Functional Health Report

Clinician Copy

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Lab Test on Jan 18, 2020
Conventional US Units

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Product Summary Report

The Product Summary Report takes all the information on this report and provides a summary of the nutritional supplements recommended to help bring the systems of the body back into balance. This plan focuses on the top areas of need as presented in this report.

Protocols	Primary Product		Dosage	✔
Increased Cardiovascular Disease Risk	Cardio-Plus		4 tablets 3 times per day	☐
Fatty Liver/ Steatosis	Livaplex		2 capsules per meal, or as directed.	☐
Biliary Stasis/Insufficiency	Betafood		2 tablets per meal, or as directed.	☐
Inflammation	Turmeric Forte		1 tablet 3 times per day	☐
Liver Dysfunction	Livaplex		One capsule per meal, or as directed. This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.	☐
Vitamin D Need	Cataplex D		Two tablet per day, or as directed.	☐
Glutathione Need	Enzycore		2 tablets per meal, or as directed	☐
Vitamin B12/Folate Need	Folic Acid B12		Two tablets per meal, or as directed.	☐

Other Potential Product Recommendations

Protocols	Additional Product		Dosage	✔
Increased Cardiovascular Disease Risk	Calamari Omega-3 Liquid		1 teaspoon (5 mL) per day, or as directed. May be taken with meals.	☐
	Cyruta Plus		4 tablets 3 times per day	☐
	Turmeric Forte		1 tablet 3 times per day This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.	☐

Protocols	Additional Product	Dosage	✔
Fatty Liver/ Steatosis	Choline 	3 tablets per meal, or as directed.	☐
	Livton Complex 	1 tablet 3 - 4 times daily, or as directed.	☐
Biliary Stasis/Insufficiency	Livton Complex 	1 tablet 3 - 4 times daily, or as directed. This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.	☐
	Cholacol 	3-6 per day, take before meals	☐
Inflammation	Boswellia Complex 	1 tablet 4 times daily, or as directed.	☐
	Tuna Omega-3 Oil 	3 Pearls 2 times per day	☐
Liver Dysfunction	Livton Complex 	1 tablet 3 - 4 times daily, or as directed. This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.	☐

This Product Summary Report has been prepared for your patient based upon current algorithms. Additional personalized recommendations for nutritional support may be applicable based on this laboratory evaluation, your patient's history and your clinical practice experience.

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Health Improvement Plan

The Health Improvement Plan takes all the information on this report and creates unique customized recommendations to help bring the systems of your body back into balance. This plan focuses on the top areas of need as presented in this report.

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Increased Cardiovascular Disease Risk

The results of this blood test indicate a higher than optimal risk of this patient developing cardiovascular disease and shows a need for cardiovascular support. The following provide key nutrients to improve cardiovascular health and lower the risk of developing cardiovascular disease.*

Rationale:
AST (SGOT) ↑, Cholesterol - Total ↑, Triglycerides ↑, LDL Cholesterol ↑, Ferritin ↑, Hs CRP, Female ↑, Homocysteine ↑, Insulin - Fasting ↑, Vitamin D (25-OH) ↓

Product Name
Cardio-Plus

Dosage and Directions
4 tablets 3 times per day

Details
Cardio-Plus helps support the cardiovascular system.

Product Name
Calamari Omega-3 Liquid

Dosage and Directions
1 teaspoon (5 mL) per day, or as directed. May be taken with meals.

Details
Calamari Omega-3 Liquid is a convenient, sustainable way to increase omega-3 essential fatty acid intake for targeted system support, as well as overall well-being.

Product Name
Cyruta Plus

Dosage and Directions
4 tablets 3 times per day

Details
Cyruta Plus supports capillary integrity and function.

Product Name
Turmeric Forte

Dosage and Directions
1 tablet 3 times per day

Details
Turmeric Forte is a formulation of Turmeric rhizome and Fenugreek seed extracts to enhance absorption and improve bioavailability of curcuminoids, the active constituents of Turmeric. It provides inflammation support.

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Fatty Liver/ Steatosis

The results of this blood test indicate a tendency towards fatty liver or steatosis and shows a need for liver support. The following provide key nutrients to support liver function.

Rationale:
ALT (SGPT) ↑, AST (SGOT) ↑, GGT ↑, Ferritin ↑

Product Name
Livaplex

Dosage and Directions
2 capsules per meal, or as directed.

Details
Livaplex is foundational support for the liver.

Product Name
Choline

Dosage and Directions
3 tablets per meal, or as directed.

Details
Choline supports healthy fat metabolism.

Product Name
Livton Complex

Dosage and Directions
1 tablet 3 - 4 times daily, or as directed.

Details
Livton Complex contains five herbs that helps support the digestive system. **Caution: Contraindicated in pregnancy. Contraindicated during lactation unless otherwise directed by a qualified health care professional. Contraindicated in blockage of the gallbladder. Use only with professional supervision in the presence of gallstones. In anemia and cases where iron supplementation is required, do not take simultaneously with meals or iron supplements.**

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Biliary Stasis/Insufficiency

The results of this blood test indicate a tendency towards biliary insufficiency/stasis and shows a need for gallbladder support. The following provide key nutrients to support gallbladder function.

Rationale:
GGT ↑, Cholesterol - Total ↑, ALT (SGPT) ↑, Bilirubin - Total ↑, Bilirubin - Direct ↑

Product Name
Betafood

Dosage and Directions
2 tablets per meal, or as directed.

Details
Contains naturally occurring betaine for liver and cardiovascular health.

Product Name
Livton Complex

Dosage and Directions
1 tablet 3 - 4 times daily, or as directed.

This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.

Details
Livton Complex contains five herbs that helps support the digestive system. **Caution: Contraindicated in pregnancy. Contraindicated during lactation unless otherwise directed by a qualified health care professional. Contraindicated in blockage of the gallbladder. Use only with professional supervision in the presence of gallstones. In anemia and cases where iron supplementation is required, do not take simultaneously with meals or iron supplements.**

Product Name
Cholacol

Dosage and Directions
3-6 per day, take before meals

Details
Cholacol supports healthy fat digestion. Source of bile salts.

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Inflammation

The results of this blood test indicate a tendency towards inflammation and shows a need for anti-inflammatory support. The following provide key nutrients to help lower inflammation.

Rationale:
Hs CRP, Female ↑, Homocysteine ↑, Iron - Serum ↑, Ferritin ↑, RDW ↑, Vitamin D (25-OH) ↓

Product Name
Turmeric Forte

Dosage and Directions
1 tablet 3 times per day

This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.

Details
Turmeric Forte is a formulation of Turmeric rhizome and Fenugreek seed extracts to enhance absorption and improve bioavailability of curcuminoids, the active constituents of Turmeric. It provides inflammation support.

Product Name
Boswellia Complex

Dosage and Directions
1 tablet 4 times daily, or as directed.

Details
Boswellia Complex contains Boswellia, Celery Seed, Ginger and Turmeric. Caution: Not to be used during pregnancy and lactation unless otherwise directed by a qualified health care professional.

Product Name
Tuna Omega-3 Oil

Dosage and Directions
3 Pearls 2 times per day

Details
Tuna Omega-3 Oil is a source of DHA and EPA that supports optimal cardiovascular function, as well as brain and visual health.

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Liver Dysfunction

The results of your blood test indicate a tendency towards liver dysfunction and a need for liver support support. The following provide personalized nutritional support for the liver*:

Rationale:
ALT (SGPT) ↑, Ferritin ↑, AST (SGOT) ↑, GGT ↑, Bilirubin - Total ↑, Cholesterol - Total ↑, Bilirubin - Direct ↑, Iron - Serum ↑, RDW ↑, MCV ↑

Product Name
Livaplex

Dosage and Directions
One capsule per meal, or as directed.

This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.

Details
Livaplex is foundational support for the liver.

Product Name
Livton Complex

Dosage and Directions
1 tablet 3 - 4 times daily, or as directed.

This product has already been recommended earlier in this report. Please do not increase the dosage because the product has been listed more than once.

