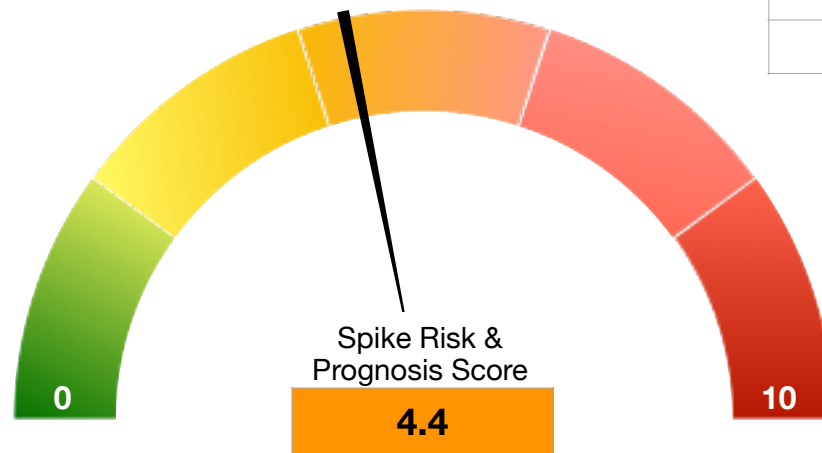


# SPIKE Risk Score and Prognosis Report

Your Position on the Spike Protein Risk Continuum For:

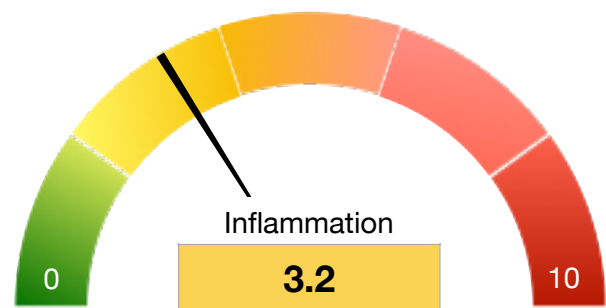
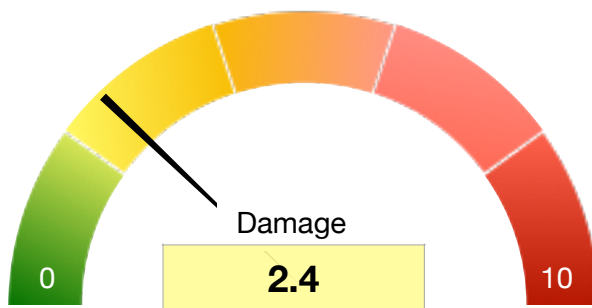
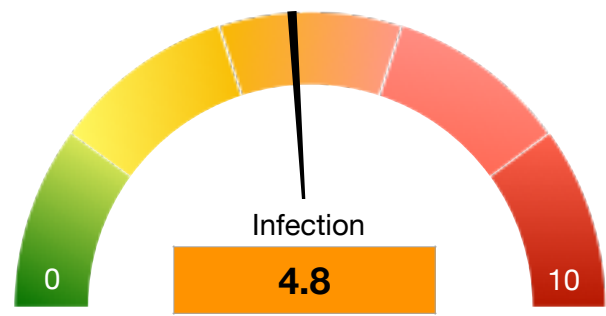
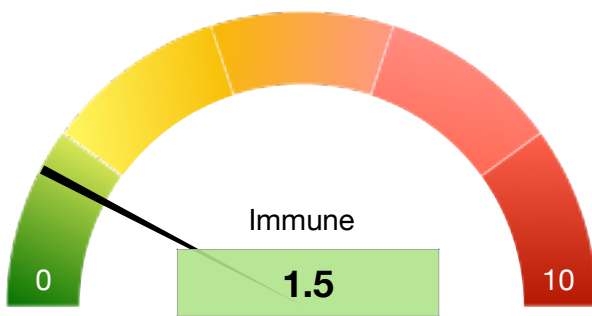
Example Spike Risks

09/03/2021



## COVID/Spike Risk is a Multi-factorial Disease

Here are Your Positions on Key Spike Determinant Categories



KEY: The color-code bar shows Spike / COVID & mortality risk. In the “green” segment, there is **no statistical increase in mortality risk (insufficient data to make a conclusion about the spike protein)** based on many published studies. Outside of the green area **your risk increases significantly as indicated by the change in color towards red.**

The **vertical blue bar** in the circle (bullseye) is **your** lab value for the specific biomarker.

## Immune Response

White Blood Cell Count (WBC): 5800



Optimal: 4,000 - 5,800 cells/microliter

Neutrophils (absolute): 3100



Optimal: 2000 - 3000 cells/microliter

Lymphocytes (absolute): 2000



Optimal: 1,000 - 2,000 cells/microliter

Vitamin D: 34



Optimal: 55 - 100 ng/ml

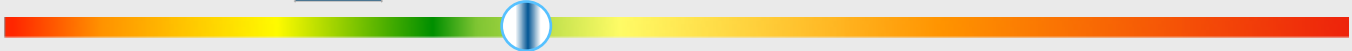
## Inflammation

C-Reactive Protein (CRP): 0.8



Optimal: < 0.6 mg/mL

Homocysteine (HcY): 9.7



5.5 - 11.0 umol/L

Red Cell Distribution Width (RDW): 14.2



Optimal: 11.0 - 12.5%

Uric acid: 6.8



Optimal: 3.5 - 6.0 mg/dL

Erythrocyte Sedimentation Rate (ESR): 35



Optimal: < 3 mm/hr

CRP / Albumin Ratio 0.2



Optimal < 0.55

## Tissue Damage

Fibrinogen:

449

Optimal: 150 - 285 mg/dL

Troponin:

7

Optimal: < 13 ng/L

Creatine Kinase (CK):

268

Optimal: 30 - 150 U/L

Lactate Dehydrogenase (LDH):

161

Optimal: 121 - 224 IU/L

VLDL:

28

Optimal: 8 - 20 mg/dL

Total Cholesterol (TC):

187

Optimal: 200 - 250 mg/dL

## Clotting

Erythrocyte Sedimentation Rate (ESR):

35.0

Optimal: < 6 mm/hr

Fibrinogen:

449

Optimal: 150 - 285 mg/dL

Prothrombin Time:

10.0

Optimal: 10 - 13 seconds

D-Dimer:

0.1

Optimal: 0.05 - 0.20 mg/L FEU

## Oxidative Stress

Ferritin: 40

Optimal: 25 - 100 ng/mL

## Metabolic

Insulin: 24.1

Optimal: 1.5 - 6 uIU/mL

HbA1C: 6.3

Optimal: 4.0 - 5.3 %

Atherogenic Index of Plasma (AIP): 0.50

Optimal: < 0.12

Triglycerides: 157

Optimal: 40 - 100 mg/dL

Glucose: 124

Optimal: 65 - 83 mg/dL

## Infection

Neutrophil to Lymphocyte Ratio (NLR): 1.6

Optimal: 0.6 - 1.5

Neutrophils %: 54

Optimal: 40 - 60 %

H-Pylori: 1.74

Optimal: < 0.25

Chlamydia Pneumoniae (CP): 2.50

Optimal: < 0.91

Antinuclear Antibodies:

