

Appendix E-3.8

Cholesterol: Food Pattern Modeling Analysis

RESEARCH QUESTION

What is the impact on food choices and overall nutrient adequacy of limiting cholesterol to <200 mg per day?

BACKGROUND

The USDA food patterns were designed to meet adequacy and moderation goals. These goals include less than 300 mg of cholesterol in the food patterns at all calorie levels.

The food patterns were developed by identifying amounts of foods that would meet all nutritional goals within caloric limits, using the most nutrient-dense form of each food in all food groups. This means that the food items selected are in forms without excess solid fats, which also carry cholesterol. For example, 95% lean ground beef represents all ground beef; low fat or fat-free cheeses represent all cheeses; and baked chicken without skin represents all chicken. Nutrient profiles for each food group are calculated using foods such as these, in nutrient-dense forms, to represent all foods in the food group. The USDA food patterns using these nutrient-dense forms of foods are the base patterns from which modifications are made to answer various research questions. (Please see Appendix E-3.1 *Adequacy of USDA Food Patterns* for more background information about development of the base USDA food patterns.)

To allow for flexibility in food choices, each food pattern identifies the number of additional calories that fit within the calorie goal after nutrient needs are met from nutrient-dense food choices. These additional calories are termed “discretionary calories” (DC) since they are not needed to meet nutrient needs.¹ To permit analysis of macronutrients in the food patterns, the discretionary calorie allowance is split between equal amounts (by caloric value) of solid fats and added sugars. Solid fats are a composite of the various types of fat consumed that are solid at room temperature—for example the fat in regular ground beef, milk, cheese, butter, or shortening. Solid fats may be consumed either as part of a food or added to a food. Oils are not considered to be solid fats and are a separate component of the food patterns.

METHODS

- Identify the amount of cholesterol in the base USDA food pattern at each calorie level.
- Identify cholesterol amounts within each existing food group or subgroup nutrient profile and in the oils and solid fats profiles, and select food groups or categories to modify.
- Revise the recommended amounts of the food groups and subgroups, oils, solid fats, and added sugars in the food patterns to reduce cholesterol while remaining isocaloric.
- Identify levels of cholesterol and calories in the revised food patterns, and revise food group amounts as needed to meet nutrient goals.

¹ The term “discretionary calories” (DC) is no longer used in the 2010 DGAC report. DC allowances in the USDA food patterns have been replaced with maximum limits on solid fats and added sugars (SoFAS). For purposes of this analysis, the term DC is used and can be directly translated to limits on SoFAS.)

- Identify nutrient amounts that changed and the nutrient goals that are met or not met for the food patterns at each calorie level when cholesterol is limited to < 200 mg per day.

RESULTS

Cholesterol in base USDA food patterns

The base USDA food patterns at all calorie levels, with solid fats providing 50% of the DC allowance, meet the criteria of having less than 300 mg of cholesterol. As shown below in

Table 1, the amount of cholesterol in the food patterns ranges from 94 mg in the 1000 calorie pattern to 298 mg in the 3200 calorie pattern. (The complete nutrient amounts in each food pattern are found in Appendix E-3.1 *Adequacy of USDA Food Patterns*.) The levels of cholesterol in the food patterns are substantially lower than the average amounts consumed by Americans in 2005-2006. For example, men 20 and older, with a mean energy intake of 2638 calories, consumed 358 mg of cholesterol, compared to 271mg in the USDA 2600 calorie pattern. Women 20 and older consumed 1785 calories and 237 mg of cholesterol, compared to 208 mg in the 1800 calorie pattern.

Table 1. Energy, total fat, and cholesterol in the base USDA food patterns

Pattern Calorie Level	Energy (kcal)	Total Fat (g)	Total Fat (% of kcal)	Cholesterol (mg)
1000	992	36	33.0	94
1200	1200	43	32.3	129
1400	1389	47	30.5	164
1600	1602	53	30.8	206
1800	1797	61	30.7	208
2000	1997	71	32.1	229
2200	2190	77	31.8	248
2400	2384	86	32.3	268
2600	2583	92	32.1	271
2800	2785	99	31.8	290
3000	2985	111	33.4	292
3200	3182	126	35.6	298

Cholesterol in Food Pattern Components

Since the cholesterol in eggs cannot be separated out without removing the yolk, a source of nutrients, the egg subcategory is the highest source of cholesterol of any nutrient profile used in food pattern development. Other sources of cholesterol in the nutrient profiles are the meats, poultry, fish, milk, and solid fats components. Very small amounts of cholesterol are contained in the whole grains and soy nutrient profiles (from egg or milk in those food products). The amounts of total fat and cholesterol in a reference amount of each food group and component in the USDA food patterns are listed in Table 2.