Details
Livton Complex contains five herbs that helps support the digestive system. **Caution: Contraindicated in pregnancy. Contraindicated during lactation unless otherwise directed by a qualified health care professional. Contraindicated in blockage of the gallbladder. Use only with professional supervision in the presence of gallstones. In anemia and cases where iron supplementation is required, do not take simultaneously with meals or iron supplements.**

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This Health Improvement Plan has been prepared for your patient based upon current algorithms. Additional personalized recommendations for nutritional support may be applicable based on this laboratory evaluation, your patient's history and your clinical practice experience.

Suggested Individual Nutrient Recommendations

Your Health Improvement Plan takes all the information on this report and creates unique customized recommendations to help bring the systems of your body back into balance. This plan focuses on the top areas of need as presented in this report.

Vitamin D Need

The results of this blood test indicate that this patient's vitamin D levels might be lower than optimal and shows a need for vitamin D supplementation. The following provide a good source of vitamin D to bring levels back into the optimal range.*

Rationale:
Vitamin D (25-OH) ↓

Product Name
Cataplex D

Dosage and Directions
Two tablet per day, or as directed.

Details
Provides vitamin D, which is needed by almost every cell in the body for development and transcription.*

Glutathione Need

The results of this blood test indicate that this patient's glutathione levels might be lower than optimal and may show a need for glutathione supplementation. The following provide a good source of glutathione to bring levels back into the optimal range.*

Rationale:
GGT ↑

Product Name
Enzycore

Dosage and Directions
2 tablets per meal, or as directed

Details
Enzycore is a comprehensive blend of enzymes, glutamine, and whole food ingredients designed to support healthy digestion and maximize nutrient absorption.

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Vitamin B12/Folate Need

The results of this blood test indicate that this patient's vitamin B12/folate levels might be lower than optimal and shows a need for vitamin B12/folate supplementation. The following provide a good source of vitamin B12/folate to bring levels back into the optimal range.*

Rationale:
MCV ↑, Homocysteine ↑, RDW ↑

Product Name
Folic Acid B12

Dosage and Directions
Two tablets per meal, or as directed.

Details
Contains B-complex vitamins.

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Blood Test Results Report

The Blood Test Results Report lists the results of the patient's Chemistry Screen and CBC and shows you whether or not an individual element is outside of the optimal range and/or outside of the clinical lab range. The elements appear in the order in which they appear on the lab test form.

Above Optimal Range 9 Current 0 Previous ↑	Above Standard Range 12 Current 0 Previous ↑	Alarm High 3 Current 0 Previous
Below Optimal Range 6 Current 0 Previous ↓	Below Standard Range 0 Current 0 Previous ↓	Alarm Low 0 Current 0 Previous

Element	Current Jan 18 2020	Previous Not Available	Impr	Optimal Range	Standard Range	Units
Glucose	83.00			72.00 - 90.00	65.00 - 99.00	mg/dL
Hemoglobin A1C	5.40			5.00 - 5.50	0.00 - 5.60	%
Insulin - Fasting	13.60 ↑			2.00 - 5.00	2.00 - 19.00	µIU/ml
BUN	14.00			10.00 - 16.00	7.00 - 25.00	mg/dL
Creatinine	0.75 ↓			0.80 - 1.10	0.40 - 1.35	mg/dL
BUN/Creatinine Ratio	18.66 ↑			10.00 - 16.00	6.00 - 22.00	Ratio
eGFR Non-Afr. American	88.00 ↓			90.00 - 120.00	60.00 - 90.00	mL/min/1.73m2
eGFR African American	101.00			90.00 - 120.00	60.00 - 90.00	mL/min/1.73m2
Sodium	142.00			135.00 - 142.00	135.00 - 146.00	mEq/L
Potassium	4.40			4.00 - 4.50	3.50 - 5.30	mEq/L
Sodium/Potassium Ratio	32.27			30.00 - 35.00	30.00 - 35.00	ratio
Chloride	105.00			100.00 - 106.00	98.00 - 110.00	mEq/L
CO2	23.00 ↓			25.00 - 30.00	19.00 - 30.00	mEq/L
Anion gap	18.40 ↑			7.00 - 12.00	6.00 - 16.00	mEq/L
Uric Acid, female	4.70			3.00 - 5.50	2.50 - 7.00	mg/dL
Protein, total	7.20			6.90 - 7.40	6.10 - 8.10	g/dL
Albumin	4.50			4.00 - 5.00	3.60 - 5.10	g/dL
Globulin, total	2.70			2.40 - 2.80	2.00 - 3.50	g/dL
Albumin/Globulin Ratio	1.66			1.40 - 2.10	1.00 - 2.50	ratio
Calcium	9.30 ↓			9.40 - 10.10	8.60 - 10.40	mg/dL
Calcium/Albumin Ratio	2.06			0.00 - 2.60	0.00 - 2.70	ratio
Phosphorus	3.60			3.50 - 4.00	2.50 - 4.50	mg/dL
Calcium/Phosphorous Ratio	2.58			2.30 - 2.80	1.90 - 4.20	ratio
Magnesium	2.30			2.20 - 2.50	1.50 - 2.50	mg/dl
Alk Phos	90.00			70.00 - 100.00	35.00 - 115.00	IU/L
AST (SGOT)	36.00 ↑			10.00 - 26.00	10.00 - 35.00	IU/L
ALT (SGPT)	40.00 ↑			10.00 - 26.00	6.00 - 29.00	IU/L
LDH	165.00			140.00 - 200.00	120.00 - 250.00	IU/L
Bilirubin - Total	1.40 ↑			0.10 - 0.90	0.20 - 1.20	mg/dL

Bilirubin - Direct	0.31 ↑			0.00 - 0.19	0.00 - 0.20	mg/dL
Bilirubin - Indirect	1.09 ↑			0.10 - 0.70	0.20 - 1.20	mg/dL
GGT	107.00 ⚠			10.00 - 30.00	3.00 - 70.00	IU/L
Iron - Serum	242.00 ↑			85.00 - 130.00	40.00 - 160.00	µg/dL
Ferritin	661.00 ⚠			40.00 - 150.00	10.00 - 232.00	ng/mL
TIBC	260.00			250.00 - 350.00	250.00 - 425.00	µg/dL
% Transferrin saturation	93.00 ⚠			24.00 - 50.00	20.00 - 48.00	%
Cholesterol - Total	216.00 ↑			155.00 - 190.00	125.00 - 200.00	mg/dL
Triglycerides	114.00 ↑			50.00 - 100.00	0.00 - 150.00	mg/dL
LDL Cholesterol	130.00 ↑			0.00 - 120.00	0.00 - 100.00	mg/dL
HDL Cholesterol	63.00			55.00 - 70.00	46.00 - 100.00	mg/dL
Cholesterol/HDL Ratio	3.40 ↑			0.00 - 3.00	0.00 - 5.00	Ratio
Triglyceride/HDL Ratio	1.80			0.00 - 2.00	0.00 - 3.30	ratio
TSH	2.71			1.00 - 3.00	0.40 - 4.50	µU/mL
Free T3	3.40			2.80 - 3.50	2.30 - 4.20	pg/ml
Total T3	133.00			90.00 - 168.00	76.00 - 181.00	ng/dL
Free T4	1.16			1.00 - 1.50	0.80 - 1.80	ng/dL
Total T4	8.40			6.00 - 11.90	4.50 - 12.00	µg/dL
T3 Uptake	23.00 ↓			27.00 - 35.00	22.00 - 35.00	%
Free Thyroxine Index (T7)	1.93			1.70 - 4.60	1.40 - 3.80	Index
Reverse T3	24.50			10.00 - 25.00	8.00 - 25.00	ng/dl
Thyroid Peroxidase (TPO) Abs	12.00			0.00 - 34.00	0.00 - 34.00	IU/ml
Hs CRP, Female	4.38 ↑			0.00 - 0.99	0.00 - 2.90	mg/L
Homocysteine	8.50 ↑			0.00 - 6.00	0.00 - 10.30	µmol/L
Vitamin D (25-OH)	31.50 ↓			50.00 - 90.00	30.00 - 100.00	ng/ml
Total WBCs	6.00			5.30 - 7.50	3.80 - 10.80	k/cumm
RBC, Female	5.10 ↑			3.90 - 4.50	3.80 - 5.10	m/cumm
Hemoglobin, Female	16.20 ↑			13.50 - 14.50	11.70 - 15.50	g/dl
Hematocrit, Female	47.40 ↑			37.00 - 44.00	35.00 - 45.00	%
MCV	93.00 ↑			85.00 - 92.00	80.00 - 100.00	fL
MCH	31.80			27.00 - 31.90	27.00 - 33.00	pg
MCHC	34.20			32.00 - 35.00	32.00 - 36.00	g/dL
Platelets	292.00			150.00 - 400.00	140.00 - 400.00	k/cumm
RDW	13.10 ↑			11.70 - 13.00	11.00 - 15.00	%
Neutrophils	58.00			40.00 - 60.00	38.00 - 74.00	%
Lymphocytes	31.00			25.00 - 40.00	14.00 - 46.00	%
Monocytes	8.00 ↑			0.00 - 7.00	0.00 - 7.00	%
Eosinophils	3.00			0.00 - 3.00	0.00 - 3.00	%
Basophils	0.00			0.00 - 1.00	0.00 - 1.00	%

