

Activity 52: Metabolic Overview

Learning Objective

Recognize the synergistic relationships between the metabolism of proteins, carbohydrates, and lipids

Estimated Completion Time 30 Minutes

Instructor Information

This activity can be used to introduce metabolism, or at the conclusion of a discussion of metabolic pathways as a final review.

ANSWERS TO QUESTIONS

1. Pyruvate, glycerol, and amino acids (some).
2. Anything that can be broken down to acetyl CoA can make lipids. Includes some amino acids, monosaccharides, and pyruvate.
3. NADH, FADH₂, fatty acids. All nutrients (proteins, lipids, and carbohydrates)
4. H₂O, ATP, NAD⁺, and FAD
5. They get eliminated or are used elsewhere in the body.
6. Answers to this question will depend on when this activity is introduced (at the beginning or at the end of a metabolism discussion) and on how many pathways are discussed during the course.

Activity 52: Skill Development

Starting reactant	End Product	Pathway	Anabolic or Catabolic?
Glucose	Pyruvate	Glycolysis	Catabolic
Pyruvate	Glucose	Gluconeogenesis	Anabolic
Ammonium	Urea	Urea cycle	Catabolic (neutral)
O ₂ , NADH, FADH ₂	H ₂ O, ATP	Oxidative phosphorylation	Catabolic
Acetyl CoA	Fatty acid	Fatty acid synthesis	Anabolic
Fatty acid	Acetyl CoA	β oxidation	Catabolic
Acetyl CoA	CO ₂ , NADH, FADH ₂ , ATP	Citric acid cycle	Catabolic