Table 2. Total fat and cholesterol in reference amounts of each food group and the oils and solid fats components of the USDA food patterns

Food group or component	Reference amount	Total fat (g)	Cholesterol (mg)
Fruit	1 cup equivalent	0.31	0
Vegetables			
Dark green	1 cup equivalent	0.46	0
Red-Orange	1 cup equivalent	0.29	0
Dry beans and peas	1 cup equivalent	1.48	0
Starchy	1 cup equivalent	2.81	0
Other	1 cup equivalent	1.10	0
Grains			
Whole	1 ounce equivalent	1.35	2
Non-whole	1 ounce equivalent	1.16	0
Meat & beans			
Meats	1 ounce equivalent	1.93	19
Poultry	1 ounce equivalent	1.88	23
Fish (high n-3)	1 ounce equivalent	2.50	17
Fish (low n-3)	1 ounce equivalent	0.62	26
Eggs	1 ounce equivalent	5.31	212
Soy products	1 ounce equivalent	1.90	1
Nuts & seeds	1 ounce equivalent	7.53	0
Milk	1 cup equivalent	1.47	9
Oils	10 grams	9.73	0
Solid fats	10 grams	9.13	6

The total amounts and sources of total fat and cholesterol in the reference 2000 calorie base pattern are shown below in Table 3. Again, the largest contributor to cholesterol in the pattern is eggs (89 mg), with somewhat less contributed by meats (48 mg), poultry (35 mg), and milk (26 mg). Little or none of the cholesterol comes from fruit, vegetables, or grains. The amount of eggs in the 2000-calorie pattern equates to about 3 eggs per week. The number of eggs per week in the base patterns ranges from about 1 in the 1000-calorie pattern to almost 4 in the 3200-calorie pattern.

Table 3. Sources of fat and cholesterol in the reference 2000 calorie base pattern

Food group/ component	Amount in 2000 calorie pattern	Total fat (g)	Cholesterol (mg)
Fruit	2 cup eq	0.6	0
Vegetables	2.5 cup eq	3.3	0
Grains	6 ounce eq	7.5	5
Meat & beans (total)	5.5 oz eq	14.5	188
Meats	2.5 oz eq	4.7	47
Poultry	1.5 oz eq	2.9	36
Fish (high n-3)	0.1 oz eq	0.3	2
Fish (low n-3)	0.4 oz eq	0.2	10
Eggs	0.4 oz eq	2.3	92
Soy products	0.1 oz eq	0.1	0
Nuts and seeds	0.6 oz eq	3.9	0
Milk	3 cup eq	4.4	26
Oils	27 grams	26.3	0
Solid fats	16 grams*	14.6	10
Totals		71.2	229

*Assumes one-half of all discretionary calories are consumed as solid fats.

Modifications to USDA food patterns to reduce cholesterol to <200 mg

To meet the lower criterion of <200 mg of cholesterol, all of the base patterns were modified to:

- limit eggs to less than 2 per week.
- decrease amounts of meats and chicken by about 20%.
- substitute more nuts and soy products to maintain the same total amount from the Meat & Bean group in each pattern.
- cap the amount of solid fats at 10 grams and substitute oils isocalorically.

These modifications reduced the amount of cholesterol in the patterns to a maximum of 200 mg in the 2800, 3000, and 3200-calorie patterns. Amounts from each subgroup of the Meat & Beans group and oils and solid fats at sample calorie levels for the base and modified patterns are shown in Table 4. (Amounts in all patterns are shown in Table A1.)

Table 4. Amounts from the Meat & Beans Group and oils and solid fats for the USDA base food pattern and modifications to reduce cholesterol at three sample calorie levels

Values are ounce equivalents per day and approximate ounce equivalents per week.