% Deviation from Optimal Report

This report shows the elements on the blood test that are farthest from optimal expressed as a %. The elements that appear closest to the top and the bottom are those elements that are farthest from optimal and should be carefully reviewed.

Element	% from Median	Lab Result	Low	High	Optimal Reference Ranges Low High
Ferritin	515	**661.00**	40.00	150.00	
GGT	435	**107.00**	10.00	30.00	
Hs CRP, Female	392	**4.38**	0.00	0.99	
Insulin - Fasting	337	**13.60**	2.00	5.00	
Iron - Serum	299	**242.00**	85.00	130.00	
Hemoglobin, Female	220	**16.20**	13.50	14.50	
% Transferrin saturation	215	**93.00**	24.00	50.00	
Anion gap	178	**18.40**	7.00	12.00	
RBC, Female	150	**5.10**	3.90	4.50	
ALT (SGPT)	138	**40.00**	10.00	26.00	
Cholesterol - Total	124	**216.00**	155.00	190.00	
Bilirubin - Indirect	115	**1.09**	0.10	0.70	
Bilirubin - Direct	113	**0.31**	0.00	0.19	
Bilirubin - Total	112	**1.40**	0.10	0.90	
AST (SGOT)	112	**36.00**	10.00	26.00	
Hematocrit, Female	99	**47.40**	37.00	44.00	
BUN/Creatinine Ratio	94	**18.66**	10.00	16.00	
Homocysteine	92	**8.50**	0.00	6.00	
Triglycerides	78	**114.00**	50.00	100.00	
MCV	64	**93.00**	85.00	92.00	
Monocytes	64	**8.00**	0.00	7.00	
Cholesterol/HDL Ratio	63	**3.40**	0.00	3.00	
LDL Cholesterol	58	**130.00**	0.00	120.00	
RDW	58	**13.10**	11.70	13.00	
Eosinophils	50	**3.00**	0.00	3.00	
Sodium	50	**142.00**	135.00	142.00	
MCH	48	**31.80**	27.00	31.90	
Reverse T3	47	**24.50**	10.00	25.00	
Neutrophils	40	**58.00**	40.00	60.00	
Triglyceride/HDL Ratio	40	**1.80**	0.00	2.00	
Free T3	36	**3.40**	2.80	3.50	
TSH	36	**2.71**	1.00	3.00	
Chloride	33	**105.00**	100.00	106.00	
Potassium	30	**4.40**	4.00	4.50	
Hemoglobin A1C	30	**5.40**	5.00	5.50	

Calcium/Albumin Ratio	29	**2.06**	0.00	2.60	
Globulin, total	25	**2.70**	2.40	2.80	
MCHC	23	**34.20**	32.00	35.00	
Uric Acid, female	18	**4.70**	3.00	5.50	
BUN	17	**14.00**	10.00	16.00	
Alk Phos	17	**90.00**	70.00	100.00	
Glucose	11	**83.00**	72.00	90.00	
Protein, total	10	**7.20**	6.90	7.40	
Platelets	7	**292.00**	150.00	400.00	
Calcium/Phosphorous Ratio	6	**2.58**	2.30	2.80	
Total T3	5	**133.00**	90.00	168.00	
HDL Cholesterol	3	**63.00**	55.00	70.00	
Albumin	0	**4.50**	4.00	5.00	
Sodium/Potassium Ratio	-5	**32.27**	30.00	35.00	
LDH	-8	**165.00**	140.00	200.00	
Total T4	-9	**8.40**	6.00	11.90	
Lymphocytes	-10	**31.00**	25.00	40.00	
Albumin/Globulin Ratio	-13	**1.66**	1.40	2.10	
eGFR African American	-13	**101.00**	90.00	120.00	
Thyroid Peroxidase (TPO) Abs	-15	**12.00**	0.00	34.00	
Magnesium	-17	**2.30**	2.20	2.50	
Free T4	-18	**1.16**	1.00	1.50	
Total WBCs	-18	**6.00**	5.30	7.50	
Phosphorus	-30	**3.60**	3.50	4.00	
TIBC	-40	**260.00**	250.00	350.00	
Free Thyroxine Index (T7)	-42	**1.93**	1.70	4.60	
Basophils	-50	**0.00**	0.00	1.00	
eGFR Non-Afr. American	-57	**88.00**	90.00	120.00	
Calcium	-64	**9.30**	9.40	10.10	
Creatinine	-67	**0.75**	0.80	1.10	
CO2	-90	**23.00**	25.00	30.00	
Vitamin D (25-OH)	-96	**31.50**	50.00	90.00	
T3 Uptake	-100	**23.00**	27.00	35.00	

Out of Optimal Range Report

The following results show all of the elements that are out of the optimal reference range. The elements that appear closest to the top of each section are those elements that are farthest from optimal and should be carefully reviewed.

Above Optimal Range
24 Total

Below Optimal Range
6 Total

Above Optimal

Ferritin ↑ 661.00 ng/mL (+ 515 %)

Ferritin is the main storage form of iron in the body. Decreased levels are strongly associated with iron deficiency where it is the most sensitive test to detect iron deficiency. Increased levels are associated with iron overload, an increasing risk of cardiovascular disease, inflammation and oxidative stress.

GGT ↑ 107.00 IU/L (+ 435 %)

Gamma Glutamyl Transferase (GGTP) 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. GGTP will be liberated into the bloodstream following cell damage or destruction and/or biliary obstruction. GGTP is induced by alcohol and can be elevated following chronic alcohol consumption and in alcoholism. Decreased levels are associated with vitamin B6 and magnesium deficiency.

Hs CRP, Female ↑ 4.38 mg/L (+ 392 %)

High Sensitivity C-Reactive Protein (Hs-CRP) is a blood marker that can help indicate the level of chronic inflammation in the body. Increased levels are associated with in increased risk of inflammation, cardiovascular disease, stroke, and diabetes.

Insulin - Fasting ↑ 13.60 µIU/ml (+ 337 %)

insulin is the hormone released in response to rising blood glucose levels and decreases blood glucose by transporting glucose into the cells. Often people lose their ability to utilize insulin to effectively drive blood glucose into energy-producing cells. This is commonly known as “insulin resistance” and is associated with increasing levels of insulin in the blood. Excess insulin is associated with greater risks of heart attack, stroke, metabolic syndrome and diabetes.

Iron - Serum ↑ 242.00 µg/dL (+ 299 %)

Serum iron reflects iron that is bound to serum proteins such as transferrin. Serum iron levels will begin to fall somewhere between the depletion of the iron stores and the development of anemia. Increased iron levels are associated with liver dysfunction, conditions of iron overload (hemochromatosis and hemosiderosis) and infections. Decreased iron levels are associated with iron deficiency anemia, hypochlorhydria and internal bleeding. The degree of iron deficiency is best appreciated with ferritin, TIBC and % transferrin saturation levels.

