

Class 8 Academic Program-2020

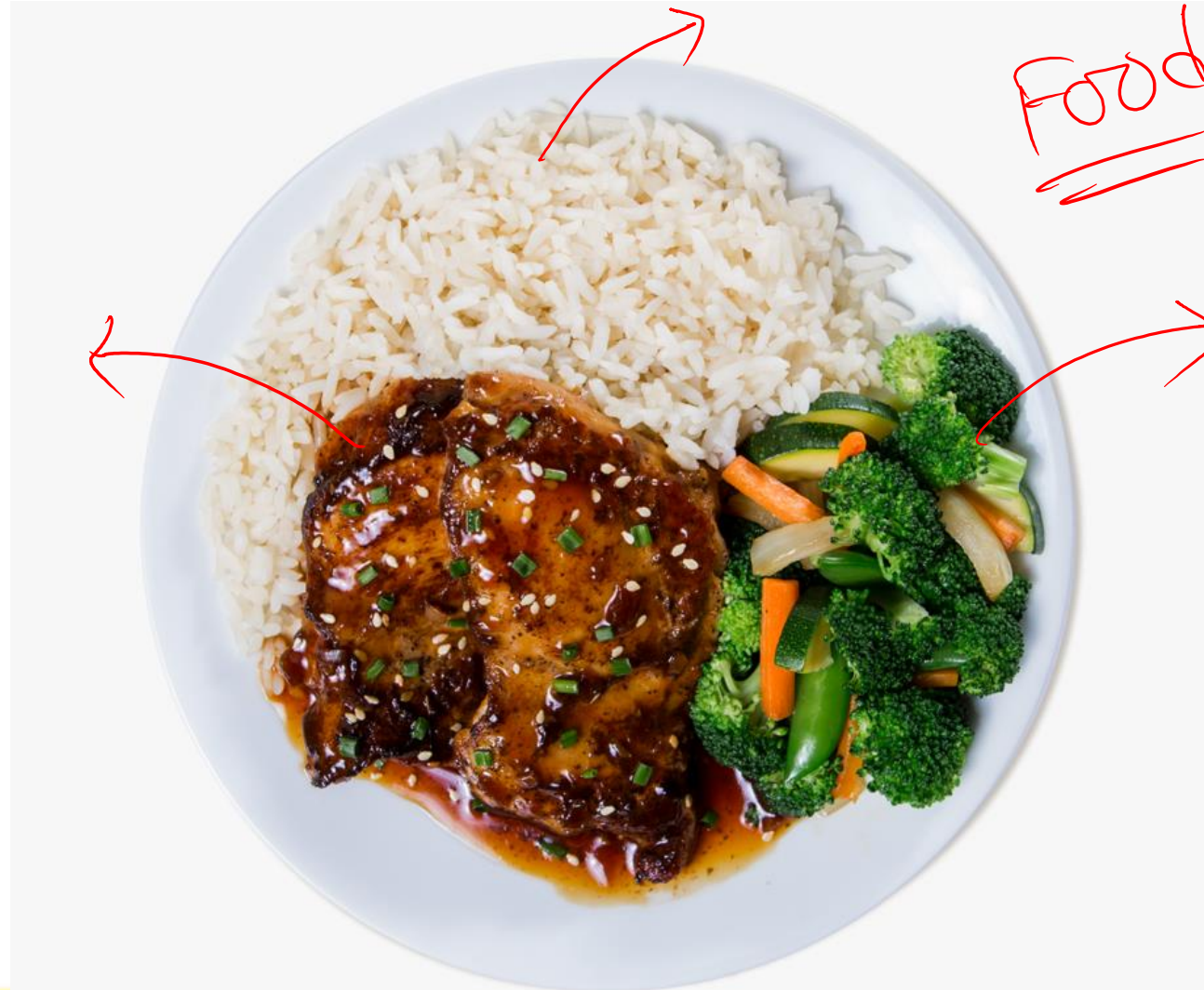
SCIENCE

Lecture : S-13

Chapter 99 : Food & Nutrition

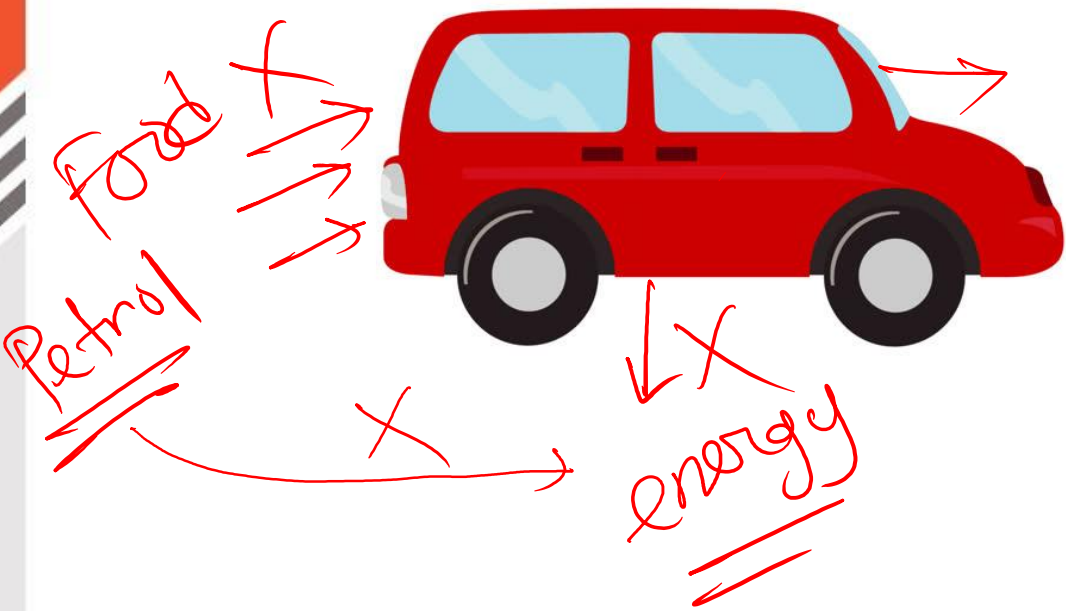


WHAT IS FOOD ?

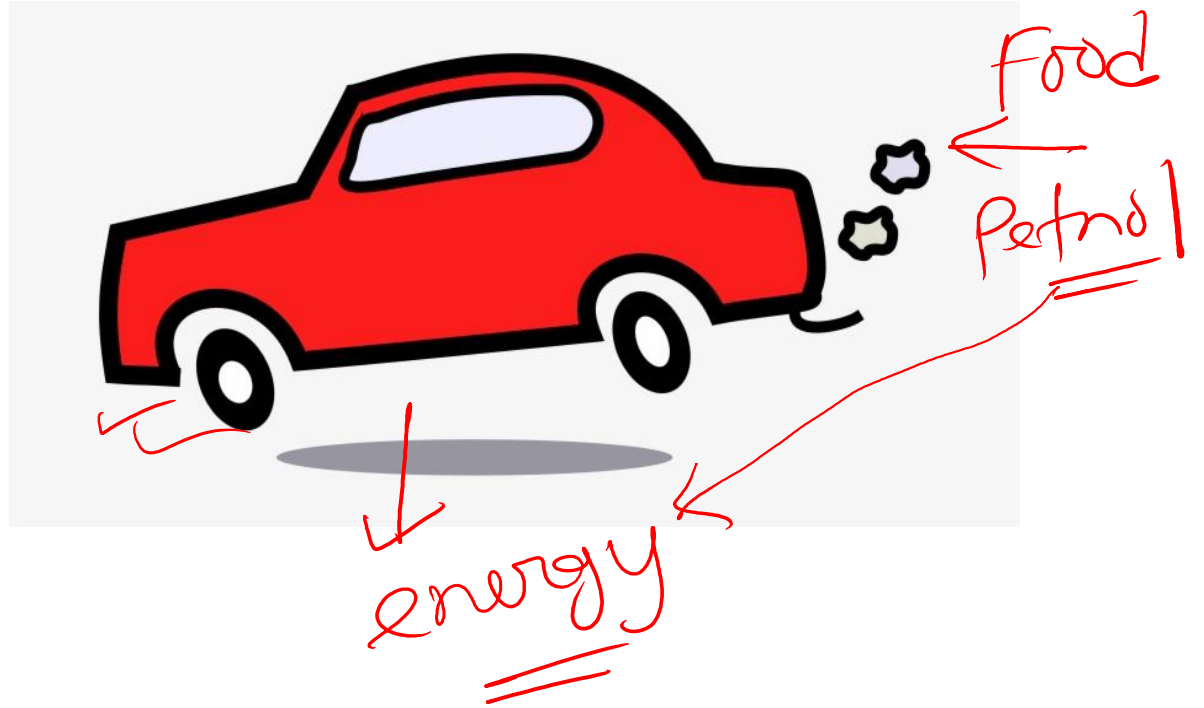


WHY FOOD?

not moveable



Running



NEED OF FOODS



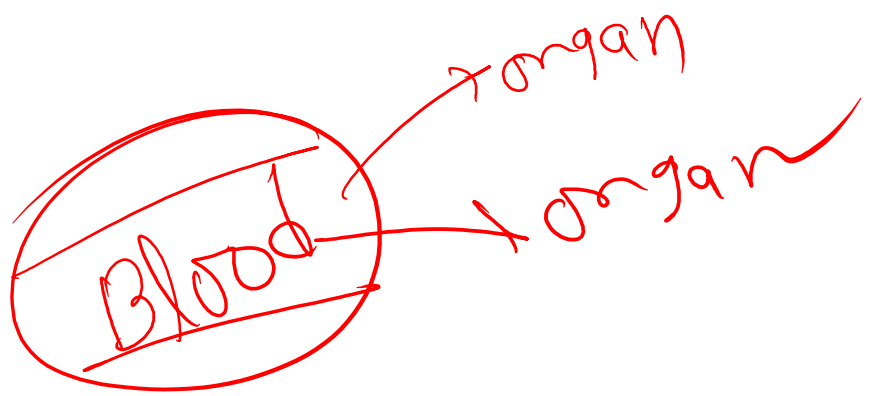
Importance of food in human body

1. Growth, repair and maintenance of the body
2. Provide heat and calories
3. Prevent disease



Nutrition and Nutrition value

Nutritional ingredients are the ingredients that are the quality of everyday food that ensures the strength and growth of the body, develops merit and intelligence, prevents disease. The nutrition helps people to recover from the disease and makes people work.



Food elements (ଖାଦ୍ୟ)

The main ingredients are 3:

1. Carbohydrate – Produce energy
2. Proteins - body growth and repair
3. Lipids or fat - heat and energy production

3 more companion food ingredients

4. Vitamin- Prevention of disease
5. Mineral salt - participation in various biological processes
6. Water- Balance of water in the body

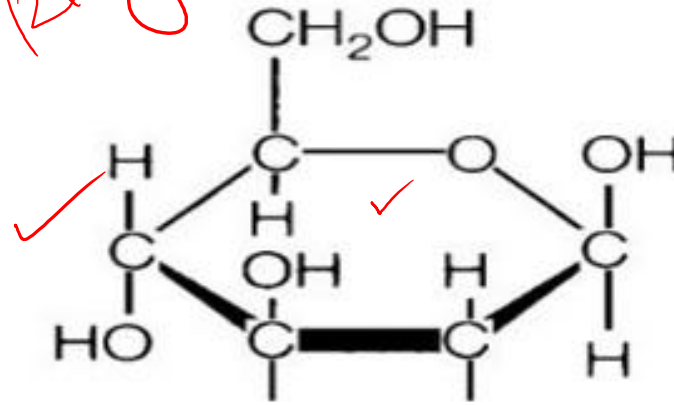
ଅକ୍ଷର
ଆମ୍ଳ / ଅମ୍ଳିତ
→ ଚର୍ମ / ଚର୍ମି
ଅମ୍ଳ
↓
meat
↓
muscle
= grow up.

* Carbohydrate

main food



Ring Structure

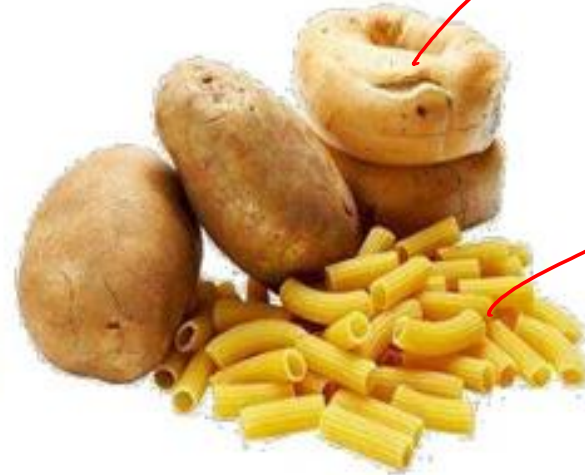


glucose
↙
C₆H₁₂O₆

কার্বোহাইড্রেট

Carbohydrate

Rice



Potato

Pasta

Carbohydrate (Complex)

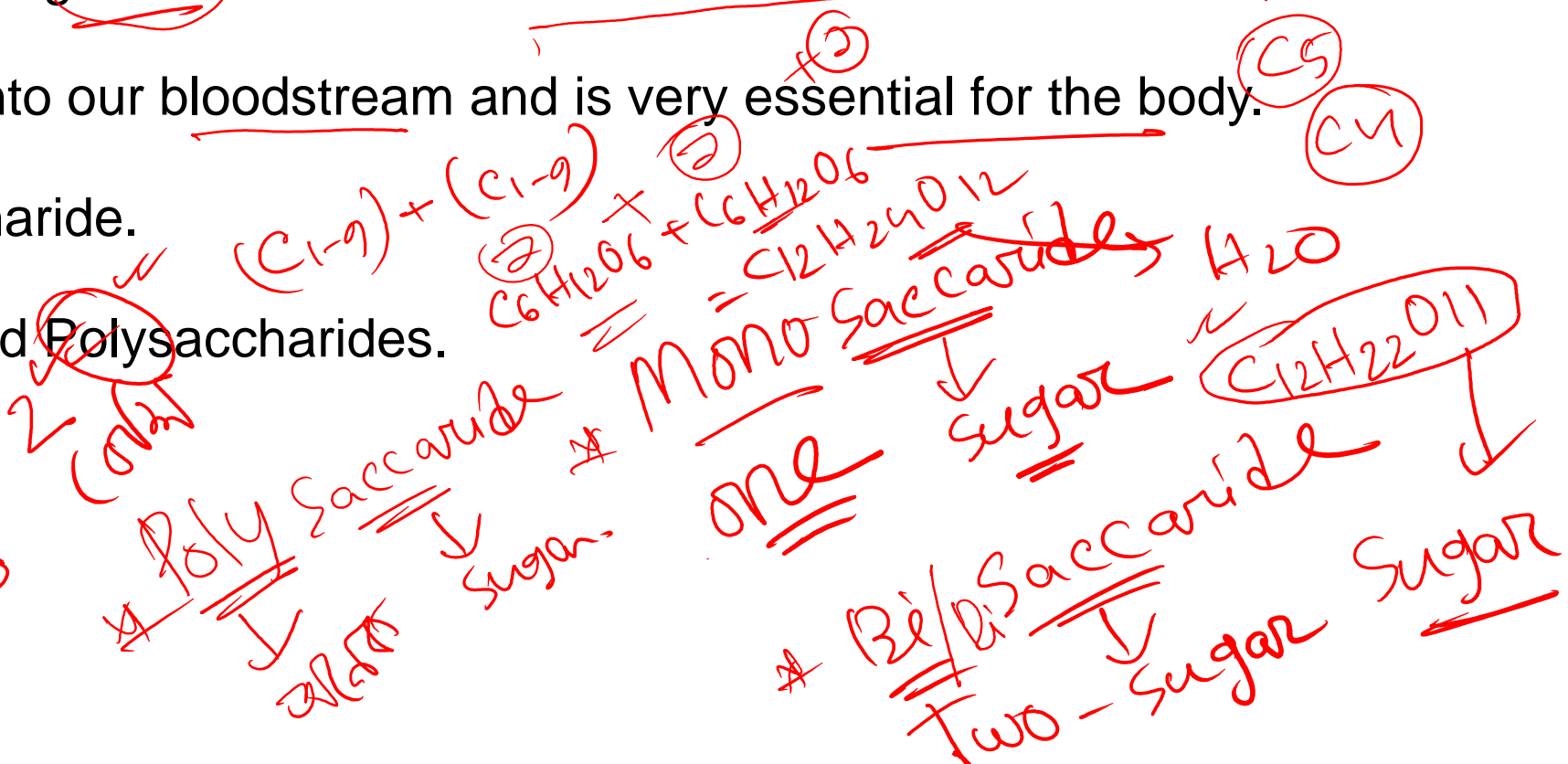
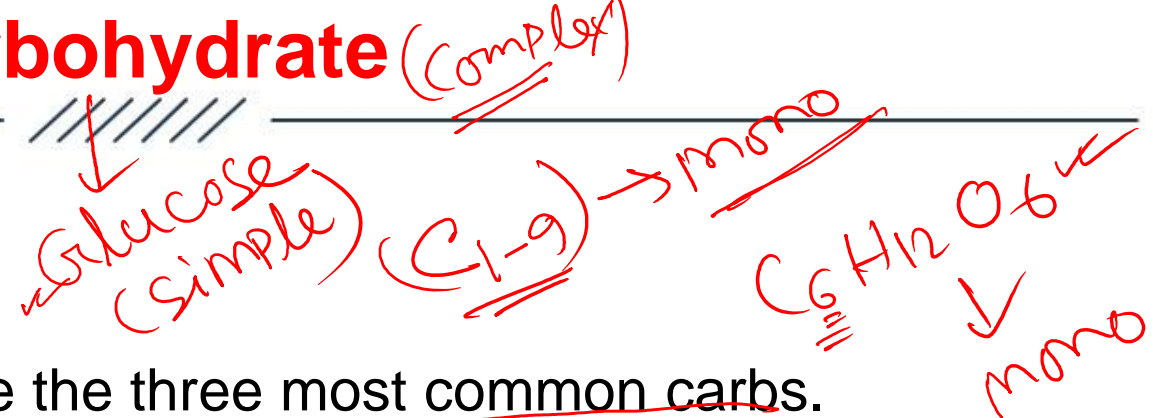
✓ Rice, bread, shrimp, bread etc.

✓ Glucose fructose and galactose are the three most common carbs.

✓ Glucose is carried into our bloodstream and is very essential for the body.

✓ Sugar is the disaccharide.

✓ Rice bread are called Polysaccharides.



Carbohydrate

✓ 1 gram of carbs can produce 4 k.calories of heat.

Kcal → unit → Heat energy

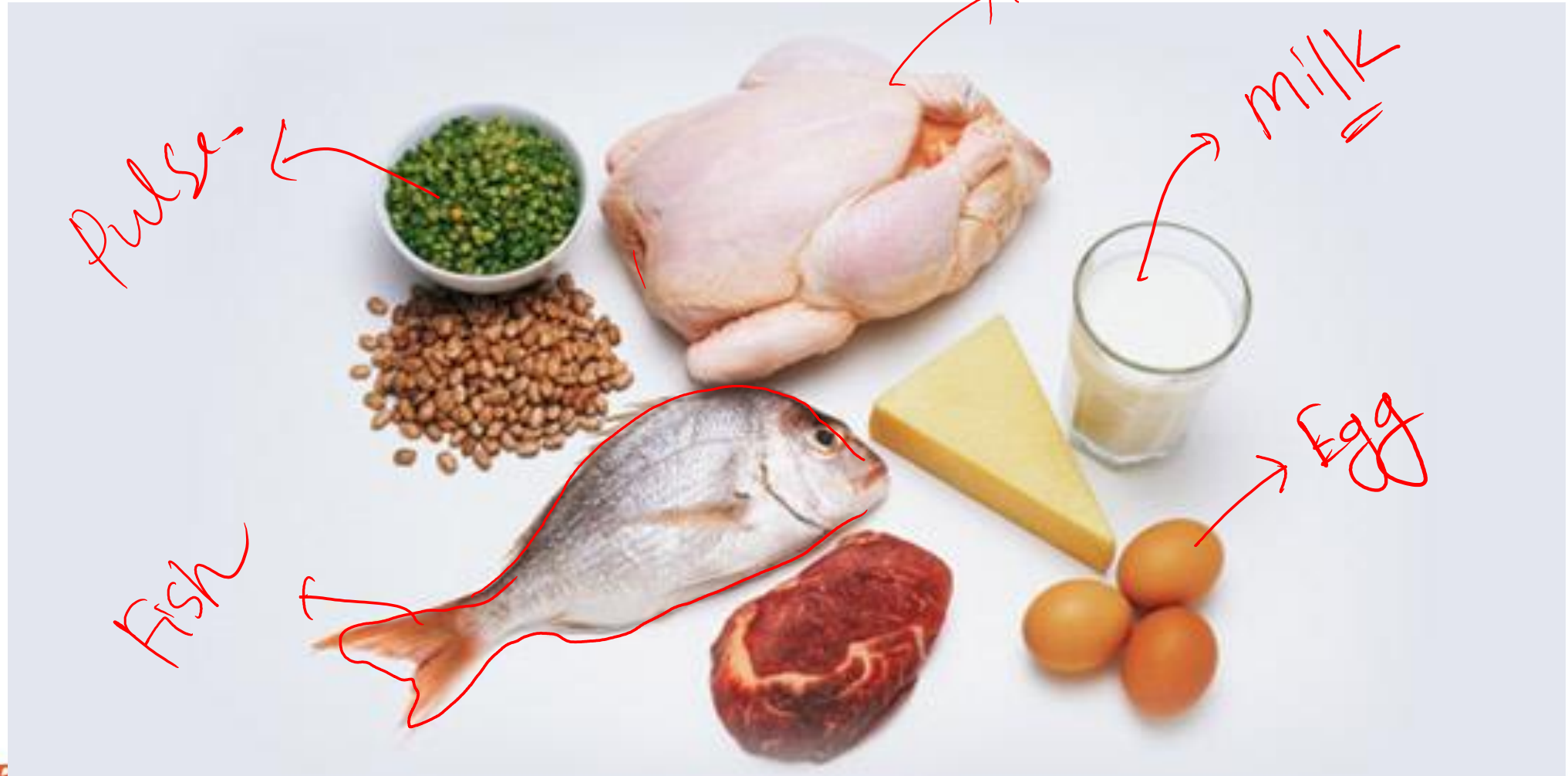
✓ The body contains 300-400 grams of carbs, which is to produce 1200-1600 kilocalories.

✓ An adult male person need : (body weight * 4.6)gm of carbohydrates

✓ We should take 60-70% of the daily demand of the calories from the carbohydrates.

100 (10-30)%
↓ lipid
↓ Protein

Proteins

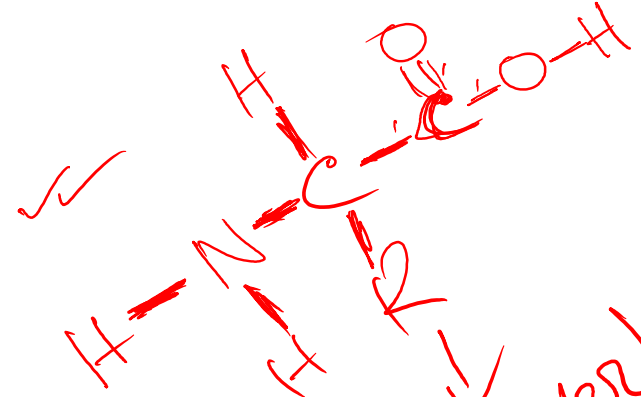
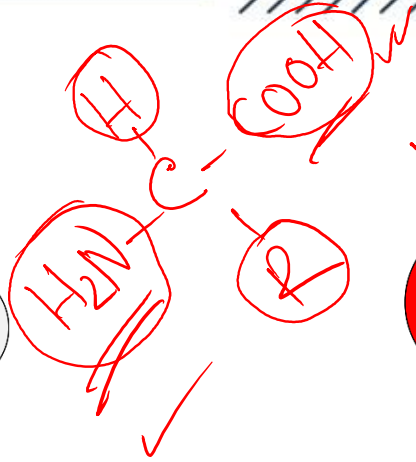
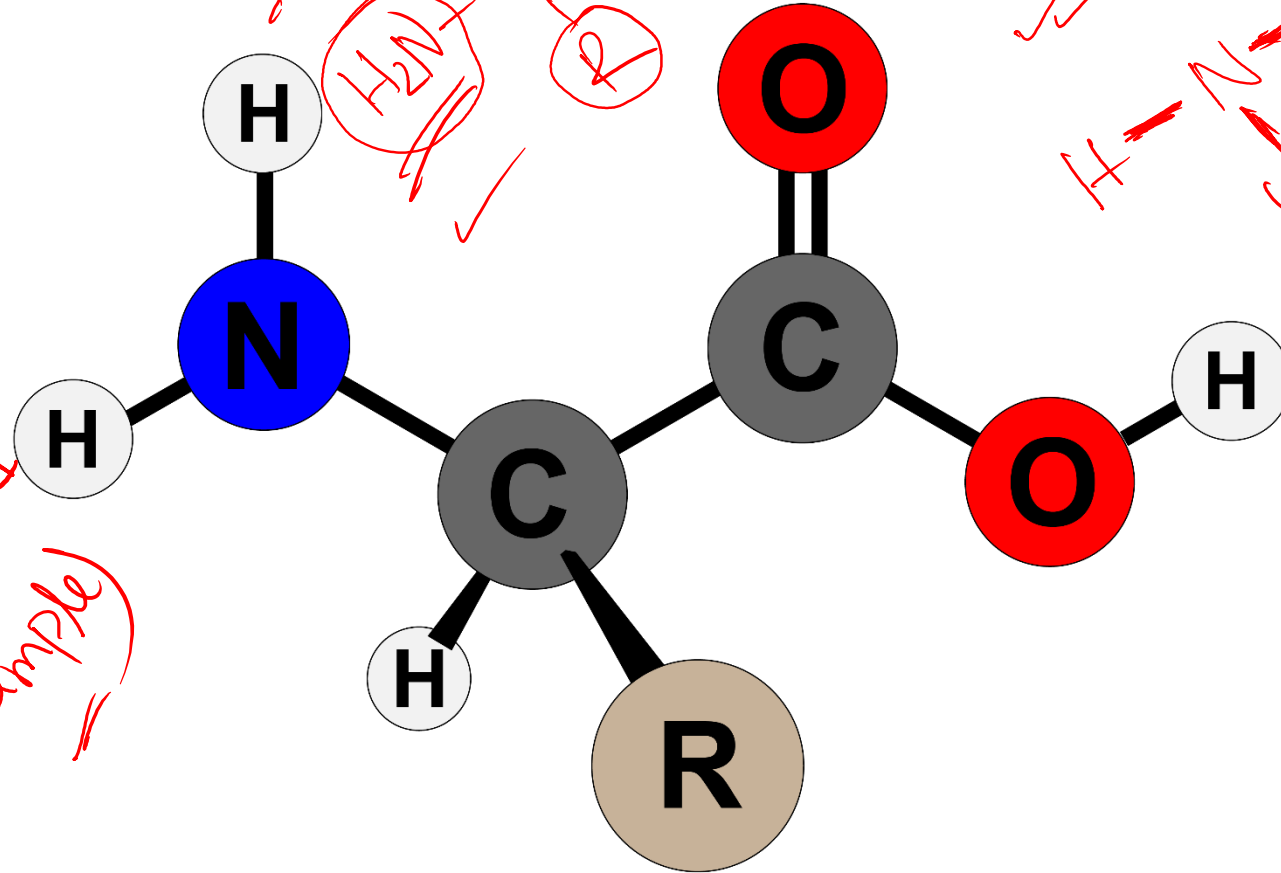


