FunctionalDX

# Functional Performance Analysis

Professional

## Professional Report

| | |
|---|---|
| **Prepared for** | anon anonymised |
| **Requested by** | |
| **Test date** | Mar 09, 2022 |

# SAMPLE REPORT

***PLEASE NOTE THIS IS A SHORTENED VERSION OF THE FULL REPORT***

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# Introduction

An introduction to functional blood chemistry anaysis and your report.

Contents
Functional BCA
Professional Report

# Contents

An introduction to functional blood chemistry anaysis and your report.

Your view into your client's health through an in-depth functional system and nutrient evaluation.

A full breakdown of all individual biomarker results, showing distance from optimal, comparative and historical views.

Highly detailed and interpretive descriptions of the results presented in each of the assessment and analysis section reports.

## SECTION 1: INTRODUCTION



## SECTION 2: ASSESSMENT





## SECTION 3: ANALYSIS



## SECTION 4: APPENDIX

# Functional Blood Chemistry Analysis

Functional Blood Chemistry Analysis can be defined as the process by which complex and comprehensive blood biomarkers are organized, analyzed and interpreted to provide a comprehensive assessment of the state and trends of the main body systems, the supporting body accessory systems, along with the status of nutrients and trends towards and away from clinical dysfunction.

## WHY BLOOD TESTING?

Blood has a lot to tell us about our state of health and the blood chemistry and CBC / hematology test is the most commonly ordered medical lab test worldwide. These blood tests are an integral part of Western clinical medicine and are used to aid in the diagnostic decision-making process. Patients understand and are educated that blood testing is the norm for health assessment.

However, many, many people start to feel unwell long before a traditional blood test becomes diagnostic and more often than not, our patients are told by their physician that "everything on your blood test looks normal."

## "NORMAL" IS NOT OPTIMAL

Most patients who feel "unwell" will come out "normal" on a blood test. Clinical experience suggests that these people are by no means "normal" and are a far cry from being functionally optimal. They may not yet have progressed to a known disease state but they are what we call dys-functional, i.e. their physiological systems are no longer functioning properly and they are starting to feel un-well.

The issue is not that the blood test is a poor diagnostic tool, far from it. The issue is that the ranges used on a traditional lab test are based on statistics and not on whether a certain value represents good health or optimal physiological function. The problem is that "normal" reference ranges usually represent "average" populations rather that the optimal level required to maintain good health. Most "normal" ranges are too broad to adequately detect health problems before they become pathology and are not useful for detecting the emergence of dysfunction.

## THE FUNCTIONAL APPROACH

The functional approach to chem screen and CBC analysis is oriented around changes in physiology and not pathology. We use ranges that are based on optimal physiology and not the "normal" population. This results in a tighter "Functional Physiological Range", which allows us to evaluate the area within the "Normal" range that indicates that something is not quite right in the physiological systems associated with this biomarker. This gives us the ability to detect patients with changes in physiological "function". We can identify the factors that obstruct the patient from achieving optimal physiological, biochemical, and metabolic functioning in their body.

Another thing that separates the Functional Blood Chemistry Analysis from the Traditional approach is we are not simply looking at one individual biomarker at a time in a linear report of the data. Rather, we use trend analysis between the individual biomarkers to establish a client's otherwise hidden trend towards or away from a functional health optimal.

## THE FUNCTIONAL HEALTH REPORT

The Functional Health Report is the result of a detailed algorithmic analysis of your blood test results. Our analytical and interpretive software analyzes the blood test data for its hidden meaning and reveals the subtle, web-like patterns hidden within the numbers that signal the first stages of functional change in the body.

## SUMMARY

In closing, Blood testing is no longer simply a part of disease or injury management. It's a vital component of a comprehensive Functional Medicine work up and plays a vital role in uncovering hidden health trends, comprehensive health promotion and disease prevention.

# Professional Report

Your Professional Report is the result of a detailed and proprietary algorithmic analysis of your patient's complex and comprehensive blood biomarkers.

Practitioner Name
Other Practitioner

## THE FUNCTIONAL HEALTH REPORT

The Functional Health Report uniquely organises and creates an interpretation providing a comprehensive insight and assessment into the state of previously hidden health trends of the main body systems, its supporting body accessory systems, along with reporting on the status of key nutrients and trends to and from clinical dysfunction.

The analytical and interpretive software analyzes the blood test data for its hidden meaning and reveals the subtle, web-like patterns hidden within the numbers that signal the first stages of functional change in the body.

## ASSESSMENT

The Assessment section is at the very heart of the Functional Health Report. It is here that the findings of the algorithmic trend analysis are presented. The Body Systems and Accessory Reports show the level of dysfunction that exists in the various physiological and supporting accessory systems in the body. The Nutrient Systems report gives you an indication of your client's general nutritional status as well as the degree of deficiency for individual nutrients.

All the information on the Assessment section of the report is summarized in the Health Improvement Plan, which focuses on the top areas of need as presented in this report.

The Assessment section also includes the Practitioner Only "Clinical Dysfunctions Report', which lists the individual dysfunctions and conditions themselves that may be causing the changes seen in the Body and Accessory Systems reports.

Based on the results of the analysis of this blood test, there may be a "Recommended Further Testing" report, which indicates areas that may require further investigation.



## ANALYSIS

The Analysis section shows you the actual results of the blood test itself.

