 ^a
After 6 weeks	87±6	86±11 ^a	87±8	89±10	93±8 ^a
After 10 weeks	103±8	100±11 ^a	101±9	103±11	108±9 ^a
BW gain per day (g/day)	0.9±0.1	0.9±0.1 ^a	0.9±0.2	0.9±0.2	1.0±0.1 ^a
Energy intake					
g/day	12.5±1.9 ^a	12.3±1.7 ^b	13.2±2.1 ^c	13.3±2.2 ^d	15.7±3.1 ^{abcd}
kcal/day					
week 2	25.0±1.9	25.2±2.9	24.3±2.5 ^a	25.6±2.0	26.8±2.7 ^a
week 8	25.4±1.5 ^a	25.9±2.9 ^b	25.4±2.7 ^c	25.3±2.4 ^d	31.5±6.7 ^{abcd}
10 week average	24.6±1.4 ^a	25.1±2.4 ^b	24.4±2.3 ^c	25.2±2.0 ^d	28.4±4.1 ^{abcd}
kcal/kg BW /10 week	103±8 ^a	100±11	101±9 ^b	103±11	108±9 ^{ab}
18:2(n-6) %energy	9.7±5.3	10.7±4.7 ^a	7.6±4.7	8.2±5.0	6.7±2.9 ^a
GLoad					
/rat/day	2.17±0.94 ^a	2.02±0.88 ^b	2.54±0.91	2.53±0.97	3.20±0.93 ^{ab}
/kg BW at 10 weeks	22±10 ^a	20±9 ^b	25±9	25±10	30±10 ^{ab}
Cumulative, 10 weeks	152±65 ^a	141±61 ^b	178±63	177±68	224±66 ^{ab}
cumGLoad/rat/kcal	0.09	0.08	0.10	0.10	0.11
10th week Water Intake (ml)	38±7 ^a	35±13 ^b	34±11 ^c	33±14 ^d	148±157 ^{abcd}
Food efficiency (g BW gained/1000 kcal)					
1-6 weeks	49±4	48±8	47±5	47±7	47±9
1-10 weeks	39±5	37±4	38±5	38±5	36±7
RBG (mg/dl)					
After 6 weeks	70±12 ^a	73±20 ^b	108±84 ^c	80±36 ^d	222±185 ^{abcd}
after 10 weeks	51±6 ^{ab}	62±1 ^c	70±3 ^d	101±40 ^{ae}	353±110 ^{bcd}
Severity (>75mg/dl)	-24	-13	-5	+26	+278
OGTT (BG mg/dl)					
After 6 weeks					
FBG, 0 min	51±9 ^a	51±9 ^b	54±15	55±15	64±25 ^{ab}
30 min	211±67 ^a	210±40 ^b	211±77 ^c	216±82 ^d	387±104 ^{abcd}

After 10 weeks					
FBG, 0 min	55±14	47±10 ^{ab}	58±17	59±24 ^a	61±11 ^b
30 min	154±56 ^a	174±50 ^b	192±57 ^c	193±88 ^d	400±108 ^{abcd}
60 min	134±73 ^a	127±48 ^b	141±97 ^c	158±83 ^d	308±111 ^{abcd}
Organ weight (%BW)					
Liver	3.4±0.4 ^a	3.6±0.4 ^b	3.4±0.4 ^c	3.5±0.4 ^d	4.2±0.7 ^{abcd}
Kidney	0.7±0.1 ^a	0.7±0.1 ^b	0.7±0.1 ^c	0.7±0.1 ^d	0.9±0.2 ^{abcd}
Cecum	1.1±0.2	1.0±0.1 ^a	1.1±0.2	1.0±0.2 ^b	1.3±0.5 ^{ab}
Adipose					
Epididymal	3.0±0.6	3.1±0.7	2.9±0.7	3.0±0.8	2.7±0.7
Perirenal	1.7±0.4	1.7±0.6	1.6±0.5	1.9±0.7	1.9±0.7
BAT	2.0±0.4	1.9±0.6	2.0±0.5	2.2±0.7	2.1±0.6
Total fat	6.6±1.0	6.7±1.5	6.5±1.3	7.1±1.4	6.7±1.7
Carcass	75±2 ^a	74±2	74±2 ^b	74±2	73±1 ^{ab}
Body length (cm)	13.3±0.2	13.2±0.4	13.5±0.7	13.3±0.4	13.4±0.3
BMI (kg/m²)	5.6±0.4	5.5±0.4	5.4±0.5 ^a	5.6±0.4	5.8±0.4 ^a
Plasma					
TC (mg/dl)	100±19 ^a	90±15 ^b	93±15 ^c	96±22 ^d	123±41 ^{abcd}
TG (mg/dl)	64±17 ^a	57±12 ^{bc}	66±15 ^d	76±32 ^{be}	93±28 ^{acde}

