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DAIRY PRODUCTS | PROTEINS | FRUITS | GRAINS AND NUTS
VEGETABLES | MIXED PRODUCTS | CHILD AND INFANT PRODUCTS

CHOOSING SAFER FOODS

A GUIDE TO MINIMIZING SYNTHETIC CHEMICALS IN YOUR DIET

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Choosing Safer Foods
A Guide to Minimizing Synthetic Chemicals in Your Diet

By

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Preface

The curative powers of chicken soup have been known since it was prescribed as a remedy for the common cold in Ancient Egypt. In America today, chicken noodle soup is still a popular comfort food for treating the symptoms of the common cold and the flu. Given its healing powers, we should all be consoled by the fact that of the 240 food products tested by the Food and Drug Administration (FDA), chicken noodle soup was one of only five food products that were *not* contaminated with synthetic chemicals. Other popular comfort foods fared much worse.

Toxicologists have only just begun to study the influence of *individual* synthetic chemicals at low levels on human health. Unfortunately, toxicologists know virtually nothing about the toxic effects of *chemical mixtures*. Given these unknowns, our exposure to complex mixtures of synthetic chemicals could be responsible for a portion of the background health effects measured in our society.

Because we do not know if chemical mixtures do us harm, it is important to understand which synthetic chemicals occur in our food. Therefore, this guide has been simplified and structured to allow the individual user to make informed decisions about the foods they choose to eat without the complexities of chemistry and toxicology.

For those users who want a more detailed presentation on the synthetic chemicals in our food as well as exposure to toxic chemical mixtures across the nation, a complete presentation is given in our upcoming book Toxic Legacy, Synthetic Toxins in the Food, Water and Air of American Cities which will be available in 2006.

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Chapter 1
Synthetic Chemicals in Our Diet

After an exhaustive evaluation of the available Food and Drug Administration (FDA) data on contaminants in American food, three things are certain.

> NUMBER ONE: *Every person who eats a balanced diet of fruits, vegetables, grains, dairy and protein products, potentially consumes approximately 32 different types of synthetic chemicals every day.*
> NUMBER TWO: *The actual number of different synthetic chemicals a person consumes depends largely on the diversity of foods in their daily diet and the amount of organic products they elect to eat.*
> NUMBER THREE: *Even foods defined by the United States Department of Agriculture (USDA) as "organic" can contain multiple synthetic chemicals.*

Given these facts, what impact do synthetic chemicals have on an individual's health? The FDA's answer would be that there is no health effect. Why? Because the concentrations found in the foods tested by the FDA do not exceed levels deemed safe by the Environmental Protection Agency.

What Are the Health Effects?

In reality, medical scientists cannot yet predict the toxic effects to individual humans from consuming low-level chemical mixtures that permeate our food. Although scientists know virtually nothing about the toxic effects of chemical mixtures, they do know that there can be synergistic effects from multiple chemical exposures.[1]

> *Therefore, it is appropriate and realistic to assume that the greater the number of synthetic chemicals to which a person is exposed, the greater the probability that an individual may experience either a synergistic or an additive health effect. Given these possibilities, our exposure to complex mixtures of synthetic chemicals could be responsible for a portion of the background health effects measured in our society.*

Being unable to predict whether low-level chemical mixtures cause us harm, we can only conclude that each individual's health faces an uncertain future. That is why individual choices that influence the type and amount of synthetic chemicals that persons allow into their body need to be understood. It is this realization that forms the foundation of this guide.

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[1]Such an interaction would be similar to eating two different foods that in combination result in an upset stomach but eaten individually have no adverse effect.

This book provides a guide to what synthetic chemicals occur in different foods, including organic foods, and how individual food choices will determine the number and type of synthetic chemicals in one's daily diet. Using this guide will allow the consumer to choose a diet that provides safer food alternatives.

What Is a Safer Food?

A safe food contains no detectable synthetic chemical residue. However, given standard agricultural production and processing practices, foods are contaminated with synthetic pesticides and synthetic industrial chemicals. This also includes foods that receive the USDA "organic" certification. This is because many organic foods still contain pesticides and the breakdown products of pesticides that have not been used since the 1970s and 1980s. Furthermore, some of these organic foods have more pesticides and industrial chemicals than other organic foods. This means that a safe food is not necessarily an "organic" product.

