FUNCTIONAL BLOOD CHEMISTRY **ANALYZER**

CLIENT ID: 10234
TEST DATE: 02-05-2017
PRACTITIONER: coupontest3
REPORT DATE: 09-13-2017

Table of Contents

[Table of Contents]

1.0: Overview of Results

This section presents a comprehensive overview of all blood testing results that have been submitted and analyzed.

Patient: 10234, male, age: 44, date of testing: 2017-02-05.

Markers with a red up-facing arrow are flagged as *higher* than optimal range.

Markers with a blue down-facing arrow are flagged as *lower* than optimal range.

[Table of Contents]

1.1: Individual Markers

Click here to make corrections.

Metabolic Panel

Marker		Result	Optimal Range	Unit
Glucose		80	80 - 90	mg/dl
Insulin		5	1 - 5	mg/dl
Hemoglobin A1C		5	4.8 - 5.8	%
Uric Acid		4	3.5 - 5	mg/dl
Blood Urea Nitrogen (BUN)		13	12 - 18	mg/dl
Creatinine	↑	2	0.65 - 1.18	mg/dL
Glomerular Filtration Rate (GFR)		80	60 - 130	mL/min
Sodium	↑	150	137 - 143	mmol/L
Potassium		4.1	4 - 4.5	mmol/L
Chloride		102	100 - 106	mmol/L
Carbon Dioxide			23 - 27	mmol/L
Calcium			9.1 - 9.8	mg/dl
Phosphorus		3.3	3 - 4	mg/dl
Total Bilirubin		0.7	0.2 - 1	mg/dl
Total Protein	↓	6	6.7 - 7.4	g/dl
Albumin	↓	4	4.1 - 4.8	g/dl
Globulin		2.5	2.3 - 2.7	g/dl
Alkaline Phosphatase (ALP)		70	60 - 100	IU/L
Alanine Aminotransferase (ALT)		20	15 - 35	IU/L
Aspartate Aminotransferase (AST)		22	15 - 35	IU/L
Gamma-Glutamyl Transferase		21	15 - 35	IU/L
LDH	↓	120	140 - 200	IU/L
Iron, serum		90	60 - 110	ug/dl

[Table of Contents]

Lipid Panel

Marker	⚠	Result	Optimal Range	Unit
Triglycerides	↑	110	60 - 100	mg/dl
HDL Cholesterol		70	50 - 85	mg/dl
LDL Cholesterol		90	80 - 150	mg/dl
Total Cholesterol		200	170 - 240	mg/dl

*Triglycerides to HDL ratio: 1.46

CBC (complete blood count)

Marker	⚠	Result	Optimal Range	Unit
White Blood Cells		6	5 - 7.5	x10E3/uL
Red Blood Cells (RBC)		5	4 - 5	x10E6/uL
Hemoglobin		14	13.5 - 15	g/dl
Hematocrit		40	38 - 48	%
Mean Corpuscular Volume (MCV)		90	85 - 93	fL
Mean Corpuscular Hemoglobin (MCH)		28	27 - 32	pg/cell
Mean Corpuscular Hemoglobin Concentration (MCHC)			32 - 35	g/dL
Red Blood Cell Distribution Width (RDW)			0 - 15	%
Platelets		180	150 - 380	x10E3/uL
Neutrophils (percent of total)		50	40 - 60	%
Lymphocytes (percent of total)			30 - 45	%
Eosinophils (percent of total)			0 - 3	%
Monocytes (percent of total)			0 - 7	%
Basophils (percent of total)			0 - 2	%

[Table of Contents]

Thyroid-Related Markers

Marker	⚠	Result	Optimal Range	Unit
TSH		2	1.8 - 3	uIU/mL
Total Triiodothyronine / T3		150	100 - 200	ng/dL
Total Thyroxine	↑	13	6 - 12	ug/dL
Free Triidothyroinine / Free T3		3.3	3 - 4.5	pg/mL
Free Thyroxine		1.2	1 - 1.5	ng/dL
Resin T3 Uptake		38	28 - 38	%
Reverse T3		7	0 - 15	ng/dL
Thyroid Peroxidase Anti Body		2	0 - 10	IU/mL