The Blood Test Results Report lists the results of the patient's blood test results and shows you if an individual biomarker is outside of the optimal range and/or outside of the clinical lab range.

The Blood Test Results Comparative Report compares results of the patient's latest and previous Chemistry Screen and Hematology test and gives you a sense of whether or not there has been an improvement on the individual biomarker level.

The Blood Test History report allows you to compare results over time and see where improvement has been made and allows you to track progress in the individual biomarkers.

A Deviation from Optimal report is made showing which markers exhibit the largest shifts away from an optimal norm either higher or lower.

## APPENDIX

The appendices contain highly detailed descriptions and interpretation explanations of the results presented in each of the reports in the assessment and analysis sections.

Here you will be able to read in depth what each biomarker means, see the patterns used in the algorithmic analysis and see what factors have gone into the creation of the health trend assessment levels reported.

This section is both informative and highly educational.

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Your view into your client's health through an in-depth functional system and nutrient evaluation.

SAMPLE REPORT

## Assessment

Functional Body Systems
Accessory Systems
Nutrient Status
Nutrient Deficiencies
Health Improvement
Health Concerns
Recommended Further Testing

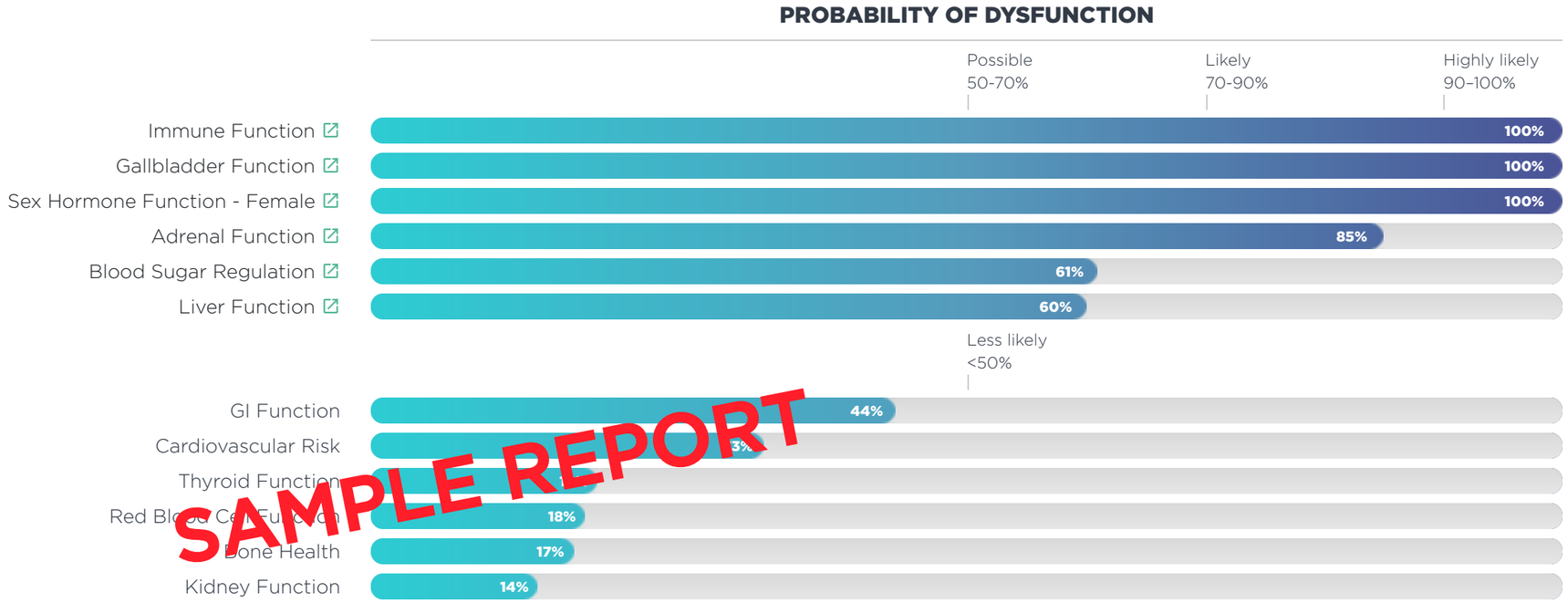
# Functional Body Systems

The Functional Body System results opposite represent an algorithmic analysis of this blood test. These results have been converted into your client's individual Functional Body Systems Report based on our latest research.

This report gives you an indication of the level of dysfunction that exists in the various physiological systems in the body.

Please use this report in conjunction with the "Practitioner's Only Clinical Dysfunctions Report" to identify which dysfunctions and conditions are causing changes in the Functional Body Systems.

Each Body System that has a probability of dysfunction above 50% is hyperlinked into the appendix section so you can read a highly detailed description and individual explanation of the results shown in this report.