Because a safer food contains no synthetic chemical residues, the more chemicals found in a food product the less safe the product. Therefore, the information provided in this guide is designed to:

- *Illustrate the degree to which individual food products are contaminated*
- *Identify those organic foods that can be expected to contain synthetic chemicals*
- *Identify those chemicals that can be expected to occur in a balanced diet*
- *Show how low-fat or high-fat, vegetarian, and children's diets will influence the number and type of chemicals consumed*

The process of understanding and using this guide begins with a most critical first step. We must know how these chemical data were collected.

Understanding the FDA Data Collection Process

The data presented in this chapter were recompiled from the original data sets published in the FDA's Total Diet Studies to focus on synthetic chemical mixtures in foods. The original Total Diet Studies are available on-line at www.fda.gov under Foods. In these studies, the FDA presents its data in a "Market Basket." The Market Basket process uses the following approach:

- Samples of specific foods (e.g., pizza, chicken, potatoes, etc.) are purchased in three different cities. These three cities and the purchased foods make up the Market Basket for that sampling period. No purchased food products have been identified in the Market Baskets as being produced *organically*.
- Each food is prepared so that it is ready to eat. For example, a frozen pizza is baked, chicken is roasted or fried, and potatoes are fried, baked, or mashed. This is significant because the cooking process does influence what contaminants may be in the cooked

product (e.g., fried chicken will contain cooking oils and flour compared to a roasted chicken).

- After each food is prepared, the three individual food samples are mixed together into a composite sample. For example, if oranges were purchased, the three orange samples would be peeled and the flesh combined into one mixture.
- It is this composite mixture that is sent to an FDA laboratory to determine the concentration of selected synthetic chemicals.

Market Baskets have been collected quarterly since 1982 from the western, north central, southern and northeastern regions of the nation. The Market Baskets available from the FDA begin in the third quarter of 1991 (MB91-3) and currently end with the fourth quarter of 2001 (MB01-4). The specific details on the Market Baskets used for this guide and description of the synthetic chemicals found in the Market Basket foods by the FDA are summarized in Appendix 1. The data selected for this guide represent a five-year snapshot of chemical contaminant trends throughout the United States.

How to Use This Guide

The purpose of this guide is to allow the individual user to make informed food selections. With this goal in mind, this guide can be used in three ways.

1. We recommend that for a specific diet or recipe the guide be used to first select foods that have the least number of chemicals. If a food contains moderate, high, or very high levels of contaminants, it is recommended that an organic product be substituted.

2. When selecting an organic food, that specific food should be checked against the lists (i.e., by food category) of organic products that are the most likely to be contaminated with banned pesticides. This is particularly true for dairy, protein, and vegetable products. If the food product contains banned pesticides, the users should consider substituting a generally equivalent product. For example, substitute a potato without its skin for a baked potato or skim milk for whole milk, or ground pork or turkey for ground beef.

3. Summary exhibits that list the specific chemicals that are most likely to occur in a given food can be used to design a diet that minimizes the number and diversity of chemicals in a specific recipe or a daily diet. For example, these exhibits can be used to show that a peanut butter and jelly sandwich contains 12 different chemical residues versus 5 different chemical residues in a tuna salad sandwich.

Chapter 2
The Number of Different Synthetic Chemicals in Food

The 12 selected Market Baskets used in this guide evaluated a total of 240 food products. In order to present a meaningful summary of the data, each food product was placed into one of the following categories:

- Dairy Products
- Protein Products
- Fruit Products
- Grain and Nut Products (the majority of an individual product is a grain or nut)
- Vegetable Products (includes some products that are technically fruits but are usually consumed in salads)
- Mixed Products (combination of dairy, fruit, grain, protein, and/or vegetable products)
- Child/Infant Products (produced/processed specifically for children and infants)

Using these categories, we have summarized the Market Basket data to illustrate the extent of multiple chemical contamination that occurs in individual food products within each category.

The total number of chemical contaminants vary widely depending on the food product category. For example, the accompanying table shows the total number of chemicals detected in each food category for every Market Basket.

Market Basket	Child Category	Protein Category	Dairy Category	Fruit Category	Grain Category	Vegetable Category	Mixed Category
96-1	40	51	47	90	121	149	197
96-2	43	36	29	83	68	121	171
97-1	37	39	52	80	81	118	197
98-1	23	35	46	71	106	142	175
98-2	24	37	37	59	76	114	160
98-3	28	31	40	57	82	135	173
98-4	43	48	53	67	98	168	207
99-1	32	54	67	84	107	150	217
99-3	43	75	67	89	138	143	268
00-1	31	79	85	70	123	135	283
00-3	46	66	68	85	140	146	284
01-3	39	76	64	82	153	163	311
Totals	429	627	655	917	1293	1684	2643
Average	1.23	2.18	2.73	2.83	2.91	3.12	3.73

The averages in the table represent the average number of different chemicals per food product in each category. Thus, this average makes it clear that the least contaminated food category is the child/infant category, while mixed foods contain the greatest average number of contaminants per food. This would be expected since child/infant food producers actively strive to reduce the number of pesticides in their products, as opposed to mixed foods that combine multiple sources of pesticides and industrial chemicals from the different food categories. *This data also suggests that vegetarians eat food groups (i.e., Fruits, Grains and Nuts, and Vegetables) with the greatest number of contaminants.*

As most of us would anticipate, there should be variations in the number of different chemicals that contaminate the individual food products within each food category. This variation is illustrated for each of the food categories.

Dairy Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each dairy product.

Dairy Product	96-2	98-2	98-3	98-1	96-1	97-1	98-4	01-3	99-1	99-3	00-3	00-1	Average
Skim milk	0	0	0	0	1	0	0	0	0	0	0	0	0.08
Chocolate milk	0	0	0	0	1	1	1	0	1	0	0	0	0.33
Plain yogurt (low-fat)	0	1	0	1	0	1	0	0	1	0	0	2	0.5
Cottage cheese (4%)	0	0	0	1	1	1	0	0	2	0	0	2	0.58
Chocolate milk shake	0	0	0	1	1	0	1	2	1	1	0	1	0.67
Fruit flavored yogurt	0	2	0	2	1	1	2	0	2	0	1	0	0.92
Evaporated milk	1	1	1	1	2	1	1	0	1	1	0	2	1
Milk (2%)	0	0	0	1	2	3	3	0	1	1	0	2	1.08
Half & Half cream	1	1	1	2	1	1	3	2	3	1	2	2	1.67
Ice cream (light)	2	1	1	2	1	2	2	4	1	2	2	2	1.83
Whole milk	0	1	0	1	1	4	5	4	2	2	1	3	2
Sherbet	3	2	2	2	1	3	1	3	1	2	5	3	2.33
Vanilla ice cream	1	2	2	1	1	3	4	5	5	5	7	5	3.42
Sour cream	2	2	4	4	5	5	4	4	5	6	6	5	4.33
Swiss cheese	5	3	4	4	2	5	4	6	6	6	8	8	5.08
Cheddar cheese	3	4	5	4	5	5	3	5	10	6	6	8	5.33
Cream cheese	2	4	5	4	6	3	5	6	7	7	6	10	5.42
American cheese	3	3	6	4	5	5	4	8	5	9	10	10	6
Butter	6	10	9	11	10	8	10	15	13	18	14	20	12

When looking at this table, it would appear that dairy products with high-fat content are more contaminated, with butter being significantly more contaminated than the other dairy products. Because pesticides are known to be soluble in fat and oil, it should be expected that high-fat and oil foods should have more pesticides. Using the grams of fat per serving and the grams per serving listed on these dairy products, the following table compares the total number of pesticides detected in each product (i.e., for all Market Baskets) with the grams of fat in each gram of product.

These data generally illustrate that as the fat content of a dairy product increases, the number of pesticides increases. The cheeses tested contain a significant number of pesticides. Thus, consumers should consider selecting low-fat cheeses. Although the consumer is not provided grams of fat per serving information on protein products, we believe that it is safe to conclude that high-fat meat products will also be more contaminated.

Dairy Product	Total Number of Pesticides	Grams of Fat Per Gram of Product
Butter	67	0.79
Cream cheese	37	0.36
Swiss cheese	31	0.29
American cheese	29	0.26
Sour cream	28	0.2
Cheddar cheese	24	0.32
Half & Half cream	20	0.1
Vanilla ice cream	18	0.14
Whole milk	15	0.03
Milk (2%)	13	0.02
Evaporated milk	11	0.06
Ice cream (light)	7	0.06
Cottage cheese (4%)	7	0.05
Plain yogurt (low-fat)	6	0.02
Skim milk	1	0

Protein Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each protein product.