Hemoglobin, Female ↑ 16.20 g/dl (+ 220 %)

Hemoglobin is the oxygen carrying molecule in red blood cells. Measuring hemoglobin is useful to determine the cause and type of anemia and for evaluating the efficacy of anemia treatment. Hemoglobin levels may be increased in cases of dehydration.

% Transferrin saturation ↑ 93.00 % (+ 215 %)

The % transferrin saturation index is a calculated value that tells how much serum iron is bound to the iron-carrying protein transferrin. A % transferrin saturation value of 15% means that 15% of iron-binding sites of transferrin is being occupied by iron. It is a sign of iron overload or too much iron in the blood if it is above the optimal range.

Anion gap ↑ 18.40 mEq/L (+ 178 %)

The anion gap is the measurement of the difference between the sum of the sodium and potassium levels and the sum of the serum CO_2/bicarbonate and chloride levels. Increased levels are associated with thiamine deficiency and metabolic acidosis.

RBC, Female ↑ 5.10 m/cumm (+ 150 %)

The red blood cell functions to carry oxygen from the lungs to the body tissues and to transfer carbon dioxide from the tissues to the lungs where it is expelled. The RBC Count determines the total number of cells or erythrocytes found in a cubic millimeter of blood. Increased levels are associated with dehydration, stress, a need for vitamin C and respiratory distress such as asthma. Decreased levels are primarily associated with anemia.

ALT (SGPT) ↑ 40.00 IU/L (+ 138 %)

SGPT/ALT is an enzyme present in high concentrations in the liver and to lesser extent skeletal muscle, the heart, and kidney. SGPT/ALT will be liberated into the bloodstream following cell damage or destruction. Any condition or situation that causes damage to the hepatocytes will cause a leakage of SGPT/ALT into the bloodstream. These include exposure to chemicals, viruses (viral hepatitis, mononucleosis, cytomegalovirus, Epstein Barr, etc.), alcoholic hepatitis. The most common non-infectious cause of an increased ALT is a condition called steatosis (fatty liver).

Cholesterol - Total ↑ 216.00 mg/dL (+ 124 %)

Cholesterol is a steroid found in every cell of the body and in the plasma. It is an essential component in the structure of the cell membrane where it controls membrane fluidity. It provides the structural backbone for every steroid hormone in the body, which includes adrenal and sex hormones and vitamin D. The myelin sheaths of nerve fibers are derived from cholesterol and the bile salts that emulsify fats are composed of cholesterol. Cholesterol is made in the body by the liver and other organs, and from dietary sources. The liver, the intestines, and the skin produce between 60-80% of the body's cholesterol. The remainder comes from the diet. An increased cholesterol is just one of many independent risk factors for cardiovascular disease. It is also associated with metabolic syndrome, hypothyroidism, biliary stasis, and fatty liver. Decreased cholesterol levels are a strong indicator of gallbladder dysfunction, oxidative stress, inflammatory process, low fat diets and an increased heavy metal burden.

Bilirubin - Indirect ↑ 1.09 mg/dL (+ 115 %)

Bilirubin is formed from the breakdown of red blood cells. Indirect or unconjugated bilirubin is the protein (albumin) bound form of bilirubin that circulates in the blood on its way to the liver prior to being eliminated from the body in the bile. Elevated levels of indirect or unconjugated bilirubin are usually associated with increased red blood cell destruction.

Bilirubin - Direct ↑ 0.31 mg/dL (+ 113 %)

Direct or conjugated bilirubin is the form of bilirubin that has been made water soluble in the liver so it can be excreted in the bile. An increase in direct or conjugated bilirubin may be associated with a dysfunction or blockage in the liver, gallbladder, or biliary tree.

Bilirubin - Total ↑ 1.40 mg/dL (+ 112 %)

The total bilirubin is composed of two forms of bilirubin: Indirect or unconjugated bilirubin, which circulates in the blood on its way to the liver and direct or conjugated bilirubin, which is the form of bilirubin made water soluble before it is excreted in the bile. An increase in total bilirubin is associated with a dysfunction or blockage in the liver, gallbladder, or biliary tree, oxidative stress or red blood cell hemolysis.

AST (SGOT) ↑ 36.00 IU/L (+ 112 %)

SGOT/AST is an enzyme present in highly metabolic tissues such as skeletal muscle, the liver, the heart, kidney, and lungs. This enzyme is at times released into the bloodstream following cell damage or destruction. AST levels will be increased when liver cells and/or heart muscle cells and/or skeletal muscle cells are damaged. The cause of the damage must be investigated. Low levels are associated with a B6 deficiency.

Hematocrit, Female ↑ 47.40 % (+ 99 %)

The hematocrit (HCT) measures the percentage of the volume of red blood cells in a known volume of centrifuged blood. It is an integral part of the Complete Blood Count (CBC) or Hemotology panel. Low levels of hematocrit are associated with an anemia. The hematocrit should be evaluated with the other elements on a CBC/Hemotology panel to determine the cause and type of anemia.

BUN/Creatinine Ratio ↑ 18.66 Ratio (+ 94 %)

The BUN/Creatinine is a ratio between the BUN and Creatinine levels. An increased level is associated with renal dysfunction. A decreased level is associated with a diet low in protein.

Homocysteine ↑ 8.50 µmol/L (+ 92 %)

Homocysteine is a molecule formed from the incomplete metabolism of the amino acid methionine. Deficiencies in Vitamins B6, B12 and folate cause methionine to be converted into homocysteine. Homocysteine increases the risk of cardiovascular disease by causing damage to the endothelial lining of the arteries, especially in the heart. Increased levels of homocysteine are associated with an increased risk of cardiovascular disease and stroke, as well as cancer, depression and inflammatory bowel disease.

Triglycerides ↑ 114.00 mg/dL (+ 78 %)

Serum triglycerides are composed of fatty acid molecules that enter the blood stream either from the liver or from the diet. Patients that are optimally metabolizing their fats and carbohydrates tend to have a triglyceride level about one-half of the total cholesterol level. Levels will be elevated in metabolic syndrome, fatty liver, in patients with an increased risk of cardiovascular disease, hypothyroidism and adrenal dysfunction. Levels will be decreased in liver dysfunction, a diet deficient in fat, and inflammatory processes.

MCV ↑ 93.00 fL (+ 64 %)

The MCV is a measurement of the volume in cubic microns of an average single red blood cell. MCV indicates whether the red blood cell size appears normal (normocytic), small (microcytic), or large (macrocytic). An increase or decrease in MCV can help determine the type of anemia present. An increased MCV is associated with B12, folate, or vitamin C deficiency. A decreased MCV is associated with iron and B6 deficiency.

Monocytes ↑ 8.00 % (+ 64 %)

Monocytes are white blood cells that are the body's second line of defense against infection. They are phagocytic cells that are capable of movement and remove dead cells, microorganisms, and particulate matter from circulating blood. Levels tend to rise at the recovery phase of an infection or with chronic infection.

Cholesterol/HDL Ratio ↑ 3.40 Ratio (+ 63 %)

The ratio of total cholesterol to HDL is a far better predictor of cardiovascular disease than cholesterol by itself. A lower ratio is ideal because you want to lower cholesterol (but not too low) and raise HDL. A level below 3.0 would be ideal. Every increase of 1.0, i.e. 3.0 to 4.0 increases the risk of heart attack by 60%.

LDL Cholesterol ↑ 130.00 mg/dL (+ 58 %)

LDL functions to transport cholesterol and other fatty acids from the liver to the peripheral tissues for uptake and metabolism by the cells. It is known as "bad cholesterol" because it is thought that this process of bringing cholesterol from the liver to the peripheral tissue increases the risk for atherosclerosis. An increased LDL cholesterol is just one of many independent risk factors for cardiovascular disease. It is also associated with metabolic syndrome, oxidative stress and fatty liver.