Food category	Base pattern: 1600 calories	Modified pattern: 1600 calories	Base pattern: 2000 calories	Modified pattern: 2000 calories	Base pattern: 3200 calories	Modified pattern: 3200 calories
Meats (beef, pork, lamb, etc.)	2.2* (16)	1.8 (13)	2.5 (17)	2.0 (14)	3.1 (22)	2.6 (18)
Poultry (chicken, turkey, etc.)	1.4 (10)	1.1 (8)	1.5 (11)	1.2 (8)	2.0 (13)	1.5 (11)
Fish (high n-3)	0.1 (0.6)	0.1 (1)	0.1 (0.6)	0.1 (0.6)	0.2 (1)	0.2 (1)
Fish (low n-3)	0.3 (2)	0.4 (2)	0.4 (3)	0.4 (3)	0.5 (3)	0.5 (3)
Eggs	0.4 (3)	0.2 (1)	0.4 (3)	0.2 (2)	0.6 (4)	0.3 (2)
Processed soy products	0.0 (0)	0.5 (3)	0.0 (0.4)	0.5 (4)	0.1 (0.5)	0.7 (5)
Nuts and seeds**	0.5 (4)	.9 (7)	0.5 (4)	1.0 (7)	0.7 (5)	1.3 (9)
Oils	22 g/day	22 g/day	27 g/day	33 g/day	51 g/day	79 g/day
Solid fats	7 g/day	7 g/day	16 g/day	10 g/day	38 g/day	10 g/day

*Ounce equivalents per day (ounce equivalents per week).

**An ounce equivalent of nuts or seeds is ½ ounce, so these patterns contain 2 to 4.5 ounces of nuts and seeds per week.

Nutrients in modified patterns

These modifications reduced the amount of cholesterol in the patterns to a maximum of 202 mg in the 2800, 3000, and 3200-calorie patterns. Cholesterol reductions in the patterns, shown in Table 5, ranged from 23% to 32%.

Table 5. Energy and cholesterol in base and cholesterol-modified USDA food patterns

Calorie level	Energy in Base Pattern (kcal)	Energy in Modified pattern (kcal)	Cholesterol in Base Pattern (mg)	Cholesterol in Modified pattern (mg)
1000	992	996	94	72
1200	1200	1207	129	96
1400	1389	1398	164	119
1600	1602	1614	206	151
1800	1797	1809	208	153
2000	1997	2013	229	164
2200	2190	2208	248	176
2400	2384	2405	268	189
2600	2583	2605	271	190
2800	2795	2819	290	202
3000	2985	3011	292	202
3200	3182	3213	298	202

Other notable nutrient changes in the patterns included an approximately 3% to 4% reduction in protein, an 8% to 12% reduction in choline, a 3% to 6% reduction in both vitamins A and D, a 3% reduction in EPA (20:5 n-3), and a 9% reduction in DHA (22:6 n-3). In contrast, the changes resulted in increased amounts of some nutrients: vitamin E (+4% to 25%), linoleic acid (+4% to 24%), and linolenic acid (+1% to 26%). Amounts of selected nutrients in all the base and cholesterol-modified patterns are shown in Tables A2, A3, and A4.)

DISCUSSION AND SUMMARY

The USDA food patterns include foods only in their most nutrient-dense forms (without excess solid fats). A small discretionary calorie allowance can be incorporated into each food pattern, which allows for some solid fats and/or other less nutrient-dense choices. Cholesterol levels in the base USDA food patterns range from 94 mg (at 1000 calories) to 298 mg (at 3200 calories). Cholesterol levels could be reduced to 202 mg or less in the food patterns at all calorie levels by limiting eggs to less than 2 per week, reducing amounts of meats and poultry, and substituting some oils for solid fats. These changes would also result in reductions in some other nutrients, including protein, choline, vitamin A, vitamin D, EPA, and DHA.

Protein is provided in abundant amounts in the food patterns, but choline amounts in the patterns do not meet the adequate intake (AI) level set by the Institute of Medicine (IOM) for most population groups. Therefore, reducing the amount of cholesterol results in the food patterns being less adequate. For example, the amount of choline in the 2000-calorie pattern was reduced from 80% to 71% of the AI for women 19 to 30, and from 62% to 55% of the AI for men 51 to 70. Amounts of vitamins A and D are also marginal or low for some population groups. So, while the reductions of these nutrients are small, they have a negative impact on the adequacy of the food patterns. The amount of vitamin A in the 2000-calorie pattern was reduced from 95% to 91% of the recommended dietary allowance (RDA) for men 51 to 70. Vitamin D levels in the 2000-calorie pattern for the same population group were reduced from 64% to 62% of the RDA. The IOM has not recommended specific amounts of EPA and DHA. The amount of EPA in the 2000-calorie pattern was reduced from 40 mg to 39 mg, and the amount of DHA from 86 mg to 78 mg.