Values are mean±SD (n=13–14); Diet Code = the number of rats represented by each diet in the final group of Resistant or Susceptible, e.g. the number of 70:10, 60:20, 50:20, etc; CHO:fat Score = the 'recalculated' average CHO:fat ratio based on the diets of rats included in the Diet Code groups; ^{a,b,c} Means in a row sharing a common superscript differ (p<0.05) by one-way ANOVA and Fisher's PLSD test.

Table S12. Diabetic assessment of 3 week old male Nile rats fed AFB diets with different CHO:fat ratios and GLoads for 10 weeks sorted into Quintiles of 10week RBG (Experiment 2).

QRBG n=	Quintiles (10 week RBG)				
	1 13	2 14	3 14	4 14	5 14
	resist	resist	resist	suscept	suscept
10week RBG	50±3 ^a	57±2 ^b	64±2 ^c	76±5 ^d	269±145 ^{abcd}
P/S Ratio	0.35	0.35	0.35	0.35	0.35
Resistant/susceptible (%susceptible)					
10 week RBG <75mg/dl>	13/0 (0%)	14/0 (0%)	14/0 (0%)	7/7 (50%)	0/14 (100%)
10 week 30' OGTT <175mg/dl>	11/2 (15%)	8/6 (43%)	8/6 (43%)	8/6 (43%)	2/12 (86%)
10 week FBG <60mg/dl>	11/2 (15%)	10/4 (29%)	10/4 (29%)	9/5 (36%)	7/7 (50%)
Diet Code	2, 2, 2, 2, 5	2, 6, 3, 2, 1	2, 1, 1, 6, 4	5,3,2,1,3	3, 2, 6, 2, 1
CHO:fat Score	2.1±2.4	2.8±2.0	1.9±2.3	3.5±2.8	2.8±2.4
est. CHO:fat:protein %energy	54:26:20	59:21:20	52:28:20	62:18:20	59:21:20
est.GLoad/2000 kcal	169±80	218±54 ^a	165±69 ^a	211±78	211±54
RBW (g)					
Initial (3 weeks of age)	30±5	30±3 ^a	32±4	33±4	33±4 ^a
After 3 weeks	65±9 ^{ab}	67±7 ^c	70±8	71±9 ^a	75±6 ^{bc}
After 6 weeks	81±11 ^a	82±8 ^b	86±8	87±11	92±7 ^{ab}
After 10 weeks	91±14 ^{ab}	95±12 ^c	100±8	102±13 ^a	106±8 ^{bc}
BW gain per day (g/day)	0.8±0.2 ^a	0.9±0.1	0.9±0.1	0.9±0.1	1.0±0.1 ^a
Energy intake					
g/day	11.7±2.1 ^a	12.7±1.2 ^b	11.8±1.4 ^c	12.8±1.8	14.0±1.6 ^{abc}
kcal/d					
week 2	24.8±3.0 ^a	24.7±3.1 ^b	24.4±2.1 ^c	25.0±2.3 ^d	27.2±2.2 ^{abcd}
week 8	23.2±4.2 ^a	24.1±4.3	24.8±2.7	23.9±2.5 ^b	26.7±4.1 ^{ab}
10 week average	23.5±2.7 ^a	23.7±3.5 ^b	23.5±1.6 ^c	23.9±2.0 ^d	26.1±2.7 ^{abcd}
kcal/kg BW /10 week	261±32 ^{ab}	250±32	238±30 ^a	236±23 ^b	247±27
18:2(n-6) %energy	5.0±2.6	3.4±1.7 ^a	5.1±2.2 ^a	3.6±2.6	3.6±1.8
Gload					
/ rat / day	1.96±0.98 ^a	2.52±0.55 ^b	1.87±0.76 ^{bcd}	2.49±0.88 ^c	2.71±0.78 ^{ad}
/ kg BW at 10 weeks	21±9	27±7 ^a	19±8 ^{ab}	25±9	26±8 ^b
Cumulative, 10weeks	137±69 ^a	177±38 ^b	131±53 ^{bcd}	174±62 ^c	190±55 ^{ad}
cumGload/rat/kcal	0.08	0.11	0.08	0.10	0.10
10th Week Water Intake (ml)	34±13 ^a	33±14 ^b	30±8 ^c	28±6 ^d	62±42 ^{abcd}
Food efficiency (g BW gained/1000 kcal)					
1-6 weeks	43±8 ^a	47±6	49±7 ^a	47±6	47±7
1-10 weeks	35±6	37±6	39±5	38±5	37±6