RDW ↑ 13.10 % (+ 58 %)

The Red Cell Distribution Width (RDW) is essentially an indication of the degree of abnormal variation in the size of red blood cells (called anisocytosis). Although the RDW will increase with vitamin BI2 deficiency, folic acid, and iron anemia, it is increased most frequently with vitamin B12 deficiency anemia.

Below Optimal

T3 Uptake ↓ 23.00 % (- 100 %)

The T-3 uptake test has nothing to do with actual T-3 levels, as the name might suggest. Increased levels are associated with hyperthyroidism and people on thyroid hormone. Decreased levels are associated with hypothyroidism and deficiencies of iodine and selenium.

Vitamin D (25-OH) ↓ 31.50 ng/ml (- 96 %)

This vitamin D test measures for levels of 25-OH vitamin D and is a very good way to assess vitamin D status. Vitamin D deficiency has been associated with many disorders including many forms of cancer, hypertension, cardiovascular disease, chronic inflammation, chronic pain, mental illness including depression, diabetes, multiple sclerosis to name just a few.

CO2 ↓ 23.00 mEq/L (- 90 %)

Carbon Dioxide is a measure of bicarbonate in the blood. CO_2, as bicarbonate, is available for acid-base balancing. Bicarbonate neutralizes metabolic acids in the body. Elevated levels of CO2 are associated with metabolic alkalosis and hypochlorhydria. Decreased levels are associated with metabolic acidosis.

Creatinine ↓ 0.75 mg/dL (- 67 %)

Creatinine is produced primarily from the contraction of muscle and is removed by the kidneys. A disorder of the kidney and/or urinary tract will reduce the excretion of creatinine and thus raise blood serum levels. Creatinine is traditionally used with BUN to assess for impaired kidney function. Elevated levels can also indicate dysfunction in the prostate.

Calcium ↓ 9.30 mg/dL (- 64 %)

Serum calcium levels, which are tightly regulated within a narrow range, are principally regulated by parathyroid hormone (PTH) and vitamin D. A low calcium level indicates that calcium regulation is out of balance and not necessarily that the body is deficient of calcium and needs supplementation. Check vitamin D levels, rule out hypochlorhydria, the need for magnesium, phosphorous, vitamin A, B and C, unsaturated fatty acids, and iodine as some of the reasons for a calcium "need" before supplementing with calcium. An elevated calcium is associated with parathyroid hyperfunction. If significantly elevated (>10.6 mg/dl or 2.65 mmol/L) check serum PTH levels and refer to an endocrinologist.

eGFR Non-Afr. American ↓ 88.00 mL/min/1.73m2 (- 57 %)

The eGFR is a calculated estimate of the kidney's Glomerular Filtration Rate. It uses 4 variables: age, race, creatinine levels and gender to estimate kidney function. Levels below 90 are an indication of a mild loss of kidney function. Levels below 60 indicate a moderate loss of kidney function and may require a visit to a renal specialist for further evaluation.

Functional Index Report

The indices shown below represent an analysis of this blood test. These results have been converted into your patient's individual Functional Index 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 Index and to put together a unique treatment plan designed to bring their body back into a state of functional health, wellness and energy.

Score Guide: **90% - 100%** - Dysfunction Highly Likely, **70% - 90%** - Dysfunction Likely, **50% - 70%** - Dysfunction Possible, **< 50%** - Dysfunction Less Likely.

Functional Index	0% 100%
Liver Function Index	100%
Gallbladder Function Index	100%
Cardiovascular Risk Index	93%
Lipid Panel Index	91%
Inflammation Index	82%
Acid-Base Index	80%
Blood Sugar Index	69%
Oxidative Stress Index	46%
Toxicity Index	33%
Kidney Function Index	29%
Red Blood Cell Index	26%
Adrenal Function Index	22%
Thyroid Function Index	18%
Bone Health Index	18%
Immune Function Index	16%
Heavy Metal Index	15%
GI Function Index	12%
Allergy Index	0%
Electrolyte Index	0%
Sex Hormone Index - Female	0%

Liver Function Index

A high Liver Function Index may indicate the need for further assessment of liver function. Factors affecting liver function include steatosis (the accumulation of fat within the liver), Hepatitis (inflammation of the hepatic cells from infections, toxins, etc.) liver cell damage from cirrhosis, infection, alcohol, chemical damage and hepatic necrosis or a decrease in either phase 1 or phase 2 liver detoxification pathways. Based on this blood test, your patient's Liver Function Index is:

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
ALT (SGPT) ↑, AST (SGOT) ↑, Bilirubin - Total ↑, Cholesterol - Total ↑, Iron - Serum ↑, Ferritin ↑, Bilirubin - Direct ↑, GGT ↑, RDW ↑, MCV ↑

Elements Considered:
ALT (SGPT), BUN, Albumin, Globulin, total, Albumin/Globulin Ratio, Alk Phos, AST (SGOT), LDH, Bilirubin - Total, Cholesterol - Total, Triglycerides, Iron - Serum, Ferritin, Bilirubin - Direct, GGT, Protein, total, RDW, MCV

Gallbladder Function Index

A high Gallbladder Function Index indicates that that there is dysfunction within your patient's hepato-biliary system and further assessment is needed to find out what the dysfunction is. Some factors to consider include problems in the liver that compromises the production of bile (biliary insufficiency), the progressive thickening of the bile itself within the gallbladder (biliary stasis) or biliary obstruction that causes cholestasis, a condition of impaired bile flow. Biliary obstruction can occur in the liver but more often occurs outside the liver where it is most often due to a common calculi and usually occurs on a spectrum of mild to severe. Biliary obstruction usually has a genesis in biliary stasis. Based on this blood test, your patient's Gallbladder Function Index is:

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
GGT ↑, Cholesterol - Total ↑, ALT (SGPT) ↑, Bilirubin - Total ↑, Bilirubin - Direct ↑

Elements Considered:
GGT, Alk Phos, Cholesterol - Total, ALT (SGPT), LDH, Bilirubin - Total, Bilirubin - Direct, Triglycerides

Cardiovascular Risk Index

The Cardiovascular Risk Index is based on the measurement of 15 elements in a blood test that indicate an increase risk of this patient developing cardiovascular disease (heart attack, coronary artery disease and stroke). A high Cardiovascular Risk Index indicates that your patient may have an increased risk of cardiovascular disease, atherosclerosis, endothelial dysfunction, and inflammation. Based on this blood test, your patient's Cardiovascular Risk Index is:

[93%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
AST (SGOT) ↑, Cholesterol - Total ↑, Triglycerides ↑, LDL Cholesterol ↑, Ferritin ↑, Hs CRP, Female ↑, Homocysteine ↑, Insulin - Fasting ↑, Vitamin D (25-OH) ↓

Elements Considered:
Glucose, AST (SGOT), LDH, Cholesterol - Total, Triglycerides, LDL Cholesterol, HDL Cholesterol, Ferritin, Hs CRP, Female, Homocysteine, Hemoglobin A1C, Insulin - Fasting, Vitamin D (25-OH)

Patient Result Not Available - Consider Running In Future Tests:
Fibrinogen, Testosterone, Free Female

Lipid Panel Index

A high Lipid Panel Index indicates that there is a strong clinical indication of hyperlipidemia, which has been shown to indicate a potential risk of developing atherosclerotic coronary artery disease. Although hyperlipidemia is a cause, it's important to look at many other risks for this disease including smoking, blood sugar dysregulation, hypertension, elevated homocysteine and other diet and lifestyle considerations. Based on this blood test, your patient's Lipid Panel is:

[91%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
Cholesterol - Total ↑, Triglycerides ↑, LDL Cholesterol ↑

Elements Considered:
Cholesterol - Total, Triglycerides, LDL Cholesterol, Cholesterol/HDL Ratio, HDL Cholesterol

Inflammation Index

A high Inflammation Index reflects the degree of inflammation that your patient may be dealing with. A number of elements in the blood increase in the presence of dysfunctions and diseases associated with inflammation: cardiovascular disease, diabetes, hypertension, autoimmune diseases, and fibromyalgia to name a few. Based on this blood test, your patient's Inflammation Index is:

[82%] - Dysfunction Likely. Improvement required.

