

Vitamins

Fat soluble $\rightarrow$ KEPA

water soluble $\rightarrow$ B complex

Vitamin A

- $\rightarrow$ Vision, cell growth & differentiation (epithelial cell)
 - $\rightarrow$ def lead to squamous metaplasia
- $\rightarrow$ lipid metabolism
- $\rightarrow$ Immune function, Antioxidant

Vit D: maintain plasma Ca^{2+} & PO_4^{3-} level
neuromuscular transmission.

$\rightarrow$ stimulate intestinal Ab of Ca^{2+} , Reabsorption in kidney, Mineralization of bone.

skull appears square box type is Vit D def.

def $\rightarrow$ Rickets

overgrowth
of cartilage

$\rightarrow$ Rachitic Rosary

$\rightarrow$ Delayed closure of fontanelle

$\rightarrow$ wide sutures

$\rightarrow$ Dental hypoplasia

$\rightarrow$ bowing of legs

$\rightarrow$ Havers groove

$\rightarrow$ Pigeon breast

$\rightarrow$ Swelling in wrist

Vit C (water soluble) - Ascorbic Acid.

- Hydroxylation of procollagen, Antioxidant, Promotion of nonheme iron Ab.

Vit E most imp dietary form is α -tocopherol

Function $\rightarrow$ Antioxidant, maintain cell membrane, DNA synthesis
Anti-inflammatory.

Def $\rightarrow$ mild hemolytic Anemia, Ataxia & visual scotomas.

Vit K: $\begin{cases} K_1 \\ K_2 \end{cases}$

$\rightarrow$ coagulation, mineralization of bone.

def $\rightarrow$ chronic small intestinal disease, obstruction of biliary tract.

$\rightarrow$ delayed coagulation & bleeding.

$\rightarrow$ hemorrhagic disease of newborn.

Thiamine (vit B₁)

def → prolonged hyperemesis gravidarum,
→ beri-beri

(polished wet Rice)

→ peripheral neuropathy.

B₂ - Riboflavin — lesion of mucocutaneous surface of Mouth & skin.
hyperemia & edema of nasopharyngeal mucosa, angular
stomatitis, glossitis.

B₃ - Nicotin. (A mobilization)

Pellagra — 4Ds

Pyridoxine B₆ → synthesis of heme, Heterobiosynthesis of glycogen.
def → microcytic hypochromic, peripheral neuropathy.

B₁₂ → Require for DNA synthesis.

def → Megaloblastic Anemia, Demyelination of peripheral Nerves.

Folic Acid - Middleman in DNA synthesis