

There is confusion about the intake of vitamin A.

The confusion results from three factors:

- 1 - There are several molecules with a very different vitamin A activity
- 2 - There are different units to express the biological activity of molecules with vitamin A properties.
- 3 - A Media error

1. Several Molecules with Different Activity

The term “vitamin A” is employed to define at least eleven different molecules with a molecular structure resembling the “all-trans retinol” structure of vitamin A (the most potent molecule in the group) and a similar, although weaker biological activity.

The terms “carotene”, “carotenoid”, or “provitamin A” define about 600 other molecules that have been isolated from natural food substances, with a much weaker vitamin A activity (or having no vitamin A activity at all).

2. Different Units to Measure the Vitamin A Activity

The vitamin A activity of the “all-trans retinol” molecule (RE) is the scientific reference value. One RE is the vitamin A activity of one microgram of all-trans retinol. The vitamin A activity of all other molecules with a vitamin A type activity can be expressed in RE units. As for the carotenes, one RE is also the vitamin A activity of 12 micrograms of a random mixture of carotenoids and of 6 micrograms of the vitamin A activity pure β -carotene, the most potent carotene.

One RE equals	1 mcg of Retinol
	12 mcg of mixed carotenoids
	6 mcg of β -Carotene

Table 1: Equivalence of the all-trans retinol unit with the weight of retinol, mixed carotenoids, and β -carotene.

An older system to express the vitamin A activity of a molecule is based on the “International Unit of vitamin A (IU vit. A)”. To make things a little more complicated, there are two IU of vitamin A based on two different scales, the IU retinol activity and the IU carotene activity scale. On the IU retinol scale, one RE of vitamin A equals 3.3 IU and 10 IU on the IU carotene scale.

One RE equals	3.3 IU from vitamin A Retinol activity
	10 IU from vitamin A Carotene activity

Table 2: Equivalence of the all-trans retinol unit with the older international units

The last recommendation of the US Academy’s Institute of Medicine for vitamin A intake were issued in a press release January 9, 2001. The US Academy’s Institute of Medicine has set the

upper limit of safe daily intake of vit A to 3,000 micrograms of vitamin A (http://www.ag.uiuc.edu/~ffh/DRI's_for_Vitamins.html).

3. The Media Error

The January 9, 2001 press release from the US Academy's Institute of Medicine was badly distorted by Associated Press. The comments of Associated Press did not made a difference between the units, confounding the IU from vitamin A Retinol activity with the IU from vitamin A in carotene activity Hence the panic and the publication by many of transcripts of the alarming (and faulty) comments of Associated Press.

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