



P: 1300 688 522  
 E: info@nutripath.com.au  
 A: PO Box 442 Ashburton VIC 3142

Date of Birth : 01-Oct-1980  
 Sex : M  
 Collected : 15/Jan/2019  
 Received: 17-Jan-2019  
 3/60 HODGSON STREET  
 TUART HILL WA 6060  
 Lab id : **3579031** UR#: 6538944

HEALTHY HUMAN PERFORMANCE  
 PTY LTD  
 PO BOX 4187  
 MANDURAH NORTH WA 6210

**HAEMATOLOGY**

BLOOD - EDTA	Result	Range	Units	
<b>ESR</b>	<b>3</b>	0 - 20	mm/h	
<b>FULL BLOOD EXAMINATION</b>				
<b>HAEMOGLOBIN</b>	<b>142</b>	130 - 175	g/L	
<b>Erythrocytes</b>	<b>4.6</b>	4.5 - 6.4	10 <sup>12</sup> /L	
<b>Mean Cell Volume</b>	<b>100.0 *H</b>	78.0 - 98.0	fL	
<b>Mean Cell Hb</b>	<b>31.0</b>	26.0 - 34.0	pg	
<b>MCHC</b>	<b>29.8 *L</b>	31.0 - 36.0	pg/fL	
<b>Haematocrit</b>	<b>49.0</b>	39.0 - 52.0	%	
<b>PLATELETS</b>	<b>254</b>	150 - 450	10 <sup>9</sup> /L	
<b>LEUCOCYTES</b>	<b>4.3</b>	4.0 - 11.0	10 <sup>9</sup> /L	
<b>Neutrophils</b>	<b>2.7</b>	2.0 - 7.5	10 <sup>9</sup> /L	
<b>Lymphocytes</b>	<b>1.4</b>	1.0 - 4.0	10 <sup>9</sup> /L	
<b>Monocytes</b>	<b>0.1</b>	0.0 - 1.0	10 <sup>9</sup> /L	
<b>Eosinophils</b>	<b>0.0</b>	0.0 - 0.6	10 <sup>9</sup> /L	
<b>Basophils</b>	<b>0.0</b>	0.0 - 0.2	10 <sup>9</sup> /L	
<b>RDW</b>	<b>16.0 *H</b>	11.0 - 15.5	percent	

**BIOCHEMISTRY**

BLOOD - SERUM	Result	Range	Units	
<b>UEC (Renal)</b>				
<b>SODIUM</b>	<b>140</b>	135 - 145	mmol/L	
<b>POTASSIUM</b>	<b>5.3</b>	3.5 - 5.5	mmol/L	
<b>CHLORIDE</b>	<b>102</b>	95 - 108	mmol/L	
<b>BICARBONATE</b>	<b>26</b>	21 - 32	mmol/L	
<b>Anion Gap</b>	<b>17 *H</b>	8 - 16	mmol/L	
<b>UREA</b>	<b>5.5</b>	2.8 - 7.6	mmol/L	
<b>CREATININE (mmol/L)</b>	<b>0.09</b>	0.06 - 0.12	mmol/L	
<b>Creatinine</b>	<b>94</b>	59 - 120	umol/L	
<b>Estimated GFR</b>	<b>78</b>	> 60	ml/min	

(\* ) Result outside normal reference range

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**UEC Comment**

**ELEVATED ANION GAP:**

A high anion gap indicates metabolic acidosis. In uncontrolled diabetes, there is an increase in ketoacids due to metabolism of ketones. In these conditions, bicarbonate concentrations decrease by acting as a buffer against the increased presence of acids (as a result of the underlying condition). The bicarbonate is consumed resulting in a high anion gap.

Examples of metabolic acidosis include:

Lactic acidosis, Ketoacidosis, Diabetic ketoacidosis, Alcohol abuse.

Toxins Exposure: Methanol, Ethylene glycol, Propylene glycol, Lactic acid, Uremia, Aspirin, Iron Cyanide.

Renal failure; causes high anion gap acidosis by decreased acid excretion and decreased HCO<sub>3</sub><sup>-</sup> reabsorption. Accumulation of sulfates, phosphates, urate, and hippurate also accounts for a high anion gap.

eGFR :  $\geq 60$  mL/min/1.73 sq.m - Does not exclude mild renal impairment, or kidney diseases without renal impairment.

**LIVER FUNCTION TESTS**

<b>BILIRUBIN (TOTAL)</b>	<b>8</b>	2 - 20	umol/L	
<b>ALP</b>	<b>53</b>	45 - 125	units/L	
<b>GGT</b>	<b>13</b>	10 - 66	units/L	
<b>ALT</b>	<b>53 **H</b>	10 - 50	units/L	
<b>AST</b>	<b>94 *H</b>	10 - 50	units/L	
<b>PROTEIN - TOTAL</b>	<b>71</b>	60 - 83	g/L	
<b>ALBUMIN</b>	<b>40</b>	35 - 50	g/L	
<b>CALCIUM</b>	<b>2.27</b>	2.10 - 2.60	mmol/L	
<b>Calcium Adjusted</b>	<b>2.27</b>	2.10 - 2.60	mmol/L	
<b>IRON STUDIES</b>				
<b>IRON</b>	<b>16.0</b>	5.0 - 30.0	umol/L	
<b>TRANSFERRIN</b>	<b>2.0</b>	2.0 - 3.2	g/L	
<b>Transferrin Saturation</b>	<b>32</b>	10 - 45	%	
<b>FERRITIN</b>	<b>125</b>	30 - 500	ng/mL	
<b>CREATINE KINASE</b>	<b>2433 *H</b>	24 - 204	units/L	
<b>LDH</b>	<b>259 *H</b>	125 - 243	units/L	

**Cardiac Enzymes Comment**

**ASPARTATE AMINOTRANSFERASE COMMENT:**

The enzyme AST is widely distributed. Elevated serum levels are found in liver disease, myocardial infarction and muscle disease.