Negative



## About this comprehensive report on Sars-CoV-2 / COVID-19 / JAB ("Vaccine") The Spike Protein

Emerging science show that multiple modifiable factors may lead to the poor outcomes associated with the spike protein. The process of risk development poor health outcomes or death follows a clear process:

Step 1: Risk factors create a susceptibility

Step 2: Physiological markers change as your immune system detects a foreign "insult"

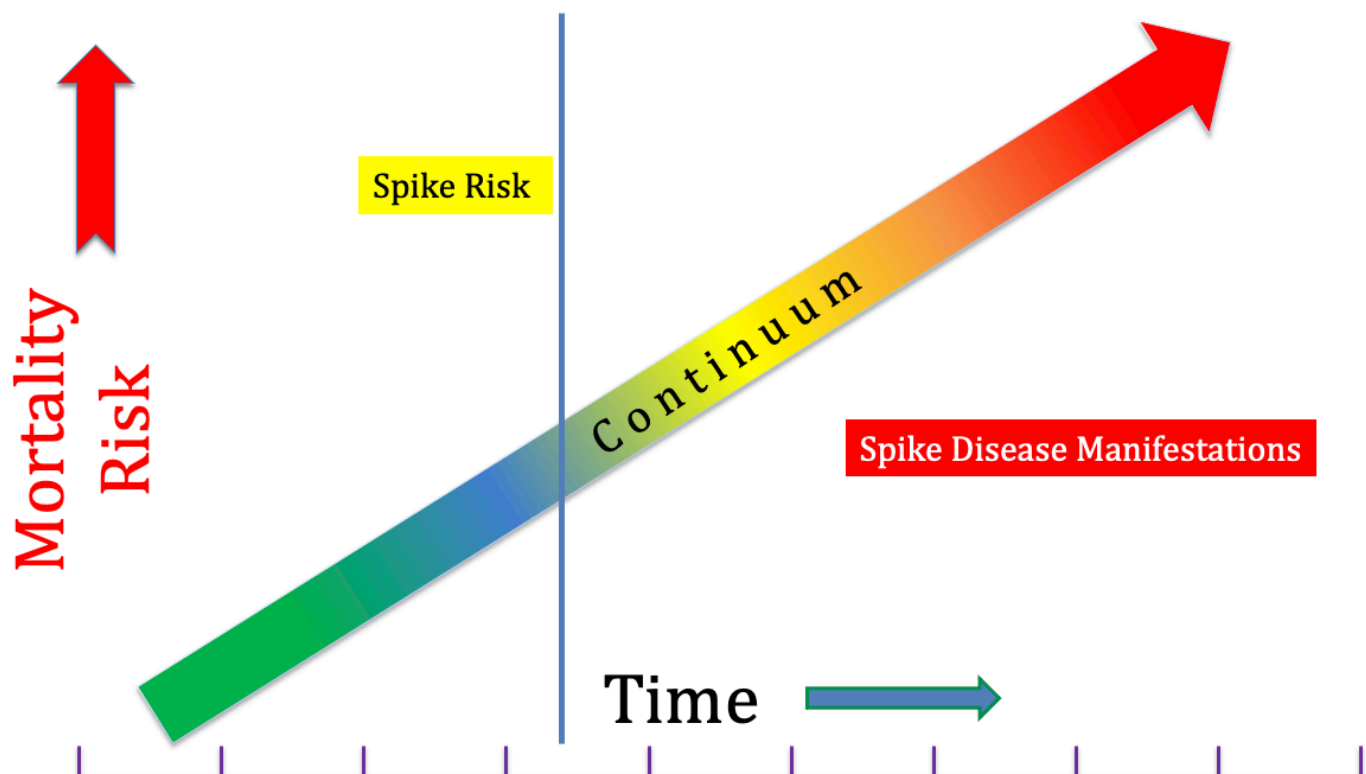
Step 3: Tissue changes develop as the underlying process of inflammation overwhelms local immunity

Step 4: Inflammation and tissue damage proliferates causing severe local or whole body symptoms

**Connundrum** - There is very little data, presently, on biomarkers associated with the Spike Protein. Our research shows that the biomarkers elevated by the Spike Protein overlap (are very similar to) those found in Cancer. Data from the Chinese and now adopted by Harvard Medical School for COVID-19 (and, by inference - the Spike Protein) indicate that a broad range of common biomarkers are elevated - sometimes severely. And, the level of the elevation of these biomarkers correlate with risk and outcomes in COVID-19. Here is a link to our peer-reviewed paper on this subject.

[https://grfpublishers.com/assets/article\\_in\\_press/1589740364.pdf](https://grfpublishers.com/assets/article_in_press/1589740364.pdf)

**Our Diagnostics:** We have vast experience with people with chronic diseases and cancer patients having published peer-reviewed articles on cancer and chronic diseases dating back two decades. We have examined risk factors and biomarkers in our patients and in tens of thousand based on publications in the National Medical Library. Our advanced artificial intelligence (AI) team from Harvard Medical School and MIT developed a robust and sensitive algorithm to determine why you may progress through the "continuum" of risk.



## The value of multiple biomarkers in chronic disease prediction and prognosis.

Multiple biomarkers in chronic diseases and cancer assessment has 200 medical publications noted in the National Library of Medicine dating back to 1998. The following are quotes from key reference materials:

### Use of multiple biomarkers for a molecular diagnosis of prostate cancer

The identification of biomarkers capable of providing a reliable molecular diagnostic test for prostate cancer (PCa) is highly desirable clinically. We describe here 4 biomarkers which, in combination, distinguish prostate cancer from benign prostate hyperplasia (BPH).

<https://doi.org/10.1002/ijc.20760>

### Inflammatory biomarker score and cancer: A population-based prospective cohort study

Conclusion: Our study suggests that inflammation is associated with cancer risk and mortality, and combining inflammatory biomarkers into a score is a robust method of elucidating this association.

<https://link.springer.com/article/10.1186/s12885-016-2115-6>

### Multiple Biomarkers for the Prediction of Ischemic Stroke - The PRIME Study

Among multiple biomarkers from distinct biological pathways, E-selectin and resistin provided incremental and additive value to traditional risk factors in predicting ischemic stroke.

<https://www.ahajournals.org/doi/pdf/10.1161/atvbaha.112.300109>

### Inflammatory serum markers and risk and severity of prostate cancer: The PROCA-life study

Our study supports that hs-CRP including repeated measurements alone or in combination with WBC may be a useful inflammation-related biomarker for prostate cancer risk and prognosis.

<https://onlinelibrary.wiley.com/doi/pdf/10.1002/ijc.32718>

### Association of baseline inflammatory biomarkers with cancer mortality in the REGARDS cohort

In race-stratified analysis, each unit increase in IL-6 was associated with increased risk of cancer mortality among African-Americans (HR: 3.88, 95% CI: 1.17–12.88) and Whites (5.25, 95% CI: 1.24–22.31). If replicated in larger, racially diverse prospective cohorts, these results suggest that cancer patients may benefit from clinical or lifestyle approaches to regulate systemic inflammation as a cancer prevention strategy.

doi: 10.18632/oncotarget.27108

### Use of multiple biomarkers to improve the predictin of death from cardiovascular causes

Our data suggest that in elderly men with or without prevalent cardiovascular disease, the simultaneous addition of several biomarkers of cardiovascular and renal abnormalities substantially improves the risk stratification for death from cardiovascular causes beyond that of a model that is based only on established risk factors.

<https://www.nejm.org/doi/full/10.1056/nejmoa0707064>

### Chronic inflammation towards cancer incidence: A systematic review and meta-analysis of epidemiological studies

This systematic review and meta-analysis provides epidemiological data on the relationship between chronic inflammation, as measured by inflammatory blood parameters, and cancer incidence. Study quality improvements can be done by better verification of inflammatory status (more than one baseline measurement of one parameter), adjusting for important confounders and ensuring long-term follow-up.

<https://doi.org/10.1016/j.critrevonc.2020.103177>

This **Spike Protein Report** uses studies like these to validate our predictive algorithms. Most of these studies use 2 - 5 markers to develop their risk score. This Spike Protein report includes 28 biomarkers explained on the following pages.

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## Our Validated Approach

### Multiple Biomarkers and Chronic Risk Interpretation

Understanding Your Labs: Individual lab values are important in understanding both your acute and chronic health risks and from the Spike Protein.

#### **More important is the story your labs tell about your Spike Protein risk . . .**

and your chronic health, when taken together. Many markers used to assess your chronic state of health also change (usually elevate) when you have an acute health problem.

Analyzing and evaluating many different biomarkers often helps a trained practitioner to differentiate between acute and chronic risks.

We encourage you to consult with our team of practitioners or someone truly knowledgeable about labs to tell your "health story." The information on each biomarker below provides current data on their relationship to COVID / Spike Protein risk and prognosis.

### Optimal Values

Traditional lab values on your lab report are "reference intervals" or "reference ranges" used to determine if you are acutely or imminently sick. These ranges are designed to look for "fire." However,

**Most diseases, including those caused by the Spike Protein, are chronic in nature - "smoke" not "fire."**

In this Spike Protein report, we have re-engineered "normal" lab values to reflect chronic disease and Spike Protein risk. Essentially, we have "turned up the volume" on the lab values to "hear" a faint signal of distress that your body is trying to communicate - if we would only listen!

We have established science-based "optimal" biomarker ranges by determining, through researching the worldwide medical literature, when a level of a marker is associated with an increase in early mortality risk - based on sound statistical analysis. Any value that is highlighted with a color other than green implies that the marker, if it perpetuates at that level, may put you at future risk for early or sudden death from any cause.

### Your Spike Protein - Risk Score and Prognosis Value:

This single value, displayed at the top of your report, is an aggregate score from many of the important biomarkers for Spike Protein risk. Of all the individual markers, it is the single most predictive of your current and future health risk because it combines markers that predict Spike Protein risk across a broad spectrum:

inflammation, metabolic risk, oxidative stress, infection, tissue damage, clotting, and immune response.

#### **Your optimal Spike Protein score is < 1.**

Importantly, your solution to improving your odds against the Spike Protein is in your control. Every marker that constitutes this report is modifiable either from lifestyle and risk changes, high nutrient supplements, or treatments for underlying causes - not the chemo / radiation / surgery approach of the standard of care.

Your **Spike Protein** value: **4.4** / 10

# Risk Classifications

Harvard Medical School developed a lab panel to risk-stratify COVID-19 patients admitted to their hospital system. Most of the markers on that panel are included in that report. What Harvard is NOT doing is testing and risk-stratifying people with mild or no symptoms. We believe everyone should be tested for the risk of an adverse reaction to the Spike Protein.

We have re-engineered the NCI list into logical, modifiable categories, and applied a risk scoring system to each.

Accordingly, we have created the following groupings:



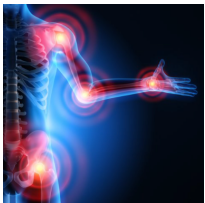
**1. Immune health:** The strength of your immune system significantly dictates your ability to fight any disease including the underlying causes of poor COVID / Spike Protein outcomes. Diet, immunosuppression, and age are important contributors to overall immune health and resilience toward the Spike Protein.



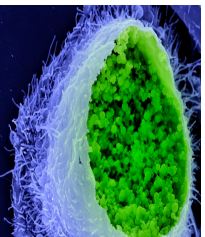
**2. Metabolic health:** Diabetics have much higher rates of mortality from the Spike Protein compared to non-diabetics - all other factors being equal. Diabetes is a disease of elevated insulin and cellular insulin resistance. High levels of fasting insulin are highly correlated to the excess mortality risk in diabetics, and the general population too.



**3. Oxidative stress:** We live in an oxidative environment evidenced by our air containing 20% oxygen. However, other oxidizing substances, like ozone from air pollution, excess iron in our blood, and lack of natural antioxidants, obtained from whole foods increase our risk for disease.

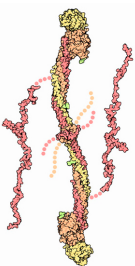


**4. Inflammation:** Root-cause focused practitioners recognize that smoldering inflammation contributes to poor health, cancer, and a myriad of chronic diseases. The association between inflammation and poor COVID outcomes is profound. In mesothelioma, asbestos fibers cause the local tissue to turn cancerous. Inflammatory markers like C-reactive protein, erythrocyte sedimentation rate, uric acid, and fibrinogen are highly elevated when you have a reaction to the Spike Protein.



**5. Infection:** Infection, particular chronic infection from viruses and bacteria, are largely under-appreciated as a contributor to poor Spike Protein outcomes. Most chronic pathogens "fly under the radar." A person with these types of infections does not feel sick like when they have the flu. Periodontal disease is a poignant example. Many people don't realize they have periodontal disease. H-Pylori is noted for causing stomach ulcers but it is also identified as causal in people with the Spike Protein. Chlamydia pneumoniae is strongly associated with a variety of chronic conditions. This organism, in whom up to 80% of older people have been exposed - is a bone fide risk factor for poor Spike Protein outcomes, especially those associated with lung disease.

**6. Tissue Damage:** Many physiological markers indicate tissue damage or repair processes. Damage may be caused by inflammation, oxidative stress, infection, or toxins. These biomarkers provide important clues as to the activity of our immune and related systems. In some cases, our immune response may be muted while the molecules involved in the repair of damage are active and detectable. These types of markers add significant predictive value to the Spike Protein risk score.



**7. Clotting:** Blood clots associated with the Spike Protein are arguably the greatest risk factor for poor outcomes and death. Elevation in D-Dimer is particularly elevated in those who are doing poorly or die from the Spike Protein. Other clotting markers that indicate your risk include: prothrombin time, erythrocyte sedimentation rate, and fibrinogen.

## Biomarkers and the data supporting Spike Protein prediction and prognosis

White Blood Cell Count (WBC)	Atherogenic Index of Plasma (AIP)
Neutrophil Counts (Absolute)	Lymphocyte %
Neutrophil %	Helicobacter Pylori (Infection)
Lymphocyte Counts (Absolute)	Prothrombin Time
Neutrophil to Lymphocyte Ratio	D-Dimer
Red Blood Cell Distribution Width	Lactate Dehydrogenase (LDH)
Homocysteine (HcY)	Antinuclear Antibodies
C-Reactive Protein (CRP)	e-GFR
Fibrinogen	Chlamydia Pneumoniae (Infection)
Erythrocyte Sedimentation Rate (ESR)	GGT
Ferritin	Troponin T
Uric Acid	Free Iron
Vitamin D	HDL
Insulin (Fasting)	Creatine Kinase
HbA1C	CRP/Albumin Ratio
Total Cholesterol	LDL
VLDL - lipoprotein	TSH
Platelets	Hematology Values
Eosinophils	Monocytes

The following pages contains information on each biomarker. Specifically, each page contains:

- Name of biomarker
- Biomarker summary and general description
- Category of Spike Protein risk associated with the biomarker
- Traditional reference ranges compared to "normal / optimal" values we developed
- Accelerated mortality data associated with the biomarker
- References supporting the association between the biomarker and early mortality risk

KEY: The color-code bar shows Spike Protein and early mortality risk. **In the “green” segment, there is no statistical increase in mortality risk** based on many published studies. Outside of the green area **your risk increases significantly as indicated by the change in color towards red.**

The **vertical blue bar** in the circle (bullseye) is **your** lab value for the specific biomarker.



## White Blood Cell Count (WBC)

A type of blood cell that is made in the bone marrow and found in the blood and lymph tissue. White blood cells are part of the body's immune system. They help the body fight infection and other diseases. Types of white blood cells are granulocytes (neutrophils, eosinophils, and basophils), monocytes, and lymphocytes (T cells and B cells). Checking the number of white blood cells in the blood is usually part of a complete blood cell (CBC) test. **It may be used to look for conditions such as infection, inflammation, allergies, and leukemia.** Also called leukocyte and WBC. [Source: National Cancer Institute](#)

Category: Immune Health

Traditional Reference (normal) Range: 3,500 - 10,800 cells/microliter

Spike Risk Optimal Range: 4,000 - 5,800 cells/microliter

### WBC Count and the Risk of Cancer Mortality in a National Sample of U.S. Adults: Results from the Second National Health and Nutrition Examination Survey Mortality Study

Table 2. Risk of cancer mortality by quartile of WBC count

Outcome	WBC quartile (range, $1 \times 10^9$ cells/L)			
	Q1 ( $\leq 5.7$ )	Q2 (5.8-6.8)	Q3 (6.9-8.2)	Q4 ( $\geq 8.3$ )
Number at risk, <i>N</i>	2061	1829	1922	1862
All cancer, <i>n</i>	84	89	113	124
Mortality rate per 100,000	23.4	31.0	39.5	45.9

**32% increase in Cancer mortality**

This table shows that at a WBC of 5.8 (5,800) - which is well within "normal" by the standard of care reference ranges, risk of dying of cancer increases by 32% when compared to ranges considered normal by the our algorithm. **At a WBC of <8.2 (8,200), still well within "normal" by traditional medicine, cancer mortality rates double.**

Selected Publications:

**Title:** Correlation between white blood cell count at admission and mortality in COVID-19 patients: a retrospective study

**Finding:** **The regression analysis results showed there was a significant association between WBC count and death by 572% when use the second quartile as a cutoff - > 6160 cells/mL.**

**Conclusion:** WBC count at admission is significantly corelated with death in COVID-19 patients. Higher level of WBC count should be given more attention in the treatment of COVID-19.

**Title:** White Blood Cell Count and Total and Cause-Specific Mortality in the Women's Health Initiative

**Finding:** **Cancer death rates were lowest at a WBC of 4,600 - 4,900. At a count of 8,000, the risk of death from cancer increased by 73%.**

**Conclusion:** The authors conclude that high WBC counts are associated with increased risk of cancer-related mortality and that this relationship is independent of confounding factors such as diabetes and fasting glucose levels.

White Blood Cell Count (WBC): **5800** Optimal: 4,000 - 5,800 cells/microliter

Optimal

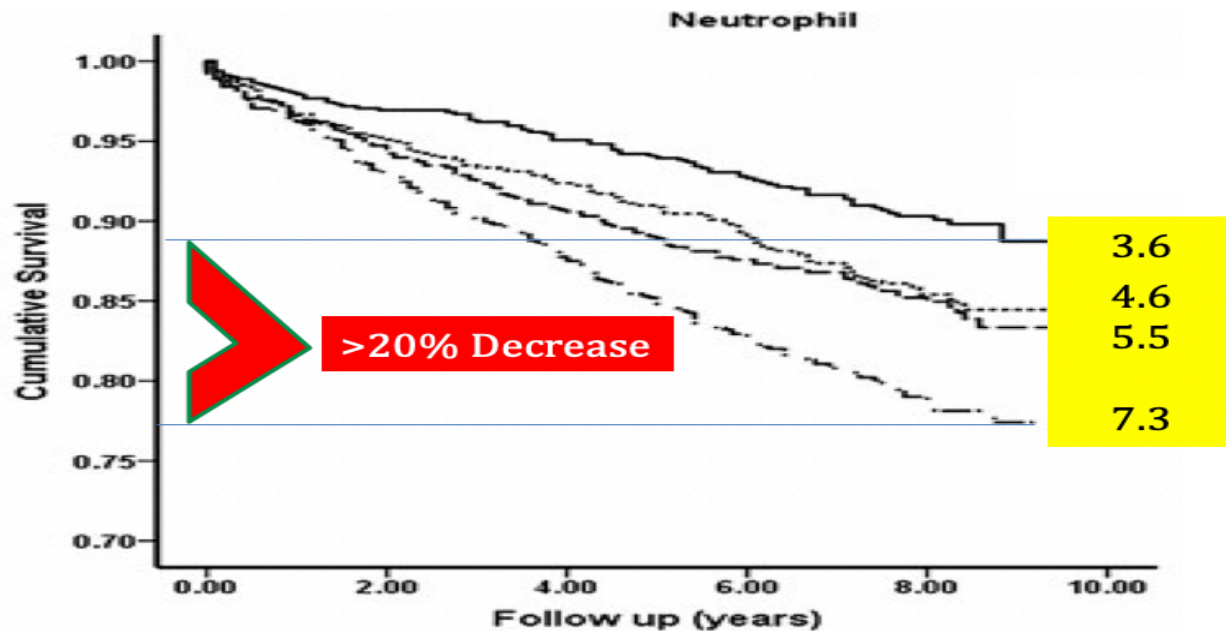
## Neutrophils (Absolute Count) Also called ANC

A measure of the number of neutrophils in the blood. Neutrophils are a type of white blood cell. They help the body fight infection. An absolute neutrophil count may be used to check for infection, inflammation, leukemia, and other conditions. The lower a person's absolute neutrophil count is, the higher the risk is of getting an infection or cancer. The same is true on the high end of the neutrophil count spectrum. **Cancer treatment, such as chemotherapy, may reduce the absolute neutrophil count making you more susceptible to infection and future cancers.** Source: National Cancer Institute

Category: Immune Health

Traditional Reference (normal) Range: 1,400 - 7,000

Spike Risk Optimal Range: 2,000 - 3,000 cells/microliter



Selected Publications:

**Title:** Neutrophils and Neutrophil Extracellular Traps Drive Necroinflammation in COVID-19

**Finding:** We propose that as part of the first line of the innate immune defense, neutrophils are critical for the exacerbation of the immune response.

**Conclusion:** To summarize, neutrophils play a central role in the immunopathology of COVID-19. SARS-CoV-2 infection, as well as downregulation of ACE2 upon the cell entry of SARS-CoV-2 triggers neutrophil infiltration in the lungs.

**Title:** Tumor-Associated Neutrophils in Cancer

**Finding:** All these findings indicate that neutrophils could be considered a potential prognostic marker for cancer patients. When a significantly high number of infiltrated neutrophils are present in tumors compared to normal tissues, neutrophils may serve as a diagnostic indicator.

**Conclusion:** Neutrophils—the most abundant white blood cells in the circulation system—constitute a significant part of the tumor microenvironment. **Neutrophils play major roles linking inflammation and cancer and are actively involved in progression and metastasis.**

Neutrophils (absolute): **3100** Optimal: 2,000 - 3000 cells/microliter

Optimal

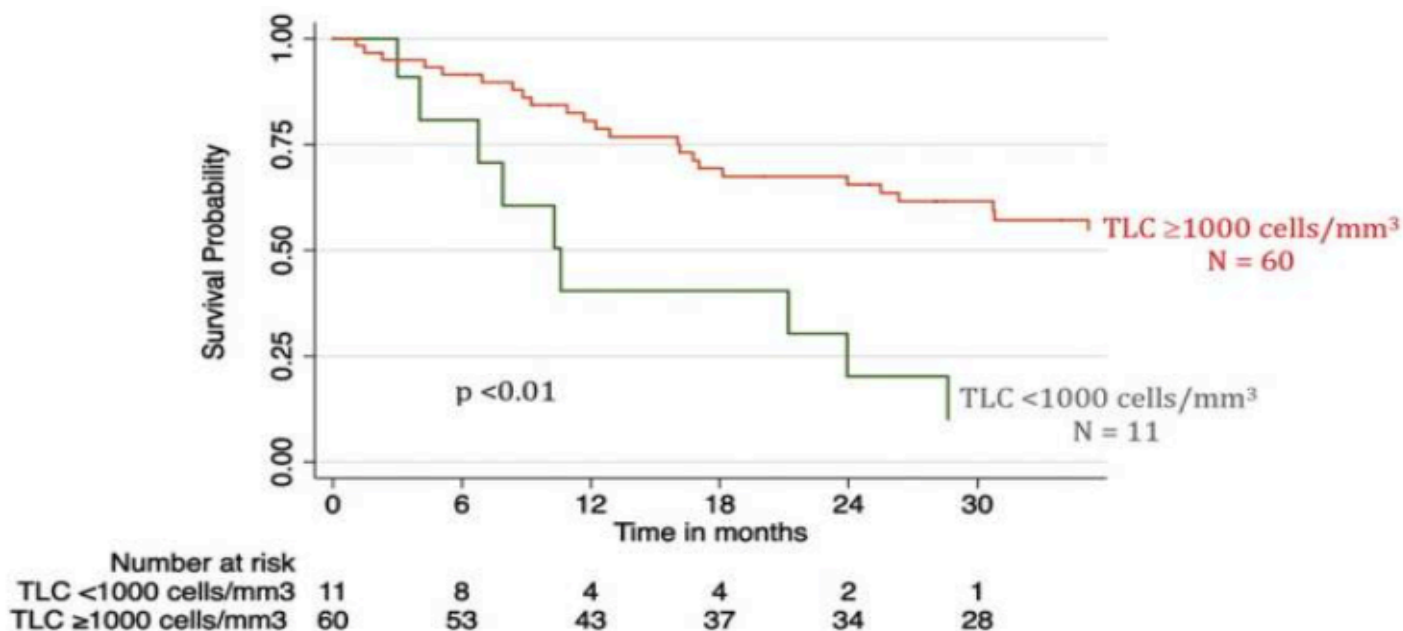
## Lymphocytes (Absolute Count)

A type of immune cell that is made in the bone marrow and is found in the blood and in lymph tissue. The two main types of lymphocytes are B lymphocytes and T lymphocytes. B lymphocytes make antibodies, and T lymphocytes help kill tumor cells and help control immune responses. A lymphocyte is a type of white blood cell. **Quantitative lymphocyte alterations are frequent in patients with cancer, and strongly impact prognosis and survival.** Source: National Cancer Institute

Category: Immune Health

Traditional Reference (normal) Range: 700 - 3,100

Spike Risk Optimal Range: 1,400 - 2,000 cells/microliter



### Selected Publications:

**Title:** Lymphopenia and neutrophilia at admission predicts severity and mortality in patients with COVID-19: a meta-analysis

**Finding:** A total of 22 studies (4,969 patients) were included in this meta-analysis. Lymphopenia at admission was found to be significantly associated with increased odd of progression to severe disease. Lymphocyte counts  $< 500$  showed a 1200% increase in mortality.

**Conclusion:** Admission lymphopenia and neutrophilia are associated with poor outcomes in patients with COVID-19. Regular monitoring and early and even more aggressive intervention shall hence be advisable in patients with low lymphocyte and high neutrophil counts. These variables may be useful in risk stratification models.

**Title:** Survival in Patients With Severe Lymphopenia for Newly Diagnosed Solid Tumors

**Finding:** An increased risk for death was attributable to (treatment-related lymphopenia) TRL in each cancer cohort (gliomas; resected pancreas; unresected pancreas; and lung). On average, mortality increased by 250%.

**Conclusion:** The immune system plays an important role in cancer surveillance and therapy. Chemoradiation can cause severe treatment-related lymphopenia (TRL) ( $< 500$  cells/mm<sup>3</sup>) that is associated with reduced survival.

