



Units of Measurement for Fat-Soluble Vitamins

NOTES BY
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1. Vitamin A:

- **Unit of Measurement:** International Units (IU) and Micrograms (μg) of Retinol Activity Equivalents (RAE)
- **1 IU of Vitamin A = 0.3 μg of retinol or 0.6 μg of beta-carotene**
- **Purpose of IU:** Measures biological activity of both preformed vitamin A (retinol) and provitamin A (carotenoids) based on their effect on growth, vision, and reproduction.
- **Examples:**
 - **Daily Requirement:** 700-900 μg RAE (depending on age and sex).
 - **Sources:** Carrots, sweet potatoes (high in beta-carotene), liver, and fortified dairy products.

2. Vitamin D:

- **Unit of Measurement:** International Units (IU) and Micrograms (μg)
- **1 μg of Vitamin D = 40 IU**
- **Purpose of IU:** Reflects the vitamin's ability to promote calcium absorption and support bone health.
- **Examples:**
 - **Daily Requirement:** 600-800 IU (15-20 μg) for adults.
 - **Sources:** Sunlight exposure, fortified milk, fatty fish (salmon, mackerel).

3. Vitamin E:

- **Unit of Measurement:** Milligrams (mg) of Alpha-Tocopherol and International Units (IU)
- **1 IU of synthetic vitamin E = 0.45 mg of alpha-tocopherol; 1 IU of natural vitamin E = 0.67 mg of alpha-tocopherol**
- **Purpose of IU:** Measures antioxidant properties of vitamin E in protecting cells from oxidative damage.
- **Examples:**
 - **Daily Requirement:** 15 mg of alpha-tocopherol (22.5 IU) for adults.
 - **Sources:** Nuts, seeds, vegetable oils (sunflower, safflower).

4. Vitamin K:

- **Unit of Measurement:** Micrograms (μg)
- **Purpose:** Involved in blood clotting and bone metabolism.
- **Examples:**

- **Daily Requirement:** 90-120 µg for adults.
- **Sources:** Leafy green vegetables (spinach, kale), broccoli, and fermented foods.