The positive impacts on nutrient adequacy included an increase in vitamin E from the increased amounts of oils and nuts in the patterns; however, vitamin E levels were still below the RDA for almost all population groups. For example, the amount of vitamin E in the 2000-calorie pattern increased from 55% to 62% of the RDA for adults.

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Table A1. Amounts of subgroups of the Meat & Beans group, solid fats, and oils in the USDA base food patterns and in the patterns modified to reduce cholesterol

Shown in ounce equivalents per day and approximate ounce equivalents per week.

Calorie Level	Food Pattern	Meats	Poultry	Fish (high n-3)	Fish (low n-3)	Eggs	Processed Soy	Nuts and seeds**	Solid fats (g/day)	Oils (g/day)
1000	Base	0.9 (6)*	0.6 (4)	0 (0)	0.1 (1)	0.2 (1)	0 (0)	0.2 (1)	9	15
1000	Cholesterol mod	0.7 (5)	0.4 (3)	0 (0)	0.1 (1)	0.1 (1)	0.2 (1)	0.4 (3)	9	15
1200	Base	1.3 (9)	0.8 (6)	0.1 (0)	0.2 (1)	0.2 (2)	0 (0)	0.3 (2)	9	17
1200	Cholesterol mod	1.1 (8)	0.7 (5)	0.1 (0)	0.2 (1)	0.1 (1)	0.3 (2)	0.6 (4)	9	17
1400	Base	1.8 (12)	1.1 (8)	0.1 (1)	0.3 (2)	0.3 (2)	0 (0)	0.4 (3)	9	17
1400	Cholesterol mod	1.5 (10)	0.9 (6)	0.1 (1)	0.3 (2)	0.2 (1)	0.4 (3)	0.7 (5)	9	17
1600	Base	2.2 (16)	1.4 (10)	0.1 (1)	0.4 (2)	0.4 (3)	0 (0)	0.5 (3)	7	22
1600	Cholesterol mod	1.8 (13)	1.1 (8)	0.1 (1)	0.4 (2)	0.2 (1)	0.5 (3)	0.9 (7)	7	22
1800	Base	2.2 (16)	1.4 (10)	0.1 (1)	0.4 (2)	0.4 (3)	0 (0)	0.5 (3)	10	24
1800	Cholesterol mod	1.8 (13)	1.1 (8)	0.1 (1)	0.4 (2)	0.2 (1)	0.5 (3)	0.9 (7)	10	24
2000	Base	2.5 (17)	1.5 (11)	0.1 (1)	0.4 (3)	0.4 (3)	0 (0)	0.5 (4)	16	27
2000	Cholesterol mod	2 (14)	1.2 (8)	0.1 (1)	0.4 (3)	0.2 (2)	0.5 (4)	1 (7)	10	33
2200	Base	2.7 (19)	1.7 (12)	0.1 (1)	0.4 (3)	0.5 (3)	0.1 (0)	0.6 (4)	17	29
2200	Cholesterol mod	2.2 (15)	1.3 (9)	0.1 (1)	0.4 (3)	0.2 (2)	0.6 (4)	1.1 (8)	10	36
2400	Base	2.9 (20)	1.8 (13)	0.1 (1)	0.5 (3)	0.5 (4)	0.1 (0)	0.6 (4)	21	31
2400	Cholesterol mod	2.4 (17)	1.4 (10)	0.1 (1)	0.5 (3)	0.3 (2)	0.6 (4)	1.2 (9)	10	42
2600	Base	2.9 (20)	1.8 (13)	0.1 (1)	0.5 (3)	0.5 (4)	0.1 (0)	0.6 (4)	23	34
2600	Cholesterol mod	2.4 (17)	1.4 (10)	0.1 (1)	0.5 (3)	0.3 (2)	0.6 (4)	1.2 (9)	10	47
2800	Base	3.1 (22)	2 (14)	0.2 (1)	0.5 (3)	0.6 (4)	0.1 (0)	0.7 (5)	25	36
2800	Cholesterol mod	2.6 (18)	1.5 (11)	0.2 (1)	0.5 (3)	0.3 (2)	0.7 (5)	1.3 (9)	10	51
3000	Base	3.1 (22)	2 (14)	0.2 (1)	0.5 (3)	0.6 (4)	0.1 (0)	0.7 (5)	29	44
3000	Cholesterol mod	2.6 (18)	1.5 (11)	0.2 (1)	0.5 (3)	0.3 (2)	0.7 (5)	1.3 (9)	10	63
3200	Base	3.1 (22)	2 (14)	0.2 (1)	0.5 (3)	0.6 (4)	0.1 (0)	0.7 (5)	38	51
3200	Cholesterol mod	2.6 (18)	1.5 (11)	0.2 (1)	0.5 (3)	0.3 (2)	0.7 (5)	1.3 (9)	10	79

*Amounts of Meat & Bean subgroups = Ounce equivalents per day (approximate ounce equivalents per week).

