Making Healthy Choices Based on Food Labels

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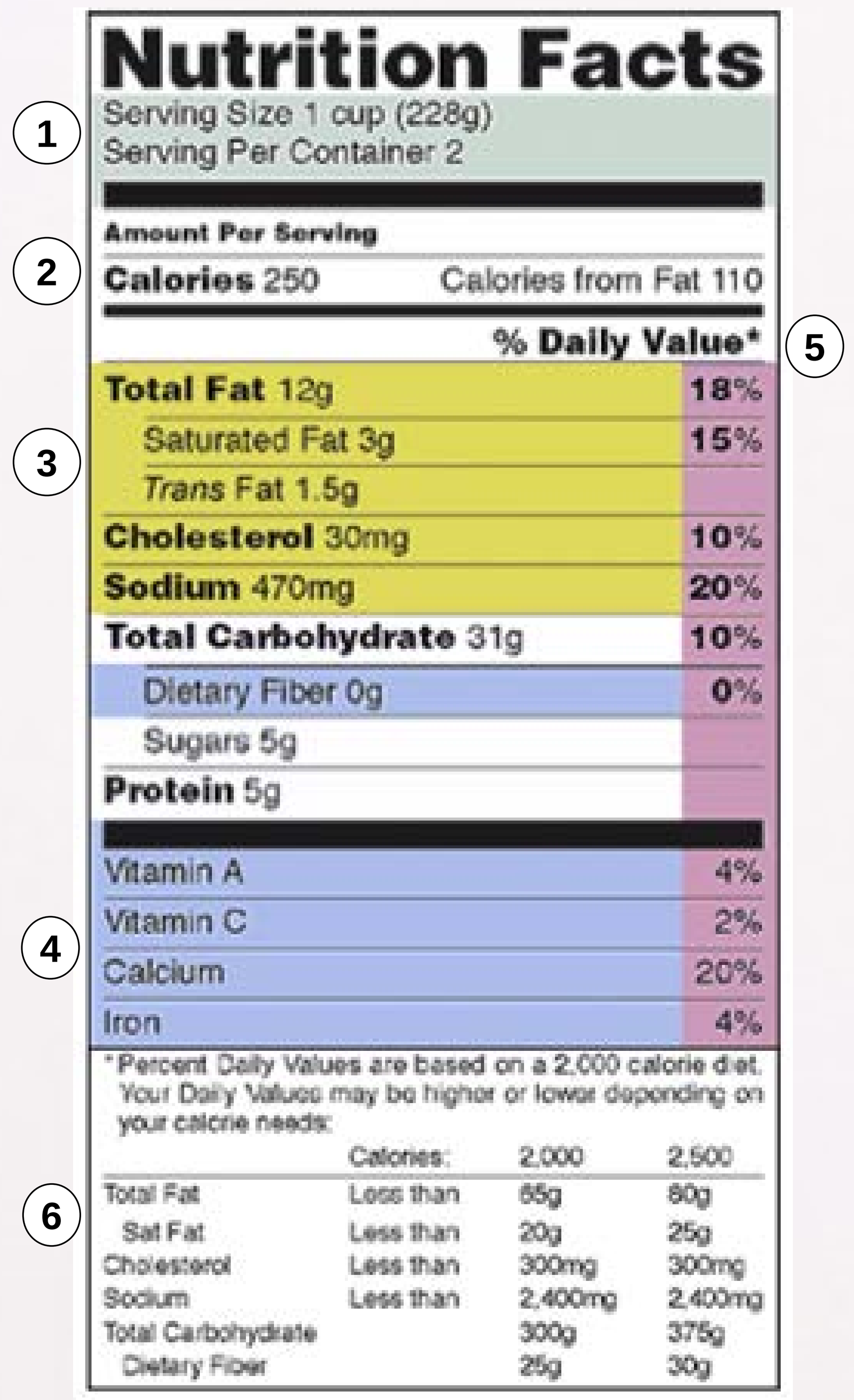
Abstract:

Consumers are making uninformed and unhealthy decisions based on false nutritional knowledge. These notions about health are derived from issues raised by the popular press and health enthusiasts. The lack of certain information provided on food labels further complicates decision making. Fear of GMOs, pesticides, added sugar, and trans fats combined with uncertain health consequences may lead to uninformed and costly food decisions. It is crucial that individuals understand the background knowledge required to interpret the dietary reference intakes (DRI's) as well as the ingredients. Accurate health claims and warnings regarding ingredients should be included on food labels. The public should be educated on how to read food labels properly; reading food labels is a multi step process that includes awareness and understanding of the health consequences of the ingredients.