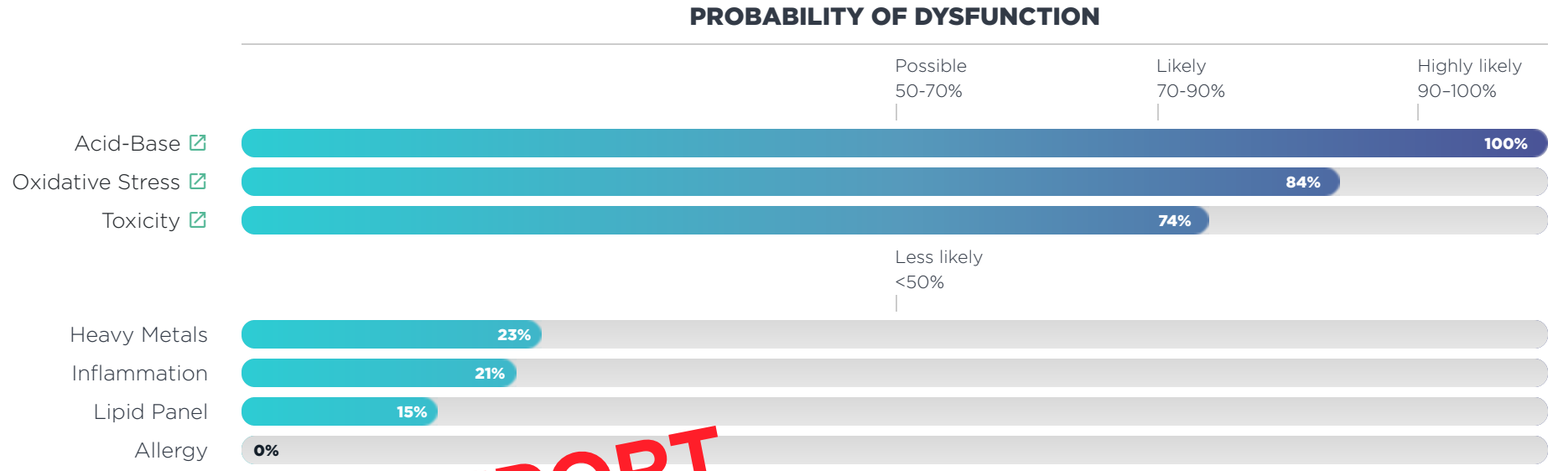
# Accessory Systems

The Accessory System results opposite represent an algorithmic analysis of this blood test. These results have been converted into your client's individual Accessory Systems Report based on our latest research.

This report gives you an indication of the level of dysfunction that exists in the various physiological systems in the body.

Please use this report in conjunction with the "Practitioner's Only Clinical Dysfunctions Report" to identify which dysfunctions and conditions are causing changes in the Accessory Systems.

Each Accessory System that has a probability of dysfunction above 50% is hyperlinked into the appendix section so you can read a highly detailed description and individual explanation of the results shown in this report.

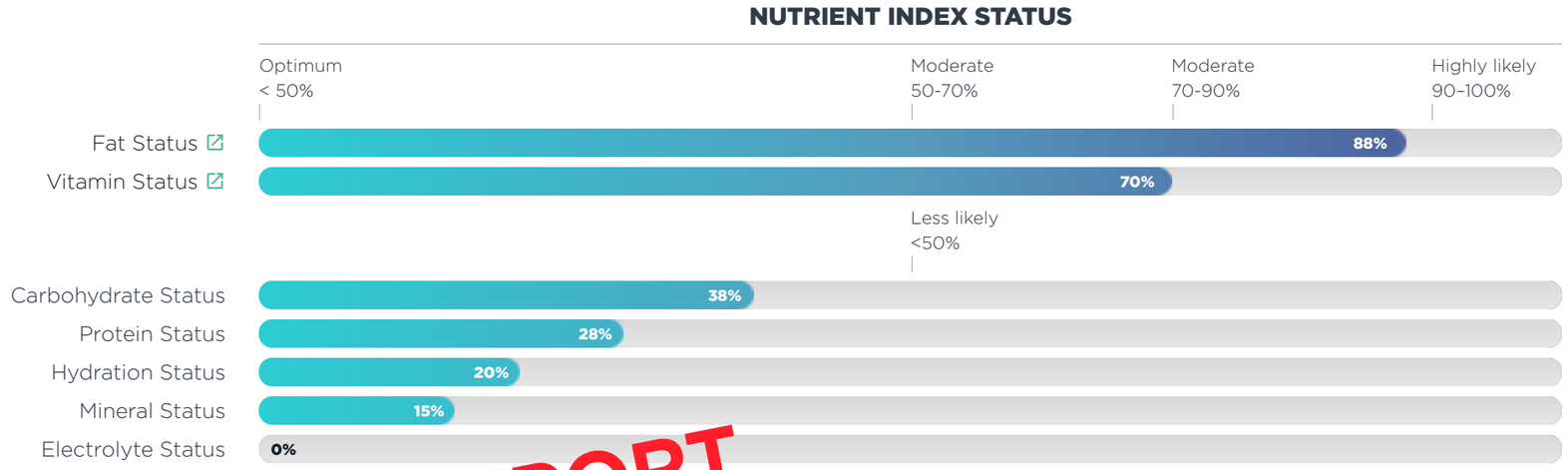


# Nutrient Status

The Nutrient Status results represent an algorithmic analysis of this blood test. These results have been converted into your client's individual Nutrient Status Report based on our latest research.

This report gives you an indication of your client's general nutritional dysfunction. The Nutrient Status is influenced by actual dietary intake, digestion, absorption, assimilation, and cellular uptake of the nutrients themselves.

