# Nutrients

The steady state of nutrients balance in the body is summarized by next table, where the sum in each column should be zero:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (mg/min) | Glucose | Amino Acids | Fatty Acids | Keto-Acids |
| from diet | 155 | 80 | 60 |  |
| burn in tissues | -81 |  | -74.4 | -0.4 |
| decomposition | -11 | -31.8 | -10.5 | -1.74 |
| from Glucose |  | -27.2 | 38 |  |
| from Amino Acids | 16.3 |  | 8.5 |  |
| from Fatty Acids | -70 | -18.5 |  |  |
| from Ketto-Acids |  |  | -2.1 | 2.14 |

Average Molar Weights (kg/mol):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Glucose | Amino Acids | Urea | Fatty Acids | Triglycerides | Keto-Acids |
| 0.1806 | 0.100 | 0.06006 | 0.255 | 0.80645 | 0.102 |

Stoichiometry:

AminoAcid <-> 0.6\*(0.1/0.1806) Glucose + 0.3\*(0.1/0.06006) Urea

AminoAcid <-> 0.437\*(0.1/0.255) FattyAcid + 0.3\*(0.1/0.06006) Urea

Glucose <-> 0.42\*(0.1806/0.80645) Triglyceride

Triglyceride <-> 0.89\*(0.80645/0.255) FattyAcid

FattyAcid <-> 1.02\*(0.255/0.102) Keto-Acid

or:

6 AminoAcid -> 2 Glucose + 3 Urea

100 AminoAcid -> 17 FattyAcid + 50 Urea

10 Glucose -> 1 Triglyceride

Triglyceride <-> 3 FattyAcid

FattyAcid -> 2.55 Keto-Acid