Proteins- amino acids

Carbohydrate
↓
Glucose

Protein
(complex)

↓
Amino acid
(Simple)



(eges)
CH₃
C₂H₅

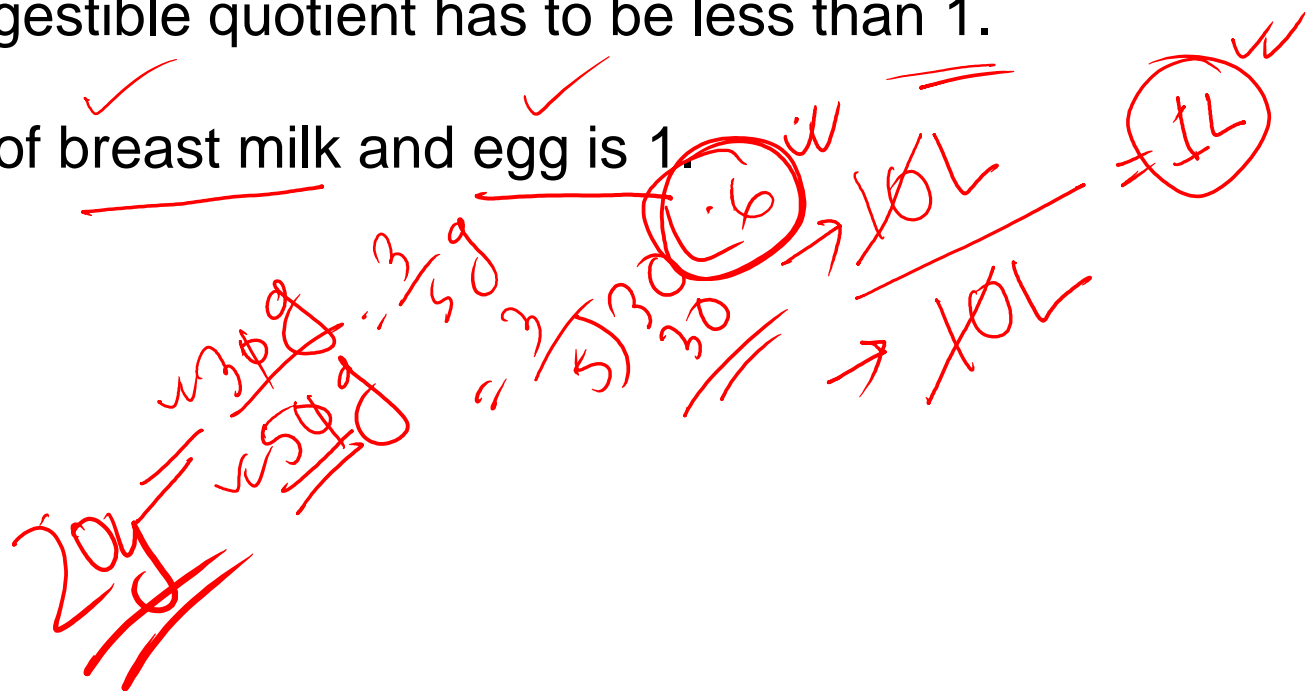
Proteins

Easily digestible quotient (1)

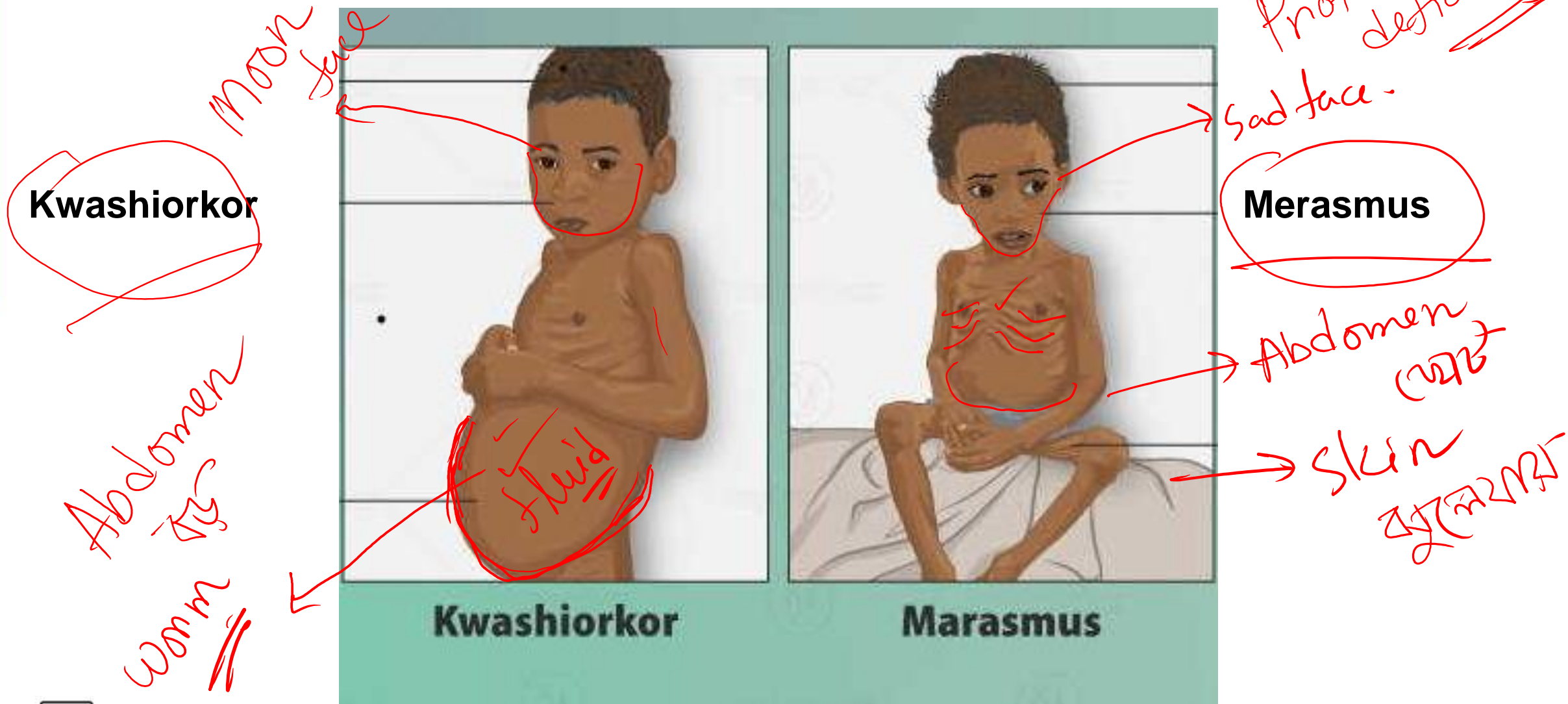
The proteins which are cent percent absorbed in the body and enhance the growth and repair has the easily digestible quotient of 1.

If this is not done the Easily digestible quotient has to be less than 1.

The Easily digestible quotient of breast milk and egg is 1.



