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## **GENERAL HEALTH SCREEN LAB REPORT**

Name: \_\_\_\_\_ Date of Blood Draw: \_\_\_\_\_  
Time of Blood Draw: \_\_\_\_\_ Fasting: Yes: **X** No: \_\_\_\_\_

Here is your personal blood analysis which is designed to help you get a better understanding of your test results, your overall health and your major organ system functions. This report is not intended to diagnose or recommend treatment for any diseases without our professional guidance. As the primary focus of this report is on prevention any test that is outside the optimal levels will be given serious consideration as to its effect on your overall health. These optimal values are very different from what an MD might consider normal. Normal means average health, not optimal health.

### **COMPLETE BLOOD COUNT (CBC)**

This test gives a great deal of information. It gives a breakdown of all the cells in the blood which can evaluate things like: immune system function, infections, allergies, and anaemia. It is broken down into the following components.

### **WHITE BLOOD CELL COUNT (WBC)**

Your level is \_\_\_\_\_  $10^{**9}/L$ . Optimal is 5.0 - 5.5  $10^{**9}/L$ .

This test reflects your body's defense mechanism. Having an increased WBC while there is an infection is a sign your body is responding appropriately. A decreased WBC reveals an infectious process that has overwhelmed the immune system or a chronically depressed immune system that is not functioning properly, or heavy metal toxicity.

### **RED BLOOD CELL COUNT (RBC)**

Your level is \_\_\_\_\_  $10^{**12}/L$ . Optimal for women is 4.4 - 5.2, men 5.0 - 5.8  $10^{**12}/L$ . This is one of the measurements for anaemia. The RBC count measures the ability of your blood to carry oxygen to the tissues. A decrease in RBC'S results in fatigue. An increased RBC can be found in dehydration, hypoadrenalism, and chronic diseases where the body is not getting enough oxygen.

### **HEMOGLOBIN (HGB)**

Your level is \_\_\_\_\_ g/L. Optimal for women is 135 - 150 g/L, men 140 - 155 g/L.

Hemoglobin, a substance formed with iron, carries the oxygen through the blood. An increased level may be due to an overactive spleen, or dehydration, while a decreased level is due to iron-deficiency anaemia.

### **HEMATOCRIT (HCT)**

Your level is \_\_\_\_\_ L/L. Optimal for women is .37 - .46 L/L, men .40 - .46 L/L.

The hematocrit is the percent of packed red blood cells. An increased hematocrit indicates a hyperactive spleen, infection, dehydration or lung pathologies. A decreased hematocrit indicates inadequate RBC production or increased loss or breakdown of the cells.

## **THE INDICES (MCV & MCHC)**

These give information regarding the type of anemia, if present. They indicate if the anemia is due to B12, folic acid, iron, B6, zinc or copper deficiency, blood loss or genetic origin.

### MEAN CORPUSCULAR VOLUME (MCV)

Your MCV is            fl. Optimal levels are 86 - 90 fl.

This test describes the individual red blood cell size. Increased levels, as seen in macrocytic anemia, result from a nutritional deficiency of folic acid or vitamin B12 and may also be associated with digestive complaints, lack of Hydrochloric acid, celiac sprue, alcohol related diseases or after certain types of cancer chemotherapy. Decreased levels may indicate a deficiency of iron, B6, zinc, copper or molybdenum.

### MEAN CORPUSCULAR HEMOGLOBIN (MCH)

Your MCH is            pg. Normal levels are 27.5 – 33.0 pg.

Increases levels indicate B12 or Folic Acid deficiency. Decreased levels are found with parasites, iron anemia, Vit C deficiency, lack of hydrochloric acid, B6 anemia, rheumatoid arthritis, or lead toxicity.

### MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION (MCHC)

Your MCHC is            g/L. Optimal level are 330 - 345 g/L.

MCHC is a most valuable test in evaluating anemia therapy as it measures the concentration of hemoglobin in an average red blood cell. Increased levels indicate that the red blood cells are shaped like "spheres" instead of "donuts". Decreased levels indicate that the red blood cells contain less hemoglobin than normal and will require specific nutritional therapy.

### RDW

Your RDW is            . Optimal is 11.5 – 15.6%. This reflects the average size of the RBC. If too large this indicates certain anemia.

### PLATELET COUNT

Your level is             $10^9/L$  . Optimal is 150 - 290  $10^9/L$ .