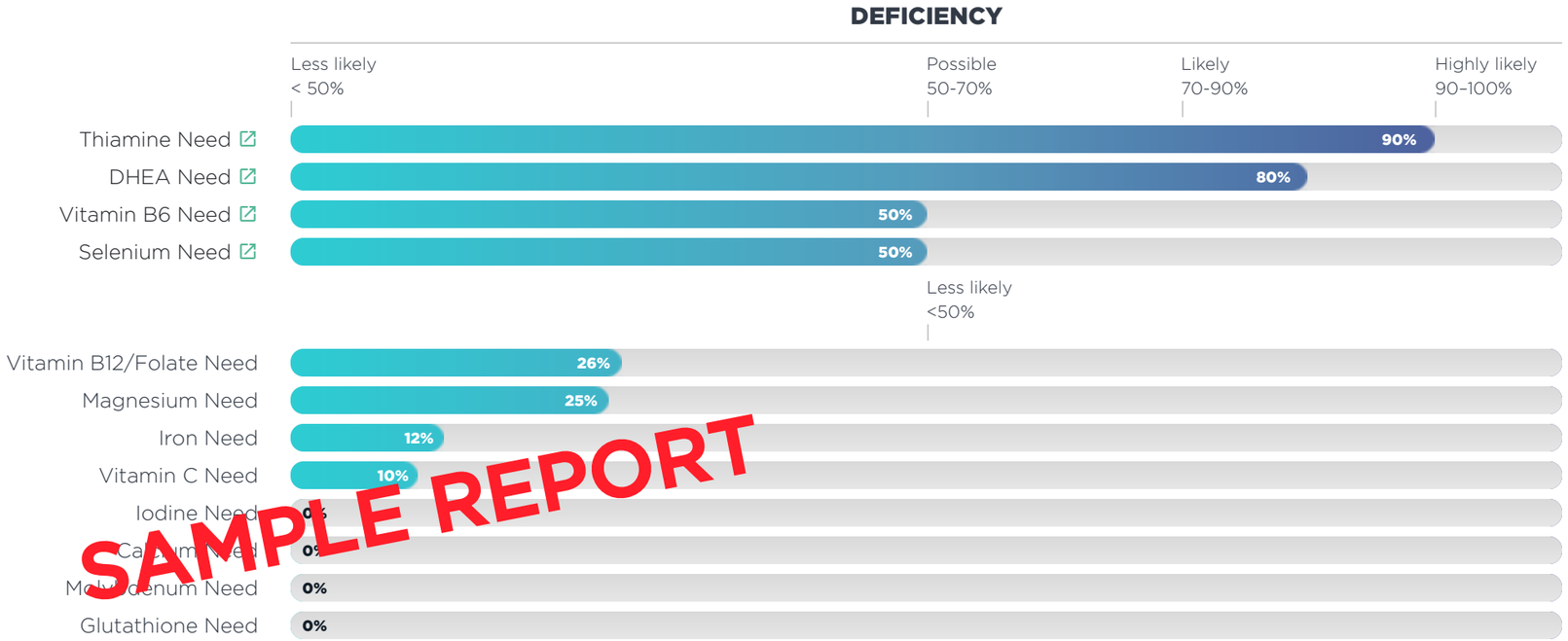
Each Nutrient category that has a probability of dysfunction above 50% is included in the section that follows so you can read a highly detailed description and individual explanation of the results shown in this report.



# Individual Nutrient Deficiencies

The values opposite represent the degree of deficiency for individual nutrients based on your client's blood results. The status of an individual nutrient is based on a number of factors such as actual dietary intake, digestion, absorption, assimilation and cellular uptake of the nutrients themselves. All of these factors must be taken into consideration before determining whether or not your client actually needs an individual nutrient.

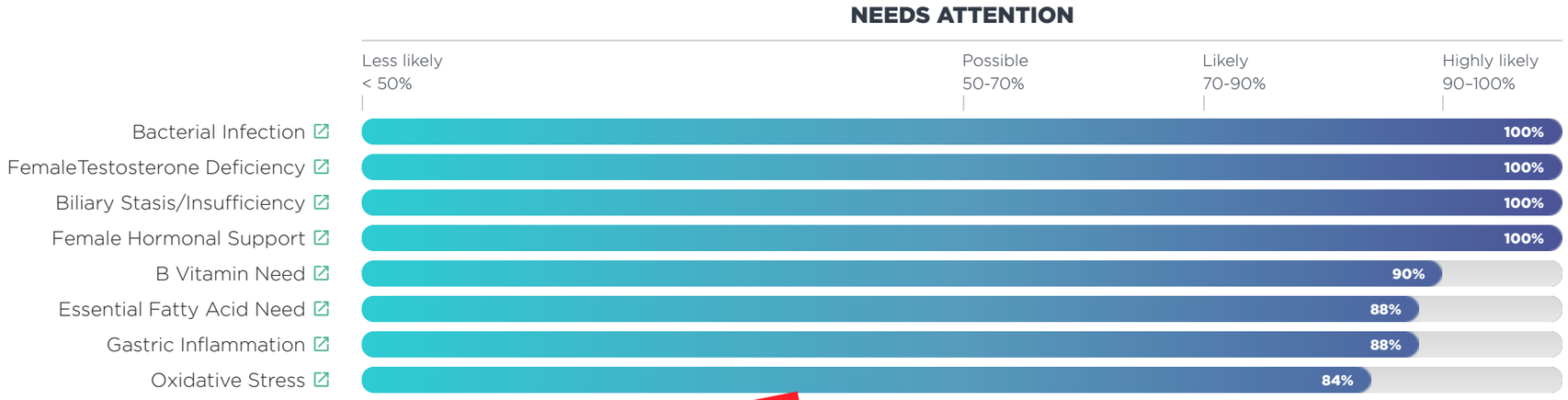
Each individual Nutrient Deficiency that has a probability of dysfunction above 50% is hyperlinked into the appendix section so you can read a highly detailed description and individual explanation of the results shown in this report.