Additional Markers

Marker	⚠	Result	Optimal Range	Unit
Zinc, serum/plasma		100	90 - 135	ug/dl
Copper, serum		90	70 - 110	ug/dl
Ceruloplasmin		18	16 - 45	mg/dl
Homocysteine		7	6 - 8	umol/L
B-12 serum		500	500 - 1000	pg/ml
Folate, serum		10	6 - 16	ng/ml
Histamine, whole blood		60	40 - 70	ng/ml
Prostate-Specific Antigen (PSA)		2	0 - 4	ng/ml
C-Reactive Protein (hs-CRP)		1	0 - 2	mg/L
Vitamin D (25-hydroxyvitamin D)		50	30 - 80	ng/mL

[Table of Contents]

1.2: Out of Range

Metabolic Panel

Marker	⚠	Result	Optimal Range	Unit
Creatinine	↑	2	0.65 - 1.18	mg/dL
Sodium	↑	150	137 - 143	mmol/L
Total Protein	↓	6	6.7 - 7.4	g/dl
Albumin	↓	4	4.1 - 4.8	g/dl
LDH	↓	120	140 - 200	IU/L

Lipid Panel

Marker	⚠	Result	Optimal Range	Unit
Triglycerides	↑	110	60 - 100	mg/dl

Thyroid-Related Markers

Marker	⚠	Result	Optimal Range	Unit
Total Thyroxine (SI)	↑	13	6 - 12	ug/dL

[Table of Contents]

2.0: Patterns Overview

This section provides an overview and description for potential physiological patterns that have been identified.

These potential physiological patterns are based upon the findings of individual blood chemistry markers. These patterns are determined by groups of individual markers that have triggered pre-determined indices.

Patterns are classified as either:

- "High Risk" is indicated with this Icon:
- "Moderate Risk" is indicated with this icon:

A "**High Risk**" pattern suggests a stronger likelihood that such a physiological pattern exists.
A "**Moderate Risk**" pattern suggests a physiological pattern may exist, but is less certain than a "High Risk pattern".

These analyses are non-diagnostic, but rather represent the potential that certain physiological imbalances are present. Further testing may be warranted to confirm or deny the existence of these potential physiological imbalances.

[Table of Contents]

2.1: Flagged Patterns

BLOOD SUGAR

Pattern	Risk	Links
Hypoglycemia	⚠	Protocols | Pattern Reference

CELL HYDRATION

Pattern	Risk	Links
Electrolyte Imbalance	⚠	Protocols | Pattern Reference

DIGESTION

Pattern	Risk	Links
Bile Insufficiency	⚠	Protocols | Pattern Reference

LIVER

Pattern	Risk	Links
Diminished Liver Function	⚠	Protocols | Pattern Reference

Adrenal Related Markers

Pattern	Risk	Links
Increased Adrenal Output	⚠	Protocols | Pattern Reference

[Table of Contents]

Nutrient Markers

Pattern	Risk	Links
Dietary Protein Deficiency	⚠	Protocols | Pattern Reference
Glutathione Need	⚠	Protocols | Pattern Reference

[Table of Contents]

2.2: Patterns Recommendations & protocols

The following “protocols & Recommended Additional Testing” section is based upon the physiological patterns identified, NOT the individual markers

[Table of Contents]

BILE INSUFFICIENCY

Click here to jump to the reference section for this pattern

Symptoms

- GI symptoms worsen after consuming dietary fats
- Bile acid reflux
- Heartburn, indigestion
- Constipation
- Greasy, fatty stools
- Diarrhea, or losse stools
- Gall bladder removed

Clinical Objectives

- Support normal liver functions
- Thin bile flow, decongest liver
- Enhance digestion & fatty acid uptake

Lifestyle Factors

- Determine if there is bile duct obstruction, gravel or gall stones
- **Support Normal Function Of Liver:** Restrict alcohol, drugs /pharmaceuticals,caffeine, increase hydration
- **Thin Bile Flow, Decongest Liver**: Coffee enemas

Dietary Considerations

- **Support Normal Function Of Liver:** Dietary protein, beets & beet greens,artichoke (leaf, stem), bitter green vegetables such as dandelion greens, cruciferous vegetables: broccoli, cauliflower, kale, cabbage, brussel sprouts
- **Thin Bile Flow, Decongest Liver:** Beets & beet greens, artichoke (leaf, stem,root), burdock root, rhubarb root, bitter green vegetables such as dandelion greens, egg yolks, lecithin, olive oil
- **Enhance Digestion & Fatty Acid Uptake:** Bitter green vegetables such as dandelion greens

[Table of Contents]

