



Mo Tu We Th Fr Sa Su

Memo No. Minerals

Date / /

- ★ Macro/major minerals concentration > 50 mg/kg
 - requirement > 100 mg/d
- ★ Micro/trace minerals concentration < 50 mg/kg
 - requirement < 100 mg/d

★ Calcium (Ca)

- 99% present in skeleton, 1% present in blood and other tissues

- Dietary requirements
- adult $\rightarrow 800$ mg/d
 - women (pregnancy, lactation, post menopause) $\rightarrow 1.5$ g/d
 - children $\rightarrow 0.8 - 1.2$ g/d
 - infants $\rightarrow 300 - 500$ mg/d

[Range of plasma calcium] $\rightarrow 9 - 11$ mg% in forms of:

- ionized Ca [diffusible] $\rightarrow 50$ %
 - complex Ca with organic acid [diffusible] $\rightarrow 10$ %
 - protein bound Ca (non-diffusible) $\rightarrow 40$ %
- ★ excretion of calcium: stool $\rightarrow 60$ % - 70 %

- urine $\rightarrow 100 - 300$ mg/d
- sweat $\rightarrow 15$ mg/d

★ Phosphorous (P)

- 80% of P occurs in combination with Ca in bones and teeth
- 10% in muscles and blood (associated with proteins, sugars, lipids)
- 10% is widely distributed in various chemical compounds.



Mo Tu We Th Fr Sa Su

Memo No. minerals

Date / /

* human body contains 840 gm of P

• serum phosphate levels 3-4 mg/dl

* Dietary requirements (based on the intake of calcium)

→ adult → 1:1 (800 mg/d)
→ infants → $\frac{Ca}{P}$ 2:1

* excretion: 500 mg of P is excreted in urine

* serum phosphate: 40 mg/dl (blood)
[3-4 mg/dl (serum plasma)

* serum phosphate exist as: 40% free ions
50% complex with cation
10% bound to protein

* The product of $Ca \times P$ adult → 40
child → 50
rickets → less than 30

★ Iron (Fe)

• total content of iron in an adult is 3-5 g

→ 70% in erythrocytes

→ 5% in mb of muscles

* Dietary requirements adult man 10 mg/d

Menstruating women 18 mg/d

pregnant and lactating women 40 mg/d

* 10% of dietary iron in normal people is absorbed