Deficiency Related Diseases



Lipids

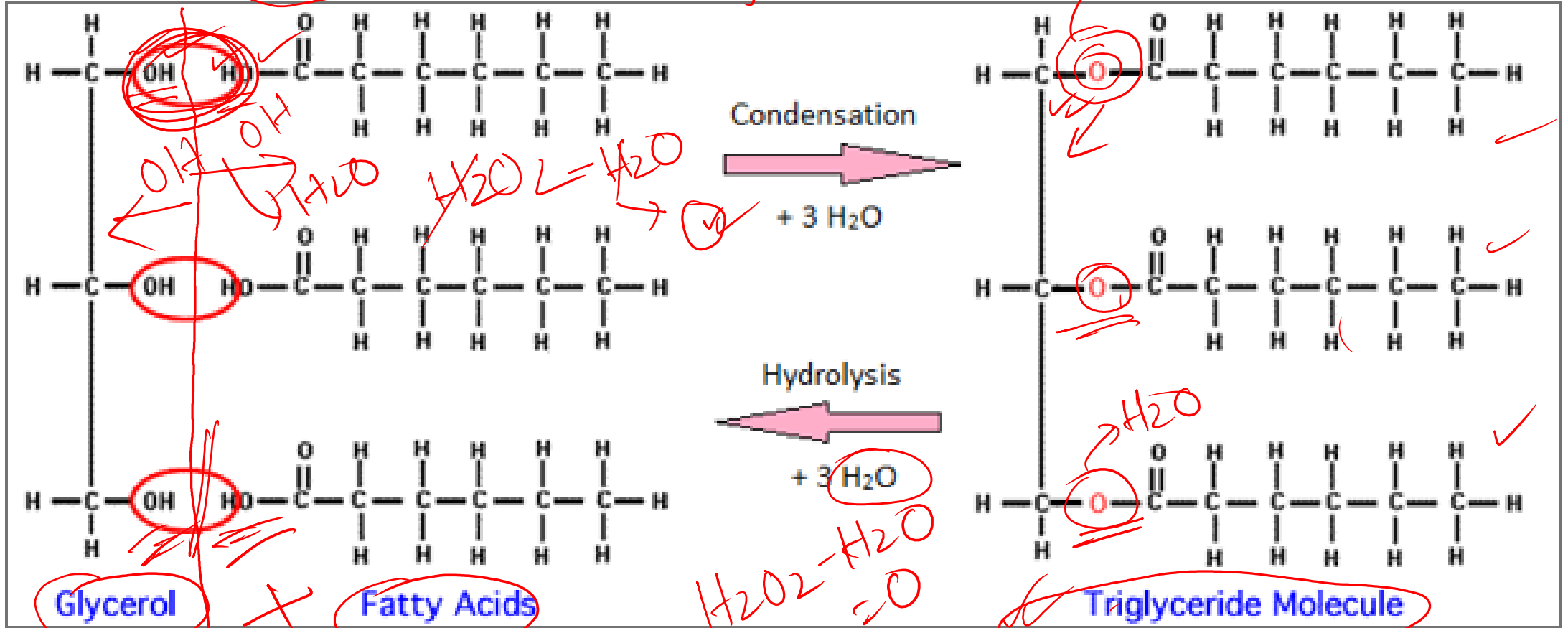
চর্বি/তৈল

Cheese



Lipids

lipid → fatty acid + glycerol → simple form



Condensation
+ 3 H₂O

Hydrolysis
+ 3 H₂O

H₂O - H₂O = O

Triglyceride Molecule
→ lipid

Lipids

□ Fatty acids are of two types:

□ Unsaturated fatty acid- soybean oil, sesame oil, sunflower oil, corn oil, nuts etc.

□ Saturated Fatty acids- meat, butter, dalda, chocolate, etc.

□ The foods contain unsaturated fatty acids are more useful.

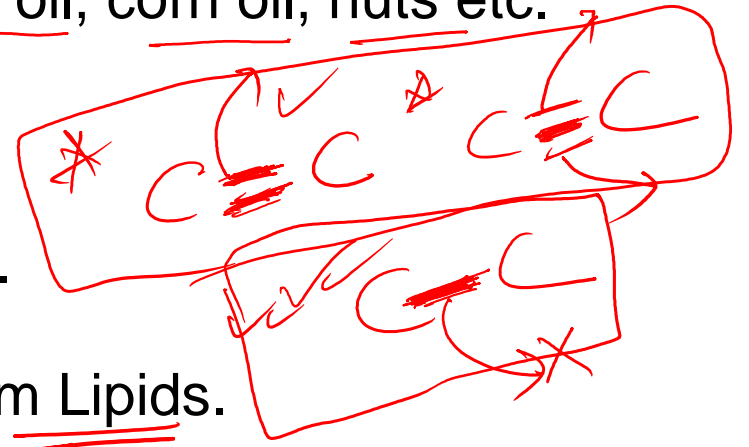
□ 20-30% of the energy from daily food should be taken from Lipids.

□ It causes skin to dry and dry, and the body's beauty is damaged due to the deficiency of Lipids .

□ Children will suffer from eczema caused due to the deficiency of essential fatty acid

example

→ better =



skin dis.

Eczema Disease of Children



Calorie and Work Energy of Food

In our body energy is spent in two ways.

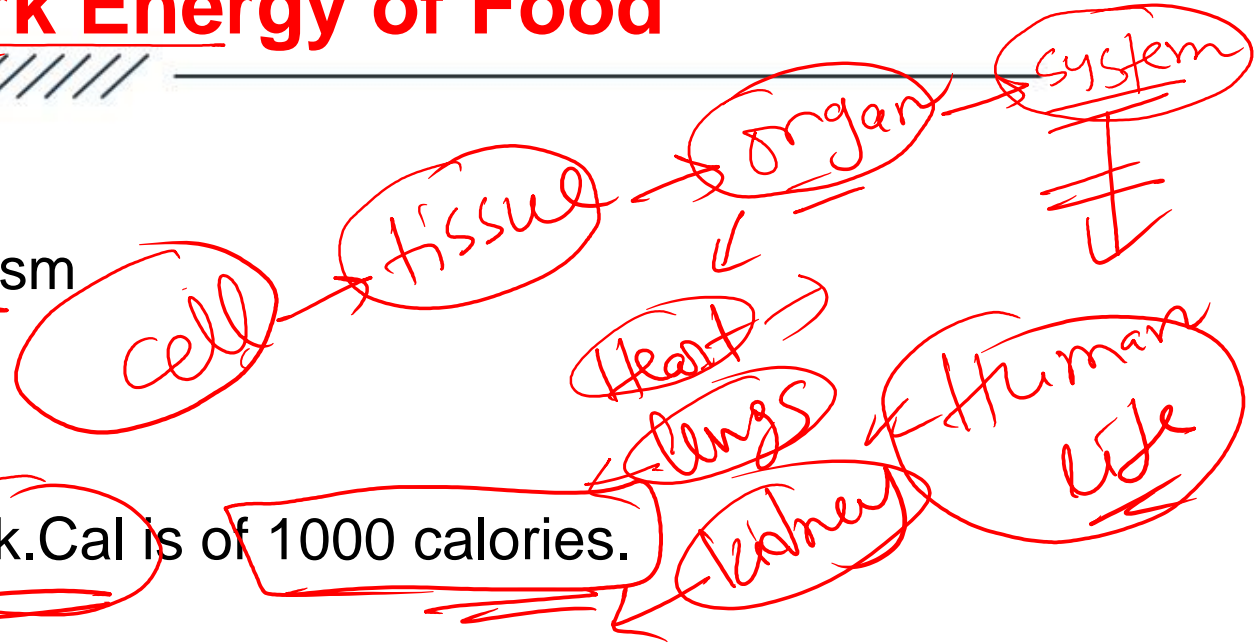
1. Internal work of the body- Basal metabolism

2. Physical work ✓

We get the energy from food in calories. 1 k.Cal is of 1000 calories.

The demand for our body's energy is expressed in the kilocalories.

The demand for calories depends mainly on age, body height and weight. Besides, demand is also varying in terms of occupation and gender.





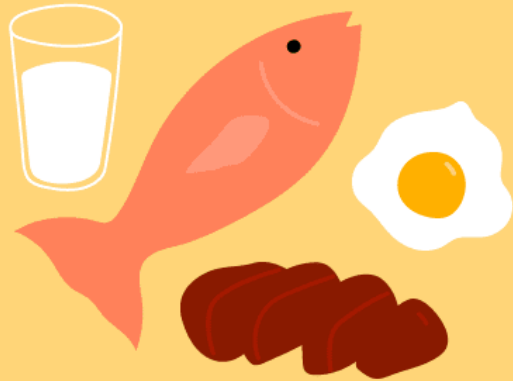
Vitamin A



B Vitamins



Vitamin C



Vitamin D



Vitamin E



Vitamin K

Vitamins

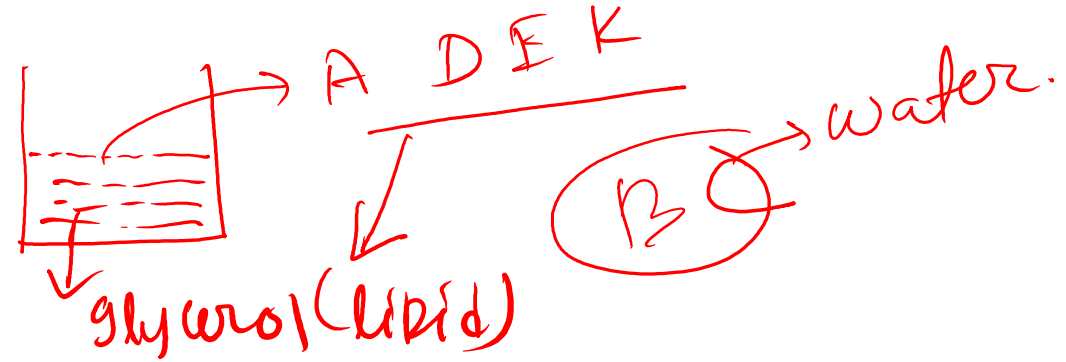


mcs Vitamins are of two types:

✓ lipid soluble - vitamin A, D, E, K

✓ Water soluble - Vitamin B, C

✓ Sources of vitamins : green leaves of trees, small leaves, yellow and green vegetables, fruits and seeds etc.



