

Vitamin A

□

:Vitamin A can be found in two principal forms in foods

□

Retinol, the form of vitamin A absorbed when eating animal food sources, the vitamin is found in tissues in a form -
of retinyl ester. It is also commercially produced and administered as esters such as retinyl acetate or palmitate.

Provitamin A carotenoids from plant sources as yellow/orange fruits and vegetables principally □ -
□ □ carrots

The absorption of provitamins depends greatly on the amount of lipids ingested with the provitamin; lipids increase the uptake of the provitamin.

90% of retinoids can be absorbed but only 30% of carotenoids are absorbed.





Intestinal cells can convert carotenoids to retinoids

Beta carotene is safe at any dose





Sources



Vitamin A is found naturally in many foods:



(beef, pork, chicken, turkey, fish) (6500 liver -
 μg 722%)

- carrot (835 µg 93%)

- broccoli leaf (800 µg 89%)

- sweet potato (709 µg 79%)

- butter (684 µg 76%)

-

-

-

(681 µg 76%) kale -

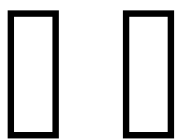
(469 µg 52%) spinach -

(400 µg 41%) pumpkin -

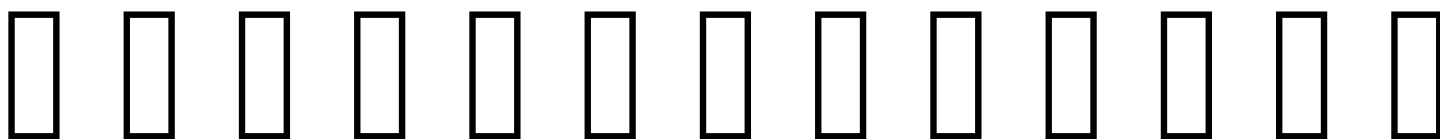
(333 µg collard greens -

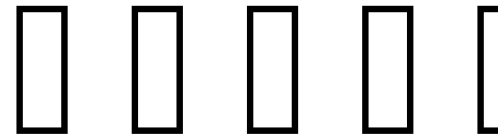
37%)

(265 µg Cheddar cheese -



29%)





(169 cantaloupe melon -

μg 19%)

(140 μg 16%) egg -

(96 μg 11%) apricot -

(55 μg 6%) papaya -

(38 μg 4%) mango -

(38 µg 4%) pea -

(31 µg broccoli -

3%)

(28 µg 3%) milk -

-



Note: data taken

USDA databasefrom

bracketed values are

retinol activity

equivalences (RAEs)

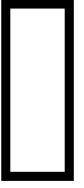
and percentage of the
adult male

RDA

, per 100

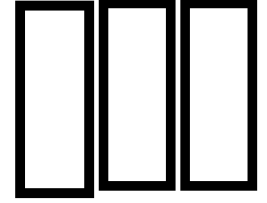
grams

of the foodstuff
(average).