Rationale:
Hs CRP, Female ↑, Homocysteine ↑, Iron - Serum ↑, Ferritin ↑, RDW ↑, Vitamin D (25-OH) ↓

Elements Considered:
Hs CRP, Female, Uric Acid, female, LDH, Homocysteine, Sodium/Potassium Ratio, Globulin, total, Cholesterol - Total, Triglycerides, HDL Cholesterol, Iron - Serum, Ferritin, Platelets, Lymphocytes, Basophils, Alk Phos, RDW, Vitamin D (25-OH)

Patient Result Not Available - Consider Running In Future Tests:
Fibrinogen, ESR, Female, Creatine Kinase, C-Reactive Protein

Acid-Base Index

A high Acid-Base Index indicates a functional imbalance in the body's pH system. Consider metabolic acidosis or metabolic alkalosis as a cause for this imbalance. Based on this blood test, your patient's Acid-Base Index is:

[80%] - Dysfunction Likely. Improvement required.

Rationale:
Anion gap ↑, CO2 ↓

Elements Considered:
Anion gap, Potassium, Chloride, CO2, Calcium

Blood Sugar Index

A high Blood Sugar Index 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. Based on this blood test, your patient's Blood Sugar Index is:

[69%] - Dysfunction Possible. There may be improvement needed in certain areas.

Rationale:
Insulin - Fasting ↑, Cholesterol - Total ↑, Triglycerides ↑, LDL Cholesterol ↑

Elements Considered:
Glucose, LDH, Hemoglobin A1C, Insulin - Fasting, Cholesterol - Total, Triglycerides, LDL Cholesterol, HDL Cholesterol

Patient Result Not Available - Consider Running In Future Tests:
DHEA-S, Female, Leptin, Female

Nutrient Index Report

The indices shown below represent an analysis of your patient's blood test results. These results have been converted into their individual Nutrient Assessment Report based on our latest research. This report gives you an indication of their general nutritional status. Nutritional status is influenced by actual dietary intake, digestion, absorption, assimilation and cellular uptake of the nutrients themselves. You can use this information, along with information about individual nutrient deficiencies, to put together a unique treatment plan designed to bring their body back into a state of functional health, wellness and energy.

Score Guide: **90% - 100%** - Nutrient Status is Poor, **75% - 90%** - Nutrient Status is Low, **50% - 75%** - Moderate Nutrient Status, **< 50%** - Optimum Nutrient Status

Nutrient Index	0%	100%
Vitamin Index	100%	
Carbohydrate Index	62%	
Protein Index	41%	
Hydration Index	30%	
Fat Index	25%	
Mineral Index	0%	

Vitamin Index

The Vitamin Index gives us a general indication of the balance of certain vitamins in the body based on the results of this blood test. A high Vitamin Index indicates a level of deficiency or need in one or more of the vitamins reflected in this index, which includes vitamin B12, vitamin B6, folate, thiamin, vitamin D and vitamin C. Factors to consider are the amount in the diet, the ability to digest and breakdown individual vitamins from the food or supplements consumed, and the ability of those vitamins to be absorbed, transported and ultimately taken up into the cells themselves. Please use the information at the bottom of this report to identify which vitamin or vitamins may be in need. Based on this blood test, your patient's Vitamin Index is:

[100%] - Nutrient Status is Poor. Much improvement required.

Rationale:
Anion gap ↑, Homocysteine ↑, Vitamin D (25-OH) ↓, MCV ↑

Elements Considered:
Anion gap, Albumin, AST (SGOT), ALT (SGPT), GGT, Homocysteine, Vitamin D (25-OH), MCV

Carbohydrate Index

The Carbohydrate Index gives us an assessment of your patient's dietary intake of carbohydrates, especially refined carbohydrates and sugars. A diet high in refined carbohydrates and sugars will deplete phosphorus stores and other important co-factors for carbohydrate metabolism. It may also increase serum glucose and serum triglyceride levels. Follow up a high Carbohydrate Index with a thorough assessment of blood sugar regulation and also an investigation into this patient's dietary consumption of sugars and refined carbohydrates. Based on this blood test, your patient's Carbohydrate Index is:

[62%] - Moderate Nutrient Status. There may be improvement needed in certain areas.

Rationale:

Cholesterol - Total ↑, Triglycerides ↑, LDL Cholesterol ↑

Elements Considered:
Glucose, Phosphorus, LDH, Cholesterol - Total, Triglycerides, LDL Cholesterol, HDL Cholesterol, Total WBCs

Individual Nutrient Deficiencies

The values below represent the degree of deficiency for individual nutrients based on your patient'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 patient/client actually needs an individual nutrient. Use the information in this section to put together an individualized treatment plan to bring your patient back into a state of optimal nutritional function.

Score Guide: **90% - 100%** - Deficiency Highly Likely, **70% - 90%** - Deficiency Likely, **50% - 70%** - Deficiency Possible, **< 50%** - Deficiency Less Likely.

Nutrient Deficiencies	0% 100%
Vitamin D Need	100%
Glutathione Need	100%
Vitamin B12/Folate Need	71%
Thiamine Need	70%
Calcium Need	43%
Selenium Need	33%
Vitamin B6 Need	20%
Iodine Need	18%
Vitamin C Need	11%
Iron Deficiency	2%
Magnesium Need	0%
DHEA Need	0%
Molybdenum Need	0%

Vitamin D Need

The results of this blood test indicate that this patient's Vitamin D levels might be lower than optimal.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
Vitamin D (25-OH) ↓

Elements Considered:
Vitamin D (25-OH)

Glutathione Need

Suspect a glutathione need if the **GGT** is elevated. An elevated **GGT** is most commonly associated with alcohol

consumption or gallbladder issues but suspect a glutathione need if **GGT** is elevated and there is no evidence of gallbladder dysfunction.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
GGT↑

Elements Considered:
GGT

Vitamin B12/Folate Need

Consider a Vitamin B12 and folate need if the **MCV** is increased along with an increased **MCH**. If there is also an increased **RDW**, **MCHC**, and **LDH** (especially the LDH-1 isoenzyme fraction), and a decreased **uric acid** level the probability of vitamin B-12 or folic acid anemia is very high. Serum Vitamin B12 and serum folate may also decreased.

[71%] - Dysfunction Likely. Improvement required.

Rationale:
MCV ↑, Homocysteine ↑, RDW ↑

Elements Considered:
MCV, LDH, Homocysteine, Uric Acid, female, Albumin, Total WBCs, RBC, Female, Hemoglobin, Female, Hematocrit, Female, MCH, MCHC, RDW, Neutrophils

Patient Result Not Available - Consider Running In Future Tests:
Folate, Vitamin B12

Thiamine Need

Consider Thiamine deficiency with an **increased anion gap** along with a **decreased CO_2**. **Hemoglobin** and **hematocrit** levels may be normal or decreased. Due to thiamine's role in glycolysis, **LDH** levels may be decreased and **glucose** levels may be normal to increased.

[70%] - Dysfunction Likely. Improvement required.

Rationale:
Anion gap ↑, CO2 ↓

Elements Considered:
Anion gap, CO2, Glucose, LDH, Hemoglobin, Female, Hematocrit, Female

Recommended Further Testing

Advanced Practitioner Only Report

Based on the results of the analysis of this blood test, the following areas may require further investigation. The suggestions for further testing are merely examples and do not attempt to provide you with an exhaustive list of further evaluation methods.

Biliary Obstruction

The results of this blood test indicate that this patient might be at an increased risk of developing a gall stone or may actually have an actual stone or calculi that are causing the elements listed below to be outside the optimal range. You may want to consider additional testing to rule out calculi or overt obstruction or refer the patient to a qualified physician for further evaluation.