Supplementation

- **Support Normal Function Of Liver:** B-complex, B-12, glycine, cysteine, taurine,methionine, milk thistle, bitter berberrine-containing herbs (Oregon grape, barberry,goldenseal, celendine)
- **Thin Bile Flow, Decongest Liver:** Choline, inositol, betaine HCL, lecithin, artichoke leaf extract, dandelion root, rhubarb root, berberrine-containing herbs (Oregon grape,barberry, goldenseal, celendine), cascara sagrada, digestive bitters, bayberry, phosphoric acid, yellow dock
- **Enhance Digestion & Fatty Acid Uptake:** Digestive enzymes, especially lipase, pancreatic enzymes, especially pancreatic lipase, bovine bile salts, ox bile, black radish

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Related or Follow-up Testing

- GI pathogen screen, or comprehensive stool analysis with fecal fat
- Urinary organic acids test (OAT)
- Plasma fatty acids
- Hair tissue mineral analysis

Notes

- Pharmaceuticals are hepato-toxic
- Pay attention to heavy metal & chemical toxicity
- Monitor endocrine functions

[Table of Contents]

DIETARY PROTEIN DEFICIENCY

Click here to jump to the reference section for this pattern

Symptoms

- Crave meat
- Increased appetite
- Loss of or lack of muscle mass
- Lack of energy
- Brain fog, loss of cognition

Clinical Objectives

- Increase dietary protein
- Support digestion & assimilation

Lifestyle Factors

- If engaged in exercise, protein intake should follow no longer than 45 minutes following workout
- Improve hydration to improve digestion

Dietary Considerations

- **Increase Dietary Protein:** Meat, poultry, fish, seafood, eggs, dairy; consider reducing cooking temperature to 225F (107c) to preserve heat labile amino acids; sources of protein powders are often inadequate and may not be sufficiently digested in some cases.

Supplementation

- **Support Digestion & Assimilation:** HCL with pepsin, digestive enzymes, pancreatic enzymes, digestive bitters, P5P/Vitamin B-6 (to assist in amino acid metabolism & peptide synthesis)

[Table of Contents]

Related or Follow-up Testing

- Plasma amino acids
- Hair tissue mineral analysis (HTMA)
- Organic acids (OAT)
- GI function testing

Notes

- Monitor digestive presentations
- If albumin is low, support liver functions

[Table of Contents]

DIMINISHED LIVER FUNCTION

Click here to jump to the reference section for this pattern

Symptoms

- Chemical sensitivity
- Edema
- Caffeine or alcohol sensitivity
- Headaches: front lobe
- Headaches: base of skull
- Pain between shoulder blades
- Burning or itching anus

Clinical Objectives

- Improve/restore functionality of liver
- Support/normalize detoxification phases
- Protect liver cells from damage

Lifestyle Factors

- **Improve/Restore Functionality of Liver:** Hydration, restrict alcohol, caffeine
- **Support/Normalize Detoxification Phases:** Hydration, Restrict alcohol, caffeine
- **Protect Liver Cells From Damage:** Restrict alcohol, caffeine

Dietary Considerations

- **Improve/Restore Functionality of Liver:** Increase dietary protein, especially if albumin is decreased, increase intake of beets, beet greens, artichoke (leaf, stem & heart)
- **Support/Normalize Detoxification Phases:** Increase dietary protein, Cruciferous vegetables: broccoli, cauliflower, kale, brussel sprouts, cabbage, Increase intake of beets, beet greens, artichoke (leaf, stem & heart), garlic, radish
- **Protect Liver Cells From Damage:** Increase dietary protein, Cruciferous vegetables: broccoli, cauliflower, kale, brussel sprouts, cabbage, citrus fruit

[Table of Contents]

Supplementation

- **Improve/Restore Functionality of Liver:** If albumin is low then low-molecular weight antioxidants (vitamin C, E, lipoid acid), B-complex, B-12, glycine, cysteine, taurine, arginine, glutamine, methionine, glutathione, NAC, turmeric, milk thistle, berberrinecontaining herbs (Oregon grape, barberry, phellodendron, coptis, goldenseal, celendine), bovine liver glandular/protomorphogen
- **Support/Normalize Detoxification Phases:** B-complex, B-12, P5P, Betaine HCL, vitamins C, E, choline, inositol, magnesium, molybdenum, sulfur, zinc, dandelion root, berberrine-containing herbs (Oregon grape, barberry, phellodendron, coptis, goldenseal, celendine)
- **Protect Liver Cells From Damage If Liver Enzymes are Elevated:** Vitamins C, E, bioflavanoids, glutathione, lipoic acid, NAC, milk thistle, bupleurum, dandelion, ban zhi lian, cornsilk, licorice, selenium, CoQ10, SOD