# Health Improvement Plan

The Health Improvement Plan takes all the information on this report and focuses on the top areas that need the most attention.

Each area of Health Improvement that has a probability of dysfunction above 50% is hyperlinked into the appendix section so you can read a highly detailed description and individual explanation of the results shown in this report.

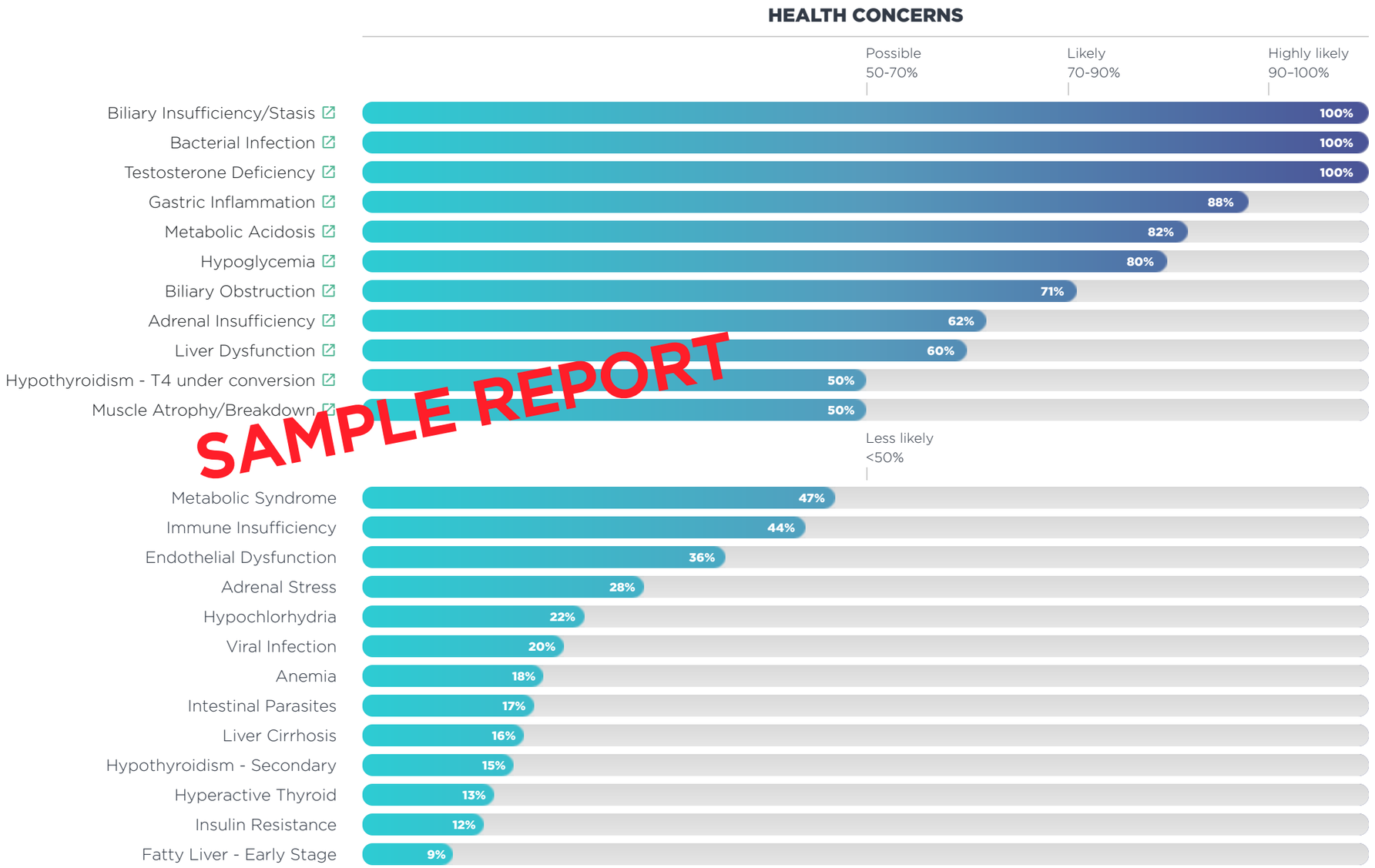


# Clinical Dysfunctions

**Advanced practitioner only report**

The Clinical Dysfunctions Report shows a list of likely Health Concerns and Nutrient Deficiencies that your client may be suffering from based on an analysis of their Chemistry Screen and CBC results.

Each Clinical Dysfunction that has a probability of dysfunction above 50% is hyperlinked into the appendix section so you can read a highly detailed description and individual explanation of the results shown in this report.



# 3



## Analytics

A full breakdown of all individual biomarker results, showing distance from optimal, comparative and historical views.