Conversion of carotene to retinol varies from person

**to person and
bioavailability of
carotene in food
varies.**



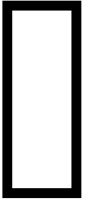
Recommended daily intake



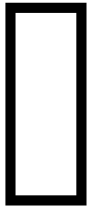
Vitamin A

Dietary Reference

Intake



Life Stage Group



Upgrading/day

Infants

0–6 months

7–12 months

400*

500*

600

600

Children

1–3 years

4–8 years

300

400

600

900

Males

9–13 years

14–18 years

19 - >70 years

600

900

900

1700

2800

3000

Females

9–13 years

14–18 years

19 - >70 years

600

700

700

1700

2800

3000

Pregnancy

<19 years

19 - >50 years

750

770

2800

3000

Lactation

<19 years

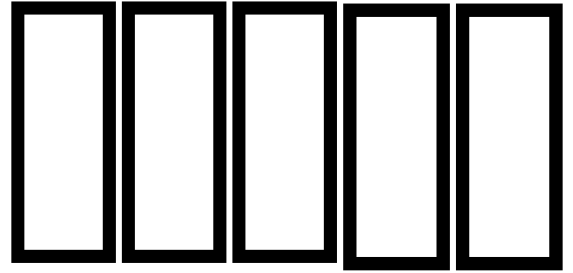
19 - >50 years

1200

1300

2800

3000



10000IU or

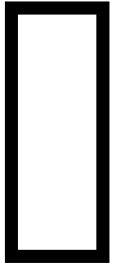
**more during
pregnancy
lead to birth**

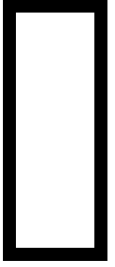
malformation

ADVICE to pregnant women for

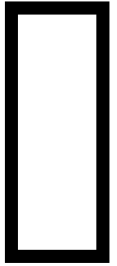
limit intake of liver and avoid

cod-liver oil capsules





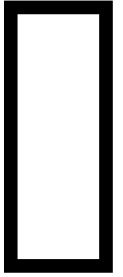
Metabolic functions



Vitamin A

**plays a role in
a variety of
functions**

**throughout
the body,
such as:**



Vision

-

Gene

-

transcription

Immune -

function

Embryo -

nic

development and reproductio

n

Bone -

metabolism

Haemat -

opoiesis

Skin -

health

Antioxi -

dant

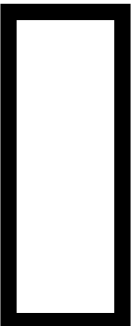
activity

Retinol -

participates

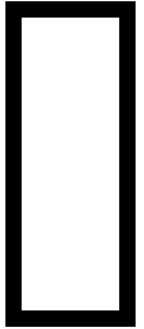
in sperm
developme
nt





Vitamin A

deficiency



Night -

blindness

Blindn -
ess(

xerophthal
mia)

Slow -
bone

growth

Impai -

red

immune

function

Birth -

defects

Kerati -

nization(

less goblet

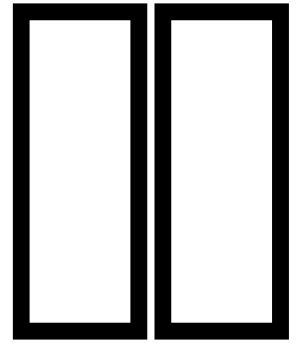
cells, some

cells

secrete
keratin)

**Rough -
, scaly skin**

Toxicity



nausea,
jaundice,

irritability,

anorexia

(not to be
confused

with

anorexia

nervosa

, the eating

disorder),

vomiting,

blurry

vision,

headaches,

hair loss,

muscle and abdominal

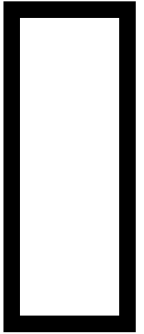
pain and weakness,

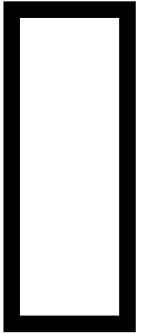
drowsiness

and

altered
mental

status





Acute toxicity

generally

occurs at

doses of
25,000

IU/kg of
body

weight,

with

chronic toxicity

occurring

at 4,000

IU/kg of
body

weight daily for

6-15

months.

However,
liver

**toxicities
can occur**

at levels as

low as

15,000 IU
per day to

1.4 million

IU per

day, with
an average

daily toxic dose of

120,000 IU

per day. In

people
with renal

failure

4000 IU

can cause
substantial

damage.

Additional

y, excessive
alcohol

intake can
increase

toxicity.

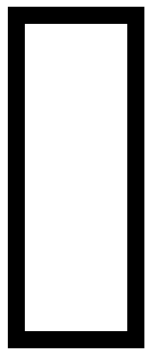
Children

can reach
toxic levels

at 1,500

IU/kg of

body



weight.