



OpenSource DIETS®

Product Data - DIO SERIES DIETS

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The "Original" High-Fat Diets for Diet Induced Obesity

Formulated by E. A. Ulman, Ph.D., Research Diets, Inc., 8/26/98 and 3/11/99.

Research Diets, Inc. formulated the "original" high-fat diet for diet induced obesity (DIO) studies in 1996. Today, our high-fat diets are the research standard for DIO mice and rats worldwide.


DIO Low-Fat Control Diets

Matched, Purified Ingredient Diet

We recommend that you use a matched, purified ingredient diet and not a grain-based 'chow' diet. There are many, many differences between purified diets and chow diets and these variables make it difficult to interpret your data from a study in which one group was fed a purified ingredient high-fat and the other a low-fat chow diet. Differences between your groups could be due to the level of fat, but could also be due to differences in fiber type and level, source of carbohydrate, and the presence or absence of plant chemicals (such as phytoestrogens), just to name a few.

See next page for low-fat control formulas.

(DIO) Formulas

Product #	D12451		D12492	
	gm%	kcal%	gm%	kcal%
Protein	24	20	26	20
Carbohydrate	41	35	26	20
Fat	24	45	35	60
Total		100		100
kcal/gm	4.73		5.24	
Ingredient	gm	kcal	gm	kcal
Casein, 30 Mesh	200	800	200	800
L-Cystine	3	12	3	12
Corn Starch	72.8	291	0	0
Maltodextrin 10	100	400	125	500
Sucrose	172.8	691	68.8	275
Cellulose, BW200	50	0	50	0
Soybean Oil	25	225	25	225
Lard	177.5	1598	245	2205
Mineral Mix S10026	10	0	10	0
DiCalcium Phosphate	13	0	13	0
Calcium Carbonate	5.5	0	5.5	0
Potassium Citrate, 1 H2O	16.5	0	16.5	0
Vitamin Mix V10001	10	40	10	40
Choline Bitartrate	2	0	2	0
FD&C Red Dye #40	0.05	0		
FD&C Blue Dye #1			0.05	0
Total	858.15	4057	773.85	4057

*Typical analysis of cholesterol in lard = 72 mg per 100 gram.

D12451 -
Cholesterol (mg)/4057 kcal = 167.8
Cholesterol (mg)/kg = 195.5

D12492 -
Cholesterol (mg)/4057 kcal = 216.4
Cholesterol (mg)/kg = 279.6

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Low-Fat Control Formulas

There are many options for low-fat control diets. Here are a few examples:

D12450B

Contains 35% sucrose by energy, unlike D12451 and D12492. Sucrose is made up of glucose and fructose and it has been shown that diets very high in sucrose or fructose (~60-70% by energy) can induce hypertriglyceridemia, insulin resistance and fatty liver.

Match Sucrose Calories

Keep the amount of sucrose (as a percent of calories) constant across low and high-fat diets. D12450H matches the sucrose calories in D12451. D12450J matches the sucrose calories in D12492. These diets are formulated in such a way that when animals in the low and high-fat groups consume the same number of calories, they will also consume the same amount of sucrose.

Replace Sucrose with Corn Starch

D12450K contains no sucrose but only corn starch and maltodextrin as the sources of carbohydrate. Maltodextrin is a partially hydrolyzed form of corn starch that allows us to produce a quality pellet in a high corn starch diet.

There are more possible low-fat diet formulas. Please contact one of our scientists and we can help you decide if one of the above diets or perhaps a different, custom diet is better for your research.

*Typical analysis of cholesterol in lard = 72 mg per 100 gram.
D12450B -
Cholesterol (mg)/4057 kcal = 54.4
Cholesterol (mg)/kg = 51.6

	35% Sucrose		D12451 Match 17% Sucrose		D12492 Match 7% Sucrose		No Sucrose	
Product #	**D12450B**		**D12450H**		**D12450J**		**D12450K**	
	gm%	*kcal%*	gm%	*kcal%*	gm%	*kcal%*	gm%	*kcal%*
Protein	19.2	*20.0*	19.2	*20.0*	19.2	*20.0*	19.2	*20.0*
Carbohydrate	67.3	*70.0*	67.3	*70.0*	67.3	*70.0*	67.3	*70.0*
Fat	4.3	*10.0*	4.3	*10.0*	4.3	*10.0*	4.3	*10.0*
Total		*100.0*		*100.0*		*100.0*		*100.0*
kcal/gm	3.85		3.85		3.85		3.85	
Ingredient	**gm**	***kcal***	**gm**	***kcal***	**gm**	***kcal***	**gm**	***kcal***
Casein, 80 Mesh	200	*800*	200	*800*	200	*800*	200	*800*
L-Cystine	3	*12*	3	*12*	3	*12*	3	*12*
Corn Starch	315	*1260*	452.2	*1808.8*	506.2	*2024.8*	550	*2200*
Maltodextrin 10	35	*140*	75	*300*	125	*500*	150	*600*
Sucrose	350	*1400*	172.8	*691.2*	68.8	*275.2*	0	*0*
Cellulose, BW200	50	*0*	50	*0*	50	*0*	50	*0*
Soybean Oil	25	*225*	25	*225*	25	*225*	25	*225*
Lard	20	*180*	20	*180*	20	*180*	20	*180*
Mineral Mix S10026	10	*0*	10	*0*	10	*0*	10	*0*
DiCalcium Phosphate	13	*0*	13	*0*	13	*0*	13	*0*
Calcium Carbonate	5.5	*0*	5.5	*0*	5.5	*0*	5.5	*0*
Potassium Citrate, 1 H2O	16.5	*0*	16.5	*0*	16.5	*0*	16.5	*0*
Vitamin Mix V10001	10	*40*	10	*40*	10	*40*	10	*40*
Choline Bitartrate	2	*0*	2	*0*	2	*0*	2	*0*
FD&C Yellow Dye #5	0.05	*0*	0.04	*0*	0.04	*0*	0	*0*
FD&C Red Dye #40	0	*0*	0.01	*0*	0	*0*	0.025	*0*
FD&C Blue Dye #1	0	*0*	0	*0*	0.01	*0*	0.025	*0*
Total	**1055.05**	***4057***	**1055.05**	***4057***	**1055.05**	***4057***	**1055.05**	***4057***

These are just a sample of the hundreds of citations comprising the body of scientific work built around these OpenSource diet formulas.

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DIO Rat Models

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D12451, D12492 The "Original High-Fat Diets"

These are just a sample of the hundreds of citations comprising the body of scientific work built around these OpenSource diet formulas.

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DIO Mouse Models

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