

## Unit -9

# Minerals

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## Minerals



\* Definition →

- Minerals are substances which are naturally formed

\* Types →

- are two types which are divided into -

① Macro-minerals →

- macro-minerals are daily requirement more than 100 mg/day

## Biochemistry II D Pharm 2nd Year

**Unit - 9**

Minerals

\* Definition →

- Minerals are substances that are naturally formed in the earth.
- Different types of biochemical processes and physiological functions are performed by minerals.
- Minerals are usually solid, inorganic, and have a crystal structure.

\* Types →

- There are two types of minerals: macro-minerals and micro-minerals.

① Macro-minerals →

- Macro-minerals are those minerals that are required in a quantity of more than 100 mg/day.

eg →

- 1) calcium
- 2) Magnesium
- 3) chloride
- 4) sodium
- 5) potassium
- 6) phosphorus

1) Calcium →

- ୪୮ ରାସ୍ ମିନିରାଲ୍ ଇଡାଟ୍ ଓ ୩୮ ଡିଫା ଓ ୨୮ ୱେସେଣ୍ଟିଆଲ୍ ଇଡାଟ୍ ଇ
- ୪୮ ବୋନ୍ସ୍ ଆଣ୍ଡ ଡିଆଥ୍ ଓ ୮ ସ୍ଟ୍ରାଙ୍ଗ୍ ଆଣ୍ଡ ମେନ୍ଟେନ୍ ଲେଭେଲ୍ ଇ

\* functions →

- ୪୮ ବ୍ଲୁଡ୍ ଓ ୮ କୋଆଗୁଲେସନ୍ ଓ ୪୮ ସିଗ୍ନିଫିକାଣ୍ଟ ରୋଲ୍ ପ୍ଲେୟ୍ ଓ
- ୪୮ ବୋନ୍ସ୍ ଆଣ୍ଡ ଡିଆଥ୍ ଓ ୮ କାଲିଫିକେସନ୍ ଓ ୮ ୱେସେଣ୍ଟିଆଲ୍ ଇଡାଟ୍ ଇ
- ମ୍ୟୁସ୍କିଲ୍ ଓ ୮ କନସେଣ୍ଟ୍ରେସନ୍ ଓ ୮
- ହୋରମୋନ୍ ଆକ୍ସନ୍ ଓ ୮

\* Deficiency diseases →

- ଫଲୋୱିଂ ଡିସିଆସେସ୍ ଇ

a) Hypocalcemia →

- ଲୋୱ୍ ବ୍ଲୁଡ୍ କାଲ୍ସିୟମ୍ ଲେଭେଲ୍

\* symptoms →

- ମ୍ୟୁସ୍କିଲ୍ ସ୍ପାସମ୍ସ୍
- କ୍ରାମ୍ପ୍ସ୍, ସିଜିୟୁରାସ୍
- ଟେଟାଣ୍ଟିସ୍
- ରିକେଟ୍ସ୍ (ଇନ୍ ଚିଲ୍ଡ୍ରେନ୍)
- ଓଷ୍ଟିୋମାଲେସିଆ (ଇନ୍ ଆଲ୍ଟ୍)

\* Recommended dietary requirement →

- for a healthy adult → 500 mg/day.
- Pregnant women → 1.5 g/day

② Phosphorus →

- 2<sup>nd</sup> most mineral element in life of our essential element
- start use energy production on liver and kidney

\* Functions →

- bones and teeth formation
- Enzymes activation

• Nucleic acid formation

if/ste.....

\* Deficiency diseases →

• following diseases -

- a) Hypophosphatemia
  - b) Rickets.
  - c) osteoporosis.
  - d) stiff joints.
  - e) sensitive skin
  - f) weak teeth.
- etc.....

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\* Dietary requirements →

- For a healthy adult.  
400 to 600 mg/l day.

2) Micro-minerals →

- Set minerals of daily requirement  
less than 100 mg/day

eg →

- 1) Iron
- 2) Zinc.
- 3) Copper
- 4) Iodine.
- 5) Fluorine
- 6) Manganese.
- 7) Cobalt etc.....

1) Iron →

- Iron was essential mineral  
elder & H<sup>+</sup> oxygen carry  
oxid & and RBCs &  
hemoglobin are part of  
etc.....

\* Functions →

- Brain development of
- Haemoglobin of formation of
- Body temperature of  
regulation. etc

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- \* Deficiency disorders →
  - Iron deficiency anaemia ए/
  - Hair loss ए/
  - Pale and dry skin.
  - fatigue, • Headache ए/
- \* Daily requirement →
  - 15-20 mg/day.
- 2) Zinc →
- Zinc ए/ essential mineral ए/

- ए/ naturally some foods ए/ present ए/
- \* Functions →
  - ए/ DNA and proteins ए/ production ए/ help ए/
  - sperm production ए/ help ए/
  - enzyme formation ए/ help ए/
- \* Deficiency disorders →
  - PC

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③ Iodine →

- Iodine is an essential mineral for the synthesis of  $I^-$   $T_3$  and  $T_4$  thyroid hormone

\* Functions →

- Body growth and development
- Thyroid hormone synthesis etc.

\* Deficiency diseases →

- Hypothyroidism
- mental illness.

- brittle.

- cretinism.

- muscle stiffness.

etc....

\* dietary requirement →

- 100 to 140 mcg.

complete

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**THANK YOU.**

**By Dr Firoz khan**

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