Platelets play a very important role in the coagulation of your blood to help stop bleeding. Increased platelets can be associated with inflammation in the body. Greatly increased levels (>450) pose a greater risk of forming blood clots associated with heart attacks and strokes. Severely decreased levels(<130) pose a danger of hemorrhaging if the body tissue is cut.

## **DIFFERENTIAL**

The following tests shown in percentages are a breakdown of the type of white blood cells present in your body. They give valuable information about infections, allergies, parasites and much more.

### NEUTROPHIL CELLS

Your percentage is            %. Optimal percentage is 53 - 66%

Neutrophils reflect the body's capability for fighting infections. They increase with infections, poisoning, some drugs like digitalis and epinephrine, hemorrhaging, certain cancers and following strenuous exercise. A decrease in neutrophils indicates a deficient immune system, a chronic infection or various nutritional deficiencies i.e. high quality protein, folic acid and vitamin B12.

### LYMPHOCYTES

Your percentage is           %. Optimal is 22 - 35%

The lymphocytes represent your lymph gland activity during infections. An increased level often indicates a viral infection due to colds or influenzas. This level may be increased in long standing infections or during the recovery phase of an acute infection. A decreased level of lymphocytes is often caused by an acute bacterial infection (if the neutrophils are increased) or when the body is releasing a lot of toxins into the bloodstream.

### MONOCYTES

Your percentage is           %. Optimal percentage is 0 - 5%

Monocytes show well the body handles normal tissue destruction. They are classically elevated in mononucleosis. Other bacterial infections and a sluggish liver can also increase the monocytes.

### EOSINOPHILS

Your percentage is           %. Optimal percentage is 0 - 4.5%

Eosinophils indicate an allergic reaction in the body. Increased levels are seen in conditions of hypersensitivity such as hay fever, asthma, certain types of itchy skin rashes or in parasitic infections.

### BASOPHILS

Your percentage is           %. Optimal percentage is 0 - 1%

These cells reflect the possibility of parasitic activity in the body. Increased levels may also show up with chronic inflammation of the sinuses, chicken pox or other itchy skin rashes, and certain anaemia.

### IRON

Your iron level is           umol/L. Optimal is 17.40 - 24.60 umol/L.

### TIBC

Your Total Iron Binding level is           umol/L. Optimal is 40 - 72 umol/L.

Iron binding capacity varies in different types of anaemia.

### SATURATION INDEX

Your Saturation Index is           . Optimal is 0.20 - 0.50.

If elevated along with ferritin may indicate hemochromatosis or iron storage disease.

### FERRITIN

Your ferritin level is           ug/L. Optimal is 50 – 150 ug/L

This measures iron stores and is more accurate than total iron and CBC in evaluating iron deficient anaemia. If elevated it can indicate a level of inflammation in the body.

If severely elevated it may indicate hemochromatosis.

## **ELECTROLYTES (*sodium, potassium, and chloride*).**

The next three tests need to be examined as a unit for proper evaluation. They have a multitude of cellular functions; regulation of water balance and the acid/base condition of the body. Below are listed some common conditions associated with alterations in these level.

### GLUCOSE

Your glucose level is            mmol/L. Optimal is 4.44 – 5.3 mmol/L.

Many factors can affect your blood sugar level. It is normally closely regulated by your body's insulin and your glucose level can help identify tendencies like hypoglycemia or diabetes.

Altered glucose levels may also be an indicator of a poor diet or a lack of nutrients like chromium, zinc or the B complex vitamins.

### HEMOGLOBIN A1C (Glycated Hemoglobin)

Your HgbA1C level is            . Optimal is 0.048 – 0.055.

This is your average blood sugar over the last three months. If less than 0.043 hypoglycemia symptoms may result. If greater than 0.055 indicates increasing insulin insensitivity so that sugar is not metabolised properly and stored as fat and may eventually lead to diabetes and heart disease, especially if you also have elevated triglycerides. Glycated hemoglobin is a very strong oxidant and damages blood vessels and nerve cells very easily.

### SODIUM

Your sodium level is            mmol/L. Optimal is 136 - 140 mmol/L.

Sodium reflects body fluid control and kidney/adrenal function. Increased sodium levels may occur when there is an increased loss of water by heavy use of diuretics or coffee. A decrease in blood sodium can be caused by fluid loss (dehydration) due to vomiting, diarrhea, excessive sweating, also by increased blood sugar or underactive adrenal glands.