**An ounce equivalent of nuts or seeds is ½ ounce, so the patterns contain 0.5 to 4.5 ounces of nuts and seeds per week.

Table A2. Cholesterol, macronutrients, and selected fatty acids in USDA base and cholesterol-modified food patterns

Calorie Level	Food Pattern	Energy (kcal)	Cholesterol (mg)	Protein (g)	Total fat (g)	Carbohydrate (g)	Dietary Fiber (g)	Total SFAs (g)	Total MUFAs (g)	Total PUFAs (g)	Linoleic acid 18:2 (g)	Linolenic acid 18:3 (g)	EPA 20:5 (g)	DHA 22:6 (g)
1000	Base	992	94	44	36	128	14	9.7	13.1	10.9	9.8	0.98	0.015	0.031
1000	Cholesterol mod	996	72	42	37	129	14	9.7	13.5	11.3	10.2	0.99	0.014	0.029
1200	Base	1200	129	55	43	155	17	11.2	15.7	12.8	11.5	1.13	0.022	0.047
1200	Cholesterol mod	1207	96	53	44	157	18	11.2	16.3	13.4	12.1	1.15	0.021	0.043
1400	Base	1389	164	65	47	184	21	12.3	17.3	13.7	12.3	1.19	0.029	0.062
1400	Cholesterol mod	1398	119	62	49	187	22	12.2	18.1	14.6	13.2	1.21	0.028	0.057
1600	Base	1602	206	83	55	203	25	14	20	16.4	14.7	1.45	0.037	0.078
1600	Cholesterol mod	1614	151	80	57	206	26	14.0	21.0	17.5	15.7	1.48	0.035	0.071
1800	Base	1797	208	87	61	234	28	15.8	22.4	18.2	16.3	1.63	0.037	0.078
1800	Cholesterol mod	1809	153	84	63	237	29	15.7	23.4	19.3	17.4	1.65	0.035	0.071
2000	Base	1997	229	91	71	260	30	18.7	26.1	20.9	18.7	1.85	0.04	0.086
2000	Cholesterol mod	2013	164	88	74	263	31	17.4	27.2	23.7	21.4	2.07	0.039	0.078
2200	Base	2190	248	100	77	287	34	20.1	28.4	22.8	20.4	2.03	0.044	0.093
2200	Cholesterol mod	2208	176	96	80	290	36	18.7	29.6	25.9	23.4	2.28	0.043	0.085
2400	Base	2384	268	106	86	312	37	22.5	31.4	25	22.4	2.2	0.048	0.101
2400	Cholesterol mod	2405	189	102	89	315	38	20.2	32.8	29.4	26.5	2.57	0.046	0.093
2600	Base	2583	271	111	92	343	41	24	33.8	27.2	24.4	2.42	0.048	0.101
2600	Cholesterol mod	2605	190	107	95	347	43	21.3	35.2	32.1	29.0	2.85	0.047	0.093
2800	Base	2795	290	118	99	376	44	25.7	36.2	29.1	26.2	2.57	0.052	0.109
2800	Cholesterol mod	2819	202	113	102	380	46	22.6	37.6	34.7	31.3	3.08	0.050	0.100
3000	Base	2985	292	120	111	396	47	28.4	40.7	33.5	30.2	3.01	0.052	0.109
3000	Cholesterol mod	3011	202	116	115	399	49	24.5	42.1	40.2	36.2	3.63	0.050	0.100
3200	Base	3182	298	120	126	412	48	32.6	46.1	38.2	34.4	3.42	0.052	0.109
3200	Cholesterol mod	3213	202	116	130	416	49	26.9	47.6	47.3	42.7	4.33	0.050	0.100