Blood Test Results
Blood Test Results Comp.
% Deviation From Optimal
Blood Test History
Out of Optimal Range

# Blood Test Results

The Blood Test Results Report lists the results of the client's Chemistry Screen and CBC and shows you whether or not an individual biomarker is outside of the optimal range and/or outside of the clinical lab range. The biomarkers are grouped into their most common categories.

Each biomarker in the Blood Test results report that is above or below the Optimal or Standard Range hyperlinks into our Out of Optimal Range report so you can read a description of the biomarker and some of the reasons why it may be high or low.

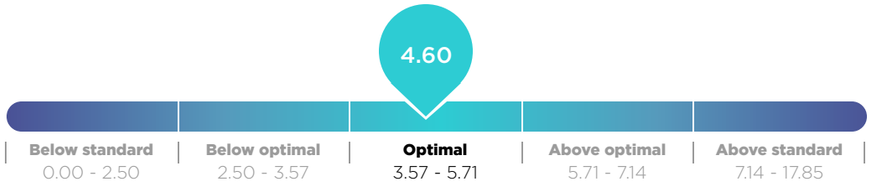


**Total number of biomarkers by optimal range**

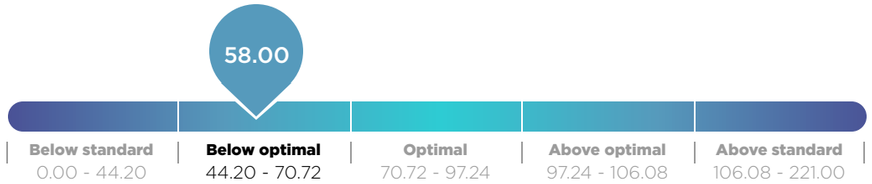
| Alarm low | Below standard | Below optimal | Optimal | Above optimal | Above standard | Alarm high | Total |
|---|---|---|---|---|---|---|---|
| 0 | 10 | 17 | 59 | 12 | 12 | 1 | 111 |