How to Read Food Labels:

1. **Serving Size:** Serving Size is used to compare foods in standard measurements. Important components to determine serving size are nutrients, calories and servings per package.
2. **Calories**: Calories determine the amount of energy you are receiving from the food. The average recommended calorie intake is dependent on factors such as age, gender, etc. Food labels most times base their measurements/calculations on 2,000 calories per day.
3. **Nutrients to Limit:** Examples of things we should limit to decrease risk of chronic disease are fats, such as saturated and trans-fat, cholesterol and sodium.
4. **Nutrients we Need:** Examples of things we need to get enough of are dietary fiber, vitamins and minerals, which can also decrease risk of chronic diseases.
5. **Percent Daily Value:** %DV is the recommended percent of how much you need of certain key nutrients, based off a 2,000-calorie diet. The %DV also helps you determine if something is high in a nutrient (20%DV or more) or low in a nutrient (5%DV or less).
6. **Footnote:** This portion of the food label contains general guidelines for how much of each nutrient you should consume per day, based on a 2,000-calorie diet. These guidelines are considered dietary advice determined by professionals.



Common Health Claims

What They Say	What They Really Mean (Per Serving)
"Reduced" or "less"	The food has less than 25% less of a specific nutrient than the regular product
Calories	
Calorie Free	Less than 5 calories
Low Calorie	40 calories or less
Sugar	
Sugar Free	Less than .5g of sugar and no ingredient is a sugar
No added sugar	No sugar/ sugar-containing ingredient added during processing/packaging
Fat	
Fat Free	Less than .5g fat and no ingredient that is fat
Low Fat	3g of fat or less
Lean	Less than 10g of fat, 4.5g of saturated fat and 95 mg of cholesterol
Light (lite)	At least 50% less fat than the regular product or 1/3 fewer calories if less than 50% of calories are from fat
Cholesterol	
Cholesterol Free	Less than 2mg of cholesterol and no ingredient that contain cholesterol
Low cholesterol	20mg or less of cholesterol
Sodium	
Sodium free, salt free or no sodium	Less than 5mg of sodium and no ingredient that is sodium chloride or contains sodium
Lightly salted	50% less sodium than normally added
No salt added or unsalted	No salt added during processing
Fiber	
High fiber or excellent source of fiber	20% or more of the Daily Value (DV) for fiber
Good Source of fiber	10-19% of the Daily Value (DV) for fiber

Organic Labeling/Nutritional Information:

People who buy organic usually cite these reasons for their decision:
They're safer. Fruits and vegetables labeled as organic are generally grown without chemical fertilizers and pesticides. Livestock raised under organic practices aren't fed antibiotics or growth hormones.
They're kinder to the environment. Organic farming practices are designed to be more sustainable, emphasizing conservation and reducing pollutants.
They're healthier. A few studies have suggested organic foods might be higher in nutrients than their traditional counterparts.

	100% Organic	95% or more Organic	70% to 94% Organic	less than 70% Organic
What must be certified organic?	All ingredients and all processing aids.	All agricultural ingredients, except where specified on National List, and at least 95% of total ingredients.	At least 70% of total ingredients.	Doesn't need to be certified.
Can use the USDA Organic seal	✓	✓	✗	✗
Can claim to be organic or "made with organic ingredients"	✓	✓	Can state "made with organic (insert up to three ingredients or ingredient categories)."	✗
Must state name of certifying agent on information panel	✓	✓	✓	✗
Must identify organic ingredients on information panel	✓	✓	✓	✗