Related or Follow-up Testing

- Urinary hepatic detoxification profile
- Urinary bile acid sulfates (UBAS)
- Organic acids test (OAT)
- Toxic metal screen: HTMA, urine, fecal

Notes

- Pharmaceuticals are hepato-toxic
- Pay attention to heavy metal & chemical toxicity
- Monitor endocrine functions

[Table of Contents]

ELECTROLYTE IMBALANCE

Click here to jump to the reference section for this pattern

Symptoms

- Dry mouth
- High or low blood pressure
- Orthostatic blood pressure failure
- Unquenchable thirst
- Lack of saliva
- Flaking and/or dry skin
- Excess consumption of caffeine, alcohol or diuretics
- ncreased or decreased urination
- Muscle soreness, trigger points or tightness

Clinical Objectives

- Maximize hydration
- Maximize fluid/electrolyte balance

Lifestyle Factors

- Excess sweating can cause loss of electrolytes
- Consumption of diuretics can dehydrate and deplete/derange electrolytes: coffee, tea, alcohol, caffeine, diuretic drugs

Dietary Considerations

- **Restore Fluid/Electrolyte Balance:** Consume potassium and magnesium-rich & water-soluble vegetables, cucumber, cucumber juice, greens, watermelon

Supplementation

- **Restore Hydration:** water with pH >7.0 and 250 ppm, water, mineral salt, magnesium
- **Individual Considerations:** If sodium <137 consider increasing salt intake; if sodium>143 consider restricting salt intake and increase magnesium. Dilution of

[Table of Contents]

minerals salts in water may increase effectiveness of mineral transport.

Related or Follow-up Testing

- Blood pressure
- Orthostatic blood pressure
- RBC elements: intracellular elements can vary from serum
- Adrenal hormone profile: cortisol, aldosterone
- Hair tissue mineral analysis (HTMA)

Notes

- Aluminum, chlorine, fluoride can induce blood sludge and induce changes to electrolytes
- Monitor renal function markers
- Monitor pH tendencies
- Monitor serum electrolytes

[Table of Contents]

GLUTATHIONE NEED

Click here to jump to the reference section for this pattern

Symptoms

- Chemical sensitivity
- Poor detoxification of toxic elements
- Chronic fatigue
- Headaches
- Mercury: toxic burden
- Longterm illness

Clinical Objectives

- Support glutathione synthesis & utilization
- Reduce oxidative stress burden
- Investigate causative factors of oxidative stress
- Support digestion & assimilation

Lifestyle Factors

- **Reduce Oxidative Stress Burden:** Rest, moderate exercise, sauna therapy,improve hydration

Dietary Considerations

- **Increase Glutathione Synthesis & Utilization:** Sulfur-bearing and glutaminecontaining amino acids: Meat, poultry, fish, seafood, eggs, dairy, whey protein
- **Support Digestion & Assimilation:** Vinegar if low gastric acid, consider raw foods vs. cooked

Supplementation

- **Support Glutathione Synthesis & Utilization:** NAC, L-glycine, L-glutamine, P5P, NAD, lipoic acid, zinc, selenium, Vitamins C & E, B-12 (methylcobalamin, hydroxycobalamin, adenosylcobalamin, cyanocobalamin), folate, liposomal glutathione, 5 herbs in combination: turmeric, green tea, ashwagandha, milk thistle,

[Table of Contents]

bacopa monniera
- **Support Digestion & Assimilation:** HCL with pepsin, digestive enzymes, pancreatic enzymes, digestive bitters

Related or Follow-up Testing

- **Urinary organic acids test (OAT):** pyroglutamate, alpha hydroxybutyrate, sulfate glucararate
- Plasma amino acids
- Serum or plasma homocysteine
- Consider genetic methylation pathway analysis: MTHFR, MTRR, CBS, GSTM1, GSTM3 & functional methylation pathway analysis
- RBC glutathione
- Plasma reduced/oxidized glutathione
- Heavy metal testing: HTMA, urinary, fecal metals

Notes

- Glutathione is depleted by many common drugs, especially acetaminophen and NSAIDs
- Glutathione depletion is a common pattern in chronic states of oxidative stress.