## RENAL

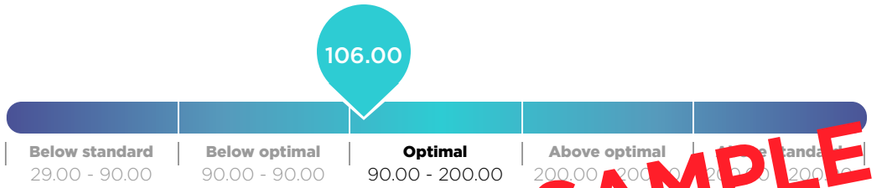
Urea
mmol/L

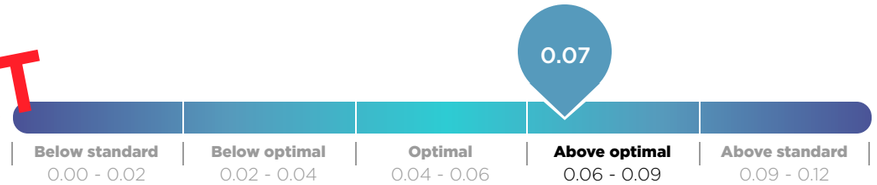



Creatinine
umol/L



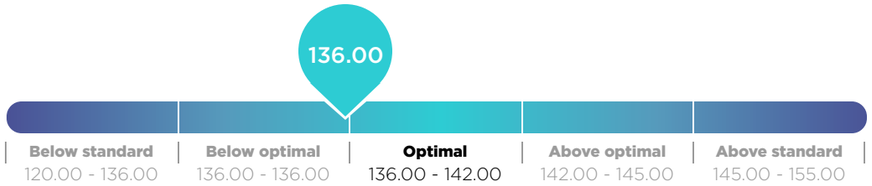

eGFR
mL/min



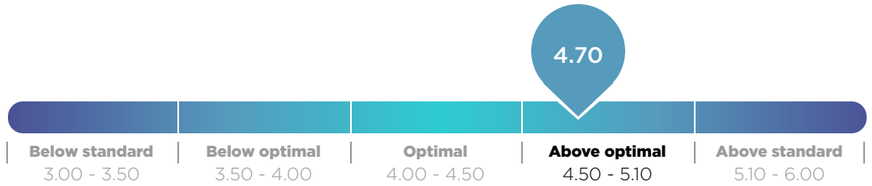



## ELECTROLYTES

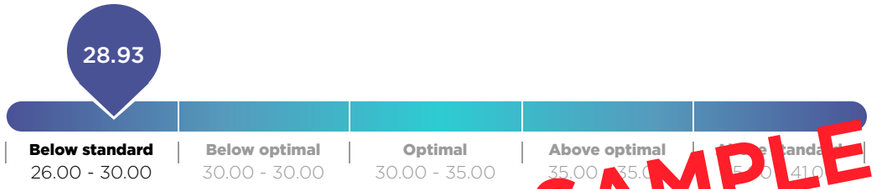
Sodium
mmol/L



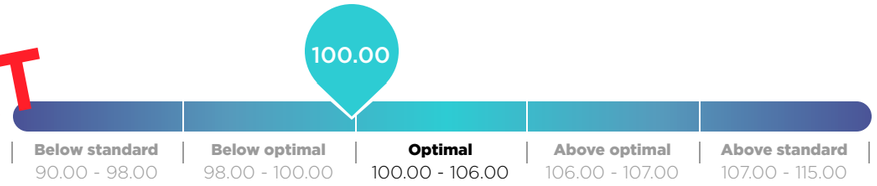

Potassium
mmol/L



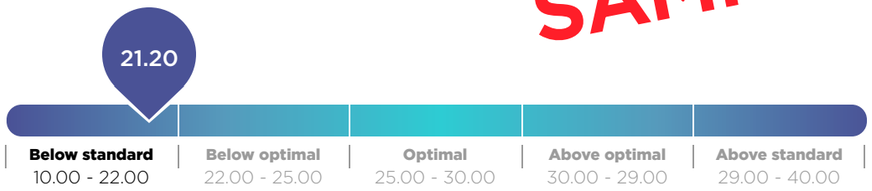

Sodium:Potassium
ratio




Chloride
mmol/L




CO2
mmol/L



# Blood Test Results Comparative

The Blood Test Results Comparative Report lists the results of the client's latest and previous Chemistry Screen and CBC and shows you whether or not an individual biomarker is outside of the optimal range and/or outside of the clinical lab range.

**Comparative total number of biomarkers by optimal range**

| | Alarm low | Below standard | Below optimal | Optimal | Above optimal | Above standard | Alarm high |
|---|---|---|---|---|---|---|---|
| Current | 0 | 10 | 17 | 59 | 12 | 12 | 1 |
| Previous | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Biomarker | Latest 1 Test Result Mar 09 2022 |
|---|---|
| Monocytes - % | 10.90 |
| Basophils - % | 0.50 |
| Lymphocytes - Absolute | 0.79 |
| Eosinophils - Absolute | 0.06 |
| Neutrophil:Lymphocyte | 5.70 |

| Biomarker | Latest 1 Test Result Mar 09 2022 |
|---|---|
| Eosinophils - % | 1.00 |
| Neutrophils - Absolute | 4.50 |
| Monocytes - Absolute | 0.66 |
| Basophils - Absolute | 0.03 |

# Out of Optimal Range

The following report shows all of the biomarkers that are out of the optimal reference range and gives you some important information as to why each biomarker might be elevated or decreased.

Each biomarker in the Out of Optimal Range report hyperlinks back into the Blood Test Results report so you can a see a more detailed view of the blood test result itself.

**Total number of biomarkers by optimal range**

| Alarm low | Below standard | Below optimal | Optimal | Above optimal | Above standard | Alarm high | Total |
|---|---|---|---|---|---|---|---|
| 0 | 10 | 17 | 59 | 12 | 12 | 1 | 111 |

0.17
g/L

## CERULOPLASMIN

Ceruloplasmin is a copper-containing protein that is produced in the liver and released into the blood. Ceruloplasmin is considered the most sensitive indicator of clinical copper deficiency. Low levels of ceruloplasmin are associated with copper deficiency.

9.00
U/L

## GGT

Gamma Glutamyl Transferase (GGT) is an enzyme that is present in highest amounts in the liver cells and to a lesser extent the kidney, prostate, and pancreas. It is also found in the epithelial cells of the biliary tract. Decreased levels are associated with vitamin B6 and magnesium deficiency.

0.82
mmol/L

## MAGNESIUM - SERUM

The majority of magnesium is found inside the cell so measuring magnesium levels in the serum may not be the best way to assess for magnesium deficiency. That being said, an increased serum magnesium is associated with kidney dyfunction and thyroid hypofunction. A decreased magnesium is a common finding with muscle cramps.

0.79
giga/L

## LYMPHOCYTES - ABSOLUTE

Lymphocytes are a type of white blood cell. Decreased levels are often seen in a chronic viral infection when the body can use up a large number of lymphocytes and oxidative stress. A decreased **Lymphocytes - Absolute** count may also indicate the presence of a fatigued immune response, especially with a low Total WBC count.

4.33
ng/ml

## PROLACTIN - FEMALE

Prolactin is a peptide hormone produced in the pituitary glands of women. Prolactin's main role is the growth and development of the breasts and the creation of breast milk and the maintenance of lactation in women.

# 4

Highly detailed and interpretive descriptions of the results presented in each of the assessment and analysis section reports.



## Appendix

Functional Body Systems
Accessory Systems
Nutrient Status
Nutrient Deficiencies
Health Improvement
Health Concerns
What To Look For
Disclaimer


Dysfunction Highly Likely.
Much improvement required.

## SEX HORMONE FUNCTION - FEMALE

The Female Sex Hormone Function score helps us assess for sex hormone regulation in your patient. A high Female Sex Hormone Function score indicates an increasing level of sex hormone deficiencies in your patient. Review the individual levels of hormones to identify which hormones are causing the high Sex Hormone Function score: testosterone, DHEA, Sex hormone Binding Globulin (SHBG), Progesterone and estradiol.

**Rationale**

DHEA-S - Female ↓, Estradiol Luteal - Female ↓, Testosterone Total - Female ↓, Testosterone Free - Female ↓, Sex Hormone Binding Globulin - Female ↑

**Biomarkers considered**

DHEA-S - Female, Estradiol Luteal - Female, Testosterone Total - Female, Testosterone Free - Female, Progesterone Luteal - Female, Sex Hormone Binding Globulin - Female


Dysfunction Likely.
Improvement required

## ADRENAL FUNCTION

The Adrenal Function score allows us to assess the functional health of your patient's adrenal glands. A high Adrenal Function score indicates that there is dysfunction within your patient's adrenal system and further assessment is needed to find out what the dysfunction is. Consider factors that contribute to adrenal hyperactivity, stress, or adrenal insufficiency.



