Do Not Recommend Iron Supplements until you Watch This Webinar

Test, Don't Guess

If you're recommending iron supplements without knowing your client's iron levels, you'll be glad you watched this webinar.

You'll Learn

- The dangers of recommending an iron supplement when it's not needed.
- Two scenarios where you should never recommend an iron supplement (includes case study showing how oral contraceptives cause chronic fatigue by depleting vitamin B_6).
- How to quickly identify the blood chemistry patterns for these two scenarios using LabSmarts.

LabSmarts

About Me and LabSmarts

MaryAnn Marks

Creator, Co-founder, and CEO

maryann@labsmarts.com

847-668-1934

/MaryAnnMarks

- Easy-to-use, affordable ($9/mo), and time saving functional blood chemistry analysis software
- Nutrition Consultant, Bauman College, 2016
- Expert in functional blood chemistry analysis
- 20-year career in technology and engineering
- Skilled in creating automation software
- MBA, BS in Civil Engineering

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"It's likely that as many people are being injured by iron supplementation as are receiving medical benefit from it."

-R.L. Nelson, M.D.

Professor of Surgery, University of Illinois College of Medicine, and Epidemiology/Biometry Program, University of Illinois School of Public Health

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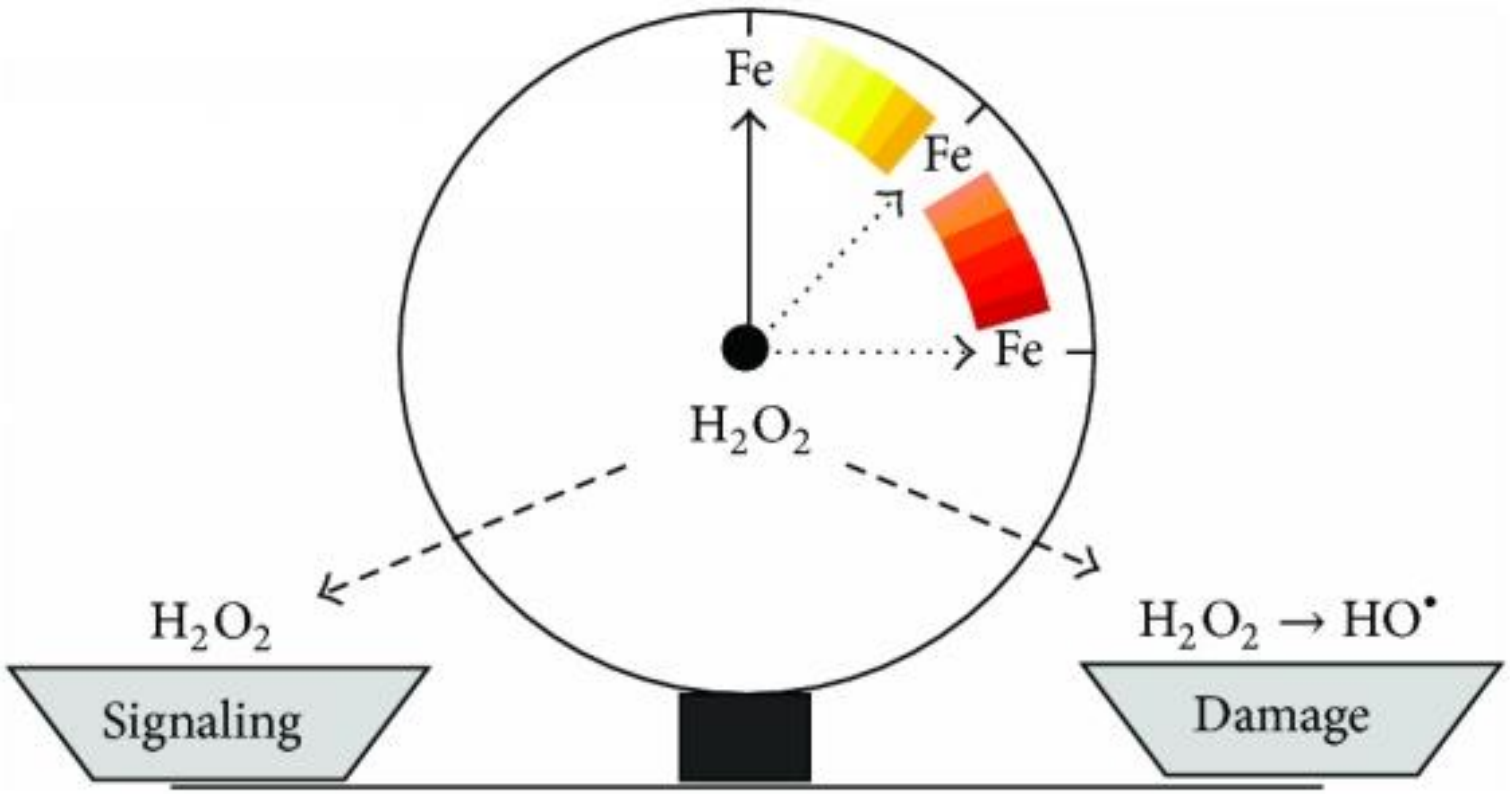
Excess Iron Can Cause Free Radical Damage



Increased iron (Fe) may change the role of hydrogen peroxide (H_2O_2) from a relatively safe compound involved in cell signaling to a source of the highly toxic hydroxyl radical ($HO^{\bullet}$).

Gammella E, Recalcati S, Cairo G. Dual Role of ROS as Signal and Stress Agents: Iron Tips the Balance in Favor of Toxic Effects. *Oxid Med Cell Longev. 2016;2016:8629024. https://pubmed.nci.nlm.hig.gov/27006749*

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Don’t Make This Assumption

Microcytic hypochromic anemia

(low hemoglobin with small, pale red blood cells)

is always caused by iron deficiency.

This is NOT true!

Test, Don’t Guess

It’s important to know your client’s values for

serum iron, % saturation, TIBC, and ferritin

before recommending an iron supplement.

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You Could Cause Harm

You could unknowingly cause your client to experience **tissue damage, joint swelling, or prolonged infection** as a result of iron overload.

Iron Supplementation Without Justification Caused Oxidative Stress in Pregnant Women

Clinical Trial > Biol Trace Elem Res. 2001 Nov;83(2):103-10. doi: 10.1385/BTER:83:2:103.

Increased lipid peroxidation in pregnant women after iron and vitamin C supplementation

B Lachili [1], I Hininger, H Faure, J Arnaud, M J Richard, A Favier, A M Roussel

Affiliations + expand

PMID: 11762527 DOI: 10.1385/BTER:83:2:103

Abstract

Iron overload could promote the generation of free radicals and result in deleterious cellular damages. A physiological increase of oxidative stress has been observed in pregnancy. A routine iron supplement, especially a combined iron and vitamin C supplementation, without biol justifications (low hemoglobin [Hb] and iron stores) could therefore aggrav k. We investigated the effect of a daily combined iron supplementation (1 itamin C (500 mg/d as ascorbate) for the third trimester of pregn RS), antioxidant micronutriments (Zn, Se, retinol, vitam metalloenzymes (RBC Cu-Zn SOD and S) was compared to a control group (n = 27), age very, all the women exhibited normal Hb a , plasma iron level was higher than in the control asma levels were significantly enhanced (p < 0.05 o significant changes were observed in plasma trace eleme metalloenzymes. Furthermore, the alpha-tocopherol plasma level w pplemented groups, suggesting an increased utilization of vitamin E. These da pharmalogical doses of iron, associated with high vitamin C intakes, can result in uncontrol ipid peroxidation. This is predictive of adverse effects for the mother and the fetus. This study illustrates the potential harmful effects of iron supplementation when prescribed only on the assumption of anemia and not on the bases of biological criteria.

"This is predictive of adverse effects for the mother and the fetus."

- 27 pregnant women in 3rd trimester given 100 mg/d of iron and 500 mg/d vitamin C.
- 27 in control group not given supplementation.
- After delivery, both had normal hemoglobin and ferritin, but supplemented group had higher serum iron, lower vitamin E, and higher TBARS (lipid peroxidation).
- Uncontrolled lipid peroxidation in supplemented group.

"This study illustrates the potential harmful effects of iron supplementation when prescribed only on the assumption of anemia and not on the bases of biological criteria [(low hemoglobin and iron stores)]."

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This is Where You Add Value

1. Order/obtain CBC, CMP, and iron panel with ferritin.
2. Use LabSmarts to analyze your client's results.
3. Quickly identify patterns for 2 scenarios where you should never recommend an iron supplement.

LabSmarts

Two Scenarios, Never Recommend Iron

1. Heme Synthesis Dysfunction (Sideroblastic Anemia)

- Iron is present but can't be converted into heme to make hemoglobin.
- Client does not need more iron; already has more than enough.

2. Bacterial Infection

- Some bacteria can use iron to generate energy.
- Body purposely keeps iron out of the serum, away from bacteria.
- Recommending an iron supplement can prolong the infection.

Two Scenarios, Never Recommend Iron

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- **Could be low vitamin B_6 or zinc; both are needed for heme synthesis.**

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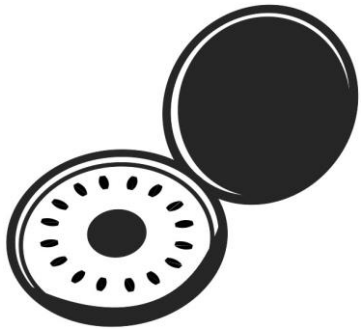
- Could be low vitamin B_6 or zinc; both are needed for heme synthesis.
- **Could be lead toxicity – interferes with enzyme in this process.**

Heme Synthesis Dysfunction

CASE STUDY

How long-term oral contraceptive use can cause heme synthesis dysfunction resulting in chronic fatigue.

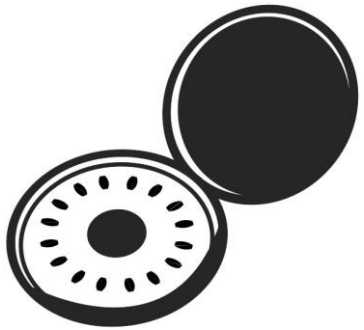
1



Oral contraceptives → deplete vitamin B_6

Estrogen increases the breakdown of tryptophan, which contains 3 pathways dependent on pyridoxal-5'-phosphate (PLP or P5P), a form of vitamin B_6.

1



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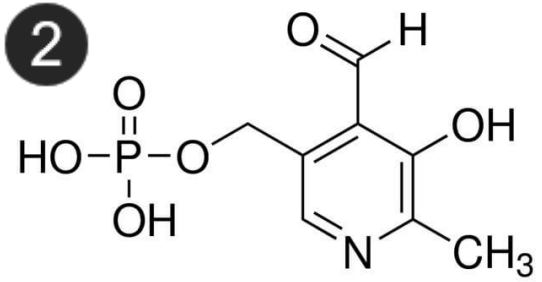

P5P is needed to synthesize heme to make hemoglobin.

Decreased P5P results in decreased hemoglobin

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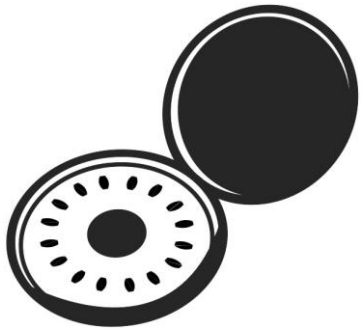

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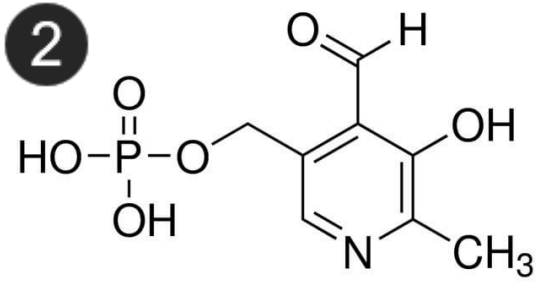

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Decreased hemoglobin results in decreased oxygen delivery

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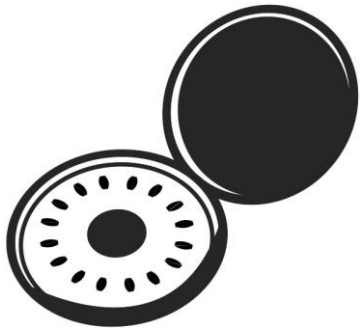

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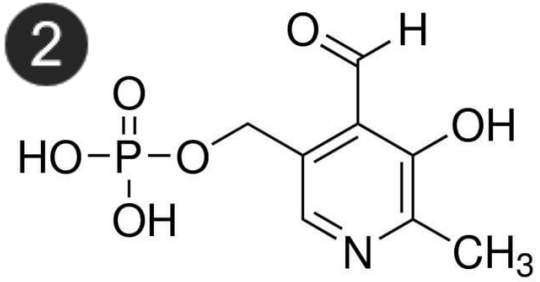

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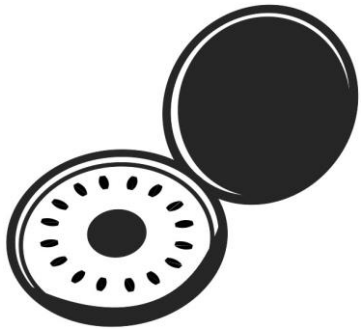
Mitochondria inside cells use oxygen to make energy (ATP).

4

Decreased oxygen results in decreased energy production

1



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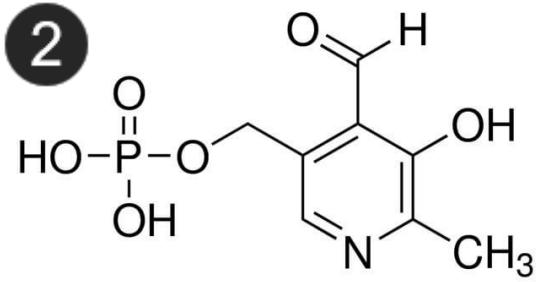

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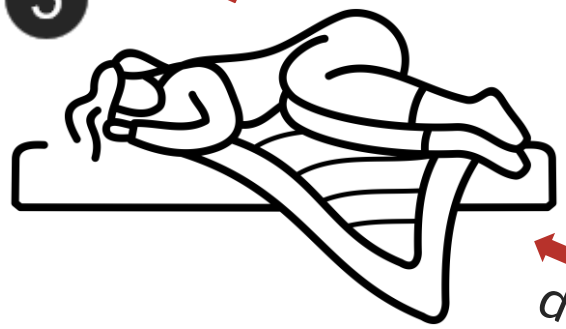
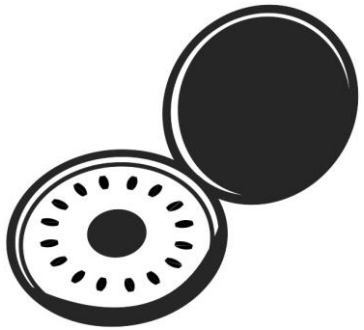


Chronic lack of energy production can result in chronic fatigue.

OC Pathway to Chronic Fatigue

OCs ↑ estrogen ↑ tryptophan catabolism
↓ B6 (P5P) ↓ heme ↓ hemoglobin
↓ oxygen delivery ↓ energy (ATP)

1



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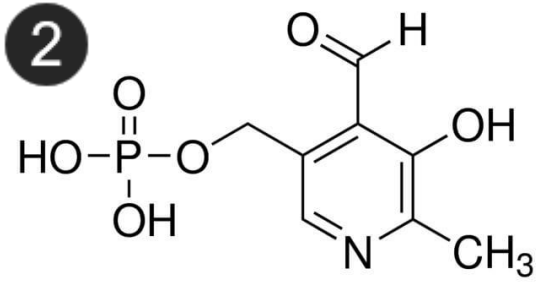

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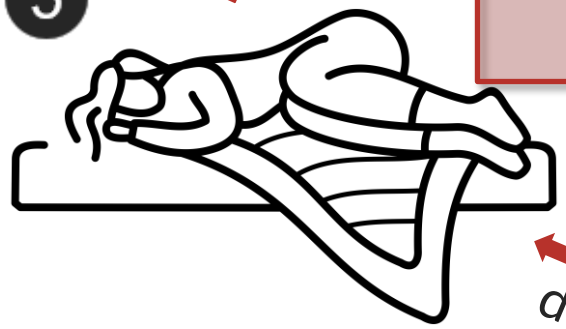

Chronic lack of energy production can result in chronic fatigue.

Method of Assessment

Using values from the client's blood work, LabSmarts automated the analysis of patterns to determine the…

- Likelihood of anemia (suboptimal blood oxygen delivery)
- Type of anemia (RBC size and color)
- Possible root causes of anemia

Heme Synthesis Dysfunction Identified

LabSmarts identified that it was highly likely the client had suboptimal blood oxygen delivery, most likely caused by heme synthesis dysfunction as a result of vitamin B_6 insufficiency.

Diagnostically known as…

acquired sideroblastic anemia caused by vitamin B_6 deficiency

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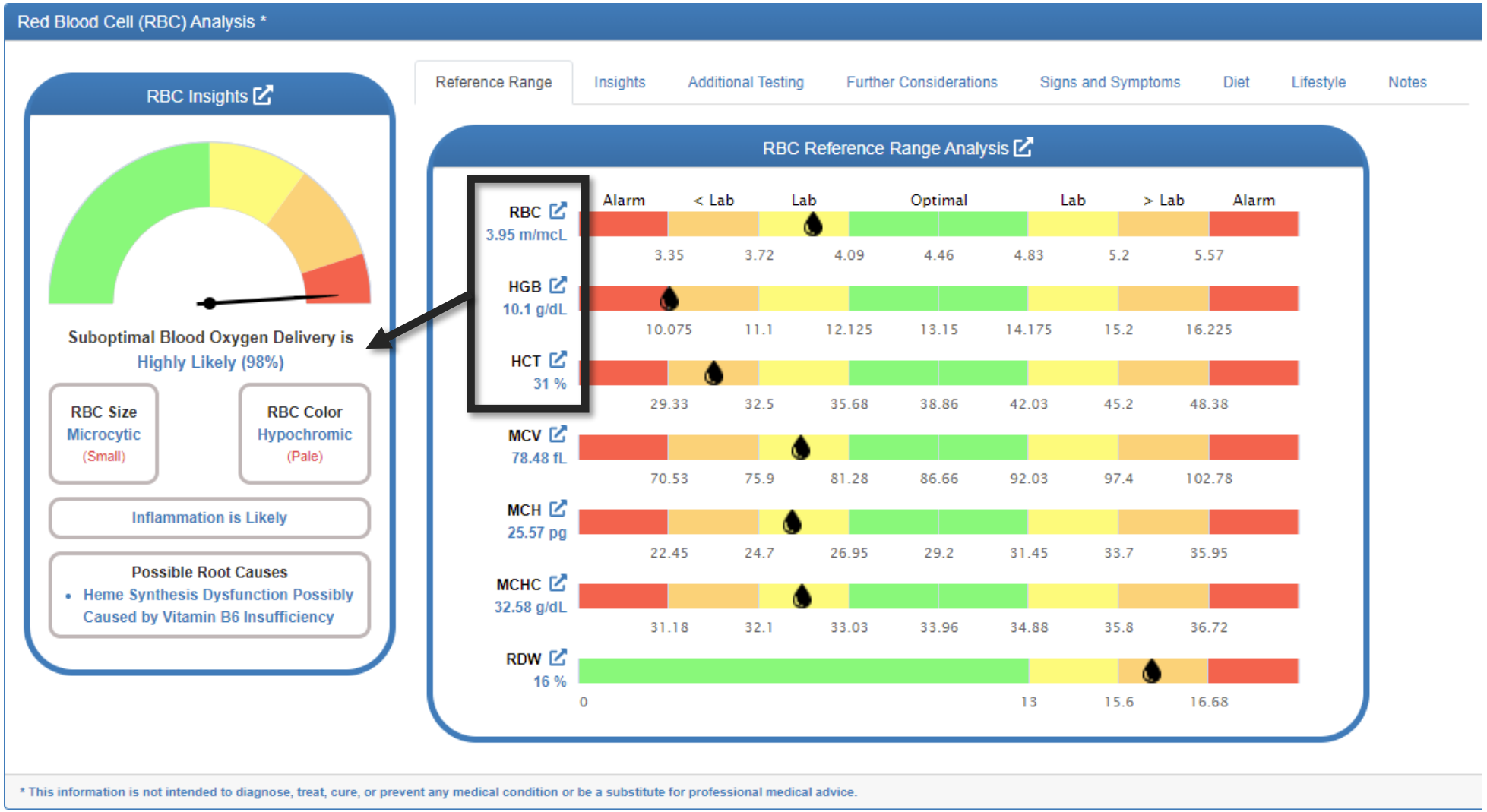
Determining the Likelihood of Anemia



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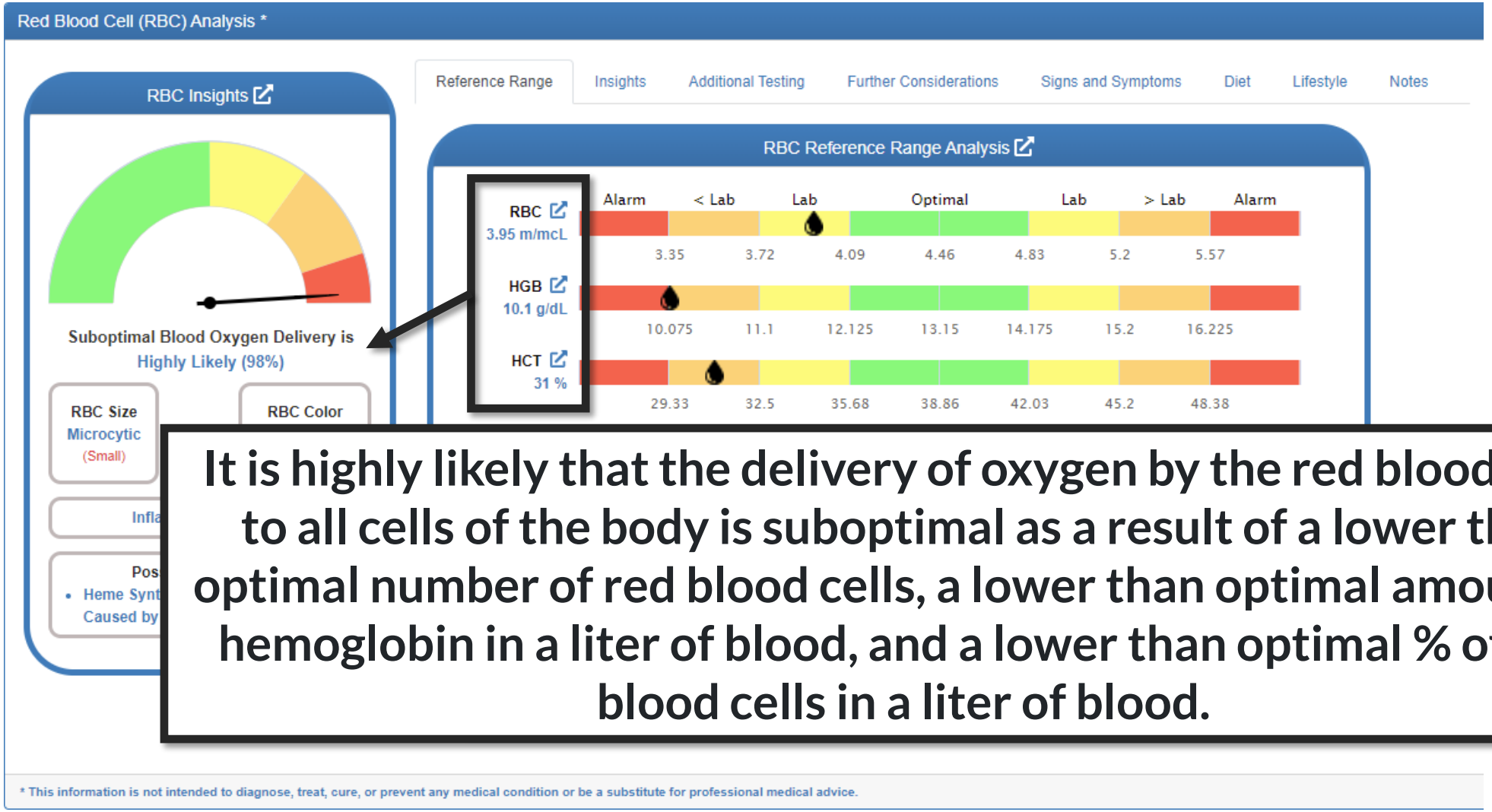
Determining the Likelihood of Anemia



It is highly likely that the delivery of oxygen by the red blood cells to all cells of the body is suboptimal as a result of a lower than optimal number of red blood cells, a lower than optimal amount of hemoglobin in a liter of blood, and a lower than optimal % of red blood cells in a liter of blood.

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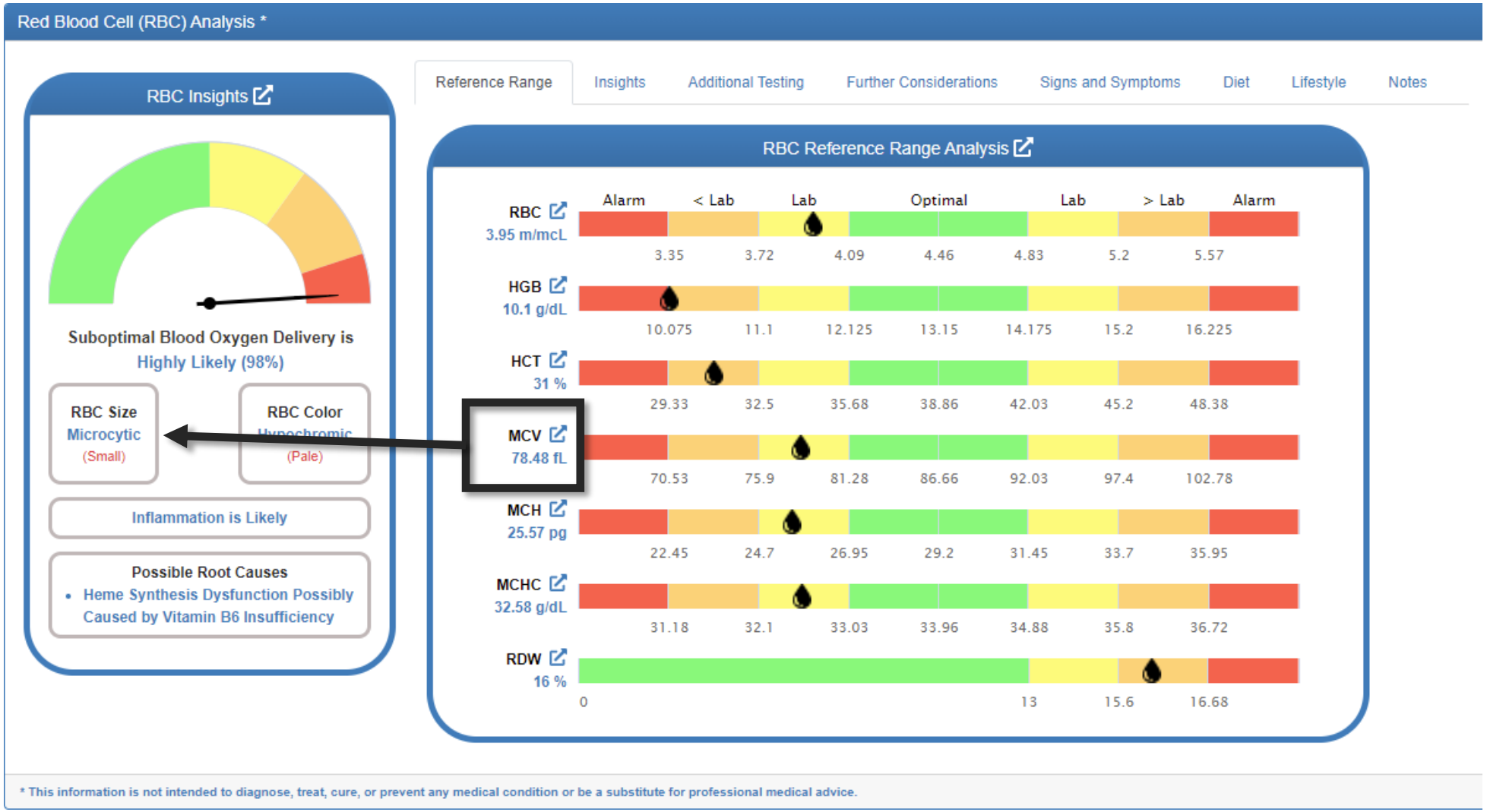
Determining the Type of Anemia



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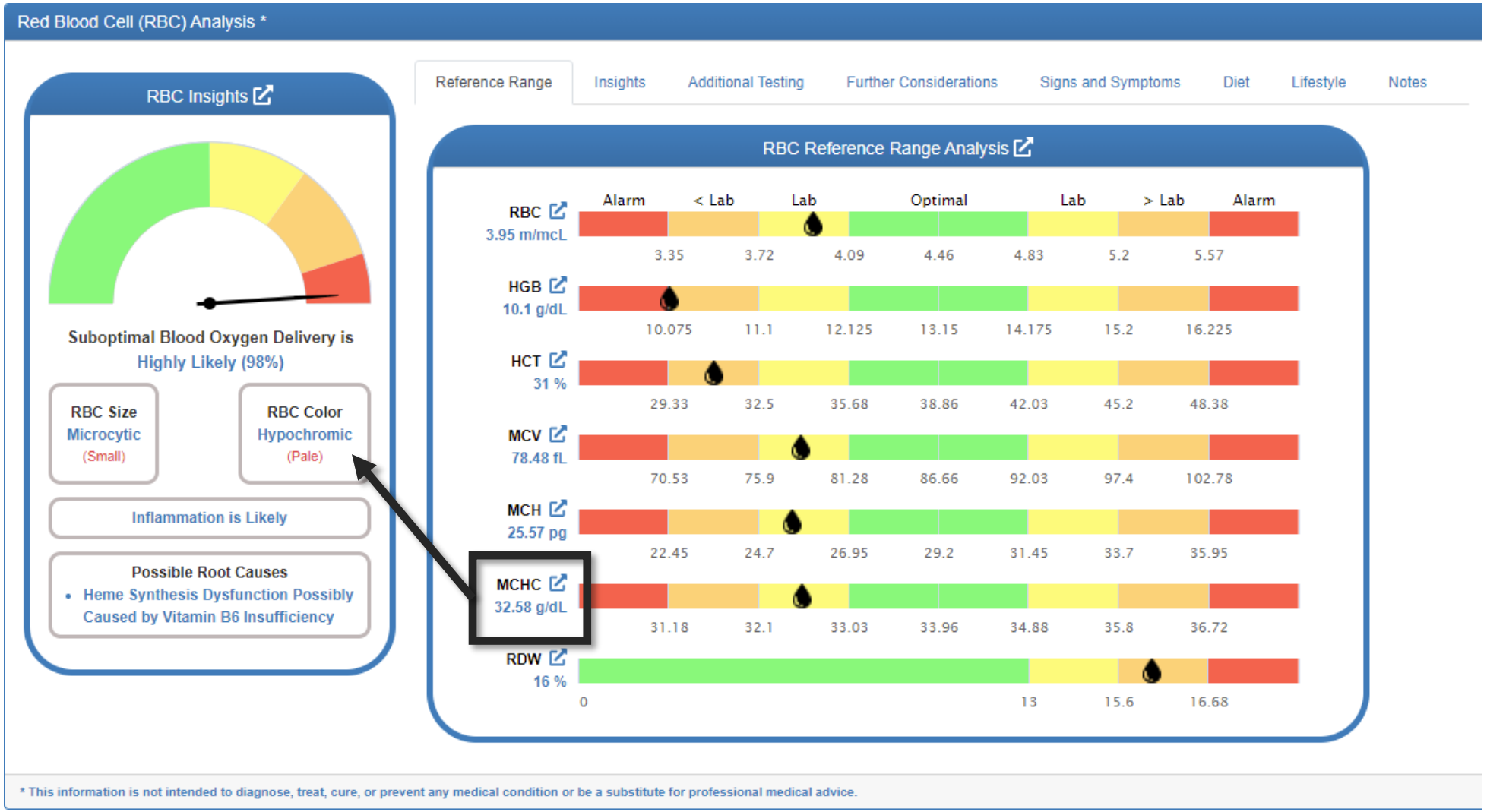

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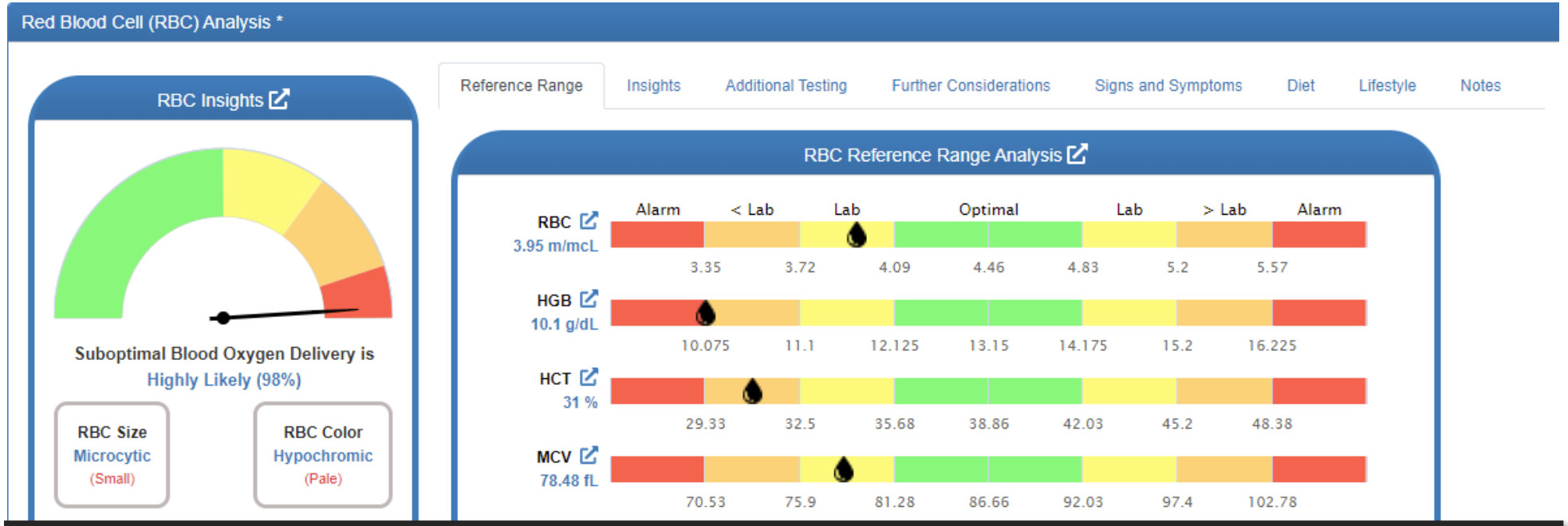

The delivery of oxygen by the red blood cells to all cells of the body is suboptimal as a result of smaller than optimal red blood cells (microcytic) containing a lower than optimal amount of hemoglobin for their size (hypochromic).

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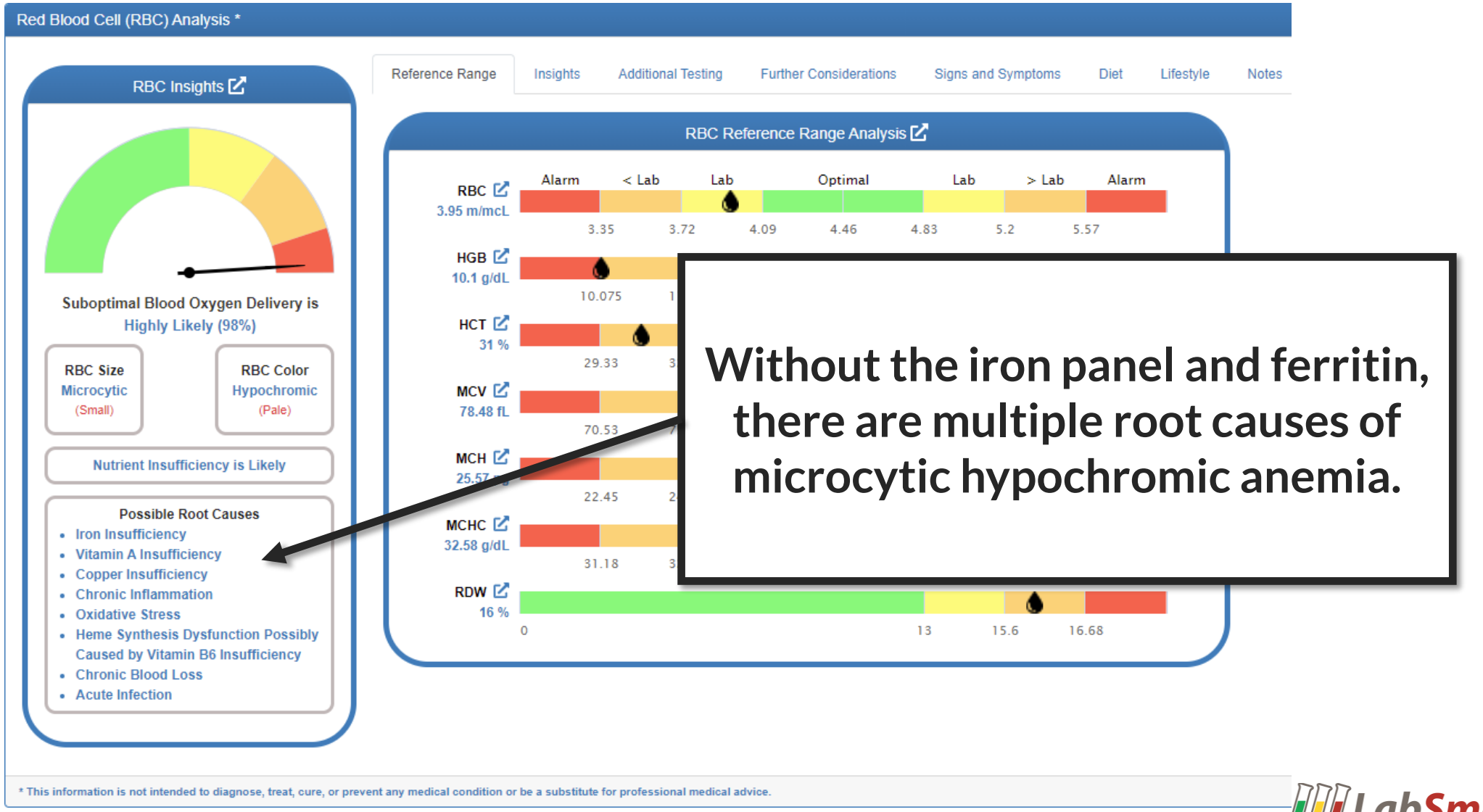
Possible Root Causes of Anemia



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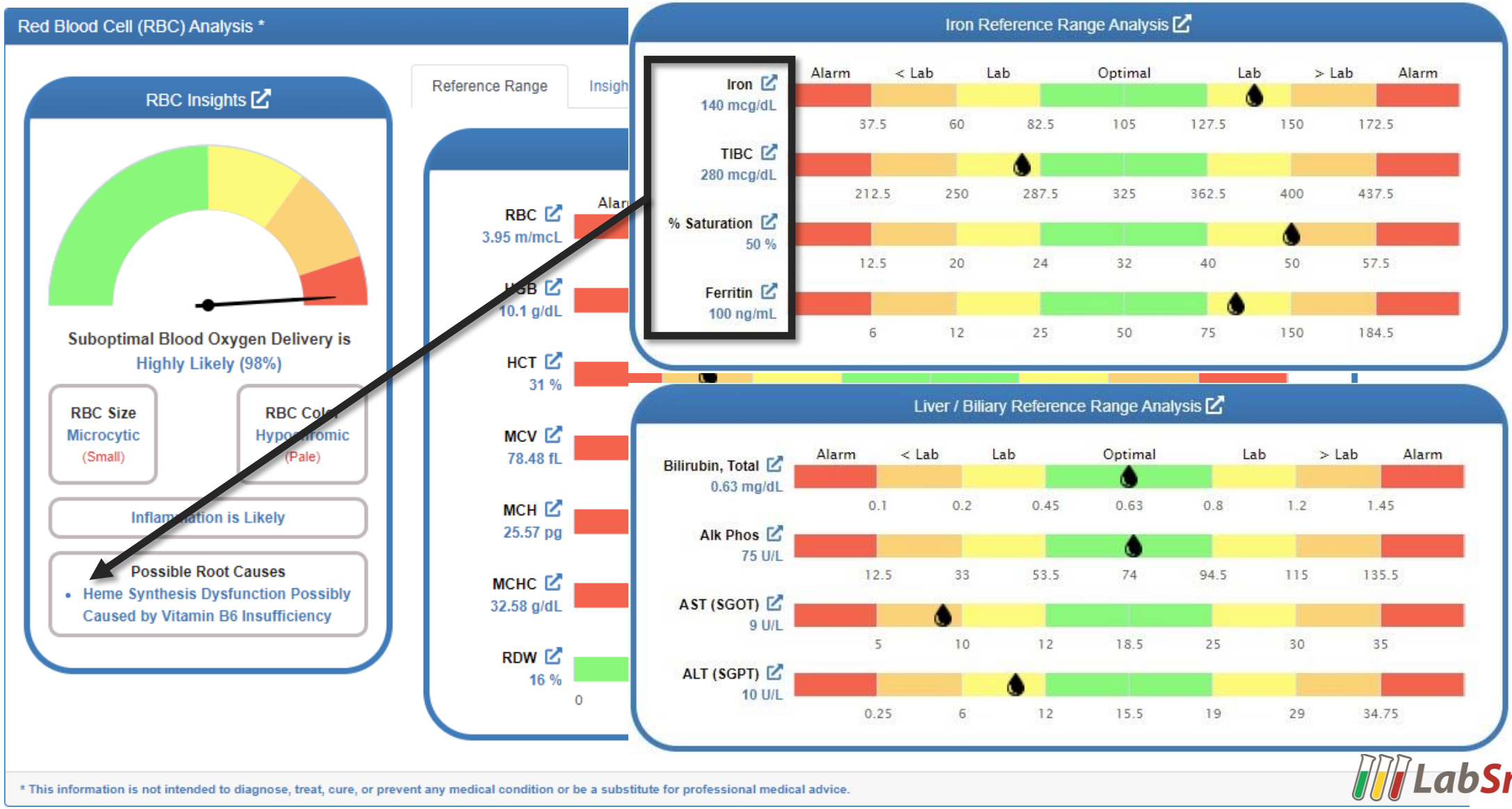
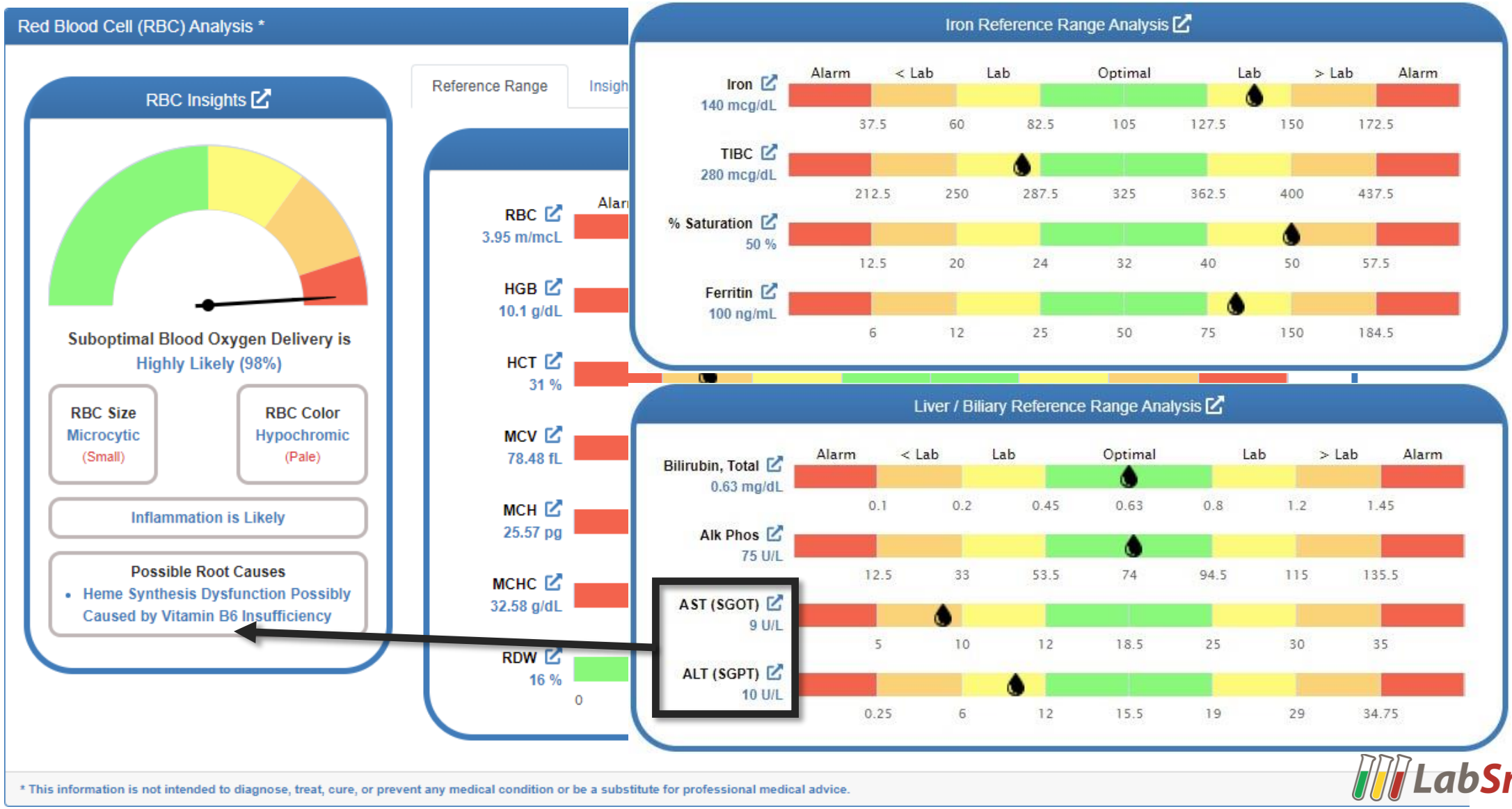
Possible Heme Synthesis Dysfunction



Possibly Caused by Low Vitamin B_6



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Recommendations & Outcome

- 100 mg of pyridoxal-5'-phosphate twice a day for 2 months
- Foods rich in B_6 (client does not eat meat/dairy)
  - salmon, sweet potatoes, potatoes, avocado, spinach, banana, cabbage, and squash
  - raw broccoli and cauliflower because frozen has high amounts of pyridoxine glycoside, a form of B_6 with greatly reduced bioavailability
- B complex, multi-vitamin, vitamin D, and vitamin C

* Noticeable improvement in energy after just 2 weeks!
* Re-ran blood work after 2 months – anemia was gone!

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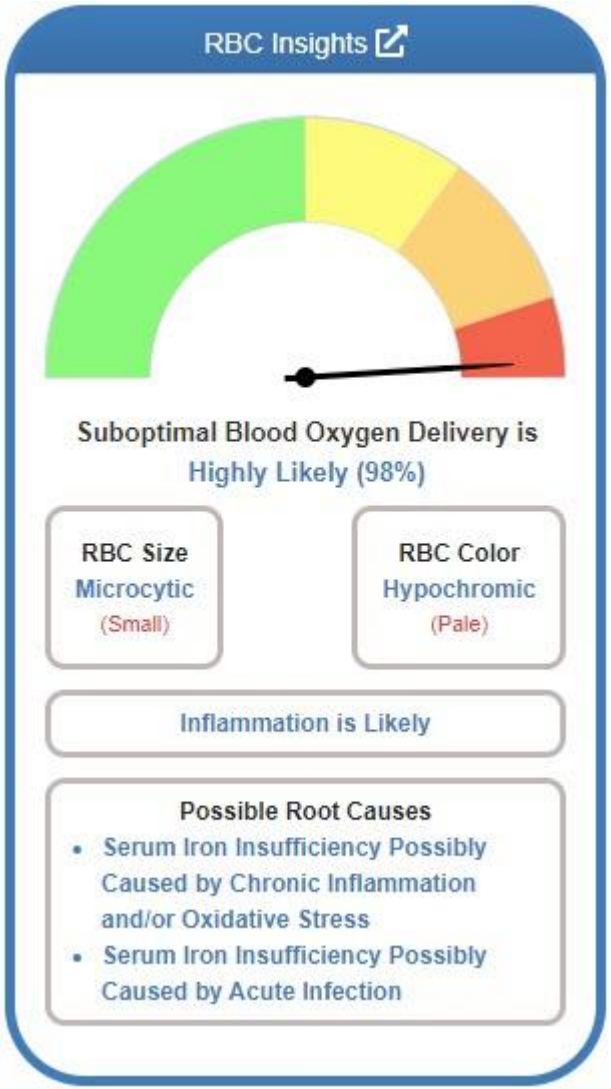
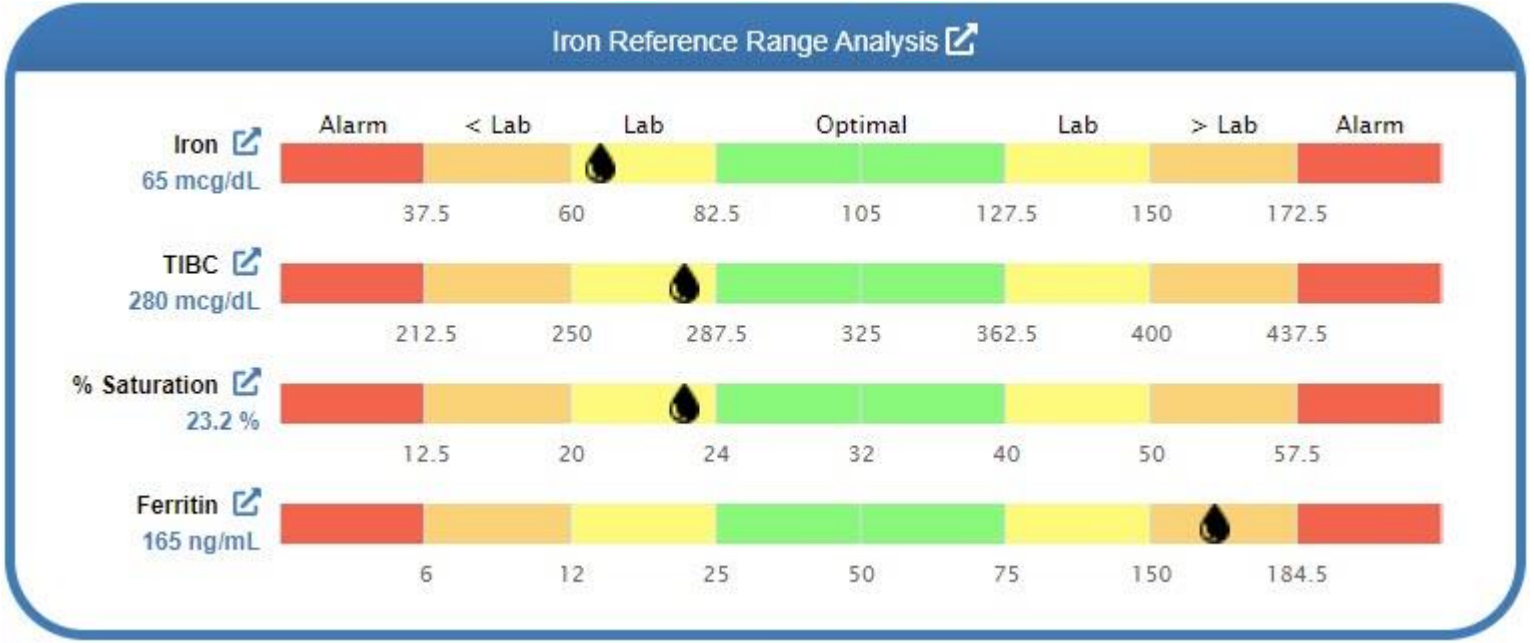
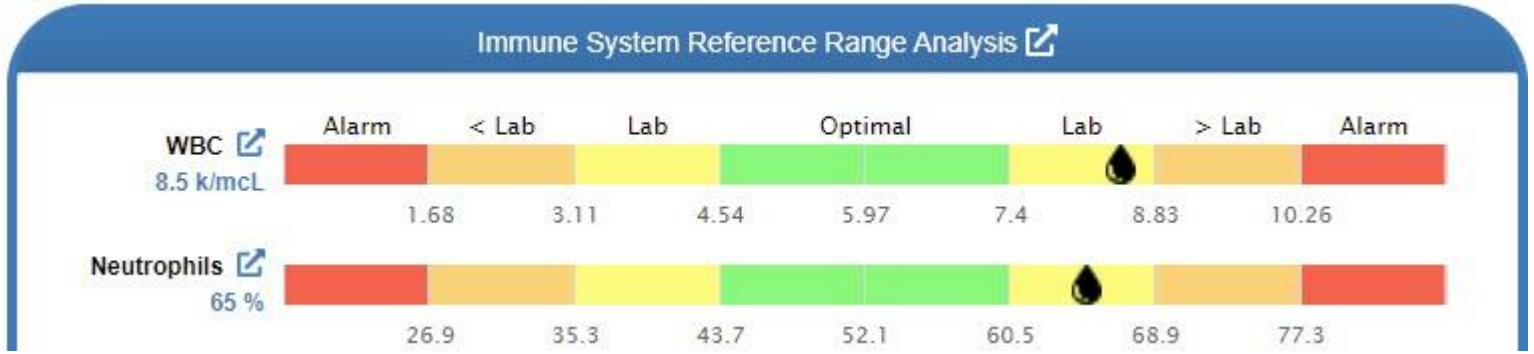
Bacterial Infection



Acute or chronic bacterial infection...

A scenario where you should never recommend an iron supplement.





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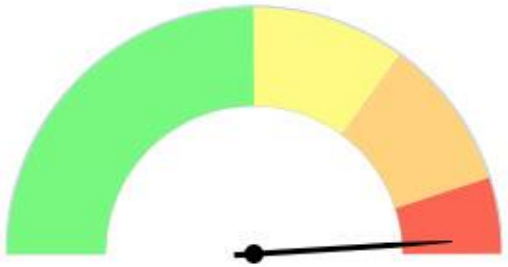
Over 100 Different Combinations

RBC Insights



Suboptimal Blood Oxygen Delivery is Highly Likely (98%)

RBC Size
Normocytic
(Normal)

RBC Color
Normochromic
(Normal)

Nutrient Insufficiency is Likely

Possible Root Causes

- Iron Insufficiency Combined with B12 Insufficiency
- Stomach Acid Insufficiency Possibly Causing Iron and/or B12 Insufficiency
- Vitamin C Insufficiency
- Zinc Insufficiency Possibly Causing Stomach Acid Insufficiency
- Chronic Infection Possibly Causing Zinc Insufficiency

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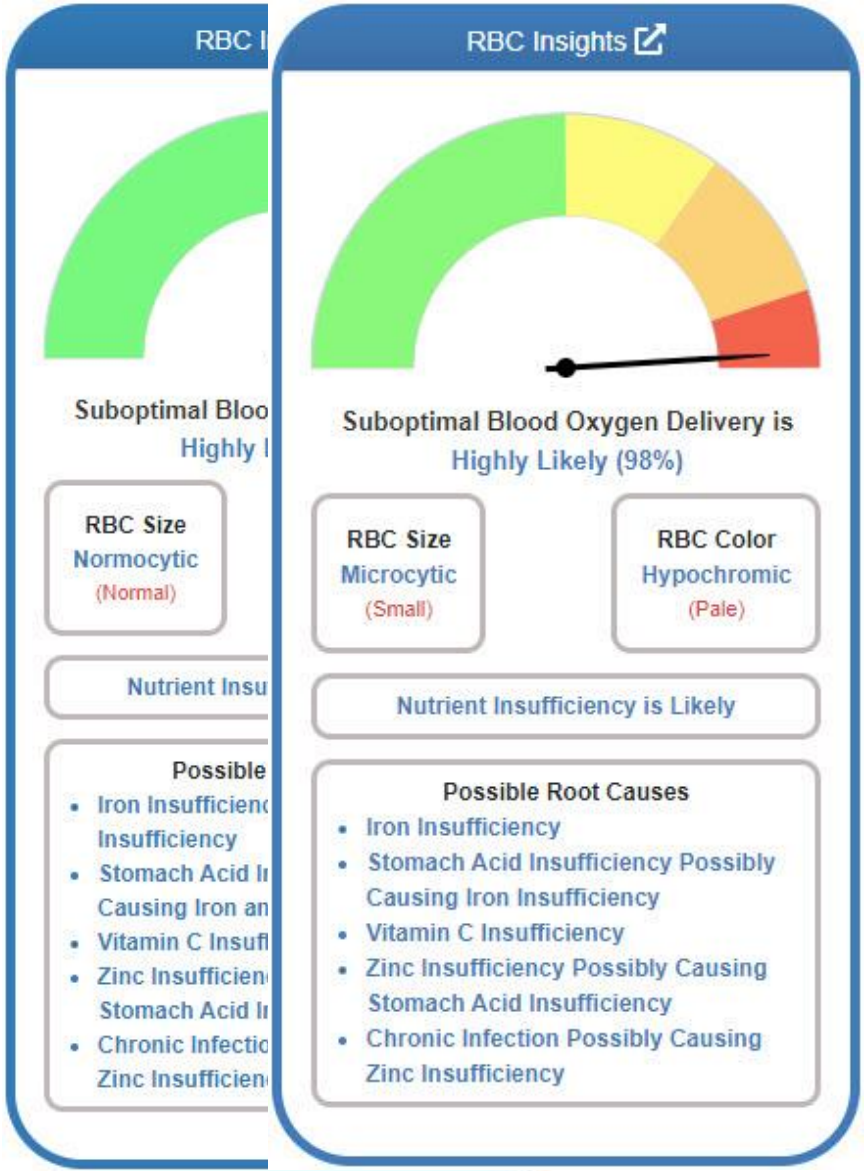
Over 100 Different Combinations



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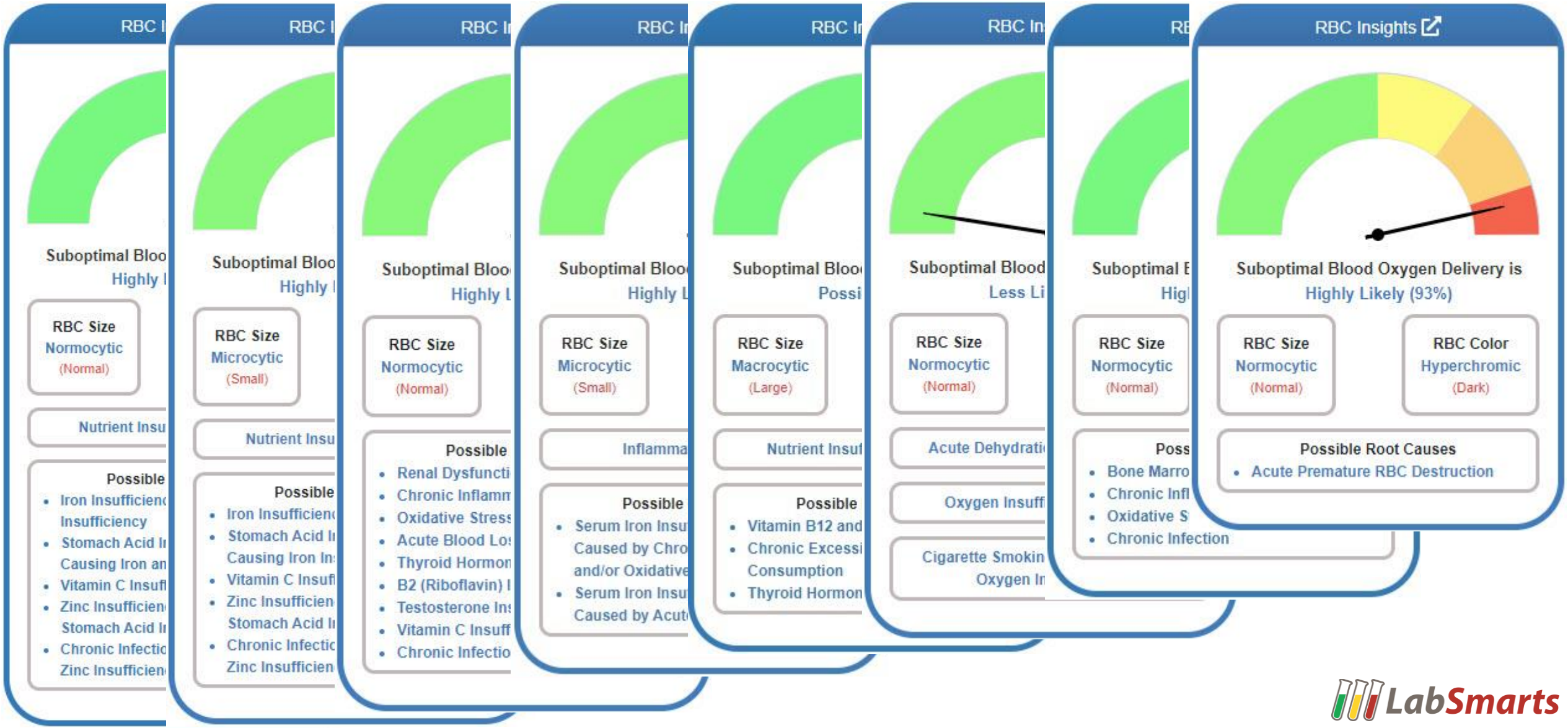

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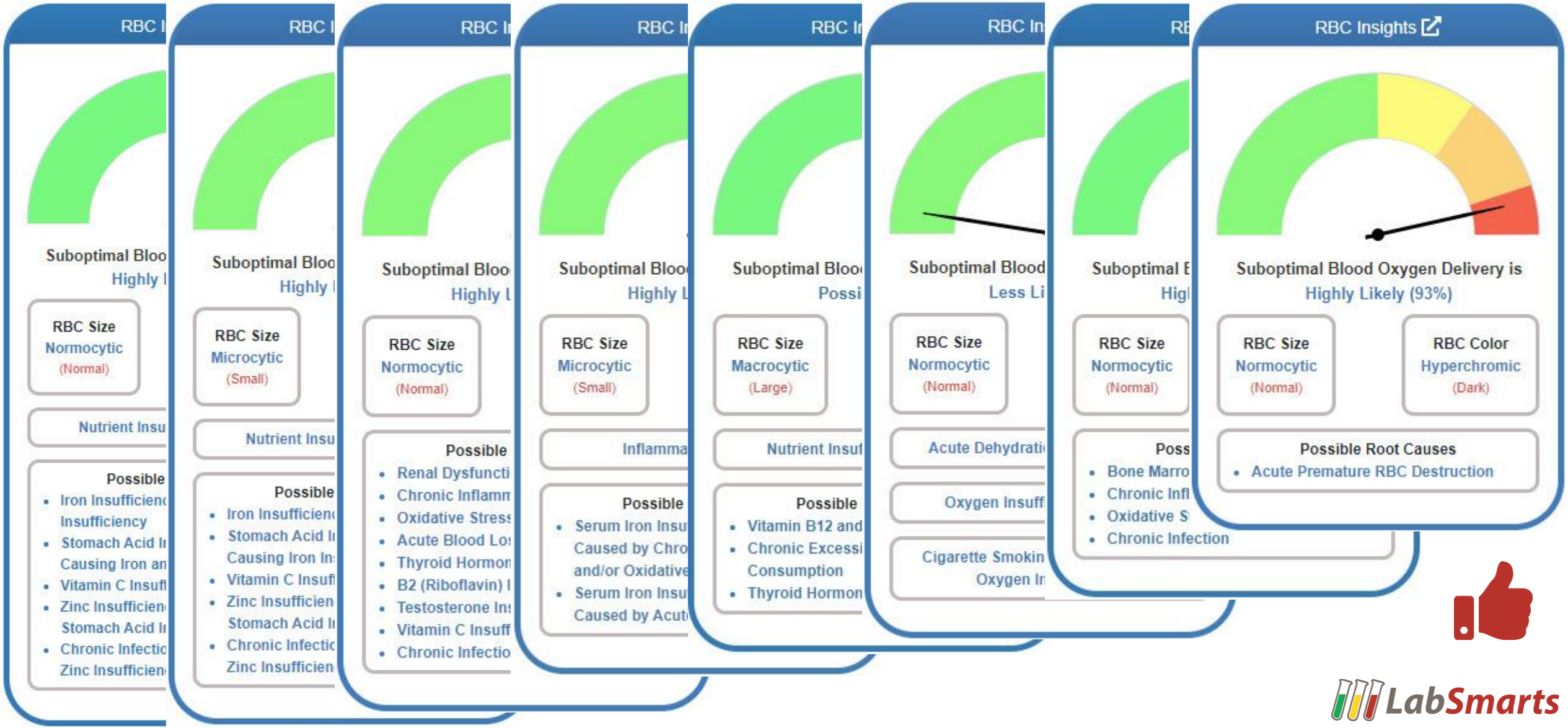

LabSmarts

Blood Work Analysis Software That Helps You

GET TO THE ROOT CAUSE

LabSmarts makes **Functional Blood Chemistry Analysis** simple for practitioners

CREATE A FREE ACCOUNT

Sign Up to Get the Studies

We will periodically send you detailed information on the studies we use to define our optimal reference ranges. Users already get this info, so no need to sign up here if you already have an account.

Name

Email

GET THE STUDIES!

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Monthly | Yearly (2 months free)

Features	Free Trial	10 Tests	Unlimited
	$0	$9 /mo	$19 /mo
# of Tests	3 total	10 /mo	unlimited
View Analysis Online	✓	✓	✓

Live Demo of LabSmarts

Ready to Analyze Blood Work?

Do you know what to look for when a client hands you their blood work?

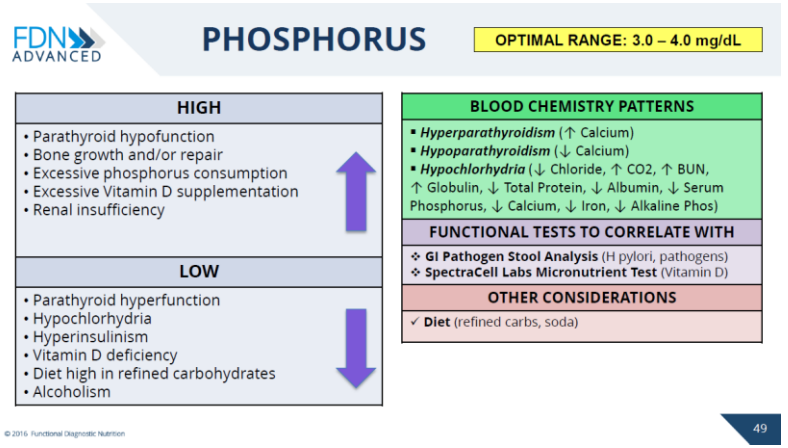
Do you know how to interpret their results from a functional perspective?

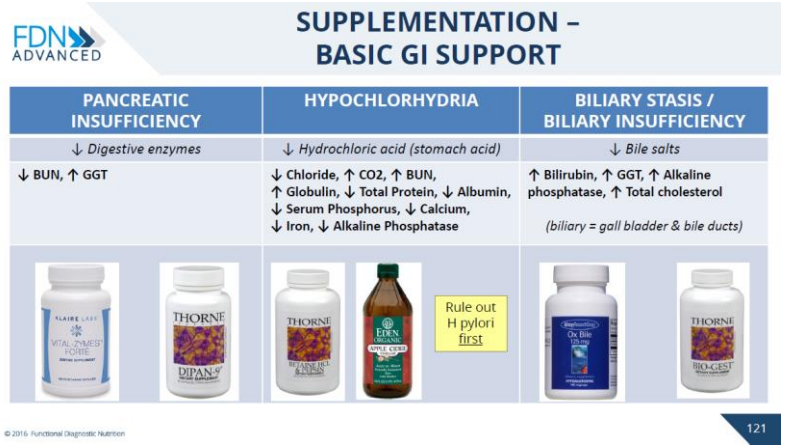
LabSmarts

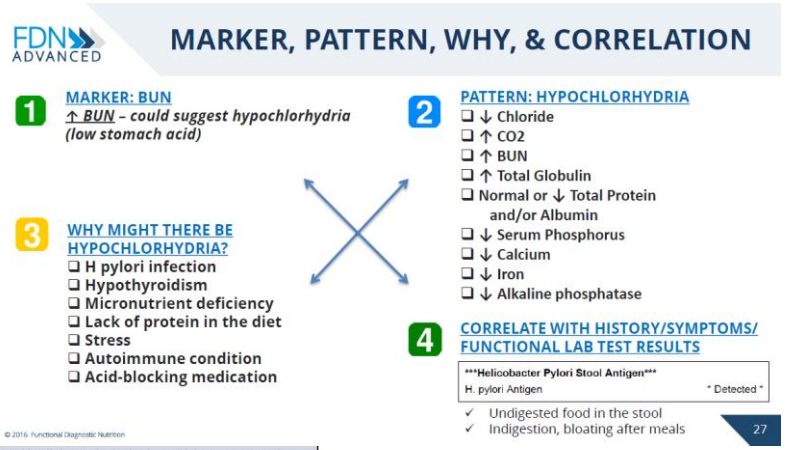
Take FDN's FBCA Course

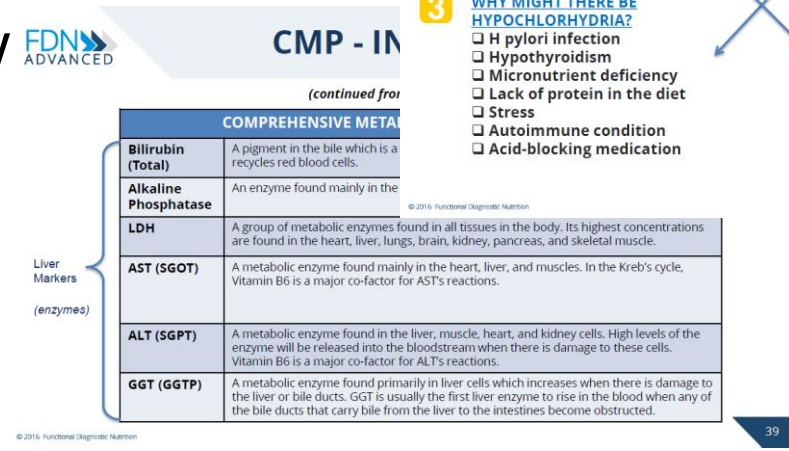
Here's What You'll Learn

- Benefits of blood testing
- Problems with lab ranges
- Optimal vs lab ranges
- How to order blood tests
- 51 blood markers and what each measures
- What it means when a marker is high or low
- Blood chemistry patterns to look for
- Functional tests to correlate with
- Basic supplements for various patterns









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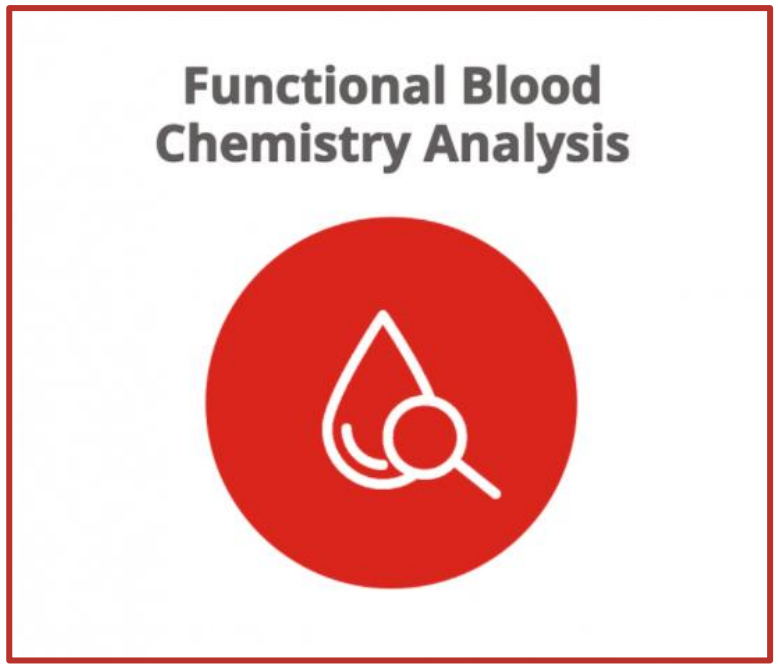

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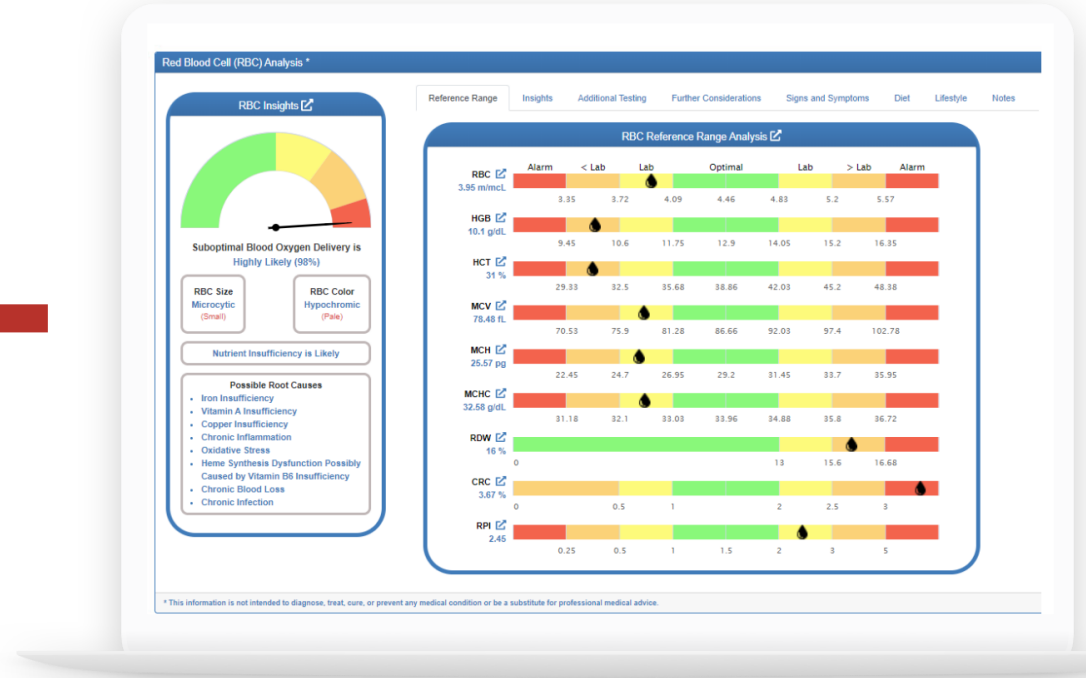

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