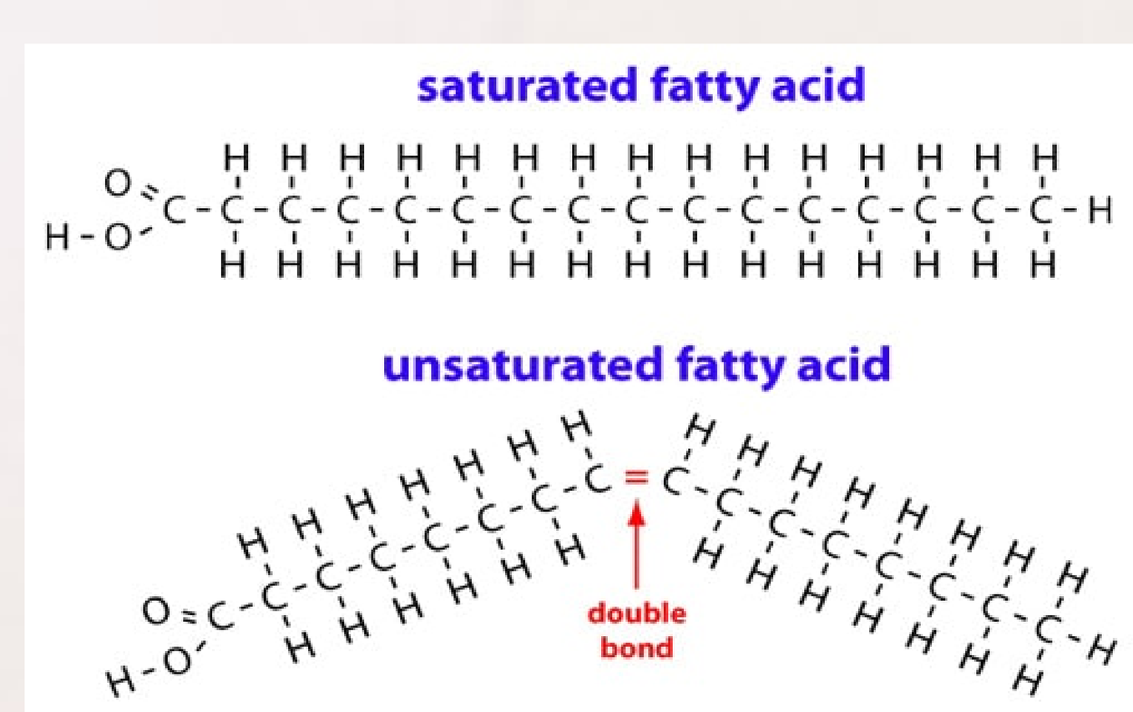
*Organic percentages exclude salt and water.

Food Standards Agency claims organic food provides no health benefits. They concluded that there are `no important differences in the nutrition content, or any additional health benefits' from organic foods. The London School of Hygiene and Tropical Medicine research leader, Alan Dangour, acknowledged `a small number of differences' in nutrient content between organically and conventionally produced crops and livestock. But he said these were `unlikely to be of any public health relevance.

A research team under the auspices of Newcastle University analyzed 343 studies and concluded that organic crops have up to 69% more antioxidants than conventionally grown food.
For consumers, the study suggests that anyone eating five servings of organic fruits and vegetables a day would get the antioxidant benefits of seven servings of conventionally grown produce.

Antioxidants are man-made or natural substances that may prevent or delay some types of cell damage. Antioxidants are found in many foods, including fruits and vegetables. **Antioxidants include: Beta-carotene, Lutein, Lycopene, Selenium, Vitamin A, Vitamin C, Vitamin E**

Saturated and Unsaturated Fat:



Saturated fat
- Fats that contains a high amount of saturated fatty acids are usually solid (without double bond)
- Animal fat products, such as butter, cream, whole milk and beef contain high amounts
- Plant source are usually low, except Palm Kernel and Coconut Oil
- Increases lipoproteins (LDL)