[Table of Contents]

HYPOGLYCEMIA

Click here to jump to the reference section for this pattern

Symptoms

- Hungry all of the time
- Need to snack between meals
- Energy crash from high carbohydrate meal
- High carbohydrate meal produces hunger within 60-90 minutes or less
- Loss of cognitive function if meals skipped or delayed

Clinical Objectives

- Normalize inefficient glucose utilization
- Investigate endocrine disturbance if present

Lifestyle Factors

- **Normalize Inefficient Glucose Utilization:** Establish routine of correct dietary habits
- **Support Endocrine Disturbance (if present):** Stress reduction

Dietary Considerations

- **Normalize Inefficient Glucose Utilization:** Increase dietary protein & fat, restrict sugar & carbohydrates, Maximize macronutrient ratios, discover Metabolic Type®

Supplementation

- **Normalize Inefficient Glucose Utilization:** zinc, calcium, vitamin B-5, pancreatic glandular, astragalus
- **Support Endocrine Disturbance (if present):** Adrenal glandular, licorice, eleuthero, siberian or Korean ginseng

[Table of Contents]

Related or Follow-up Testing

- Glucose tolerance test
- LDH electrophoresis (if LDH is <140)
- Thyroid screen
- Saliva-cortisol hormone test
- Metabolic Type assessment

Notes

- In severe cases of hypoglycemia support HPA axis & investigate thyroid & adrenal status.
- Consider investigating liver function

[Table of Contents]

INCREASED ADRENAL OUTPUT

Click here to jump to the reference section for this pattern

Symptoms

- Keyed up
- Insomnia
- Physically wired but mentally tired
- Elevated BP
- Increased urination
- Fatigue
- Glucose in urine

Clinical Objectives

- Support increased adrenal output & HPA axis
- Support secondary symptoms of increased adrenal output: GI, digestion

Lifestyle Factors

- **Support Hyperadrenal Function:** Moderate exercise, rest, stress reduction, hydration, eliminate: caffeine, alcohol, diuretics

Dietary Considerations

- **Support Hyperadrenal Function:** Maximize macro-nutrient ratios relative to Metabolic Type®, Vitamin C-rich foods: citrus, vegetables

Supplementation

- **Support Hyperadrenal Function:** Adrenal glandular /protomorphogen, magnesium and calcium (give together), P5P, Vitamins C with bioflavanoids, Vitamin E, inositol (if insomnia or anxiety), holy basil, hawthorn (especially if BP is elevated), phosphatidylserine, rhemmania, ashwagandha, if keyed up then consider antispasmodics:kava kava, skullcap, lobelia, goth kola, American ginseng, valerian
- **Support Digestion & Assimilation:** Eliminate antigenic foods, Digestive enzymes,HCL, bovine bile salts

[Table of Contents]

Related or Follow-up Testing

- Cortisol testing (urine, saliva)
- Orthostatic blood pressure
- Orthostatic pulse
- Na/K ratio: Hair tissue mineral analysis (HTMA)
- Organic acids test (OAT)

Notes

- Monitor GI inflammation & infections
- Monitor glucose & blood pressure
- Monitor thyroid function
- Corticosteroids suppress immune function & induce bone loss longterm
- With prolonged elevated cortisol, monitor bone health & Ca/P ratio

[Table of Contents]

3.0: Appendix

The following sections provide additional information to help you gather a deeper understanding of the report results.

[Table of Contents]

3.1: Individual Marker Appendix

The following section provides brief descriptions for each individual blood chemistry marker outside of optimal range.

Each blood chemistry marker description also includes a listing of interfering drugs, which are known to affect the status of each blood chemistry marker.

This section also contains other possible factors, which are known to affect blood chemistry.

METABOLIC PANEL

Albumin – Low (Result: 4 ; Range: 4.1 - 4.8 g/dl)

Drug interference: Acid-blocking drugs, antacids, hepato-toxic drugs, estrogens, oral contraceptives

Creatinine – Low (Result: 2 ; Range: 0.65 - 1.18 mg/dL)

Creatinine is a waste product in the breakdown of creatine in muscle. Creatinine is removed via the kidneys.