### POTASSIUM

Your potassium level is            mmol/L. Optimal is 4.6 - 4.8 mmol/L.

Potassium is very important for proper muscle and heart contractions. An increased level may occur with dehydration, acidosis, kidney diseases and endocrine imbalances. A decreased potassium may occur in conditions of stress and lowered adrenal function, many stomach/digestive disturbances and by excessive intake of diuretics, caffeine and licorice.

### SODIUM/POTASSIUM RATIO:

Your sodium/potassium ratio is            . Optimal is 30. Increased ratio indicates metabolic acidosis and a need for alkalizing foods such as greens and root vegetable juices. If decreased this indicates metabolic alkalosis and a need for more protein.

### CHLORIDE

Your chloride level is            mmol/L. Optimal is 103 - 105 mmol/L.

Chloride levels reflect proper fluid exchange across cell membranes. Increased chloride levels may be seen in dehydration, lack of hydrochloric acid, underactive adrenals, diabetes and some kidney diseases. Decreased levels may be seen in excessive sweating, diarrhea and heart failure.

### UREA

Your urea is            mmol/L. Optimal is 3.57 – 4.6 mmol/L.

Urea is a measurement of kidney and liver function and protein utilization. Increased urea may indicate a diet too high in protein; the kidneys are not functioning properly; are being overworked due to increased waste products; or may indicate a lack of hydrochloric acid. Decreased urea may be due to liver dysfunction, a low protein diet or malabsorption.

## CREATININE

Your creatinine is                    umol/L. Optimal is 61.9 - 115 umol/L.

Creatinine is found in muscle tissue. Creatinine, along with BUN are the two major indicators of kidney function. Increased creatinine indicates poor kidney elimination of waste products, occasionally from too much meat in the diet or it may hint at prostate problems in men over 40. Decreased creatinine may indicate difficulty in perspiring and therefore getting rid of some toxic waste products and a lack of hydrochloric acid.

## GFR

Your GFR is                    . Optimal is >90.

Glomerular Filtration Rate is a measure of kidney function. An optimal GFR indicates good kidney filtration. Anything less than that needs treatment to optimize kidney function. A low GFR may also mean not drinking enough water, which can happen while fasting for the blood work.

## CALCIUM

Your calcium level is                    mmol/L. Optimal is 2.3 - 2.5 mmol/L.

Calcium is a mineral very precisely regulated by the body. Calcium is increased in many endocrine disorders and excess vitamin D intake. Calcium is decreased in malabsorption syndrome, by inadequate intake or lack of vitamin D and may occur in some liver and kidney diseases.

## PHOSPHORUS

Your phosphorus level is                    mmol/L. Optimal is .81 - 1.45 mmol/L

Phosphorus is proportionately related to calcium. The majority of the body's total phosphorus is combined with calcium and is stored in your bones. Phosphorus levels may be increased from a deficiency of hydrochloric acid which is needed for proper digestion, a diet high in soda pop and red meat, or may appear when bone fractures are in the healing stage. Decreased phosphorus levels may be caused by excess sugar, copper, iron or aluminium and suggests a need for vit. D.

## CALCIUM/PHOSPHORUS RATIO:

Your Calcium/Phosphorus ratio is                    . Optimal is 2.3 - 2.7.

If increased may be related to hyperparathyroidism. If out of range can indicate a lack of hydrochloric acid.

## URIC ACID (URATE)

Your Urate level is                    umol/L. Optimal is 205 - 300 umol/L.

Uric acid is a waste product of protein digestion. Increased uric acid indicates increased cellular function and may be seen in gouty arthritis, diabetes, lack of folic acid, decreased liver and or kidney function. It may also suggest lead toxicity, folic acid deficiency, increased risk of cardiovascular disease, muscle wasting, or allergic reaction. Some diuretics or excessive alcohol consumption may also cause an increased level. It is also a measure of inflammation. Decreased uric acid may indicate certain anaemia, malabsorption syndromes, a low protein diet and some metabolic defects. It may also indicate low B12/folic acid, diet too low in protein, low molybdenum in diet, hypersensitivities, and heavy metal toxicity.

## TOTAL PROTEIN

Your total protein is                    g/L. Optimal is 64 - 75 g/L.

The albumins and globulins make up the total protein. If increased this may indicate dehydration or fasting.