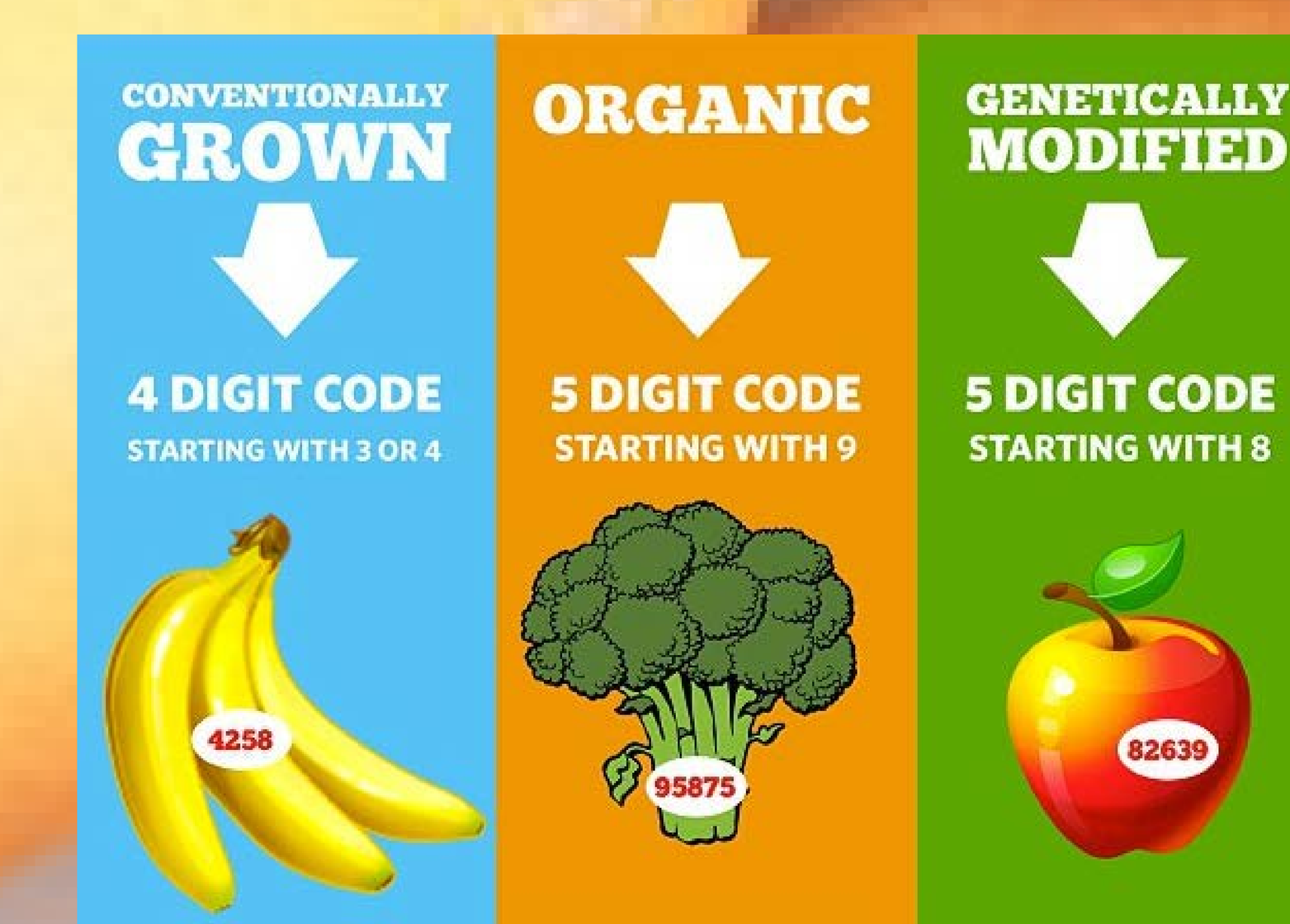
Unsaturated fat
- Oils that contains a high amount of unsaturated fatty acids are usually liquid (one or more double bonds in the fatty acid chain)
- Decreases lipoproteins (LDL)

Trans Fat
-To avoid trans fat avoid ingredients label that have "partially hydrogenated fat"
- Increases the low density lipoproteins (LDL)
- Decreases the high density lipoproteins (HDL)

- Bad cholesterol (LDL) is bad only if you have too much of it
- Good cholesterol (HDL) is good only if you have high level of HDL in the blood

The Birth of Modern Genetic Modification

1973- Herbert Boyer and Stanley Cohen developed the first genetically engineered organism (GE)
1974- Moratorium on GE projects was universally observed allowing time for experts to develop a plan for the future
1975- The Asilomar Conference, where public and private officials debated the safety of GE experiments
1980- The US Supreme Court gave engineers from General Electric the thumbs up to patent and profit from genetically modified bacteria used to break down crude oil
1982- The USDA approved the first drug made from a genetically modified organism
1987- First experiment on food crop that had been genetically modified
1992- Calgene's Flavr Savr tomatoes became the first genetically modified food approved for production by the USDA
1995- The first pesticide-producing crop was approved by the EPA
1996- Bt corn was approved and now the majority of corn is genetically modified
2000- Golden rice was engineered to combat vitamin A deficiency
2009- FDA approved a drug used to treat a rare blood clotting disorder (ATryn)
2013- Chipotle became the first to label GMOs