Drug interference: Creatine, antibiotics, cephalosporin, glucose, quinidine, histidine

LDH – Low (Result: 120 ; Range: 140 - 200 IU/L)

LDH is a metabolic enzyme concentrated in numerous tissues. Its highest concentrations are found in: heart, liver, lungs, brain, kidney, placenta, pancreas, and skeletal muscle. LDH converts the reversible reactions of pyruvate to lactate, as well as NADH to NAD. The conversion of pyruvate (from glycolysis) into lactate occurs when oxygen availability is reduced (anaerobic conditions). LDH on routine blood chemistry represents the “total LDH”. In actuality, there exist 5 LDH isoenzymes. Each isoenzyme originates from a specific tissue. Differentiation of LDH can be determined through electrophoresis.

Drug interference: High doses of Vitamin C

Sodium – High (Result: 150 ; Range: 137 - 143 mmol/L)

[Table of Contents]

Sodium is the primary base of the blood, functioning as a pH buffer. Sodium is also essential as an electrolyte, working with other electrolytes to produce the proper electrical charge of cells. Sodium is predominantly found in the extracellular fluids. Sodium is essential for numerous physiological processes, including: nerve impulse and blood pressure, hormone synthesis, adrenal function, renal function, vascular integrity, and various cardiac functions. Increases in sodium should be viewed in concert with other electrolytes, especially potassium and chloride.

Drug interference: Steroids, NSAID's, anti-hypertensives

Total Protein – Low (Result: 6 ; Range: 6.7 - 7.4 g/dl)

The total protein is a sum of albumin and globulin. To understand why total protein is decreased, investigate the individual albumin and globulin markers.

Triglycerides – High (Result: 110 ; Range: 60 - 100 mg/dl)

Triglycerides are fats in the blood, which serve as a source of fuel for all muscles of the body. Triglycerides contain a glycerol and 3 fatty acids. Triglycerides can be derived from the diet directly, or synthesized endogenously by the liver. Diets high in carbohydrates and sugars can be a dietary cause of elevated blood triglycerides.

Drug interference: Alcohol, bile acid sequesterants, oral contraceptives, estrogens, beta blockers, steroids, diuretics

Total Thyroxine – High (Result: 13 ; Range: 6 - 12 ug/dL)

T4 (thyroxine) is secreted by the thyroid gland. Total T4 is comprised of both bound and unbound thyroxine. Because T4 is bound to proteins such as TBG, TT4 measures are not as clinically relevant as Free T4 measures. Elevated TT4 may be found among those with hyperthyroid function. However, a full thyroid panel is recommended in order to understand the nature of imbalance.

Drug interference: clofibrate, estrogens, heroin, methadone, oral contraceptives

[Table of Contents]

3.2: Patterns Appendix

This section includes page descriptions for each of the physiological patterns that have been identified. These pages are intended as a reference section for clinicians, in order to better understand each pattern identified.

[Table of Contents]

BILE INSUFFICIENCY

Recommendations & Protocols

This report has identified a pattern for Bile Insufficiency. A pattern for bile insufficiency indicates a higher likelihood for insufficient bile production, or inadequate bile utilization. Bile is comprised mostly of water (>90%), and to a lesser degree bile salts, bilirubin and fats. Bile is produced in the liver and stored in the gall bladder. Bile is an essential “degreaser” and “emulsifier” of dietary fats and fat-soluble vitamins (A, D, E, K). Inadequate bile may indicate a deficiency of fats and fat-soluble vitamins. Bile also is a carrier of various “biotransformed” chemical and heavy metal toxins, which the liver has processed. If bile deficiency is present, it is first essential to understand the mechanisms of why someone is deficient. These may include:

- Diet: Inadequate fat consumption, dehydration
- Liver dysfunction: faulty phase 2 mechanisms, especially glucuronidation
- Decreased cholesterol - cholesterol is required for bile synthesis
- Biliary stasis: obstruction in the biliary duct can cause inadequate bile flow

[Table of Contents]

DIETARY PROTEIN DEFICIENCY

Recommendations & Protocols

This report has identified a “Primary” pattern for Dietary Protein Deficiency. Amino acids derived from dietary protein sources are essential components of cellular and metabolic functions. Some of these include:

- Muscle, organ & connective tissue integrity
- Liver detoxification
- Neurotransmitter synthesis
- DNA/RNA synthesis
- Glucose homeostasis
- Synthesis of intracellular antioxidants such as glutathione and metallothionein

Primary patterns for dietary protein deficiency suggest an immediate need to increase dietary protein intake. During prolonged shortages of dietary protein, the body will catabolize tissue protein to make up for the deficit.