These data suggest that processed meats (e.g., hot dogs, bologna, and salami) contain more chemicals than muscle products (e.g., steak or chicken breast). This could be a function of the fat content of these processed meats. In general, beef products are more contaminated than pork products, whereas poultry have very few contaminants. Clearly, there appears to be some correlation between the amount of fat in protein products and the occurrence of synthetic chemicals in a given product. The number of chemical contaminates in fish may also be correlated to the occurrence of fatty acids. For example, salmon and tuna are known to have more fatty acids than haddock. Therefore, it is expected that salmon would contain more contaminants than haddock.

Both hard boiled and fried eggs have on average one or fewer contaminants. Scrambled eggs, however, have on average 2.1 contaminants. Obviously, how these eggs were prepared (i.e., use of butter or margarine) influenced the number of chemicals detected.

Fruit Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each fruit product.

When reviewing the fruit data, we see several distinctive trends. First, the juice of a fruit generally has fewer contaminants than the parent fruit (e.g., orange juice versus oranges). The only exception seems to be for pineapples versus pineapple juice. In other words, the

Protein Products	98-3	98-1	96-2	98-2	97-1	98-4	96-1	99-1	00-3	99-3	01-3	00-1	Average
Ham (luncheon meat)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish (Haddock)	ND	ND	0	ND	1	ND	2	ND	ND	ND	ND	ND	0.25
Chicken breast	1	0	0	0	1	0	1	0	0	0	0	0	0.33
Veal cutlet	0	1	0	1	0	0	0	0	0	1	0	1	0.33
Ham	0	0	1	0	0	0	1	0	0	2	0	0	0.41
Eggs (fried)	0	1	0	0	1	0	1	0	1	0	0	1	0.41
Turkey breast	0	1	0	0	0	1	3	0	0	0	0	0	0.41
Pork roast	0	0	0	0	0	1	4	0	0	0	0	0	0.5
Shrimp	0	0	0	0	1	1	2	0	0	0	2	0	0.5
Pork chop	0	0	0	0	0	2	2	0	1	0	1	0	0.75
Eggs (boiled)	0	2	0	0	1	1	2	1	1	0	0	1	1
Beef liver	0	0	0	0	1	1	3	0	4	2	1	0	1
Beef steak	0	0	1	3	1	1	2	4	0	0	2	0	1.2
Lamb chop	1	2	3	2	1	2	3	3	1	3	1	0	1.8
Eggs (scrambled)	0	2	0	1	1	3	1	0	6	4	3	5	2.1
Tuna (canned)	1	1	2	0	3	1	2	1	3	6	4	4	2.3
Pork sausage	0	0	1	4	3	4	2	5	2	3	3	1	2.3
Roast beef	2	3	2	2	6	4	3	4	7	5	3	7	4
Pork bacon	3	5	3	2	5	2	3	3	6	6	7	9	4.5
Salami	2	2	5	3	5	2	3	5	6	8	8	6	4.6
Bologna	3	4	9	6	1	1	5	4	8	8	9	10	5.7
Ground beef	4	2	2	5	4	6	3	8	5	9	10	13	5.9
Fish (Salmon)	10	7	ND	6	ND	8	ND	9	4	9	9	10	6.6
Hot dogs (beef)	4	2	7	2	3	7	3	7	11	9	13	11	8
ND = No Data													

contaminants are in the flesh or pulp of the fruit. Secondly, a peeled fruit product has fewer contaminants than the whole fruit (e.g., applesauce and apples). Finally, citrus fruits such as oranges and grapefruits tend to have fewer contaminants than noncitrus tree fruits. For example, apples, cherries, and peaches have more contaminants than oranges and grapefruit, whereas pears and apricots have more contaminants than grapefruit.

Grain and Nut Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each grain and nut product.

When reviewing the grain and nut product table, it should be noted that many of the products may have been prepared with milk, eggs, margarine, butter, or oils (or cooked in oil). However, the composition of these products is dominated by a grain. As a result, these products do not accurately represent what is specifically in a given pure corn, oat, wheat, or rye product. Furthermore, all of the food products listed were commercially produced or prepared unless they are marked as homemade.