Table A3. Selected vitamins in USDA base and cholesterol-modified food patterns

Calorie Level	Food Pattern	Vitamin A (mcg RAE)	Vitamin E (mg AT)	Vitamin D (IU)	Vitamin C (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg)	Vitamin B-12 (mcg)	Choline (mg)	Folate (mcg DFE)
1000	Base	447	4.0	155	58	0.9	1.2	10	3.3	155	295
1000	Cholesterol mod	439	4.2	152	58	1.0	1.2	9.8	3.3	142	301
1200	Base	527	4.9	166	70	1.1	1.4	14	4.0	200	387
1200	Cholesterol mod	514	5.1	162	70	1.3	1.4	13.6	3.9	180	396
1400	Base	569	5.4	177	89	1.3	1.6	17	4.7	238	467
1400	Cholesterol mod	553	5.7	172	89	1.5	1.6	16.9	4.5	212	479
1600	Base	756	6.7	249	100	1.5	2.0	20	6.1	304	534
1600	Cholesterol mod	735	7.1	242	101	1.8	2.0	19.4	6.0	272	549
1800	Base	820	7.6	252	108	1.7	2.2	22	6.3	320	614
1800	Cholesterol mod	800	8.0	245	108	2.0	2.1	21.4	6.1	287	629
2000	Base	851	8.3	258	126	1.8	2.2	23	6.5	340	628
2000	Cholesterol mod	817	9.4	248	127	2.1	2.2	22.5	6.4	303	644
2200	Base	930	9.1	266	137	2.0	2.4	26	7.0	372	736
2200	Cholesterol mod	892	10.3	255	138	2.4	2.4	25.4	6.8	332	753
2400	Base	969	9.6	275	138	2.2	2.6	28	7.4	391	803
2400	Cholesterol mod	921	11.3	262	139	2.5	2.5	27.6	7.2	348	821
2600	Base	1056	10.6	279	149	2.4	2.7	30	7.6	410	906
2600	Cholesterol mod	1004	12.5	266	150	2.8	2.6	29.7	7.4	366	924
2800	Base	1098	11.2	287	168	2.6	2.9	33	8.0	434	983
2800	Cholesterol mod	1040	13.3	273	169	3.0	2.8	32.2	7.9	387	1004
3000	Base	1133	12.5	289	175	2.7	2.9	33	8.1	446	1015
3000	Cholesterol mod	1068	15.0	273	176	3.1	2.8	32.9	8.0	398	1035
3200	Base	1160	13.5	293	175	2.7	2.9	33	8.1	447	1015
3200	Cholesterol mod	1077	16.9	274	176	3.1	2.8	32.9	8.1	398	1035

Table A4. Selected minerals in USDA base and cholesterol-modified food patterns

Calorie Level	Food Pattern	Calcium (mg)	Iron (mg)	Magnesium (mg)	Potassium (mg)	Sodium (mg)	Zinc (mg)	Copper (mg)
1000	Base	751	8	169	1667	885	7	0.7
1000	Cholesterol mod	759	8	175	1671	883	7	0.7
1200	Base	803	10	212	2059	1088	9	0.9
1200	Cholesterol mod	815	10	221	2064	1086	9	0.9
1400	Base	849	13	250	2374	1265	10	1.0
1400	Cholesterol mod	865	13	262	2381	1262	10	1.1
1600	Base	1184	15	310	2971	1527	13	1.2
1600	Cholesterol mod	1203	15	324	2980	1524	13	1.3
1800	Base	1221	16	336	3272	1666	14	1.4
1800	Cholesterol mod	1241	17	350	3280	1662	13	1.4
2000	Base	1235	17	351	3478	1722	14	1.4
2000	Cholesterol mod	1256	17	366	3487	1709	14	1.5
2200	Base	1290	20	394	3836	1883	16	1.6
2200	Cholesterol mod	1313	20	411	3846	1867	15	1.7
2400	Base	1323	21	418	3945	2028	17	1.7
2400	Cholesterol mod	1348	21	436	3956	2006	17	1.8
2600	Base	1374	24	457	4275	2153	18	1.9
2600	Cholesterol mod	1398	24	475	4285	2127	18	2.0
2800	Base	1416	26	491	4544	2296	19	2.0
2800	Cholesterol mod	1443	26	511	4555	2266	19	2.1
3000	Base	1434	26	509	4780	2329	20	2.1
3000	Cholesterol mod	1460	27	528	4790	2293	19	2.2
3200	Base	1435	26	509	4781	2353	20	2.1
3200	Cholesterol mod	1461	27	528	4791	2301	19	2.2