Lymphocytes (absolute): 2000 Optimal: 1,400 - 2,000 cells/microliter

Optimal



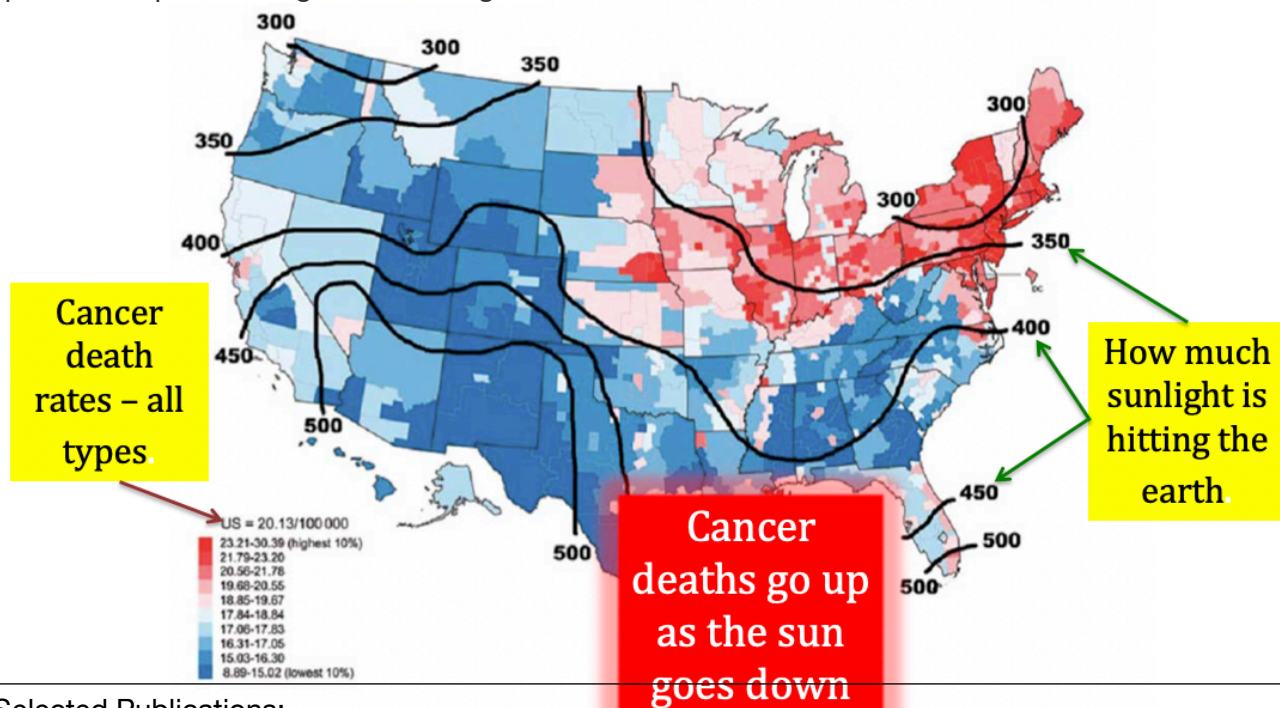
## Vitamin D (Pro-Hormone D)

Vitamin D is a fat-soluble pro-hormone (substances that the body can turn into hormones). Vitamin D helps the body use calcium and phosphorus to make strong bones and teeth. Skin exposed to sunshine can make vitamin D. In studies of cancer cells and of tumors, **vitamin D has been found to have several activities that might slow or prevent the development of cancer**, including promoting cellular differentiation, decreasing cancer cell growth, stimulating cell death (apoptosis), and reducing tumor blood vessel formation (angiogenesis). [Source: National Cancer Institute](#)

Category: Immune Health

Traditional Reference (normal) Range: 30 - 100

Spike Risk Optimal Range: 55 - 100 ng/mL



### Selected Publications:

**Title:** Chapter One - Vitamin D, Cancer Risk, and Mortality

**Finding:** Anti-proliferative effects of 1,25-dihydroxyvitamin D, the biologically active form of vitamin D, are well established in various cell types by influencing cell differentiation and decreasing cell proliferation, growth, invasion, angiogenesis, and metastasis. Several meta-analyses showed that low serum levels of 25(OH)D was associated with colorectal cancer and overall mortality.

**Conclusion:** Epidemiological and preclinical **studies support the development of vitamin D as preventative and therapeutic anticancer agent**, with significant associations especially found for low vitamin D status with overall mortality and cancer outcome, more than cancer incidence.

**Title:** **The role of vitamin D in the prevention of coronavirus disease 2019 infection and mortality**

**Finding:** Negative correlations between mean levels of vitamin D (average 20 ng/mL) in each country and the number of COVID-19 cases were observed.

**Conclusion:** Lower vitamin D levels, especially in older people, was related to the severity of COVID-19 disease.

Vitamin D: **34** Optimal: 55 - 100 ng/ml



## C-Reactive Protein (CRP)

C-reactive protein (CRP) an acute-phase reactant inflammatory protein is synthesized in hepatocytes in response to cytokines that are released from leucocytes within the tumor microenvironment.

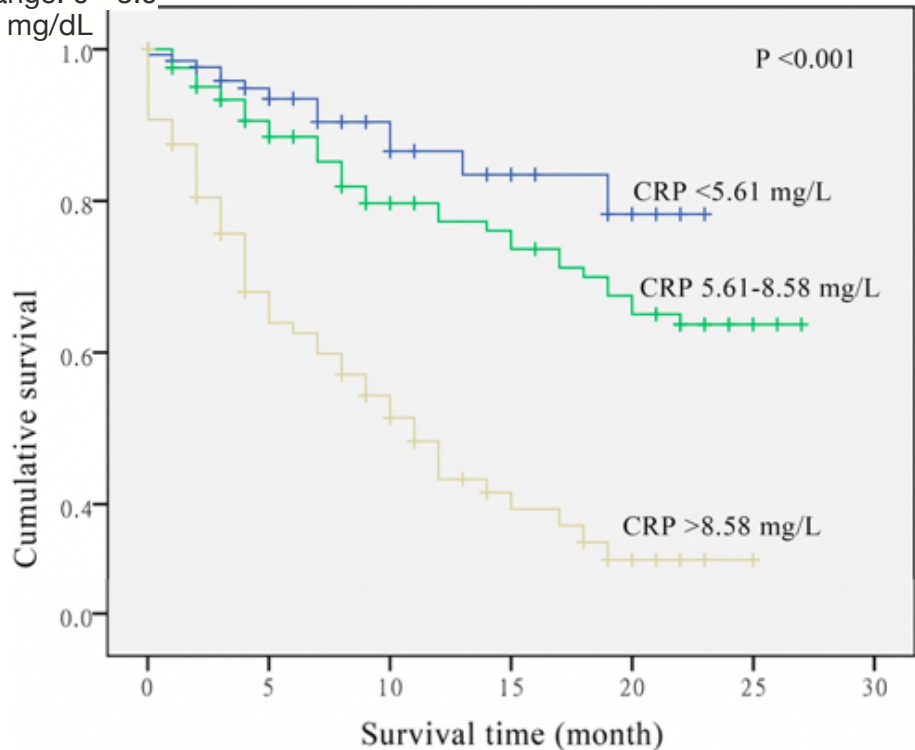
Several epidemiological studies appraised an association of CRP with breast cancer risk. [Source: International Journal of Breast Cancer](#)

Category: Inflammation

Traditional Reference (normal) Range: 0 - 3.0

Spike Risk Optimal Range: < 0.6 mg/dL

Non Small Cell Lung Cancer



### Selected Publications:

**Title:** Predictability of CRP and D-Dimer levels for in-hospital outcomes and mortality of COVID-19

**Finding:** Both high D-Dimer and high CRP were associated with increased need for upgrade to the ICU and higher requirement for invasive mechanical ventilation on day-7 of hospitalization.