Fruit Products	98-3	98-2	98-4	00-1	98-1	97-1	01-3	96-2	99-1	00-3	99-3	96-1	Average
Pineapple (canned)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pear (canned)	0	0	1	0	0	0	0	0	0	0	0	1	0.17
Lemonade	0	0	0	0	1	0	0	0	0	0	0	1	0.17
Grapefruit juice	0	0	1	0	1	0	0	1	0	0	0	3	0.5
Watermelon	0	0	0	0	2	1	1	2	0	0	0	1	0.58
Pineapple juice	0	0	1	2	1	0	1	1	0	0	0	1	0.58
Prune juice	0	0	1	0	0	2	2	0	1	0	0	3	0.75
Peach (canned)	0	3	1	1	2	1	1	0	1	1	1	1	1.08
Grape juice	1	1	2	2	0	1	1	1	4	1	1	2	1.42
Grapefruit	2	1	1	1	2	2	1	2	1	2	1	2	1.5
Fruit cocktail (canned)	0	0	3	1	2	1	1	4	2	2	0	3	1.58
Apple juice	1	2	3	2	2	1	3	2	2	1	3	2	2
Orange juice	0	0	2	3	1	1	5	0	1	6	4	2	2.08
Applesauce	3	3	0	1	2	3	2	3	3	2	1	4	2.25
Banana	2	0	3	5	2	2	4	3	3	4	2	1	2.58
Apricot	2	2	2	4	4	8	0	3	4	3	8	ND	3.41
Prunes	1	1	1	0	2	6	4	7	8	3	4	4	3.58
Pear	4	1	4	5	3	3	3	4	2	5	3	6	3.63
Orange	3	3	1	4	2	3	3	1	2	6	10	8	3.8
Grapes	9	5	4	3	2	1	5	5	1	6	2	4	3.91
Cantaloupe	2	3	4	0	6	4	5	6	8	6	3	4	4.25
Plums	4	6	3	5	4	6	4	4	4	3	3	5	4.25
Raisins	7	3	4	5	2	4	5	5	4	9	7	9	5.33
Peach	4	6	3	5	8	8	4	7	6	4	7	9	5.92
Cherries	2	4	9	7	5	5	11	5	10	8	8	ND	6.72
Strawberries	5	8	7	7	7	12	5	9	9	4	11	5	7.41
Apple	5	7	6	7	8	5	11	8	8	9	10	9	7.75
ND = No Data													

Even with the added ingredients to many of these products, the FDA data do suggest that wheat-based products consistently have more chemical contaminants than corn, rice, and oat-based products. As a whole, corn-based products are the least contaminated. Furthermore, products containing oils (e.g., nut products) or cooked in oils (e.g., popcorn and chips) tend to be more contaminated. These data show that the nut products are the most contaminated foods (particularly peanut butter). Once again, this is probably due to the high content of peanut oil. The least contaminated products were dried kidney and pinto beans. It is also important to note that all wheat breads contained at least three synthetic chemicals.

Vegetable Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each vegetable product.

Dark green and yellow vegetables tend to contain elevated contaminant levels along with salad vegetables (tomato, cucumber, celery, sweet peppers, lettuce). It is also important to note that vegetable oils, margarine, and olives contain elevated contaminant levels (i.e., oils tend to be

accumulate synthetic chemicals). Furthermore, some of the highest contaminant levels are associated with vegetables cooked in oils (e.g., potato chips and french fries from fast-food restaurants).

Mixed Food Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each mixed food product.

In general, fast-food and carryout products are more contaminated than homemade products. It is also clear that foods containing high-fat protein and dairy products tend to have a greater number of contaminants.

Child and Infant Products

The accompanying table shows the number of different synthetic chemicals (i.e., either pesticides or industrial chemicals) that were detected in each Market Basket and the average number of contaminants for each child and infant product.

Most of the child and infant food products have either no chemicals or very low chemical levels, yet 50 percent of all the child/infant products contain multiple chemical contaminates. Those food products with low to moderate chemical levels in this category tend to have moderate to very high levels in the other food categories (i.e., the Protein, Fruit, and Vegetable categories). In other words, it would seem that adult foods with high numbers of chemical contaminants will occur in children's food at relatively higher levels.

If parents are not satisfied with the level of contaminants in some of the foods tested by the FDA, they have two basic choices. They can either select organic child and infant products or prepare child and infant food from organic products.