[Table of Contents]

DIMINISHED LIVER FUNCTION

Recommendations & Protocols

This report has identified a pattern for Diminished Liver Function. The liver is a massive organ with countless, essential functions. These include:

- Metabolism of nutrients (amino acids, B-vitamins, minerals, lipids) & drugs
- Biotransformation of substances, especially xenobiotics, chemicals and toxic metals
- Bile synthesis
- Hormone synthesis & degradation
- Blood sugar regulation: stores and releases glycogen & regulates gluconeogenesis
- Synthesis of cholesterol
- Nutrient storage
- Synthesis of blood clotting factors
- Blood pressure regulation: angiotensinogen
- Albumin synthesis, which influences osmotic pressure and nutrient transport

It is important to understand that inadequate liver function has numerous implications related to the overall health of the individual.

[Table of Contents]

ELECTROLYTE IMBALANCE

Recommendations & Protocols

This report has identified a pattern for Electrolyte Imbalance. The electrolytes in the blood serve as the raw materials for the “cell battery”. All cells and tissues require sufficient electrolyte and fluid balance in order to perform fundamental physiological functions. Among the numerous functions of electrolytes in cell physiology, the following functions are greatly influenced by the balance of electrolytes:

- Cell membrane voltage & action potential
- Cell membrane permeability
- Signal transduction
- ATP synthesis & utilization
- Hormonal messaging & utilization

The status of serum electrolytes are influenced by:

- Dietary intake of electrolytes
- Hydration & fluid balance
- Intra and extracellular fluid volume
- Blood pressure-regulating mechanisms: water/salt balance, renin, ACE, renal & liver sufficiency
- ADH (anti-diuretic hormone)
- Adrenal hormones: aldosterone & cortisol

[Table of Contents]

GLUTATHIONE NEED

Recommendations & Protocols

This report has identified a pattern for Glutathione Need. Glutathione is a tripeptide, comprised of: glutamine, glycine and cysteine. Glutathione is a ubiquitous antioxidant system, found in virtually every cell, organ and tissue. Glutathione is capable of scavenging multiple types of free radicals, and is among the only endogenously produced antioxidants capable of detoxifying mercury. Glutathione, and the biochemical pathways that lead to its synthesis are under high demand during oxidative stress. In such cases, there may be rising levels of oxidized glutathione (GSSH), and decreased levels of reduced glutathione (GSH). Numerous factors can influence glutathione deficiency. Some of these include:

- Deficiency of cofactors: P5P, amino acids, zinc, selenium
- Increased use, due to oxidative stress
- Methylation cycle dysfunction
- Genetic predispositions: CBS, GSTM1, GSTM3

[Table of Contents]

HYPOGLYCEMIA

Recommendations & Protocols

This report has identified a pattern for Hypoglycemia. A pattern for hypoglycemia suggests that low blood sugar episodes is a likely occurrence. Hypoglycemia does not necessarily mean “low blood sugar”, as much as “inefficient glucose utilization”. An individual with hypoglycemic tendencies may exhibit normal and even optimal fasting glucose levels. In hypoglycemia, cells tend to metabolize glucose very rapidly and inefficiently. In order to improve glucose homeostasis, it is essential to first understand the primary mechanisms influencing blood sugar utilization. These include:

- Diet: Macro-nutrient ratios relative to the individual’s metabolic needs
- Hormones that raise glucose: cortisol, thyroid hormone, ACTH, epinephrine, glucagon, growth hormone
- Hormones that lower glucose: insulin, somatostatin

[Table of Contents]

INCREASED ADRENAL OUTPUT

Recommendations & Protocols

This report has identified a pattern for Possible Increased Adrenal Output. Increased adrenal response may directly involve either or both of the 2 primary adrenal steroid hormones:

- Cortisol
- Aldosterone

Cortisol is produced as a “buffer” to stress, and also has a relationship with other physiological processes, such as: anti-inflammatory immune responses, digestion, blood sugar maintenance and HPT axis influences. Chronically elevated cortisol may negatively impact the immune system in general, as well as decrease skeletal integrity. Elevations in cortisol, like aldosterone can cause significant changes in serum electrolytes, sodium and potassium. Elevations in aldosterone can cause precipitous changes in serum electrolytes, sodium and potassium, particularly causing a decrease in potassium.

[Table of Contents]

Clinical and Technical Support

For support result interpretation or for inquiries regarding errors or other technical problems with the forms or reports, please contact us at true.report/contact

[Table of Contents]