* Vitamin- A

→ (বিষয়) →
স্বাদু - (সুস্বাদু)
ফিশ



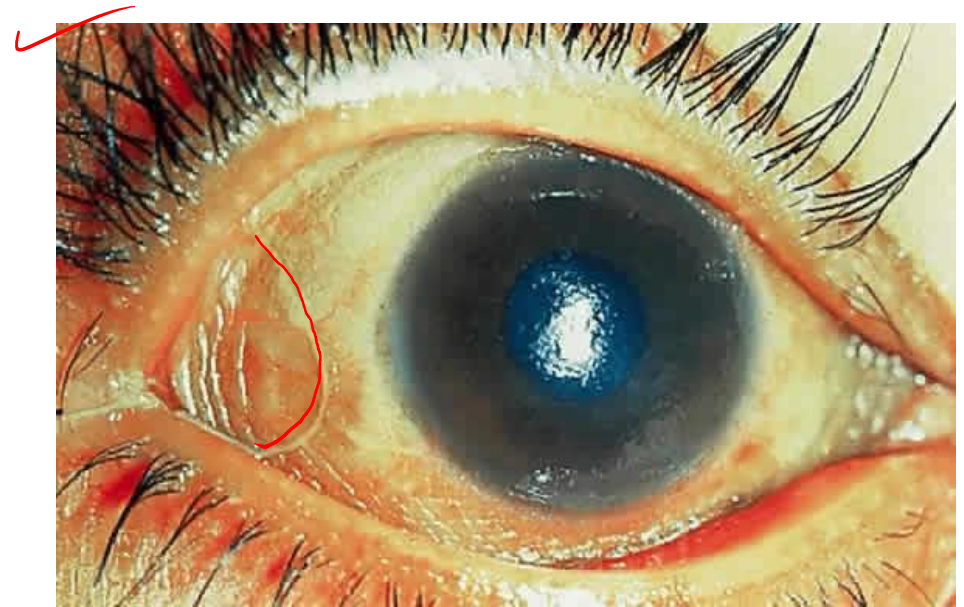
Vitamin A



Deficiency Related Diseases



Blurr vision



✓ Night Blindness

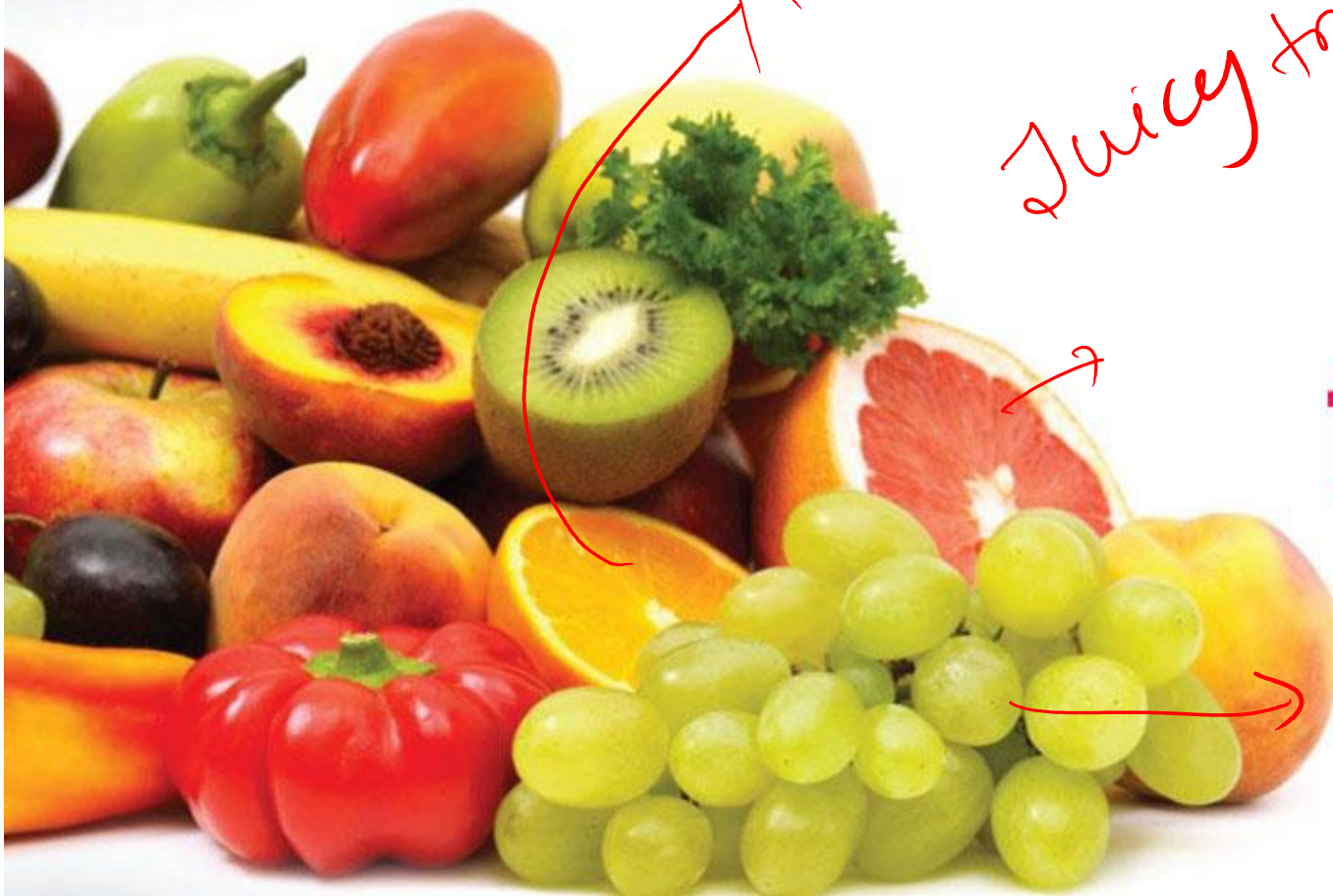
✓ Xerophthalmia

Vitamin B complex

- ✓ Vitamin B1 - Thiamin : Break down the carbs and release energy
- ✓ Vitamin B2 - Riboflavin : To help break down the various food and to produce energy.
- ✓ Vitamin B6 - Pyridoxine : Help in energy production

B3 → Niacine
B5 → Pantothenic acid.
B complex → B(1-12)

Vitamin C



malta

Juicy fruits

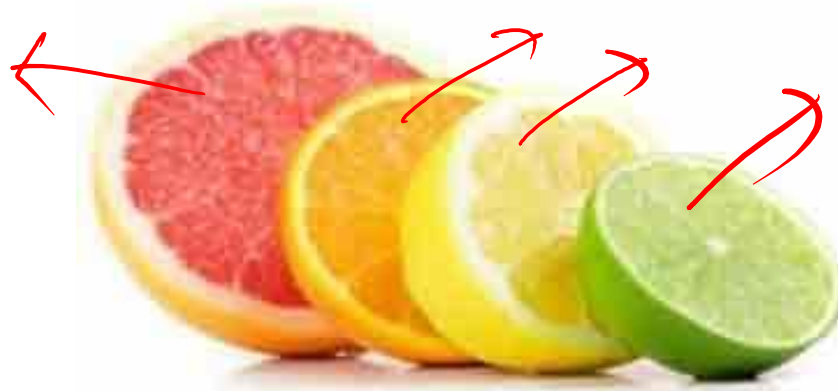
ভিটামিন সি

grape

Vitamin C



Orona
Vitamin



Vitamin C

Strengthens muscles and teeth, heals wounds, resist skin disease.

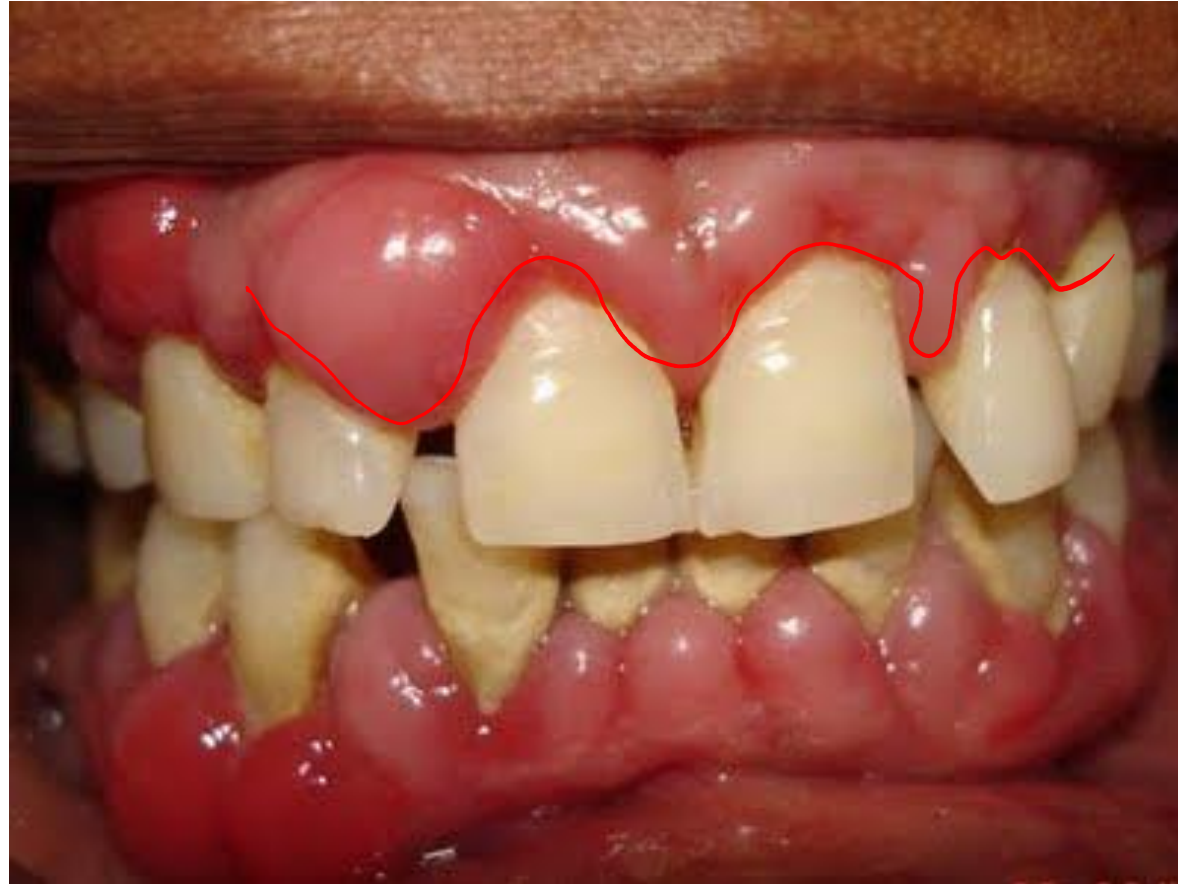
Lack of it-

Structure of bones can not be strong.

Skin becomes dry, itches.

* This vitamin C is destroyed in heat, and it is not stored in the body. So We must eat it every day.

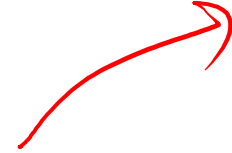
✓ Deficiency Related Diseases- Scurvy



Vitamin D



sea
fish



উদ্ভাস

একাত্তরিক এড এডমিশন কেয়ার

Vitamin D

It is found abundant in edible oils, milk and milk products, fish and sea fish, fish oil, egg yolks, ghee, butter and fats and Hilsha fish.

Functions-

1. formation of bones and teeth structure
2. Calcium absorption in the intestine
3. Control the levels of calcium and phosphorus in the blood.

intestine → small Intst.
large Intst.

↑ morning sunlight
→ Ca^{2+} → teeth & bones

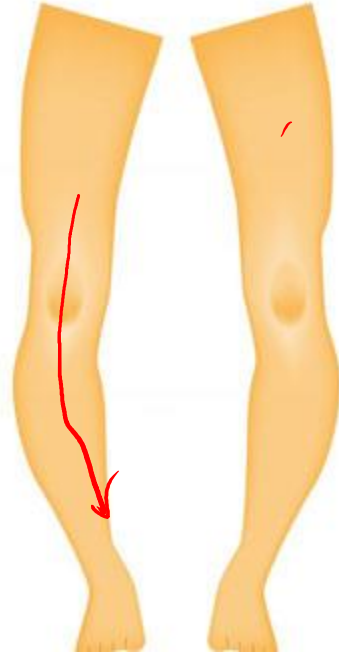
Deficiency Related Diseases- Rickets

Vit-D Def.

in case of child

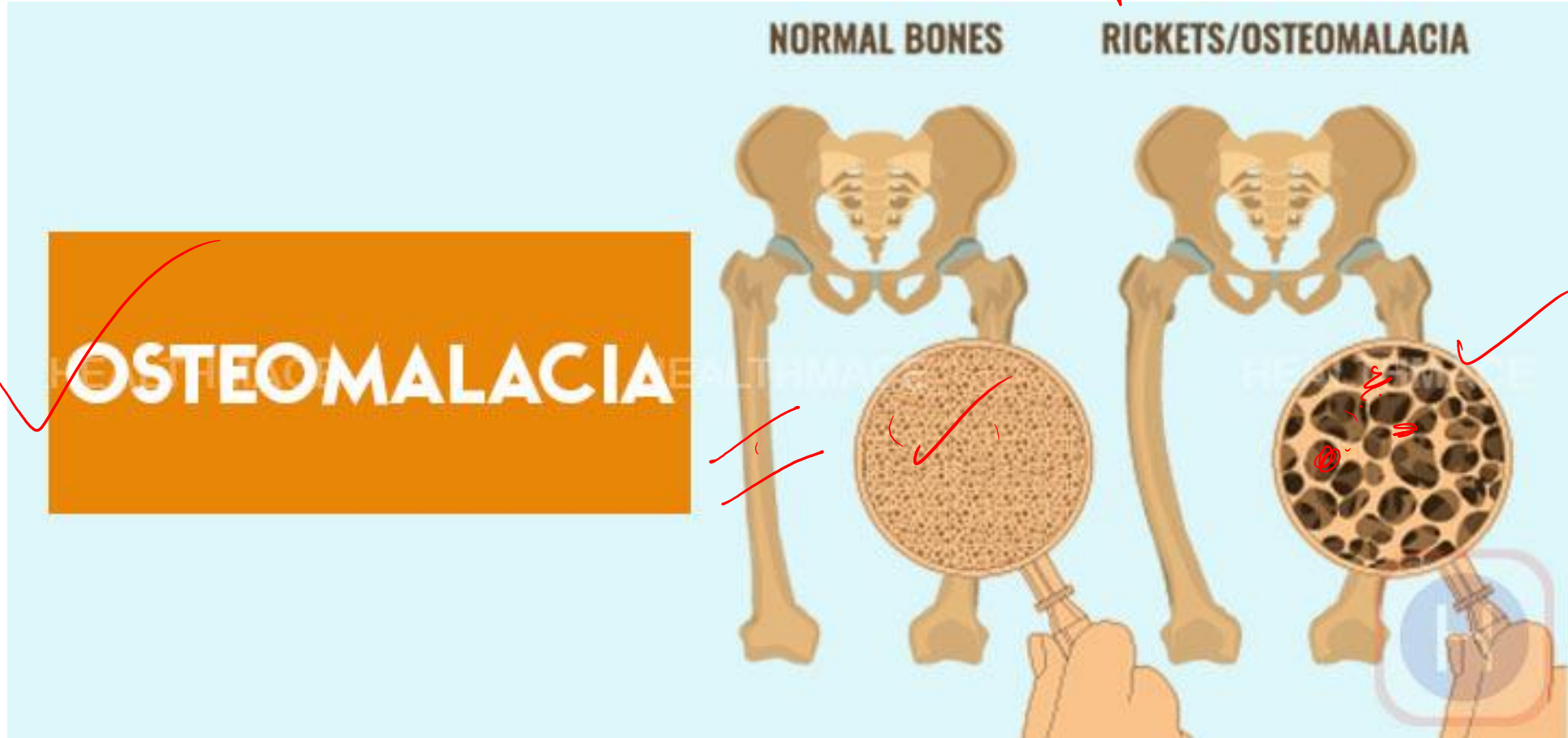
Normal

Rickets



Deficiency Related Diseases- Osteomalacia

Adult.



Vitamin E

Edible oil is the best source of it. Food grains, liver, Fats of fish and meat contain Vitamin E

Function-

It is needed for cell production and cell division.

It takes parts in some metabolic activities of the body.

Reaction

Vitamin K- for Blood clotting



Vitamin K



Vitamin K- for Blood clotting

Minerals
Ca → Na

Mg P Cl I Fe S

☐ Calcium, sodium, magnesium, phosphorus, chlorine, iodine, iron, Sulphur, etc. are the minerals that enter in our body through our diet. ~~Minerals~~

☐ They maintain various functions in the cells of our body.

☐ Bones, teeth, muscle formation. Mineral salts are seen in enzymes and help in hormone production, functions of nervous system, heart function etc.

☐ Blood clots, thyroid gland function, bone formation, muscle contraction, mineral salts play a major role in cell formation too. gopher

Deficiency Related Diseases- Goiter



Deficiency Related Diseases- Anemia

Iron is the constituent elements of hemoglobin of RBC.

The disease can be caused by the lack of iron of the pregnant mother.

People with iron deficiency may experience this disease.

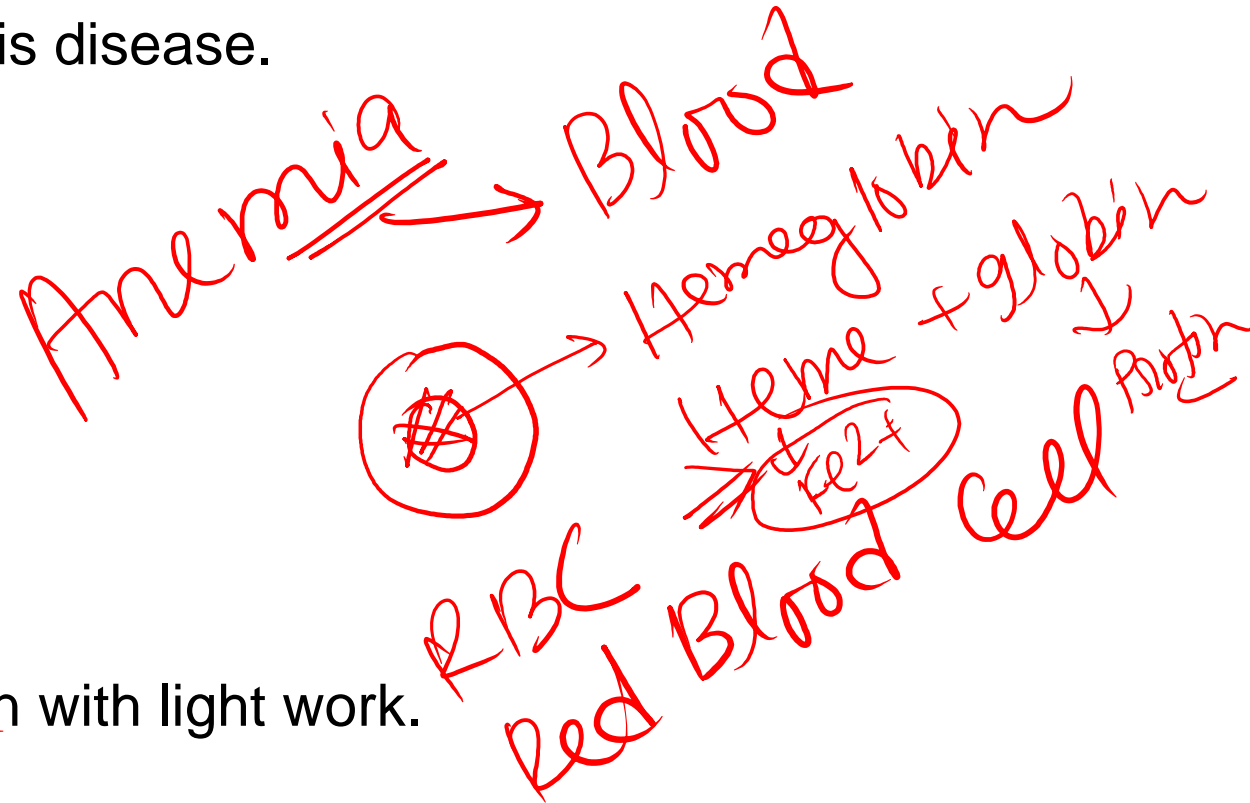
As a result-

Weakness, headache, and nausea.

Unusually rapid palpitation.

Loss of weight and appetite.

Dizziness and hard breathing particularly even with light work.



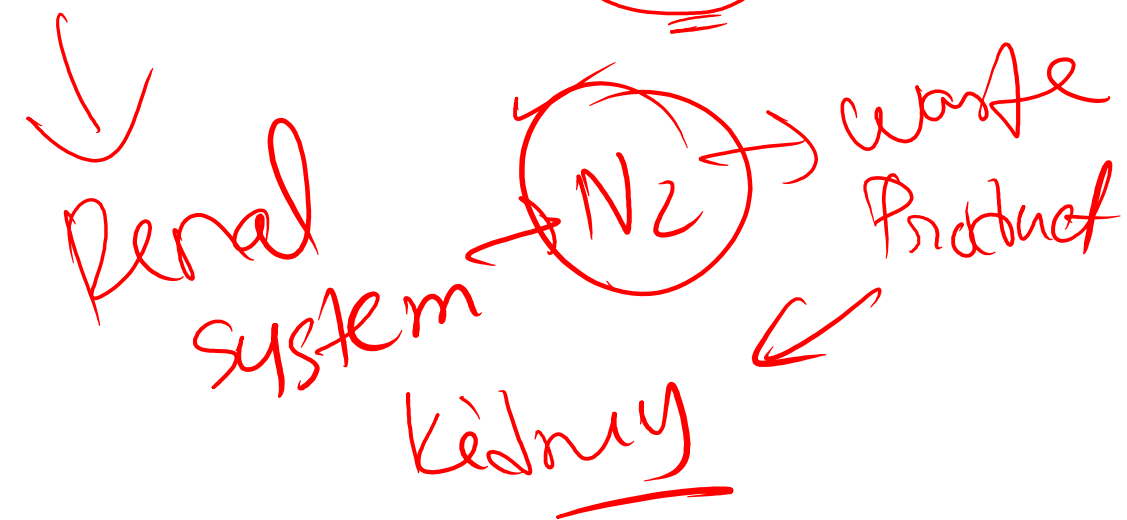
Water



72L

- The other name of the water is life. 60-70 percent of the body is made with water.
- All the body's bones, skin, teeth need water.
- No actions in the human body will be performed without water.
- The body is filled with water, and we eliminate wastes with water-like urine and sweat.
- So, you should drink daily 3 liters of water.

3000ml.



Roughage (Dietary fibre)

- ❑ It is not a nutritional ingredient, but it is very useful to maintain good health.
- ❑ Roughage in grains is called bran.
- ❑ We get roughage from fibre foods.
- ❑ It holds water in the body. And doesn't change in the body. It is not digested.



Food Selection

Balanced or ideal food

Meet the 6 ingredients in every meal

Should be Provided Depending on age, gender and workload.

60-70% of daily calories should come from Carbs, 10% from proteins and 30-40% from lipids.

Balanced food meets the body's calorie requirement, controls the growth and structure of tissue cells, controls all body functions and activities.

Poll Question-01

- What is glucose?
- (a) Carbohydrate
 - (b) Protein
 - (c) Fat
 - (d) Vitamin

Poll Question-02

➤ How much calories we get from 1gm of Carbs?

(a) 3

(b) 4

(c) 5

(d) 6

Poll Question-03

➤ What is the complex form of amino acids?

(a) Carbohydrate

(b) Protein*

(c) Lipid

(d) Carbs

Poll Question-04

- Deficiency of which food is the reason of kwashiorkor?
- (a) Carbohydrate
 - (b) Proteins
 - (c) Minerals
 - (d) Vitamins

Poll Question-05

- There are how many types of Fatty acids?
- (a) 2
 - (b) 4
 - (c) 6
 - (d) 8

Poll Question-06

- Which vitamin is abundant in Mola and Dhela fish?
- (a) Vitamin A
 - (b) Vitamin B
 - (c) Vitamin D
 - (d) Vitamin E

Poll Question-07

- Which one maintains the heat of human body?
- (a) Carbohydrate
 - (b) Proteins
 - (c) Minerals
 - (d) Water

Poll Question-08

➤ How many ways we spent our energies?

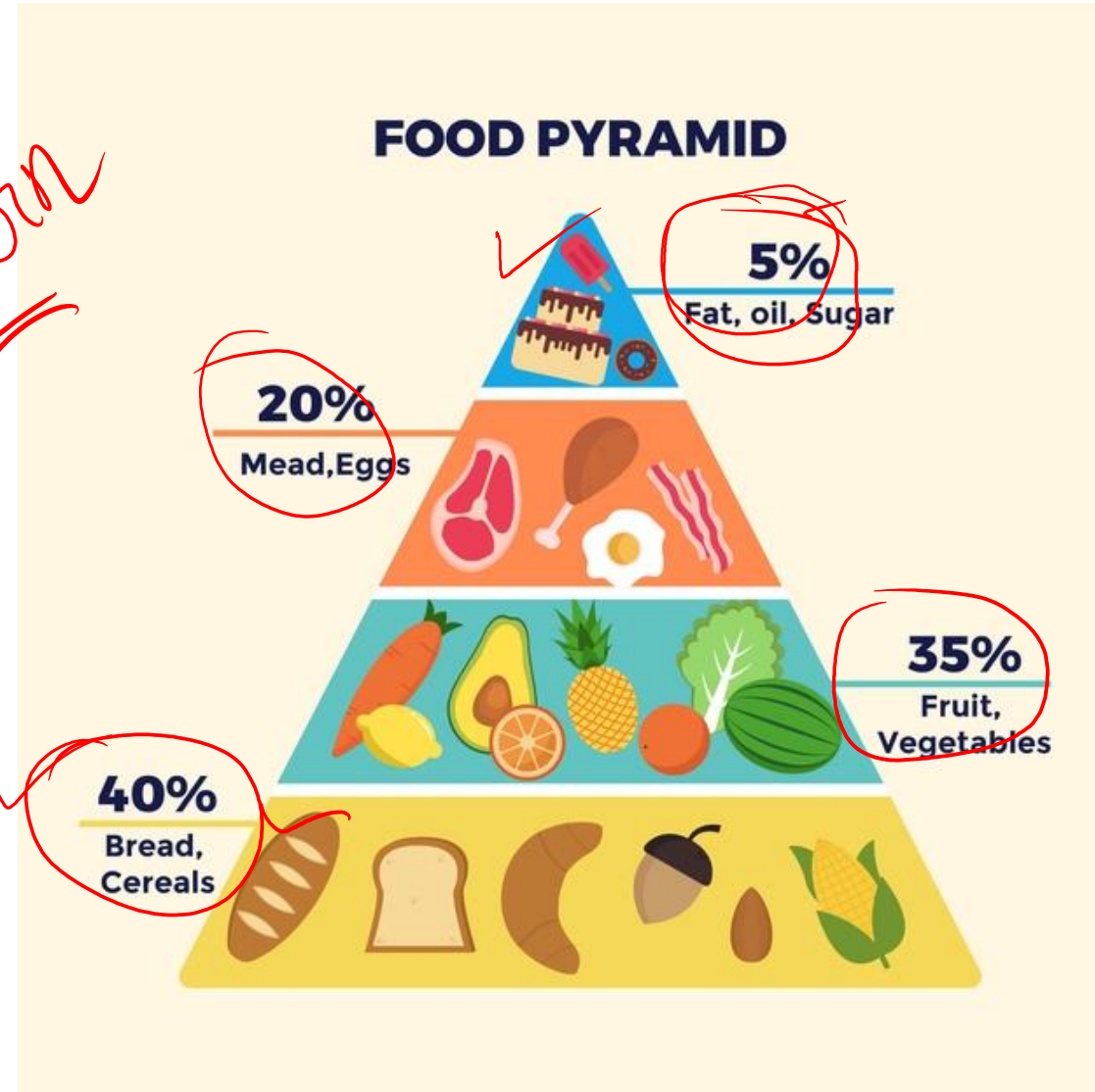
(a) 1

(b) 2

(c) 3

(d) 4

Food Pyramid



Modern

না বুঝে মুখস্থ করার অভ্যাস
প্রতিভাকে ধ্বংস করে