Grain Products	96-2	98-2	97-1	98-3	98-4	98-1	99-1	96-1	00-1	99-3	00-3	01-3	Average
Corn	0	0	0	0	0	0	0	0	0	0	0	0	0
Kidney beans	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinto beans	0	0	0	0	0	0	0	0	0	0	0	0	0
Corngrits	0	0	0	0	0	0	1	0	0	0	0	0	0.8
Wheat cereal	0	0	0	0	0	0	2	0	0	0	0	0	0.17
Corn flakes	0	0	0	0	0	0	0	1	0	0	0	2	0.25
Crisped rice cereal	0	0	0	1	0	0	0	0	0	1	1	1	0.33
Oatmeal	1	0	0	0	0	0	0	2	0	2	0	0	0.41
Creamed corn	0	0	1	0	0	0	0	2	1	1	0	0	0.41
White rice	1	0	0	2	1	1	1	0	0	1	1	1	0.75
Macaroni	0	1	0	0	1	2	1	2	1	2	2	2	1.16
Biscuit	0	1	1	2	2	2	2	2	0	2	2	1	1.42
Oat ring cereal	1	1	1	1	1	1	2	1	2	2	2	2	1.42
Noodles	1	2	0	2	0	1	2	2	0	2	2	4	1.5
Cornbread (HM)	0	1	3	0	2	2	2	2	2	2	2	3	1.75
English muffin	2	2	2	0	2	3	3	2	2	2	2	2	2
Granola	3	1	2	2	2	3	1	4	1	2	1	4	2.2
Pancake (mix)	1	2	3	2	3	3	2	5	0	2	2	2	2.25
Pretzels (hard)	3	3	2	3	3	2	3	1	2	3	3	2	2.5
Shredded wheat	0	2	3	2	2	3	3	5	2	4	2	2	2.5
Bagel	2	1	5	0	4	4	4	2	2	3	2	2	2.58
Rye bread	2	2	1	2	2	3	4	5	2	3	2	3	2.58
Saltine crackers	1	2	2	3	3	2	2	6	2	2	3	5	2.75
Flour tortilla	3	3	2	3	4	3	2	4	1	4	3	4	3
White roll	3	3	2	4	2	5	3	3	3	3	3	5	3.25
Whole wheat bread	3	3	3	4	3	5	3	5	3	3	4	4	3.58
Cracked wheat bread	2	4	3	4	6	4	2	5	3	4	3	6	3.83
Corn chips	1	2	5	0	2	2	1	5	9	7	8	6	4
Popcorn (in oil)	1	2	3	3	3	2	6	3	12	5	12	8	5
Fruit-flavored cereal	4	0	1	6	5	6	6	6	7	5	7	8	5.08
Butter crackers	2	2	2	3	4	3	4	3	10	7	11	13	5.33
Sweet roll	3	5	3	4	6	5	5	4	8	8	9	9	5.75
White bread	3	3	2	4	5	7	4	5	7	9	10	12	5.91
Graham crackers	5	3	4	3	6	5	4	5	11	10	9	10	6.25
Dry roasted peanuts	7	8	7	6	6	8	8	11	7	7	7	8	7.5
Mixed nuts (no peanuts)	4	7	7	6	6	7	9	6	10	11	11	8	7.7
Peanut butter	9	10	11	10	12	12	15	12	13	19	14	14	12.9
HM = Homemade													

Vegetable Products	98-2	97-1	96-2	98-3	00-1	98-1	99-3	00-3	96-1	99-1	01-3	98-4	Average
Onion	0	0	0	0	0	0	0	0	1	1	0	0	0.17
Cauliflower	0	0	0	0	0	0	0	0	0	1	1	0	0.17
Cabbage	1	0	1	0	1	0	0	0	0	1	0	0	0.33
Sauerkraut	0	0	0	0	0	0	1	0	1	1	1	0	0.33
Green peas	1	1	1	1	0	0	0	0	1	1	0	0	0.5
Asparagus	0	0	0	0	0	0	1	2	1	1	0	2	0.58
Okra	0	1	0	2	0	0	0	4	0	0	0	1	0.67
Eggplant	1	2	1	1	1	0	0	1	0	0	2	0	0.75
Peas (dried)	0	0	0	0	1	3	0	0	1	1	2	1	0.75
Tomato juice	0	0	1	0	3	2	0	3	1	0	3	0	1.08
Stewed tomato	0	0	0	0	0	2	2	0	1	2	7	2	1.33
Carrot	2	1	1	1	0	3	3	0	2	1	0	3	1.42
Beets	2	3	3	0	2	1	2	0	1	2	1	2	1.58
Sweet potato	1	0	1	2	1	2	2	1	4	0	2	3	1.58
Mixed vegetables (F)	1	0	2	3	0	4	1	1	2	2	2	3	1.75
Mushrooms	1	3	1	2	1	2	1	2	2	4	1	1	1.75
Tomato sauce	0	1	0	2	2	2	2	3	5	0	0	6	1.92
Tomato catsup	3	0	2	3	2	4	0	2	3	1	3	3	2.17
Avocado	3	1	3	1	2	1	4	4	4	0	4	2	2.41
Turnip	0	5	3	1	2	3	1	2	5	3	0	5	2.5
Broccoli	3	4	3	4	2	1	1	1	0	8	1	3	2.58
Brussels sprouts	2	3	1	1	3	3	7	3	3	2	3	1	2.67
White potato (no skin)	1	1	5	3	3	2	2	3	3	1	3	5	2.67
Radish	1	4	1	3	4	3	2	1	5	3	0	6	2.75
Winter squash	2	3	2	2	3	4	1	2	2	5	2	5	2.75
Lima beans	3	6	2	2	4	4	0	0	2	5	3	3	2.83
Mashed potatoes	2	3	2	3	3	2	2	3	2	2	5	5	2.83
Green beans	0	3	3	4	2	6	3	9	0	2	9	3	3.66
French fries (F)	4	4	3	2	4	4	6	4	3	5	4	3	3.83
Iceberg lettuce	8	5	5	5	0	5	2	2	4	5	3	3	3.91
Black olives	5	6	4	5	3	3	2	2	6	5	3	4	4
Olive/safflower oil	4	0	7	1	10	1	10	3	1	3	10	9	4.92
Tomato	5	0	5	7	7	5	3	4	8	7	5	5	5.08
Cucumber	4	4	6	4	4	4	8	5	4	8	3	10	5.33
White potato (with skin)	7	4	7	5	3	5	4	6	6	4	6	7	5.33
Margarine	2	1	4	7	11	1	9	12	2	2	9	4	5.33
Summer squash	5	3	6	3	3	8	7	5	5	8	5	7	5.41
Celery	5	6	1	6	4	8	6	4	7	5	5	8	5.41
Dill cucumber pickles	4	5	4	9	7	6	6	5	6	6	4	7	5.75
Sweet cucumber pickles	5	5	5	10	3	5	7	9	8	5	8	3	6.08
Green pepper	6	6	9	8	4	6	3	9	10	3	6	4	6.16
Potato chips	4	3	5	4	12	6	9	10	2	4	10	5	6.16
Collards	5	4	5	5	3	8	6	3	8	14	9	11	6.75
French fries (FF)	6	4	2	6	9	3	12	10	9	7	11	6	7.08
Spinach	5	13	4	7	6	10	5	6	8	9	7	7	7.25
F = Frozen													
FF = Fast food													