Rationale:
GGT ↑, Bilirubin - Total ↑, Bilirubin - Direct ↑, ALT (SGPT) ↑

Iron Overload

The results of this blood test indicate that this patient may dealing with an increased iron load in the body. This can either be a genetic condition called hemochromatosis or a non-genetic variant called hemosiderosis. The condition is marked by an increase in serum iron (>130 or 23.27 mmol/dL), a decreased TIBC (<250 or 44.8 mmol/dL), an increased % transferrin saturation (usually > 60%), and an increased ferritin level (>200 ng/ml and often >1000). Often the SGOT (ALT) is also elevated. If you suspect hemochromatisis we recommend doing a hereditary hemochromatosis DNA test (C282Y, H63D, and S65C) to rule it out.

Rationale:
Iron - Serum ↑, Ferritin ↑, % Transferrin saturation ↑, AST (SGOT) ↑, ALT (SGPT) ↑

Additional Lipid Testing

The results of this blood test indicate that this patient may dealing with hyperlipidemia, which may be causing the elements listed below to be outside the optimal range. If you haven't done so already, you may want to consider running additional lipid tests such as the Cardio IQ (TM) Lipoprotein Fractionation Test to get more information on the nature of the hyperlipidemia and it's associated cardiovascular disease risk. The Cardio IQ (TM) Lipoprotein Fractionation Test precisely quantifies lipoprotein fractions across the entire lipoprotein spectrum; this comprises VLDL, IDL, LDL, and HDL particles.

Rationale:
Cholesterol - Total ↑, Triglycerides ↑, LDL Cholesterol ↑

Liver Cell Damage

The results on this blood test indicate that this patient might be at an increased risk of liver cell damage or may actually have liver cell damage that is causing the elements listed below to be outside the optimal range. You may want to consider additional testing to rule out viral hepatitis or other conditions that cause liver enzymes to be elevated or refer the patient to a qualified physician for further evaluation.

Rationale:
AST (SGOT) ↑, ALT (SGPT) ↑, GGT ↑

Blood Test History Report

The Blood Test History Report lists the results of your patient's Chemistry Screen and CBC tests side by side with the latest test listed on the left hand side. This report allows you to compare results over time and see where improvement has been made and allows you to track progress.

Element	Latest Test Result Jan 18 2020
Glucose	83.00
Hemoglobin A1C	5.40
Insulin - Fasting	13.60 ↑
Fructosamine	
C-Peptide	
BUN	14.00
Creatinine	0.75 ↓
Creatinine, 24-hour urine	
Creatinine Clearance	
eGFR Non-Afr. American	88.00 ↓
eGFR African American	101.00
BUN/Creatinine Ratio	18.66 ↑
Sodium	142.00
Potassium	4.40
Sodium/Potassium Ratio	32.27
Chloride	105.00
CO2	23.00 ↓
Anion gap	18.40 ↑
Uric Acid, female	4.70
Protein, total	7.20
Albumin	4.50
Globulin, total	2.70
Albumin/Globulin Ratio	1.66
Calcium	9.30 ↓
Calcium/Albumin Ratio	2.06
Phosphorus	3.60
Calcium/Phosphorous Ratio	2.58
Collagen Cross-Linked NTx	
Magnesium	2.30

Element	Latest Test Result Jan 18 2020
Alk Phos	90.00
LDH	165.00
AST (SGOT)	36.00 ↑
ALT (SGPT)	40.00 ↑
GGT	107.00 ⚠
Bilirubin - Total	1.40 ↑
Bilirubin - Direct	0.31 ↑
Bilirubin - Indirect	1.09 ↑
Iron - Serum	242.00 ↑
Ferritin	661.00 ⚠
TIBC	260.00
% Transferrin saturation	93.00 ⚠
Cholesterol - Total	216.00 ↑
Triglycerides	114.00 ↑
LDL Cholesterol	130.00 ↑
HDL Cholesterol	63.00
VLDL Cholesterol	
Cholesterol/HDL Ratio	3.40 ↑
Triglyceride/HDL Ratio	1.80
Leptin, Female	
TSH	2.71
Total T4	8.40
Total T3	133.00
Free T4	1.16
Free T3	3.40
T3 Uptake	23.00 ↓
Free Thyroxine Index (T7)	1.93
Thyroid Peroxidase (TPO) Abs	12.00
Thyroglobulin Abs	
Reverse T3	24.50
C-Reactive Protein	
Hs CRP, Female	4.38 ↑
ESR, Female	
Homocysteine	8.50 ↑
Fibrinogen	

Element	Latest Test Result Jan 18 2020
Creatine Kinase	
Vitamin D (25-OH)	31.50 ↓
Vitamin B12	
Folate	
DHEA-S, Female	
Cortisol - AM	
Cortisol - PM	
Testosterone, Free Female	
Testosterone, Total Female	
Sex Hormone Binding Globulin, female	
Estradiol, Female	
Progesterone, Female	
Total WBCs	6.00
RBC, Female	5.10 ↑
Reticulocyte count	
Hemoglobin, Female	16.20 ↑
Hematocrit, Female	47.40 ↑
MCV	93.00 ↑
MCH	31.80
MCHC	34.20
Platelets	292.00
RDW	13.10 ↑
Neutrophils	58.00
Bands	
Lymphocytes	31.00
Monocytes	8.00 ↑
Eosinophils	3.00
Basophils	0.00

Clinical Dysfunctions Report

Advanced Practitioner Only Report

The Clinical Dysfunctions Report shows a list of likely Health Concerns and Nutrient Deficiencies that your patient may be suffering from based on an analysis of their Chemistry Screen and CBC results. Health Concerns that are most likely are listed at the top of the report and the least likely at the bottom.

Score Guide: **90% - 100%** - Dysfunction Highly Likely, **70% - 90%** - Dysfunction Likely, **50% - 70%** - Dysfunction Possible, **< 50%** - Dysfunction Less Likely.

Health Concerns	0% 100%
Biliary Insufficiency/Stasis	100%
Biliary Obstruction	100%
Fatty Liver/Steatosis	100%
Iron Overload	100%
Muscle Atrophy/Breakdown	100%
Liver Dysfunction	100%
Liver Cell Damage	83%
Metabolic Syndrome	80%
Endothelial Dysfunction	73%
Hyperinsulinemia	71%
Congestive Heart Dysfunction	62%
Metabolic Acidosis	53%
Liver Cirrhosis	40%
Fatty Liver - Early Stage	27%
Bacterial Infection	27%
Anemia	26%
Immune Insufficiency	25%
Viral Infection	23%
Adrenal Insufficiency	21%
Pancreatic Insufficiency	20%
Gout	17%
Hypothyroidism - Secondary	15%
Renal Insufficiency	14%
Gastric Inflammation	13%
Intestinal Parasites	10%
Renal Disease	10%
Hypochlorhydria	6%
Adrenal Stress	0%
Hypoglycemia	0%
Hyperactive Thyroid	0%
Hypothyroidism - T4 under conversion	0%

Health Concerns	0%	100%
Metabolic Alkalosis	0%	
Testosterone Deficiency	0%	
Intestinal Hyperpermeability	0%	
Dysglycemia	0%	

Biliary Insufficiency/Stasis

Biliary stasis or insufficiency can often be caused by a mild obstruction in the extra-hepatic biliary duct. **GGTP** levels will frequently be increased above optimal but not necessarily. **Bilirubin** levels (total and/or direct) will also be elevated along with **alkaline phosphatase, LDH**, **triglycerides** and **total cholesterol**. **SGPT/ALT** may be normal or increased. Many cases of biliary stasis will show normal lab values. In these situations suspect biliary stasis or insufficiency if there are strong subjective indicators. If the score for Biliary Insufficiency/Stasis is elevated consider further testing or treat accordingly.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
GGT↑, Cholesterol - Total↑, ALT (SGPT) ↑, Bilirubin - Total↑, Bilirubin - Direct↑

Elements Considered:
GGT, Cholesterol - Total, Alk Phos, ALT (SGPT), LDH, Bilirubin - Total, Bilirubin - Direct, Triglycerides

