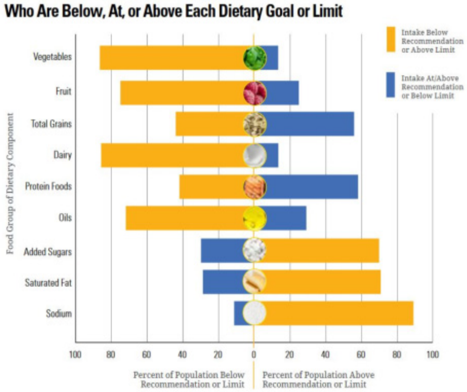
June 2017

FOUR NUTRIENTS YOU MAY BE MISSING IN YOUR DIET

Written by Christine Medin, Undergraduate Student in Department of Health & Human Sciences, Purdue University

Figure 2-1.
Dietary Intakes Compared to Recommendations. Percent of the U.S. Population Ages 1 Year & Older Who Are Below, At, or Above Each Dietary Goal or Limit



The Dietary Guidelines for Americans (DGA) for 2015-2020 specifies that the nutrients- calcium, vitamin D, dietary fiber, and potassium- are not consumed in high enough amounts by the US population to promote long term health and prevent disease. According to the most recent DGA, most adults eat too much saturated fats, sodium, and sugar, but do not eat enough dairy, fruit, vegetables, and whole grains where these nutrients of concern are most commonly found.

This article will describe these top four nutrients of concern, their roles in the body, and ways to receive recommended amounts as part of a healthy and balanced diet.

Table A7-1.
Daily Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes & *Dietary Guidelines* Recommendations

	Source of Goal	Child 1-3	Female 4-8	Male 4-8	Female 9-13	Male 9-13	Female 14-18	Male 14-18	Female 19-30	Male 19-30	Female 31-50	Male 31-50	Female 51+	Male 51+
Calorie Level(s) Assessed		1,000	1,200	1,400, 1,600	1,600	1,800	1,800	2,200, 2,800, 3,200	2,000	2,400, 2,600, 3,000	1,800	2,200	1,600	2,000
Dietary Fiber, g	14 g/ 1,000 kcal	14	16.8	19.6	22.4	25.2	25.2	30.8	28	33.6	25.2	30.8	22.4	28

Dietary fiber is a type of carbohydrate that is contained in plant based foods.

Dietary fiber is made of soluble fiber and insoluble fiber. These fibers are the parts of the plant that cannot be easily digested by humans.

Functions of Soluble Fiber
Decreases low density lipoprotein (LDL)
Decreases serum cholesterol
Helps maintain a steady blood sugar level

Soluble fiber slows the time it takes food to move through the gastrointestinal tract, preventing quick spikes in blood glucose. Foods containing this type of fiber are excellent choices for prediabetics and diabetics to help manage symptoms.

Functions of Insoluble Fiber
Adds bulk to the stool and promotes easier bowel movement
Relieves constipation
Increases frequency and regularity of bowel movement

Insoluble fiber remains whole as it passes through the body. Because of this, it helps food move through the digestive tract smoothly and efficiently.

Both types of dietary fiber promote a feeling of fullness. Eating foods with large quantities of insoluble and soluble fiber can help those trying to lose weight by promoting satisfaction and fullness during mealtime. Eating enough fiber can help individuals develop better portion control.

Table A7-1.
Daily Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes & *Dietary Guidelines* Recommendations

	Source of Goal	Child 1-3	Female 4-8	Male 4-8	Female 9-13	Male 9-13	Female 14-18	Male 14-18	Female 19-30	Male 19-30	Female 31-50	Male 31-50	Female 51+	Male 51+
Calorie Level(s) Assessed		1,000	1,200	1,400, 1,600	1,600	1,800	1,800	2,200, 2,800, 3,200	2,000	2,400, 2,600, 3,000	1,800	2,200	1,600	2,000

Vitamin D, IU	RDA	600	600	600	600	600	600	600	600	600	600	600	600	600

Vitamin D is a fat-soluble vitamin that is produced in the body when the skin is exposed to sunlight. One can also get this vitamin by eating fortified foods, taking supplements or consuming foods with naturally occurring vitamin D.

Functions of Vitamin D
Reduces inflammation
Boosts immune responses
Regulates growth of cells
Supports healthy bone repair and growth

The proper amount of vitamin D may vary depending on age, whether disease is present, and other factors such as skin color and pigmentation. These factors can have an impact on how much vitamin D is absorbed or created in the body. Because sunlight varies depending on geographical location, climate, and relation to the equator, getting enough vitamin D from sunlight alone might not be enough. Those living in Indiana have limited sunlight during the winter months and should strongly consider incorporating foods rich in vitamin D into their diets.

Table A7-1.

