

**Normal Reference Ranges Used in this Course**

The ranges listed correspond to the reference ranges presented in this course for learning purposes. In practice, remember to always consult the normal reference ranges provided by the laboratory facility carrying out the laboratory test.

Electrolytes - normal ranges

Value	Normal range
Na	135-145 mmol/L
K	3.5-5 mmol/L
Cl	100-108 mmol/L
HCO ₃	24-30 mmol/L
BUN	2.5-8 mmol/L
SCr	58-110 µmol/L
Ca	2.1-2.6 mmol/L
Mg	0.8-1 mmol/L
Phos	0.8-1.6 mmol/L
pH	7.34 – 7.45
CO ₂	24-30 mmol/L
Pa CO ₂	35-45 mmHg

Liver tests - normal ranges

Value	Normal range
Albumin	35-50 g/L
Prothrombin Time (PT)	10-13 seconds
INR (normal)	0.9-1.1
GGT – women	1-70 IU/L
GGT – men	1-94 IU/L
ALT	3-30 IU/L
AST	8-42 IU/L
LDH	100-210 IU/L
Bilirubin (total)	5-17 µmol/L
Unconjugated bilirubin (indirect)	3.4-12 µmol/L
Conjugated bilirubin (direct)	1.7-5 µmol/L



**Kidney tests - normal ranges**

Value	Normal range
BUN	2.5-8 mmol/L
Serum Creatinine (SCr)	58-110 μ mol/L
Creatinine Clearance	90-140 mL/min/1.73m ²

Endocrine and lipid tests - normal ranges

Value	Normal range
Glucose, Fasting (FPG)	3.9-6.1 mmol/L
Glucose, Postprandial	4.4 –7.7 mmol/L
Glycated Hemoglobin (A1C)	0.4-0.6 (4-6%)
Albumin-Creatinine Ratio (ACR)	< 2
Ketones (blood)	< 270 μ mol/L
TSH	0.4-4.8 mU/L
T ₃	1.1-2.9 mmol/L
T ₄	66-155 nmol/L
T ₄ - Free	13-27 pmol/L
Cholesterol – Total	< 5.2 mmol/L
HDL Cholesterol	Men \geq 1.0 mmol/L Women \geq 1.3 mmol/L
LDL Cholesterol	< 3.5 mmol/L Or according to risk profile
Triglycerides	< 2.20 mmol/L
Apolipoprotein B (apoB)	< 1.2 g/L
hsCRP	< 2.0 mg/L



**Hematology normal ranges**

Value	Normal range
RBC	Men: 4.5-5.9 x 10 ¹² /L Women: 4.1-5.1 x 10 ¹² /L
Hemoglobin	Men: 140-175 g/L Women: 123-153 g/L
Hematocrit	Men: 42-51% Women: 36-45%
WBC	4.4-11.3 x 10 ⁹ /L
Granulocytes	48-83%
• Neutrophils	48-78%
○ PMNs	45-73% of WBCs
○ Bands	3-5% of WBCs
• Eosinophils	0-4%
• Basophils	0-1%
Monocytes	2-8%
Lymphocytes	20-40%
Platelets	150 – 450 x 10 ⁹ /L
MCV	80-96 fL/cell
MCH	27.5-33.2 pg/cell
MCHC	334-355 g/L
RDW	11-14.5%
Reticulocytes	0.5-2.5%
ESR	Male: 1-15 mm/hr (Age/gender correction: age/2) Female: 1-20 mm/hr (Age/gender correction: age + 10/2)
Serum ferritin	20-200 µg/L
Vitamin B ₁₂	150 - 590 pmol/L
Folate (serum)	> 4.3 nmol/L
Folate (RBC)	> 215 nmol/L