RBG (mg/dl)

After 6 weeks	62±13 ^a	64±17 ^b	66±18 ^c	62±9 ^d	132±116 ^{abcd}
After 10weeks	50±3 ^a	57±2 ^b	64±2 ^c	76±5 ^d	269±145 ^{abcd}
Severity	-25	-18	-11	+1	+194

OGTT (BG mg/dl)**After 6 weeks**

FBG, 0 min	43±8 ^a	49±10	49±16	50±15	55±8 ^a
30 min	166±43 ^a	167±51 ^b	187±47 ^c	194±64 ^d	314±112 ^{abcd}

After 10 weeks

FBG, 0 min	47±11 ^a	50±15 ^b	50±25 ^c	55±14	66±28 ^{abc}
30 min	141±43 ^a	162±54 ^b	163±52 ^c	169±70 ^d	322±125 ^{abcd}
60 min	93±38 ^a	102±50 ^b	128±63 ^c	139±77 ^d	264±166 ^{abcd}

Organ weight (%BW)

Liver	3.3±0.3 ^a	3.3±0.3 ^b	3.3±0.3 ^c	3.4±0.2 ^d	4.0±0.8 ^{abcd}
Kidney	0.9±0.6 ^a	0.7±0.0	0.7±0.1	0.7±0.0 ^a	0.8±0.1
Cecum	1.0±0.3 ^a	1.1±0.2	1.2±0.2 ^{ab}	1.0±0.3 ^b	1.1±0.3
Adipose					
Epididymal	2.5±0.8	2.4±0.5 ^{abc}	2.9±0.5 ^a	2.9±0.6 ^b	2.9±0.7 ^c
Perirenal	1.5±0.6 ^a	1.4±0.4 ^{bc}	1.6±0.4 ^d	1.7±0.4 ^b	2.0±0.3 ^{acd}
BAT	1.9±0.6 ^{ab}	1.9±0.5 ^{cd}	1.9±0.5 ^e	2.3±0.6 ^{ac}	2.4±0.5 ^{bde}
Total fat	5.9±1.9 ^{ab}	5.6±1.2 ^{cd}	6.4±1.3	6.9±1.1 ^{ac}	7.3±0.9 ^{bd}
Carcass	75±2 ^a	75±2 ^b	75±1 ^c	74±2	73±1 ^{abc}

Body length (cm)

12.9±0.3 ^{abc}	13.1±0.4 ^d	13.3±0.3 ^a	13.4±0.7 ^b	13.6±0.5 ^{cd}
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BMI (kg/m²)

5.3±0.5	5.4±0.6	5.5±0.3	5.5±0.7	5.5±0.5
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Plasma

TC (mg/dl)	110±14 ^a	115±23 ^b	107±25 ^c	115±15 ^d	137±40 ^{abcd}
TG (mg/dl)	68±23 ^a	76±24 ^b	77±25 ^c	92±23 ^d	157±66 ^{abcd}

Values are mean±SD (n=13–14); Diet Code = the number of rats represented by each diet in the final group of Resistant or Susceptible, e.g. the number of 70:10, 60:20, 50:20, etc; CHO:fat Score = the 'recalculated' average CHO:fat ratio based on the diets of rats included in the Diet Code groups; ^{a,b,c} Means in a row sharing a common superscript differ (p<0.05) by one-way ANOVA and Fisher's PLSD test.