Daily Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes & *Dietary Guidelines* Recommendations

Calorie Level(s) Assessed	Source of Goal	Child 1-3	Female 4-8	Male 4-8	Female 9-13	Male 9-13	Female 14-18	Male 14-18	Female 19-30	Male 19-30	Female 31-50	Male 31-50	Female 51+	Male 51+
		1,000	1,200	1,400, 1,600	1,600	1,800	1,800	2,200, 2,800, 3,200	2,000	2,400, 2,600, 3,000	1,800	2,200	1,600	2,000
Calcium, mg	RDA	700	1,000	1,000	1,300	1,300	1,300	1,300	1,000	1,000	1,000	1,000	1,200	1,000

Calcium is the most abundant mineral in the body. The importance of this essential mineral is shown through the body's sensitivity to fluctuation of calcium amounts in the blood.

Functions of Calcium
Provides a building block for bones
Helps hormone regulation
Plays a role in nerve transmission
Maintains healthy blood circulation
Promotes muscle contraction (very important in heart and skeletal muscles)

Children and adolescents have high calcium needs compared with adults who have already reached their peak bone mass. Not getting enough calcium, especially for older individuals, can lead to increased vulnerability to fractures and osteoporosis. Age differences and variation in growth and development may impact calcium requirements.

Table A7-1.

Daily Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes & *Dietary Guidelines* Recommendations

Calorie Level(s) Assessed	Source of Goal	Child 1-3	Female 4-8	Male 4-8	Female 9-13	Male 9-13	Female 14-18	Male 14-18	Female 19-30	Male 19-30	Female 31-50	Male 31-50	Female 51+	Male 51+
		1,000	1,200	1,400, 1,600	1,600	1,800	1,800	2,200, 2,800, 3,200	2,000	2,400, 2,600, 3,000	1,800	2,200	1,600	2,000
Potassium, mg	AI	3,000	3,800	3,800	4,500	4,500	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700

Potassium is an essential mineral and electrolyte in the body.

Functions of Potassium
Helps maintain the electrical pulsation system of the heart (heart beat)
Assists in muscle contraction
Promotes nerve signalling
Balances the actions of sodium on blood pressure

Regulates pH, water, and electrolyte concentrations in the blood

Just as with other nutrients, potassium needs may vary based on age, sex, and other factors. Other factors that may increase potassium needs include excessive physical activity, sweating, or diarrhea.

The New Nutrition Labels

Photo retrieved from https://www.fda.gov/downloads/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/UCM501646.pdf

Recent nutrition label policies will soon require the percentage of the daily value and the amount of the top nutrients of concern to be listed on all food packaging. This information will allow consumers to track how much vitamin D, calcium, dietary fiber, and potassium is contained within a product. This also helps consumers reference values back to the Dietary Guidelines requirements to track how much of a nutrient they are consuming in a single day. More details about the time frame of exactly when these labels are required to be put on packaging can be found within the February 2017 newsletter on the IEFRN website found at https://www.purdue.edu/indianasefrnetwork/docs/February2017Newsletter.pdf.

Practical Ways to Add Nutrients of Concern to Your Diet

Here are some ideas for adding nutrients of concern into your diet while still staying within a limited budget:

1. Substitute high calorie & nutrient poor foods with wholesome & nutrient-dense alternatives.

Idea
Replace butter or cream cheese with avocados in salad dressings and dips

2. Purchase processed foods that are nutrient dense and are enriched and/or fortified to increase their nutrient quantity. (Avoiding products that are nutrient poor, and high in saturated fat, salt, and sugar.)

Idea
Instead of choosing soda or sweetened beverages, select fortified milk, orange juice, or dairy alternatives (such as soy or almond milk)

3. Rinse off additional salt, sugar, or high fructose corn syrup that might also be contained in canned goods for taste or preservation purposes.

Idea
Canned salmon, vegetables, and fruit have a stable shelf life and maintain

nutritional value through their expiration date

4. Purchase frozen produce when fresh produce prices are comparatively high, or when certain products are unavailable during winter months.

Idea
Add frozen mangos in recipes like smoothies if fresh mangos are not in season

As always, refer to nutrition labels and ingredient lists to make the most educated decisions when shopping. Review the Dietary Guidelines for Americans to stay informed, and to make healthy choices.

References

1. https://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#underconsumed-nutrients]\

Dietary Fiber

2. http://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/fiber/art-20043983?pg=2

3. http://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/dietary-fiber.html

Vitamin D

4. https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional/

Calcium

5.https://ods.od.nih.gov/factsheets/Calcium-HealthProfessional/

Potassium

6. https://medlineplus.gov/potassium.html

7. https://medlineplus.gov/ency/article/002413.htm

Additional Sources

8. https://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm385663.htm

9. http://www.eatright.org/resource/food/nutrition/nutrition-facts-and-food-labels/avoiding-processed-foods

Table A7-1:
https://health.gov/dietaryguidelines/2015/guidelines/appendix-7/