



Food Sources: Vitamin A

Vitamin A is the term used to describe a group of fat-soluble compounds which are available in the diet in two different forms: **preformed vitamin A** (retinol) and **provitamin A carotenoids**, such as beta-carotene. The richest sources of preformed vitamin A include organ meats and fish oils, with smaller amounts found in dairy products and fortified cereals. Provitamin A carotenoids are found predominantly in orange, yellow, and green colored fruits and vegetables.

Vitamin A is essential to support cell growth, immune function, and healthy vision. Deficiency of vitamin A is a major, preventable cause of blindness, chronic infection, low thyroid function, and disorders of the skin. Overconsumption of preformed vitamin A is highly toxic, especially during pregnancy. Excess consumption of carotenoids, however, is not associated with toxic side effects.

Preformed vitamin A is more easily absorbed and used by the body. Provitamin A carotenoids must be converted to retinol. Food sources are ranked by micrograms of retinol activity equivalents (mcg RAE) to reflect this difference in bioavailability.

The Recommended Dietary Allowances (RDAs) for Vitamin A are as follows:

- **Females, ages 19+:** 700 mcg RAE per day
- **Females (pregnant), ages 19+:** 770 mcg RAE per day
- **Females (lactating), ages 19+:** 1300 mcg RAE per day
- **Males, ages 19+:** 900 mcg RAE per day

Highest Sources of Preformed Vitamin A

Food, Standard Serving Size	Vitamin A (mcg RAE)
Organ meats (liver, giblets, etc.), 3 ounces	1490-9126
Cod liver oil, 1 teaspoon	1350
Herring (pickled), 3 ounces	219
Oats (fortified, cooked), ½ cup	152
Whole milk, 1 cup	112
Egg (cooked), 1 large	98
Butter, 1 Tbsp	97

Highest Sources of Provitamin A Carotenoids

Food, Standard Serving Size	Vitamin A (mcg RAE)
Pumpkin (canned), ½ cup	953
Spinach (frozen, cooked), ½ cup	573
Butternut squash (cooked), ½ cup	572
Sweet potato (baked), ½ medium	548
Carrot (raw), ½ cup	509
Collards (frozen, cooked), ½ cup	489
Turnip greens (frozen, cooked), ½ cup	441
Winter squash (cooked), ½ cup	268

References

1. U.S. Department of Health and Human Services, National Institutes of Health, Office of Dietary Supplements. Vitamin A. <https://ods.od.nih.gov/factsheets/VitaminA-HealthProfessional>. Updated July 9, 2019. Accessed July 17, 2019.
2. U.S. Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory. USDA National Nutrient Database for Standard Reference, Legacy Version. Current: April 2018. Internet: <https://ndb.nal.usda.gov/ndb/>. Accessed July 17, 2019.
3. Oregon State University, Linus Pauling Institute, Micronutrient Information Center. Vitamin A. <http://lpi.oregonstate.edu/mic/vitamins/vitamin-a>. Reviewed March 2015. Accessed July 17, 2019.