**Rationale**

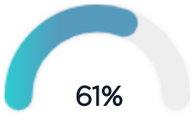
Potassium ↑, Sodium:Potassium ↓, Cholesterol - Total ↓, Triglycerides ↓, DHEA-S - Female ↓, Cortisol - AM ↓

**Biomarkers considered**

Sodium, Potassium, Sodium:Potassium, Glucose - Fasting, Urea, Chloride, CO2, Cholesterol - Total, Triglycerides, DHEA-S - Female, Cortisol - AM

**Patient result not available - consider running in future tests:**

Cortisol - PM




Dysfunction Possible.
There may be improvement needed in certain areas.

## BLOOD SUGAR REGULATION

The Blood Sugar Regulation score allows us to assess the functional health of your patient's blood sugar regulation. A high Blood Sugar Regulation score indicates that there is dysfunction in this patient's blood sugar regulation. Blood sugar dysregulation is affected by genetics, diet, lifestyle, nutrition, and environment. Some factors to consider include hypoglycemia, metabolic syndrome, insulin resistance, hyperinsulinemia, and type 2 Diabetes.

**Rationale**

LDH ↓, Insulin - Fasting ↑, HDL Cholesterol ↓, DHEA-S - Female ↓

**Biomarkers considered**

Glucose - Fasting, LDH, Haemoglobin A1C, Insulin - Fasting, Cholesterol - Total, Triglycerides, LDL Cholesterol, HDL Cholesterol, DHEA-S - Female, C-Peptide, Fructosamine

# What to Look For When Values Are Out of Range

**Advanced professional only report**

This report shows what you need to look for when the blood tests results are out of the optimal reference range. The report lists all the biomarkers that are above or below the optimal reference range and lists all the possible associated health concerns with a short description.

## RBC - FEMALE ↑

(4.59 x10*12/L)

**Relative increases in RBC count**

Whenever there is a decrease in blood volume, you will see a relative increase in the RBC count (>4.5 in women and >4.9 in men) usually with an increased HCT (>44 or 0.44 in women and >48 or 0.48 in men), and HGB (>14.5 or 145 in women or 15 or 150 in men). Common causes of a relative increase in RBC count include: Dehydration (decreased fluid intake, vomiting, diarrhea), Stress, Tobacco use, Overuse of diuretics

**Dehydration**

If the RBC count is increased suspect dehydration. Suspect a short-term (acute) dehydration if there is an increased HGB (>14.5 or 145 in women or 15 or 150 in men) and/or HCT (>44 or 0.44 in women and >48 or 0.48 in men) along with an increased RBC count (>4.5 in women and >4.9 in men). A relative increase in Sodium (>142) and Potassium (>4.5) can be noted as well. Suspect a long-term (chronic) dehydration if any of the above findings are accompanied by an increased Albumin (>5.0 or 50 g/L), increased BUN (>10 mg/dL 5.71 mmol/L), and/or serum Protein (>7.4 or 74 g/L).



**Respiratory distress**

In severe cases of asthma and emphysema you can expect an increased red cell count with decreased HGB (<13.5 or 135 g/L in women and <14 or 140 in men) and HCT (<37 or 0.37 in women and 40 or 0.4 in men) . The body responds to an inability to fully oxygenate the blood with an increase in red blood cells.

**Vitamin C need**

An increased RBC level is associated with vitamin C need. Albumin will frequently be decreased (<4.0 or 40g/L) along a decreased HCT (<37 or 0.37 in women and 40 or 0.4 in men), HGB (<13.5 or 135 g/L in women and <14 or 140 in men), MCH (<28), MCHC (<32), serum iron (< 85 or 15.22 mmol/dL). There will also be an increased MCV (>90), alkaline phosphatase (>100), and fibrinogen.

**Polycythemia vera**

A myeloproliferative disease that causes an increase in all blood cell lines. This disease will cause an increased HCT (>44 or 0.44 in women and >48 or 0.48 in men), and HGB (>14.5 or 145 in women or 15 or 150 in men), total bilirubin (>1.2 or 20.5 mmol/dL), uric acid (>5.9 or > 351 mmol/dL), basophils (>1), and ALP (>100). Further testing with blood coagulation studies is needed.

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You are encouraged to confirm any information obtained from this Report with other sources, and review all information regarding any medical condition or the treatment of such condition with your physician.

NEVER DISREGARD PROFESSIONAL MEDICAL ADVICE, DELAY SEEKING MEDICAL ADVICE OR TREATMENT, OR STOP CURRENT MEDICAL TREATMENT, BECAUSE OF SOMETHING YOU HAVE READ IN THIS REPORT.

Consult your physician or a qualified healthcare practitioner regarding the applicability of any of the information or materials provided in this Report in regards to your symptoms or medical condition. Always consult your physician before beginning a new treatment, diet, exercise, fitness plan, or health plan or program, and before taking any drug, supplement, or any combination thereof; or if you have questions or concerns about your health, a medical condition, or any plan or course of treatment. If you think you have a medical emergency, call 911 or your doctor immediately.

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