Biliary Obstruction

Consider biliary obstruction with an **increased GGTP** along with an **increased alkaline phosphatase**. GGTP and alkaline phosphatase levels rise when bile excretion is blocked by an obstruction somewhere in the biliary tree, possibly the biliary/common bile duct. If that's the case then the alkaline phosphatase and the GGTP will generally be increased significantly above the SGPT/ALT and above the "normal" reference range. If there is an actual stone or calculi the total bilirubin level and the direct bilirubin levels will be elevated above the "normal" reference range. If the score in this section is elevated consider additional testing to rule out calculi or overt obstruction.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
GGT↑, Bilirubin - Total↑, Bilirubin - Direct↑, ALT (SGPT)↑

Elements Considered:
Alk Phos, GGT, Bilirubin - Total, Bilirubin - Direct, ALT (SGPT), LDH

Fatty Liver/Steatosis

Steatosis or fatty liver is caused by the accumulation of fat in the functional units of the liver. Non Alcoholic Steatotic Hepatitis is one of the most common causes of elevated liver enzymes. Fatty liver will cause extensive liver cell damage, so early detection is essential. Consider steatosis/fatty liver if the **SGPT/ALT** is increased above the **SGOT/AST** and **GGTP** levels, which may be elevated. Advanced steatosis will cause the **SGPT/ALT** to be elevated as much as 4 times the upper limit of normal. Consider it more likely if the **LDH** and **alkaline phosphatase** levels are also increased.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
ALT (SGPT) ↑, AST (SGOT) ↑, GGT ↑, Ferritin ↑

Elements Considered:
ALT (SGPT), Alk Phos, AST (SGOT), GGT, LDH, Ferritin

Iron Overload

Iron overload is a condition marked by an **increase in serum iron**, a **decreased TIBC**, **an increased % transferrin saturation**, and **an increased ferritin level**. Iron overload can be a genetic disease called Hemochromatosis or a non-genetic variant called hemosiderosis. Both conditions are caused by an excess absorption of iron, which leads to deposition of excess iron in the tissues, especially the liver. Often the **SGOT/AST may be elevated** and in severe cases may be 4-5 times the normal range.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
Iron - Serum ↑, Ferritin ↑, % Transferrin saturation ↑, AST (SGOT) ↑, ALT (SGPT) ↑

Elements Considered:
Iron - Serum, Ferritin, % Transferrin saturation, AST (SGOT), TIBC, ALT (SGPT)

Muscle Atrophy/Breakdown

Consider muscle atrophy or muscle breakdown with a decreased serum **creatinine** along with an increased **SGPT/ALT** and **SGOT/AST**.

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
Creatinine ↓, AST (SGOT) ↑, ALT (SGPT) ↑

Elements Considered:
Creatinine, AST (SGOT), ALT (SGPT)

Patient Result Not Available - Consider Running In Future Tests:
Creatine Kinase

Liver Dysfunction

[100%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
ALT (SGPT) ↑, Ferritin ↑, AST (SGOT) ↑, GGT ↑, Bilirubin - Total ↑, Cholesterol - Total ↑, Bilirubin - Direct ↑, Iron - Serum ↑, RDW ↑, MCV ↑

Elements Considered:
ALT (SGPT), Ferritin, Alk Phos, AST (SGOT), GGT, Bilirubin - Total, Cholesterol - Total, LDH, Albumin, Globulin, total, BUN, Bilirubin - Direct, Triglycerides, Albumin/Globulin Ratio, Protein, total, Iron - Serum, RDW, MCV

Liver Cell Damage

Liver cell damage due to active cellular destruction (i.e. chronic/acute hepatitis, active cirrhosis, infectious mononucleosis, hepatic necrosis, alcoholic hepatitis) will usually result in significantly elevated liver enzyme levels. Consider liver cell damage if **SGPT/ALT**, **SGOT/AST** and **GGTP** are increased above the upper "normal" levels. Additional elements that may be out of the "normal" range with liver cell damage are an increased **alkaline phosphatase**, an increased **LDH** and an increased **globulin**.

[83%] - Dysfunction Likely. Improvement required.

Rationale:
AST (SGOT) ↑, ALT (SGPT) ↑, GGT ↑

Elements Considered:
Globulin, total, Alk Phos, AST (SGOT), ALT (SGPT), GGT, LDH

Metabolic Syndrome

Consider metabolic syndrome with an increased **triglyceride**, an increased **total cholesterol**, an increased **LDL** cholesterol, a decreased **HDL**, an increased fasting **blood glucose** and an increased **hemoglobin A1C**. Additional elements that may be out of range with metabolic syndrome include an increased fasting **insulin**, an increased **uric acid** and decreased **DHEA**.

[80%] - Dysfunction Likely. Improvement required.

Rationale:
Triglycerides ↑, Insulin - Fasting ↑, Cholesterol - Total ↑, LDL Cholesterol ↑

Elements Considered:
Glucose, Triglycerides, Hemoglobin A1C, Insulin - Fasting, Uric Acid, female, Cholesterol - Total, LDL Cholesterol, HDL Cholesterol

Patient Result Not Available - Consider Running In Future Tests:
DHEA-S, Female, Leptin, Female

Endothelial Dysfunction

Consider endothelial dysfunction with an increased **homocysteine**, an increased **blood glucose**, an increased **fibrinogen**, an increased **HS-CRP**, a decreased **free serum testosterone**, and an increased **iron**. Some of the other causes of endothelial dysfunction include smoking, hypertension, nutrient deficiencies, a standard Western diet, and a lack of exercise.

[73%] - Dysfunction Likely. Improvement required.

Rationale:
Hs CRP, Female ↑, Homocysteine ↑

Elements Considered:
Hs CRP, Female, Homocysteine, Glucose, Iron - Serum

Patient Result Not Available - Consider Running In Future Tests:
Fibrinogen

Hyperinsulinemia

Insulin resistance is the condition in which people lose sensitivity to the hormone insulin. As the cells become resistant to insulin, levels of insulin and blood glucose will rise. Consider insulin resistance with an increased **fasting insulin** and an increased **fasting blood glucose**, an increased **Hemoglobin A1C**, an increased **triglyceride** and an increased **Triglyceride/HDL ratio.** You may also see an increased **total cholesterol**, an increased **C-Peptide**, a decreased **HDL** and a decreased **phosphorous**.

[71%] - Dysfunction Likely. Improvement required.

Rationale:
Cholesterol - Total ↑, Triglycerides ↑, Insulin - Fasting ↑

Elements Considered:
Glucose, Phosphorus, Cholesterol - Total, Triglycerides, HDL Cholesterol, Insulin - Fasting, Triglyceride/HDL Ratio

Patient Result Not Available - Consider Running In Future Tests:
C-Peptide

Congestive Heart Dysfunction

An increased **SGOT/AST** level can be an important clue to a developing congestive heart problem. Congestive Heart Disease (CHF) is a very common cardiovascular disease so its helpful to use Functional Blood Chemistry Analysis to catch it before it fully develops. If the **SGOT/AST** is increased higher than an accompanying **SGPT/ALT** increase with a normal to increased **GGTP**, increased **alkaline phosphatase** and a decreased **CO_2** consider the possibility of a developing congestive heart problem. It is more likely if the patient also has an increased **ESR**, a normal to increased **globulin**, and an increased **uric acid**

[62%] - Dysfunction Possible. There may be improvement needed in certain areas.

Rationale:
AST (SGOT) ↑, CO2 ↓, ALT (SGPT) ↑

Elements Considered:
AST (SGOT), CO2, Uric Acid, female, Globulin, total, Alk Phos, ALT (SGPT)

Patient Result Not Available - Consider Running In Future Tests:
ESR, Female

Metabolic Acidosis

Consider metabolic acidosis if the **anion gap** is increased along with an increased **potassium**, a decreased **CO_2** and an increased **chloride**.

[53%] - Dysfunction Possible. There may be improvement needed in certain areas.

Rationale:
Anion gap ↑, CO2 ↓

Elements Considered:
Anion gap, Potassium, Chloride, CO2

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