Mixed Products	98-2	96-2	98-3	98-1	97-1	96-1	98-4	99-1	99-3	00-1	00-3	03-1	Average
Chicken noodle soup	0	0	0	0	0	0	0	0	0	0	0	0	0
Bean & bacon soup	0	0	0	0	0	0	0	1	0	0	0	0	0.08
Tomato soup	0	0	0	0	0	0	1	0	0	0	1	0	0.17
Spaghetti & tomato	2	0	0	0	0	1	0	0	0	0	0	1	0.33
Chocolate pudding	0	0	0	1	1	1	0	1	0	0	0	0	0.33
Fried Chicken (HM)	0	0	0	0	1	3	0	2	0	0	0	0	0.5
Mushroom soup	0	0	1	2	1	0	1	0	0	1	0	0	0.5
Suckers	0	1	0	1	2	1	0	0	0	0	1	0	0.5
Pork and Beans	0	0	0	0	0	1	2	1	0	1	0	1	0.5
Veg/beef soup	1	1	1	1	0	0	3	0	1	1	1	1	0.92
Brown gravy (HM)	2	0	0	1	0	2	2	1	2	0	2	1	1.08
Spaghetti & meatballs	1	0	0	0	1	4	0	5	1	1	0	3	1.33
Mayonnaise	0	2	2	1	1	0	0	3	3	1	1	2	1.33
Popsicle	1	1	0	2	2	2	1	0	0	3	2	3	1.42
Jelly	1	2	0	2	5	1	1	2	0	0	1	3	1.5
Clam chowder	1	1	1	1	1	2	1	2	1	1	2	4	1.5
Yellow cake (Mix)	2	1	2	2	1	3	2	1	2	2	2	0	1.67
Lasagna & meat (HM)	0	1	2	1	1	3	1	1	1	3	2	5	1.75
Beef stew	1	1	1	2	1	2	2	1	1	2	4	3	1.75
Italian salad dressing (LC)	0	0	0	2	1	1	3	3	3	1	4	4	1.83
White sauce (HM)	1	1	3	1	2	1	3	2	2	2	1	3	1.83
Beef chow mein (FF)	1	0	3	4	3	2	1	4	2	0	2	2	2
Macaroni & cheese	1	2	1	1	3	5	2	3	2	2	3	1	2.17
Turkey dinner	2	0	1	1	0	3	2	4	4	5	3	4	2.42
Beef stroganoff (HM)	2	1	1	1	3	3	3	3	3	3	3	5	2.58
Scalloped potatoes (HM)	3	2	1	3	2	3	3	2	1	3	3	5	2.58
Caramel candy	3	2	2	3	2	2	2	0	3	3	4	8	2.83
Chille & beans (HM)	0	0	4	3	3	3	5	6	5	2	5	3	3.25
Stuffed pepers w/rice & beef (HM)	6	3	4	4	4	3	5	1	2	2	5	1	3.33
Muffin w/egg/cheese/ham (FF)	4	3	3	2	1	4	7	2	3	4	4	4	3.42
Chicken potpie	2	3	2	3	3	3	3	4	3	9	2	5	3.5
Salisbury steak & gravy	5	3	3	1	4	5	2	3	6	4	3	4	3.58
Raisin bran	3	6	4	4	3	5	5	4	2	3	2	3	3.67
French salad dressing	0	1	1	5	4	4	5	3	5	2	11	4	3.75
Chocolate snack cake	3	2	1	1	4	2	4	6	5	6	6	6	3.83
Fried chicken (FF)	1	5	2	3	3	2	3	3	6	10	6	5	4.08
Coleslaw with dressing (HM	3	10	1	2	6	2	3	7	4	5	3	7	4.42
Mustard	8	2	4	6	6	6	3	5	2	5	3	3	4.42
Fish & bun (FF)	4	6	5	3	3	5	7	4	5	3	3	6	4.5
Sandwich cookies w/crème filling	4	3	2	5	3	4	4	4	4	6	8	8	4.58
Tuna noodle casserole (HM)	8	4	6	3	2	3	8	4	3	6	4	6	4.75
Hot dog & bun (HM)	4	5	4	4	6	4	5	6	8	3	3	7	4.91
Apple pie	2	2	2	4	7	4	3	4	10	8	8	8	5.12
Sugar cookies	3	4	5	6	4	4	6	6	6	9	11	8	6
Chicken nuggets (FF)	2	4	3	4	3	2	2	5	14	11	14	9	6.08
Chocolate cake	4	5	4	4	8	5	5	4	12	6	10	6	6.08
Doughnut-cake & icing	5	3	6	5	7	3	5	6	7	8	10	11	6.33
Meatloaf (HM)	5	4	7	2	4	3	5	10	9	13	6	9	6.42
Brownies	3	4	8	5	5	7	4	4	8	9	11	9	6.42
Blueberry muffin	4	5	3	6	6	6	5	4	8	9	9	12	6.42
Pumpkin pie	6	5	9	6	6	10	8	8	8	6	8	6	7.17
Fish sticks (F)	5	5	5	7	5	7	6	4	11	10	12	10	7.25
Chocolate chip cookies	6	8	5	6	6	5	6	6	10	9	11	10	7.33
Cheese pizza (FF)	5	11	7	4	6	8	8	9	9	12	10	14	8.58
Milk chocolate candy bar	3	8	9	7	6	8	8	11	11	9	11	12	8.58
1/4lb hamburger & bun (FF)	5	7	6	6	8	7	7	9	14	17	8	13	9
Taco/tostada (FF)	8	4	8	9	10	4	8	4	11	14	14	14	9
1/4lb cheeseburger & bun (FF)	8	8	5	4	8	8	6	10	14	17	9	15	9.33
Cheese & pepperoni pizza (FF)	6	9	13	8	9	5	10	9	11	11	12	14	9.75
F = Frozen													
FF = Fast food													
HM = Homemade													
LC = Low calorie													