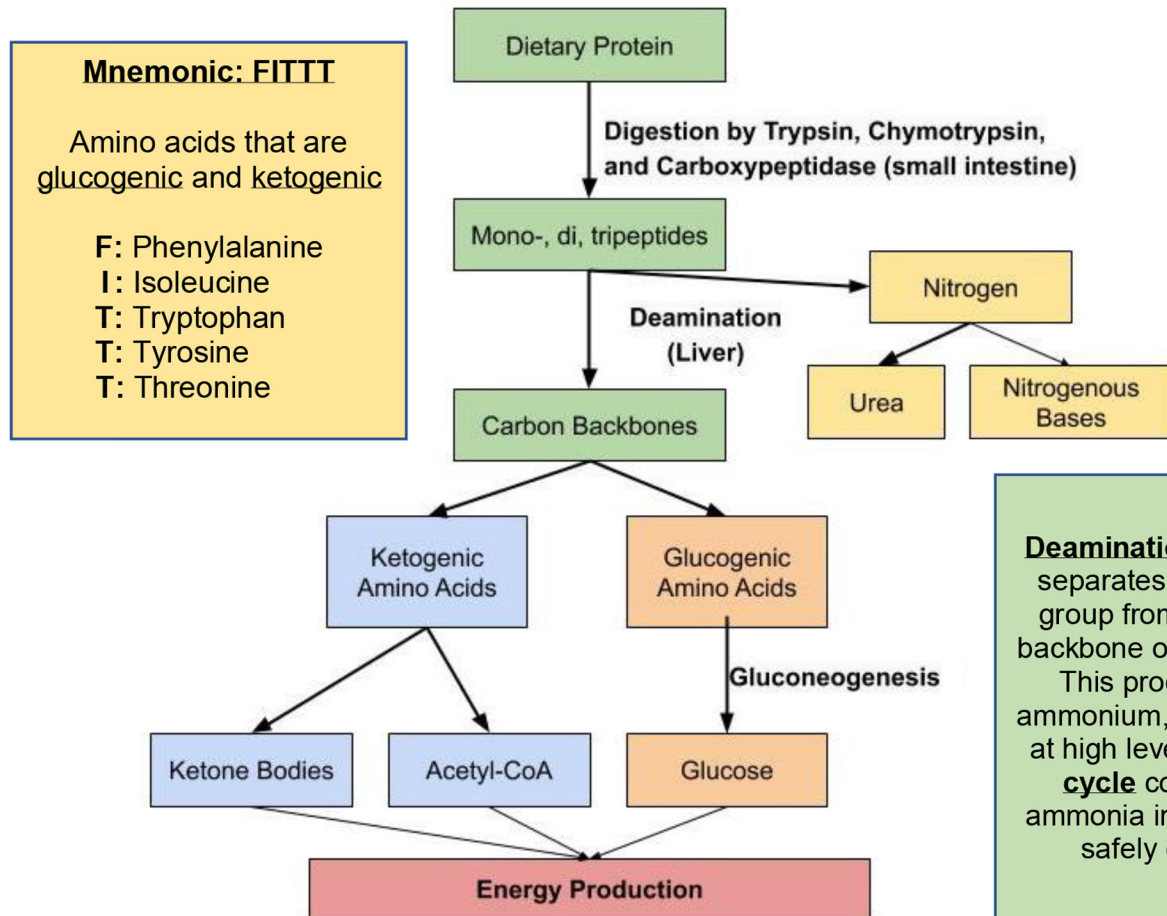


Protein Metabolism



Proteins are composed of amino acids, which are necessary for cell growth, maintenance, and repair. After consumption, proteins are broken down by enzymes in the small intestine and absorbed into circulation, where they can be converted into a number of functional molecules.



	Amino Acids	Function
Ketogenic	Leucine, lysine, isoleucine, phenylalanine, threonine, tryptophan, tyrosine	Converted to acetyl-coA and ketone bodies which enter the citric acid cycle when the cell has low energy (ketosis)
Glucogenic	All amino acids except for leucine and lysine	Converted to glucose through gluconeogenesis when the cell has high energy

Essential vs. Nonessential Amino Acids

Nonessential amino acids can be synthesized by the cell, while the 9 essential amino acids must be obtained in the diet.

Essential amino acids: Histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine.