

NUTRIENTS

Water

- Function:
- Solvents for inorganic salts (carbon) & organic salts
 - Medium in which chem reactions occur (eg. cytoplasm)
 - Major component of
 - lubricant in joints
 - digestive juices *
 - plasma *
 - tissue fluid
 - Transporting agent for
 - digested food from S.I. → Body *
 - excretory prod (cells) → excretory organs
 - Hormones from prodⁿ area → Body where needed

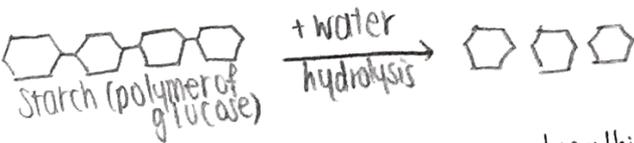
Animals

- Needed for hydrolytic reactions (eg. digestion)
- Regulates body temp. (eg. sweat, evaporation)

Plants

- Needed for p.s.
- Keep plant cells turgid & upright
- Transport mineral salts up xylem from roots → leaves, food from leaves → plants

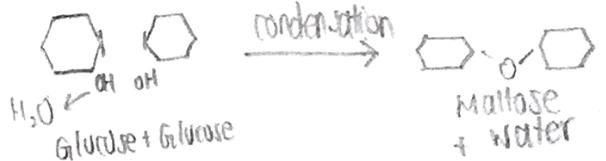
Hydrolysis (large mol. + water broken down into component units)



- Lose water through
 - breathing
 - urine
 - faeces
 - sweating

- Impt. to replace water loss, but depends on activity, health & env. cond.

Condensation (2 simple mol. join together to form larger mol. w/ release of 1 mol. water)

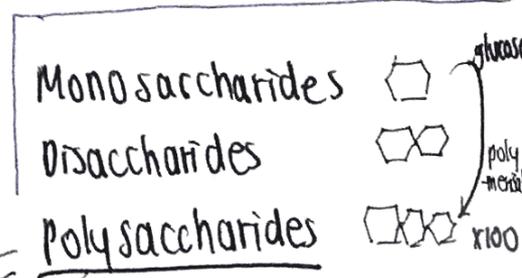


Carbohydrates

Functions:

- Immediate source of energy *
- Form supporting structures
- can be converted to a.a or fats
- Formation of nucleic acids (deoxyribose sugar) *
- Synthesize lubricants
 - Mucus lining respiratory tract
 - w/ carb & proteins *
 - Traps dust etc.
- Produce nectar in some plants

(eg. cellulose cell wall)



- ### Starch
- Made up v. large no. glu mol. linked by chem. bonds
 - starch hydrolysis by acid
 - Starch → Maltose → Glucose
 - stored in plants
 - amylose
- (cannot hydrolyse directly into glu. as stomach not strong enough)

Cellulose

- Major structural material of plant *
- Made of glu. u. to form straight rigid chains
- Undigestible (man) → Bulk of faeces
- Imp. for proper functioning of L.I.
- Bacterial enzymes ferment subs. → F.A. (nutrients)

Glycogen

- stored in fungi & animals
 - Excess glucose polymerise → Glycogen
 - Broken down when needed
- see: Digestion, Homeostasis

Fats

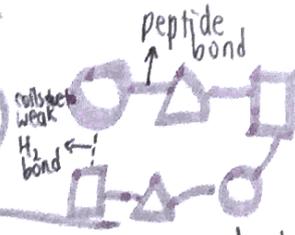
Functions:

- Efficient source & storage of energy
- * - Solvent for fat-soluble vitamins & other vital subs.
- Constituent of protoplasm
- * - Protects internal organs from shock & injury
- * - Provide insulation against heat loss
- Sebaceous glands produce oily secretions
- ↳ Thin layer spread over surface of skin → ↓ rate of evaporation of H₂O & ↓ rate of heat loss

(eg. sex hormone)

Saturated (Double bonds, F.A. → straight chains)		Unsaturated (single bonds, F.A. bent)	
eg. Coconut oil, sheep butter	State: Mostly solid	State: Mostly liquid	
+ cholesterol in dairy	Where: Animals	Where: Veg/plant (coconut)	
need microbe	Excessive? →	- No ♡ attack	
	- Deposition of cholesterol on inside of arteries of ♡ → Heart attack		
	- Gallstones →		

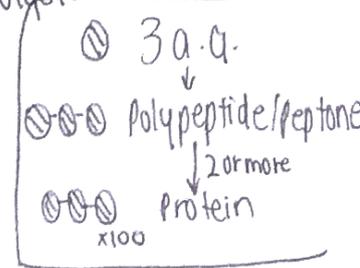
PROTEINS



- Linked up w/ a.a. to form long chains (condensation), broken down by hydrolysis
- Cannot pass through living membranes

Functions:

- Synthesis of protoplasm
- * - Synthesis of enzymes (Amylase) & some hormones (insulin)
 made of protein
- * - Formation of antibodies to combat diseases
- (last resort) source of energy



Avg adult → 50-100g protein
 daily

Deficiency: kwashiorkor

- Swollen abdomen
- cracked skin