### ALBUMIN

Your Albumin is           g/L. Optimal is 40 - 47 g/L.

Albumin is a protein made by liver. Increased albumin may be due to dehydration or improper use of protein. Decreased levels are common in infections, liver diseases, ulcers and some kidney diseases. When albumin levels are low swelling is a common symptom. Decreased levels affect the transportation of serum ions such as thyroid hormones, and may indicate a lack of hydrochloric acid especially in non Type O blood types.

### GLOBULIN

Your Globulin level is           g/L. Optimal is 24 - 37 g/L.

Globulin is one type of protective antibody produced by your immune system that helps identify and fight infections. Increased globulin levels may be due to chronic inflammation, kidney infection, stress, liver diseases and parasite infestations. Decreased globulin may be due to anaemia, low hydrochloric acid and depressed immune systems.

### ALBUMIN/GLOBULIN

Your Albumin/Globulin ratio is           . Optimal is 1.5 - 2.2.

If increased this suggests blood stasis. If decreased in the face of elevated liver enzymes confirms liver cell damage, and suggests that the blood is too thin. It may also indicate low blood sugar.

### TOTAL BILIRUBIN

Your total Bilirubin is           umol/L. Optimal is less than 10 umol/L.

Bilirubin is an indicator of liver, spleen and gallbladder function. Increased bilirubin may indicate liver damage, a prolonged fasting state, an inflammation of the gallbladder or an increase in the breakdown of the red blood cells.

### DIRECT BILIRUBIN

Your direct Bilirubin is           umol/L. Optimal is up to 8 umol/L.

Further testing to confirm dysfunction or blockage in the liver, gallbladder or bile ducts.

### ALKALINE PHOSPHATASE

Your Alkaline Phosphatase is           U/L. Optimal is 60 - 90 U/L (adults); 60 -500 U/L (12 - 18 years) This enzyme tests for liver/gallbladder diseases and bone disorders. Increased levels may indicate a poor gallbladder function, serious liver diseases, or an overactive thyroid. Decreased levels may indicate a deficiency of zinc, magnesium, Vitamin C or B12, malabsorption syndromes or under active adrenals. The level of alkaline phosphatase will be much higher in individuals 12 - 18 years of age due to increased bone formation.

### AMYLASE

Your Amylase is           U/L Optimal is 30-110 U/L

This is a pancreas function test. If elevated can indicate pancreatitis or insufficiency of the pancreatic digestive function including biliary sludge. It is elevated chronically in those with anorexia and bulimia.

### GGT (GAMMA-GLUTAMYLTRANSFERAS E)

Your GGT is           U/L. Optimal is 12 – 25 U/L. GGT is an indicator of liver function.

Increased GGT levels may occur in conditions such as hepatitis, cirrhosis, heavy alcohol or drug usage and pancreatitis. Decreased GGT levels may indicate a magnesium deficiency.

### ALT (ALANINE PHOSPHATASE)

Your ALT is \_\_\_\_\_ U/L. Optimal is 12 - 25 U/L.

Changes in the ALT generally parallels AST levels. This level will increase first in most liver conditions. An increase may indicate liver congestion, fatty degeneration of the liver, congestion of the spleen, lymph and immune system

### AST (ASPARTATE TRANSAMINASE)

Your AST is \_\_\_\_\_ U/L. Optimal is 12 - 25 U/L.

This test is a sensitive indicator of liver, heart, skeletal muscle, kidney, and pancreas. Besides being increased in liver damage, it may also be increased when there is heart or other muscular damage. Sometimes an inflammation of the pancreas will cause the level to rise. Decreased levels may be a more severe sign of liver damage, B2 or B6 deficiency, or may be normal in certain individuals.

### LD (*Lactic Dehydrogenase*)

Your LD is \_\_\_\_\_ U/L. Optimal is 300 - 450 U/L.

LD is found in almost all tissues of the body and is involved with carbohydrate metabolism.

Increased LD is usually indicative of liver, heart or skeletal muscle tissue breakdown.

Sometimes an increase will indicate diabetic tendencies, but may also indicate use of estrogens such as HRT or birth control pills, heart attack, liver disease, or B12 deficiency. Decreased levels may be seen after x -ray irradiation and < 130 usually indicates the presence of hypoglycemia.