**Conclusion:** CRP and D-dimer elevated values during hospitalization might predict higher odds of in-hospital mortality. Higher levels at presentation might indicate impending clinical deterioration and the need for mechanical ventilation.

**Title:** C-reactive protein and risk of breast cancer: A systematic review and meta-analysis

**Finding:** Altogether fifteen cohort and case-control studies were included in this meta-analysis, involving a total of 5,286 breast cancer cases. The combined overall risk per natural log unit increase in CRP for breast cancer was 16%.

**Conclusion:** The meta-analysis indicated that elevated CRP levels was associated with increased risk of breast cancer.

C-Reactive Protein (CRP): 0.8 Optimal: < 0.6 mg/mL



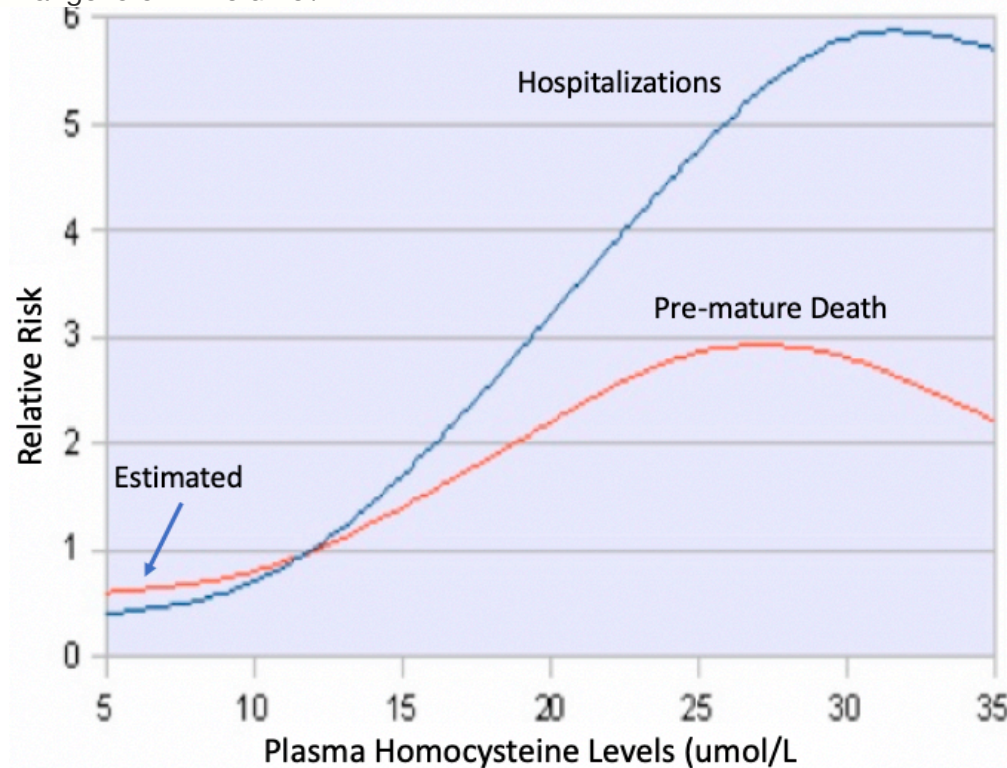
## Homocysteine (HcY)

A homocysteine test measures the amount of homocysteine in your blood. Homocysteine is a type of amino acid, a chemical your body uses to make proteins. Normally, vitamin B12, vitamin B6, and folic acid break down homocysteine and change it into other substances your body needs. There should be very little homocysteine left in the bloodstream. Recent advances have proven that there is a close link between hyperhomocystinuria and cancer. Source: Nature Journal [www.nature.com](http://www.nature.com)

Category: Inflammation

Traditional Reference (normal) Range: 0.0 - 17.2

Spike Risk Optimal Range: 5.5 - 11.0 umol/L



Selected Publications:

**Title:** Homocysteine as a potential predictor of cardiovascular risk in patients with COVID-19

**Finding:** Recent studies have found a correlate between higher homocysteine (Hcy) levels and higher COVID-19 mortality rates. In October 2020, researchers in Italy noted vasculitic damage in seriously ill patients and suspected Hcy played a contributing role.

**Conclusion.** Given these numerous correlates, it is relevant to explore how Hcy may be impacting COVID-19 severity.

**Title:** Homocysteine and its role as Preventive and prognostic Biomarker in Clinical Medicine

**Finding:** Cancer is triggered by damage to DNA - and having a high homocysteine level means your DNA is more vulnerable to damage

**Conclusion:** Homocysteine levels have been found to be a very good indicator of whether cancer therapies are working. The homocysteine level rises with tumors grow, and falls when they shrink.

Homocysteine (HcY): Your Value **9.7** Optimal: 5.5 - 11.0 umol/L

Optimal

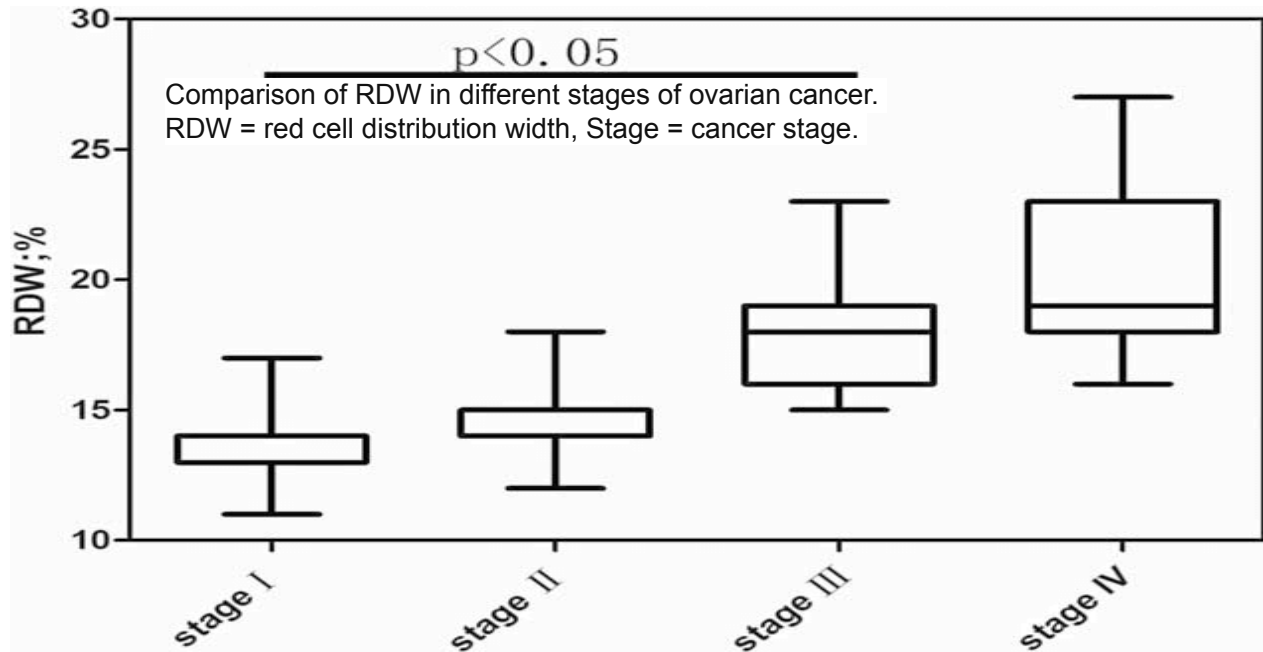
## Red Blood Cell Distribution Width (RDW)