The Controversy Surrounding GMOs

- There have been contradicting results on all different GMOs.
- Consequences are unknown of most genetically modified crops.
- Some studies say that genetically modified crops are nearly equivalent nutritionally to their non-GM counterparts.
- Some people are demanding more control and regulation, others are calling for complete bans of GMOs, and others are pushing for less regulation.
- Due to lack of understanding and questions, people are still concerned about the implications of genetically engineered crops.
- Despite the short time that people have been eating GMO crops, studies have shown that GMO foods are as safe and nutritious as non-GMO foods.
- GMOs are beneficial for food production in some countries.
- They are supposed to cut down on the quantities of pesticides used however they do not cut down as much as expected.

Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Vitamins
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Vitamin A (μg/d)[a]	Vitamin C (mg/d)	Vitamin D (μg/d)[b,c]	Vitamin E (mg/d)[d]	Vitamin K (μg/d)	Thiamin (mg/d)	Riboflavin (mg/d)	Niacin (mg/d)[e]	Vitamin B6 (mg/d)	Folate (μg/d)[f]	Vitamin B12 (μg/d)	Pantothenic Acid (mg/d)	Biotin (μg/d)	Choline (mg/d)[g]
Infants														
0 to 6 mo	400*	40*	10	4*	2.0*	0.2*	0.3*	2*	0.1*	65*	0.4*	1.7*	5*	125*
6 to 12 mo	500*	50*	10	5*	2.5*	0.3*	0.4*	4*	0.3*	80*	0.5*	1.8*	6*	150*
Children														
1-3 y	300	15	15	6	30*	0.5	0.5	6	0.5	150	0.9	2*	8*	200*
4-8 y	400	25	15	7	55*	0.6	0.6	8	0.6	200	1.2	3*	12*	250*
Males														
9-13 y	600	45	15	11	60*	0.9	0.9	12	1.0	300	1.8	4*	20*	375*
14-18 y	900	75	15	15	75*	1.2	1.3	16	1.3	400	2.4	5*	25*	550*
19-30 y	900	90	15	15	120*	1.2	1.3	16	1.3	400	2.4	5*	30*	550*
31-50 y	900	90	15	15	120*	1.2	1.3	16	1.3	400	2.4	5*	30*	550*
51-70 y	900	90	15	15	120*	1.2	1.3	16	1.7	400	2.4[h]	5*	30*	550*
> 70 y	900	90	20	15	120*	1.2	1.3	16	1.7	400	2.4[h]	5*	30*	550*
Females														
9-13 y	600	45	15	11	60*	0.9	0.9	12	1.0	300	1.8	4*	20*	375*
14-18 y	700	65	15	15	75*	1.0	1.0	14	1.2	400[i]	2.4	5*	25*	400*
19-30 y	700	75	15	15	90*	1.1	1.1	14	1.3	400[i]	2.4	5*	30*	425*
31-50 y	700	75	15	15	90*	1.1	1.1	14	1.3	400[i]	2.4	5*	30*	425*
51-70 y	700	75	15	15	90*	1.1	1.1	14	1.5	400	2.4[h]	5*	30*	425*
> 70 y	700	75	20	15	90*	1.1	1.1	14	1.5	400	2.4[h]	5*	30*	425*
Pregnancy														
14-18 y	750	80	15	15	75*	1.4	1.4	18	1.9	600[j]	2.6	6*	30*	450*
19-30 y	770	85	15	15	90*	1.4	1.4	18	1.9	600[j]	2.6	6*	30*	450*
31-50 y	770	85	15	15	90*	1.4	1.4	18	1.9	600[j]	2.6	6*	30*	450*
Lactation														
14-18 y	1,200	115	15	19	75*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*
19-30 y	1,300	120	15	19	90*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*
31-50 y	1,300	120	15	19	90*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*

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