

Department of Bio Chemistry

E-lectures

BDS 19-20

I-BDS Biochemistry April 2020 schedule

Mondays, Tuesdays, Fridays-9.30-10.30 am

DATE	TOPIC	FACULTY
3.4.20 (Fri)	Minerals- Selenium,zinc,Magnesium, manganese- discussion in watsapp group	Dr.S.Rashmi
6.4.20(Mon)	Webinar-DNA replication	Mr.Murugavel
7.4.20(Tues)	Webinar-Translation	Mr.Murugavel
10.4.20(Fri)	Assignment for students on protein metabolism	Dr.S.Rashmi
13.4.20(Mon)	Webinar-DNA & RNA	Dr.S.Rashmi
14.4.20(Tues)	Webinar-Genetic code & mutation	Dr.S.Rashmi
17.4.20(Fri)	Test-Protein metabolism	Dr.S.Rashmi & Mr.Vinoda kumar.H.R
20.4.20(Mon)	Webinar-Calcium & phosphorus	Dr.G.Santhini
21.4.20(Tues)	Webinar-Iron	Mr.Vinoda kumar.H.R
24.4.20(Fri)	Assignment on vitamins	Dr.S.Rashmi
27.4.20(Mon)	Webinar-vitamin K	Dr.S.Rashmi
28.4.20(Tues)	Webinar-Transcription	Dr.Siddarth

Minerals- Se,Zn.Mg,Mn

Dept of Biochemistry

There are two main types of nutrients, macronutrients and micronutrients.

The three main categories of macronutrients include carbohydrate, protein, and fat.

The two types of micronutrients are vitamins and minerals, and these are extra molecules that cells need to make energy

The mineral (inorganic) elements constitute only a small proportion of the body weight

Minerals perform several vital functions which are absolutely essential for the very existence of the organism

These include,
Calcification of bone, blood coagulation, neuromuscular irritability, acid-base equilibrium, fluid balance and osmotic regulation.

CLASSIFICATION :

The minerals are classified as principal elements and trace elements depending upon the intake

Principal elements:

- Macrominerals(calcium, phosphorus, magnesium, sodium, potassium, chloride and sulfur) constitute 60-80% of the body inorganic material required in amounts >100 mg/day.

Trace elements:

- Microminerals are required in amounts less than 100 mg/day. They are subdivided into three categories

1. Essential trace elements : Iron, copper, iodine, manganese/z inc, molybdenum, cobalt, fluorine, selenium and chromium.
2. Possibly essential trace elements: Nickel, vanadium, cadmium and barium.
3. Non-essential trace elements: Aluminium.lead, mercury, boron, silver, bismuth

Acrodermatitis Enteropathica



- Genetic Disorder (AR) due to defective absorption of Zinc
- Characterized by periorificial and acral dermatitis, alopecia and diarrhea.

Laboratory assessment

- ◆ Determination of zinc content in plasma, serum.
- ◆ Measurement of activities of zinc containing enzymes and assessment of taste acuity.

Selenium

Sources

Soil(nature of soil in which food crops are grown)

RDA : 50-100micrograms/day

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Reference range: 70-150ng/ml

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Selenium distribution

- ◆ In tissues selenium exist in two forms
- ◆ Selenocysteine (secys) and
- ◆ selenomethionine.
- ◆ Secys : selenium containing analog of cysteine.

Considered as 21st amino acid since it is directly incorporated into protein during biosynthesis (not a post translational modification)

MAGNESIUM

Source

Cereals, nuts, beans, vegetables (cabbage, cauliflower), meat, milk and fruits.

RDA

Men – 400 mg/day

Women – 300 mg/day

MAGNESIUM - FUNCTIONS

60% is found in the bones and 40% is in the muscles

- Constituent of bones and teeth – associated with Ca & P
- Neuromuscular excitability
- Enzyme action – Essential cofactor for ATP dependent enzymes

Normal Serum Mg level : 1.8 - 2.2 mg/dl

MANGANESE - FUNCTIONS

- Cofactor for enzymes – Pyruvate carboxylase, Isocitrate dehydrogenase, ALA synthase, Gluc -6 PD, Mit – SOD
- Role in Carbohydrate metabolism
- Role in Mucopolysaccharide and proteoglycan synthesis

Deficiency

- **Manganese deficiency is not seen in humans.**
- **Manganese deficiencies have been produced experimentally in animals**
- **Symptoms:**
- **Retarded growth, bone deformities & sterility.**
- **Accumulation of fat in liver.**
- **Increased ALP levels.**
- **Decreased activity of beta-cells of pancreas.**



BDS Eclasses-Biochem...

Aakash, Aaron, Abhinaya, Aishwa...



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biochemistry dept is inviting you to a scheduled Zoom meeting.

Topic: biochemistry bds' Zoom Meeting - REPLICATION - SKM
Time: Apr 6, 2020 09:30 AM India

Join Zoom Meeting
<https://us04web.zoom.us/j/3388413098?pwd=bFNvOTFOYk8xcUJnUHJMTm9oQzFkdz09>

Meeting ID: 338 841 3098
Password: 385013 15:19

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Topic: biochemistry bds' Zoom Meeting- TRANSLATION - SKM
Time: Apr 7, 2020 09:30 AM India

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Meeting ID: 338 841 3098
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Type a message