**LACTATE DEHYDROGENASE COMMENT:**

Raised LD levels may be seen in patients with megaloblastic anemia, MI, disseminated carcinoma, leukemia, haemolysis and hepatocellular liver disease.

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**LIPIDS**

<b>CHOLESTEROL</b>	<b>4.1</b>	0.0 - 5.5	mmol/L	
<b>TRIGLYCERIDES</b>	<b>0.5</b>	0.2 - 1.5	mmol/L	
<b>LIPID STUDIES</b>				
<b>HDL(Protective)</b>	<b>1.2</b>	> 1.0	mmol/L	
<b>LDL(Atherogenic)</b>	<b>2.7</b>	0.5 - 3.5	mmol/L	
<b>Cholesterol/HDL Ratio</b>	<b>3.4</b>			
<b>LDL/HDL RATIO (Risk Factor)</b>	<b>2.2</b>	0.0 - 3.6		
<b>Trig/HDL Ratio</b>	<b>0.4 *L</b>	0.5 - 1.7	RATIO	
<b>HIGH SEN CRP</b>	<b>5.80 *H</b>	0.00 - 5.00	mg/L	
<b>URATE</b>	<b>0.40</b>	0.20 - 0.42	mmol/L	

**Lipid Profile Comment**

**TRIG/HDL RATIO COMMENT:**

HDL is closely related to triglycerides. Commonly, patients with elevated triglycerides also have low HDL levels, and also tend to have elevated levels of clotting factors in their blood stream, which is unhealthy in protecting against heart disease.

The triglyceride/HDL ratio is found to be one of the better predictors of heart disease. Research shows that people with an elevated ratio of triglycerides to HDL have 16 times the risk of heart attack as those with the low/normal.

Therefore, in adults, the triglyceride/HDL ratio should ideally be below 2.0 .

**TRIG/HDL Reference Range:**

< 0.9	Considered ideal	(minimal risk)
> 1.7	High	(moderate risk)
> 2.6	Very High	(high risk)

<b>INSULIN (FASTING)</b>	<b>1.8</b>	0.0 - 17.0	uIU/ml	
<b>PHOSPHATE</b>	<b>1.6 *H</b>	0.6 - 1.4	mmol/L	
<b>IgE (TOTAL)</b>	<b>14</b>	0 - 120	units/mL	
<b>IgG</b>	<b>10.34</b>	7.00 - 16.00	g/L	
<b>IgA</b>	<b>0.96</b>	0.70 - 4.00	g/L	
<b>IgM</b>	<b>1.31</b>	0.40 - 2.30	g/L	
<b>BLOOD - FL. OXA</b>				
<b>GLUCOSE (FASTING)</b>	<b>4.1</b>	3.5 - 6.0	mmol/L	

**ENDOCRINOLOGY**

BLOOD - SERUM	Result	Range	Units	
<b>TSH</b>	<b>1.05</b>	0.50 - 5.00	mIU/L	
<b>FREE T4</b>	<b>15.8</b>	11.0 - 21.0	pmol/L	

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**THYROID TEST COMMENTS**

There are differing views regarding reference ranges of TSH. New reference ranges using populations without thyroid disease suggest that the optimal TSH range for thyroid function should be 0.5-2.0mIU/L. However it should be noted that this laboratory shall continue to report a normal reference range of 0.5 - 5.0 mIU/L.

**FREE T4 and FREE T3**

Free T4 and T3 represent bioactive portion of thyroid hormone. The test results can identify functional or subclinical hyper- and hypothyroidism and overt hypo- and hyperthyroidism. T4 converts to active T3 or inactive rT3.

<b>CORTISOL AM</b>	<b>336</b>	200 - 700	nmol/L	
<b>DHEA Sulphate</b>	<b>3.6</b>	1.2 - 15.0	umol/L	

**IMMUNOLOGY**

BLOOD - SERUM	Result	Range	Units
<b>ANTINUCLEAR AB</b>	Not Detected		

**EXTERNALLY REFERRED**

BLOOD - SERUM	Result	Range	Units	
<b>Beta-2-Microglobulin</b>	<b>2.10</b>	0.80 - 3.00	mg/L	
BLOOD - EDTA				
<b>GLUCOSE-6-PHOSPHATE DEHYDROGENASE</b>	<b>16.7</b>	7.0 - 20.5	UNITS/G H	

Tests ordered:

ANA,B2MIC,CA,CK,DHEAS,ESR,TSH,IGA,IGE,IGG,IGM,LDH,PHOS,URAT,FBE,IS,FATS,LFT,FGLU,LIP,FT4,CORTAM,UEC,corca,G6PD,H  
 CRP,TFTCOM,eGFR,UECom,LIPCOM,IMPEI,CFee,Anion,INSF

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