CARBOHYDRATES

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CARBOHYDRATES

- Human diet contains three types of carbohydrates:

1. POLYSACCHARIDES

- Glycogen

2. DISACCHARIDES

- Sucrose and Lactose

3. MONOSACCHARIDES

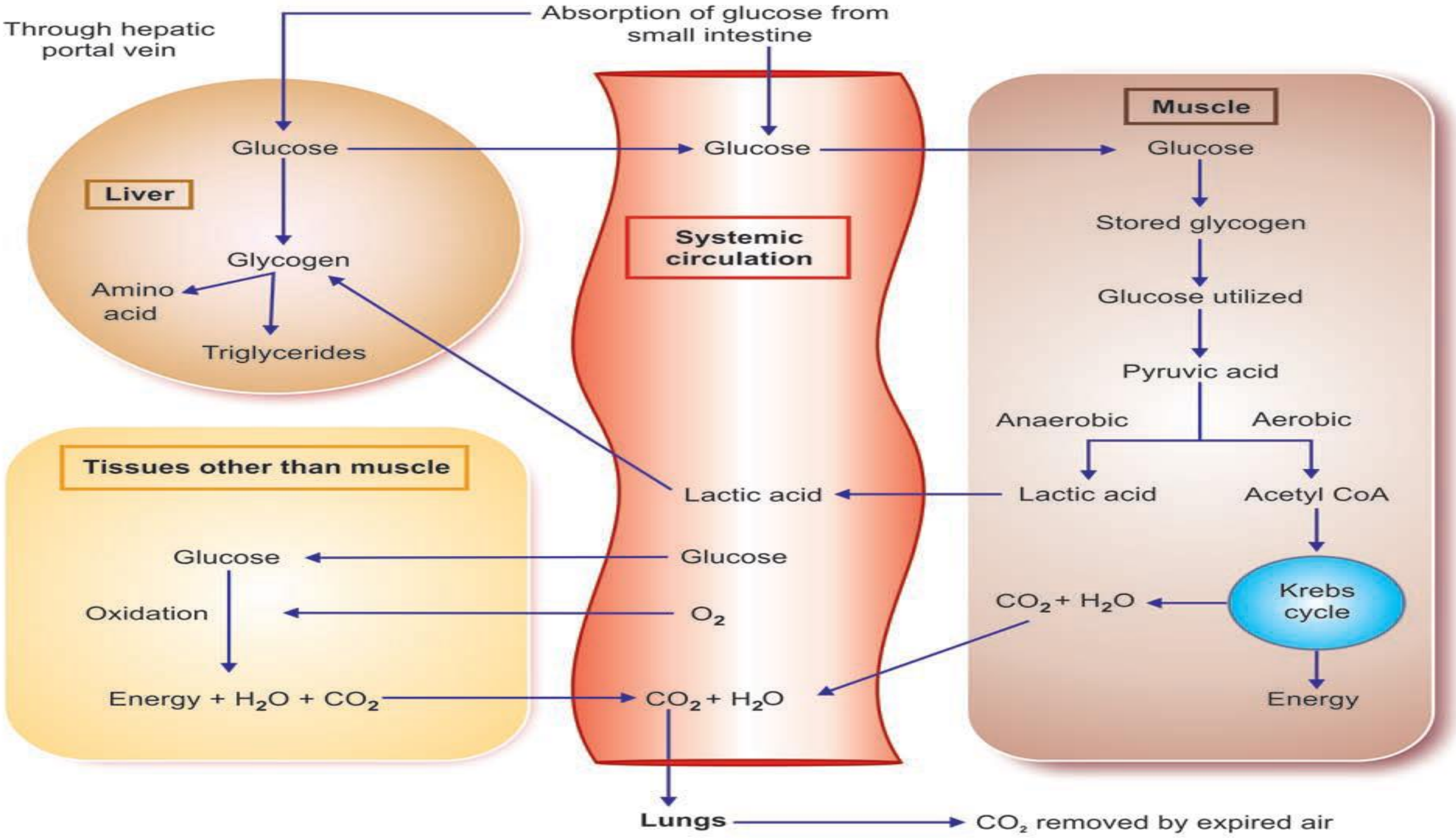
- Glucose and Fructose

DIGESTION OF CARBOHYDRATES

Area	Juice	Enzyme	Substrate	End product
Mouth	Saliva	Salivary amylase	Polysaccharides – cooked starch	Disaccharides – dextrin and Maltose
Stomach	Gastric juice	Gastric amylase	Weak amylase	The action is negligible
Small intestine	Pancreatic juice	Pancreatic amylase	Polysaccharides	Disaccharides – Dextrin, maltose and multriose
	Succus entericus	Sucrase	Sucrose	Glucose and fructose
		Maltase	Maltose and maltriose	Glucose
		Lactase	Lactose	Glucose and galactose
		Dextrinise	Dextrin, Maltose and Maltriose	Glucose
		Trehalase	Trehalose	Glucose

METABOLISM OF CARBOHYDRATES

- Metabolism is the process in which food substances undergo **chemical** and **energy** transformation.
- After digestion and absorption, food substances must be utilized by the body.
- The **utilization** occurs mainly by **oxidative process** in which the carbohydrates, proteins and lipids are burnt slowly to release energy. This process is known as **Catabolism**.
- Part of the released energy is utilized by tissues for physiological actions and rest of the energy is **stored as rich energy** phosphate bonds and in the form of proteins, carbohydrates and lipids in the tissues.
- This process is called **Anabolism.**


Through hepatic portal vein
Absorption of glucose from small intestine
Liver
Glucose
Glycogen
Amino acid
Triglycerides
Systemic circulation
Glucose
Muscle
Glucose
Stored glycogen
Glucose utilized
Pyruvic acid
Anaerobic
Aerobic
Lactic acid
Acetyl CoA
Krebs cycle
$CO_2 + H_2O$
Energy
Tissues other than muscle
Lactic acid
Glucose
Glucose
Oxidation
O_2
Energy + H_2O + CO_2
$CO_2 + H_2O$
Lungs
CO_2 removed by expired air

THANK YOU