## **CARDIOVASCULAR EVALUATION**

Your Cholesterol/HDL ratio is a good predictor of your potential for developing some form of Coronary Heart disease. Average risk (4.2) implies a 20 - 25% chance of developing coronary heart disease by age 60. If your ratio is over 4, you are at a higher than average risk. You should be taking steps to lower your LDL cholesterol level and raise your HDL cholesterol levels with a proper diet and exercise program. Ask us if you are unsure on how to do this. When your ratio is less than 4, you have some protection and are at less risk for developing coronary heart disease.

### TOTAL CHOLESTEROL

Your cholesterol level is \_\_\_\_\_ mmol/L. Optimal is 4.1 - 5.12 mmol/L.

Increased cholesterol levels are a risk factor for heart disease. High fat and high sugar diets often combine in increasing levels of cholesterol. If increased may indicate a Vitamin C or protein deficiency. Decreased cholesterol can be due to improper liver function, malnutrition, stress, increased muscle pain, decreased dietary intake, protein deficiency, decrease in fat absorption and reflects hormonal insufficiency such as underactive thyroid and poor immunity. Cholesterol is a product needed by the body to form the sexual and adrenal hormones. In women low levels can disrupt the menstrual cycle.

### LDL CHOLESTEROL (*Low Density Lipoprotein*)

Your LDL level is \_\_\_\_\_ mmol/L. Optimal is 3.0 mmol/L.

The LDL is the bad type of cholesterol that deposits on the inner wall of many arteries contributing to the development of hardening of the arteries. If it is low may indicate some autoimmune disease. Low levels may increase the risk of developing Parkinson's Disease.

### HDL CHOLESTEROL (*High Density Lipoprotein*)

Your HDL level is \_\_\_\_\_ mmol/L. Normal is > 1.3 mmol/L.

The HDL is the part of the cholesterol that is considered the "good" cholesterol. HDL helps to

mobilize, break down and get rid of excess cholesterol. The higher the level of HDL the more protection you have against heart disease.

### TOTAL CHOL/ HDL RATIO

Your total Cholesterol/ HDL Ratio is . Optimal is < 3.0.

### TRIGLYCERIDES

Your triglyceride level is mmol/L. Optimal is 0.70 – 1.00 mmol/L.

These natural fats are a risk factor for heart disease and when increased may indicate an improper diet (too many sweets, sugars, desserts, fruit juices or alcoholic beverages), a lack of exercise, poor utilization of fatty acids, diabetes, fatty degeneration of the liver, or low iron. A decrease may be due to liver and or pancreatic dysfunction, an overactive thyroid, abnormal pituitary or adrenal gland function, poor nutrition, malabsorption, and increased muscle pain.

### HOMOCYSTEINE

Your homocysteine is umol/L. Optimal is 5.0 – 6.0 umol/L.

This is a protein in your blood that is an independent risk factor for Alzheimer's, heart disease, osteoporosis, Schizophrenia, autoimmune diseases and diabetes. Elevations are linked with deficiencies of B12, folic acid, B6 and trimethylglycine

### TSH

Your TSH is mU/L. Optimal is 0.9 - 2.0 mU/L.

This is the thyroid stimulating hormone. If your level is too low or too high this may indicate an underactive thyroid.

### FREE T4

Your free T4 is pmol/L. Optimal is 15 - 18 pmol/L.

This is increased in an overactive thyroid, and decreased in an underactive thyroid.

### HIGHLY SENSITIVE C-REACTIVE PROTEIN (HS CRP)

Your CRP is mg/L. Optimal value is less than 1.0mg/L. CRP measures the highly sensitive C Reactive Protein which is a measurement of inflammation in the body. This inflammation could be anywhere, however if there is no obvious evidence of an infectious process in the body, it is suspected that there is an inflammatory response in the internal organs of the body which greatly increases the risk of chronic disease including heart disease. Many nutrients lower this state of inflammation including an anti-inflammatory diet, vitamin C and bromelain within several months. A repeat test is often done in three months to see this effect.

### 25 HYDROXYVITAMIN D 25(OH)

Your 25(OH) Vitamin D level is nmol/L. Optimal is 100-120nmol/L

Vitamin D acts more like a hormone than a vitamin in the body and adequate levels are important for the prevention of cancer and inflammatory conditions in the body. The lowest levels are found in the spring of each year and the highest levels are found in September. These measurements will help determine the optimal dosages for supplementation.