Red blood cell distribution width is a measure of the range of variation of red blood cell volume that is reported as part of a standard complete blood count. Usually red blood cells are a standard size of about 6–8  $\mu\text{m}$  in diameter. **Certain disorders including Cancer, however, cause a significant variation in cell size.** Source: WebMD

Category: Inflammation

Traditional Reference (normal) Range: 11.7 - 15.4%

Spike Risk Optimal Range: 11.0 - 12.5%



### Selected Publications:

**Title:** The value of red cell distribution width in patients with ovarian cancer

**Finding:** The RDW was significantly different among 4 different stages of ovarian cancer. Correlation analysis demonstrated that the RDW was negatively correlated with the hemoglobin concentration (Hb). The RDW was positively correlated with the cancer stage and CA-125 concentration.

**Conclusion.** The RDW is associated with ovarian cancer and is a potential marker of its progression.

**Title:** Significance of RDW in predicting mortality in COVID-19—An analysis of 622 cases

**Finding:** The results of our study are similar to other evaluations of the association of elevated RDW with mortality. In a cohort study that included 1641 patients with COVID-19, RDW was associated with increased mortality risk in Cox proportional hazards modeling adjusted for various parameters including age and D-dimer (HR of 2.01 for an RDW  $>14.5\%$  versus  $\leq 14.5\%$ )

**Conclusion:** In conclusion, RDW can be considered during the workup for COVID-19 patients as it helps in early risk stratification for efficient and effective utilization of available resources especially in limited resources settings.

Red Cell Distribution Width (RDW): Your Value **14.2** Optimal: 11.0-12.5 %

Optimal



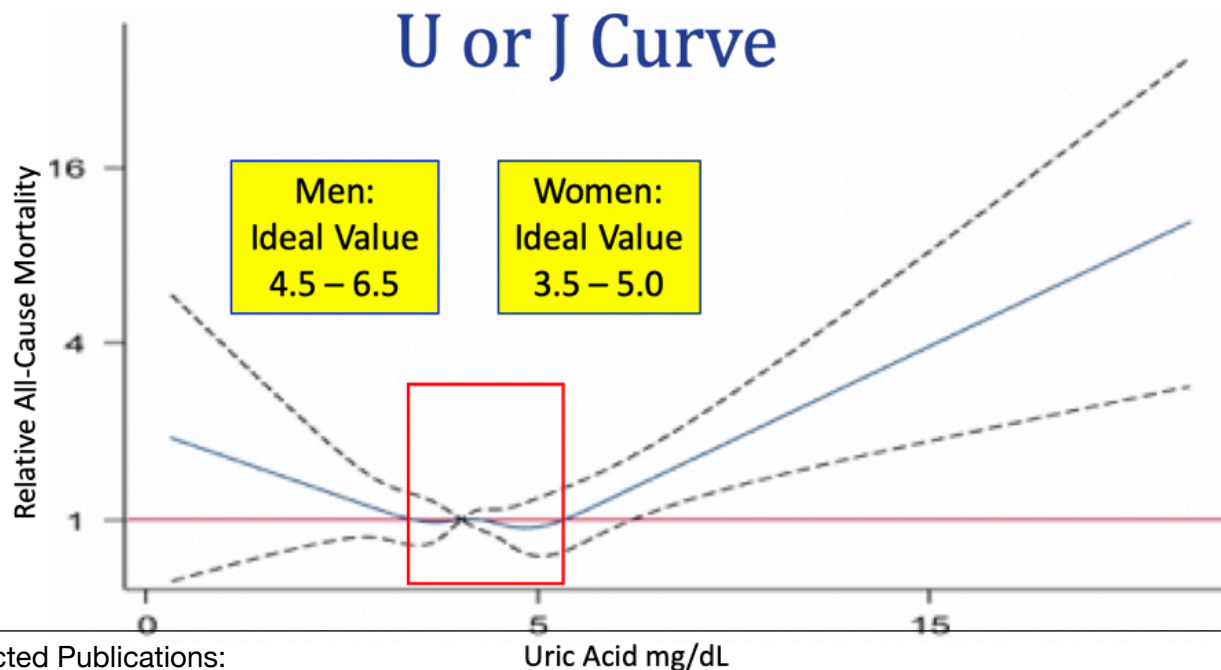
## Uric Acid

A waste product left over from normal chemical processes in the body and found in the urine and blood. Abnormal buildup of uric acid in the body may cause a condition called gout. Increased levels of uric acid in the blood and urine can be a side effect of chemotherapy or radiation therapy. Recent evidence has demonstrated that **elevated serum uric acid (hyperuricemia) is associated with excess cancer risk, recurrence, and mortality**. Although uric acid (UA) can function as a systemic antioxidant, its pro-inflammatory properties have been postulated to play an important role in the pathogenesis of cancer. [Source: National Cancer Institute](#)

Category: Inflammation

Traditional Reference (normal) Range: 2.5 - 7.1

Spike Risk Optimal Range: Men: 4.5 - 6.5; Women: 3.5 - 5.0



Selected Publications:

**Title:** Uric acid as a prognostic factor and critical marker of COVID-19

**Finding:** The concentration of admission UA (adUA) and the lowest concentration of uric acid during hospitalization (lowUA) in the dead patients were significantly lower than those in the survivors.

**Conclusion.** This retrospective study determined that the lowest concentration of UA during hospitalization can be used as a prognostic indicator and a marker of disease severity in severe patients with COVID-19.

**Title:** Circulating uric acid levels and subsequent development of cancer in 493,281 individuals: findings from the AMORIS Study

**Finding:** Site-specific analysis showed a positive association between uric acid and risk of colorectal, hepatobiliary, kidney, non-melanoma skin, and other cancers in men and of head and neck and other cancers in women. An inverse association was observed for pulmonary and central nervous system (CNS) cancers in men and breast, lymphatic and haematological, and CNS malignancies in women.

**Conclusion:** **Altered uric acid levels were associated with risk of overall and some specific cancers**, further indicating the potential role of uric acid metabolism in carcinogenesis.

Uric acid: **6.8** Optimal: 3.5 - 6.0 mg/dL - CHECK RANGES BASED ON GENDER ABOVE

Optimal

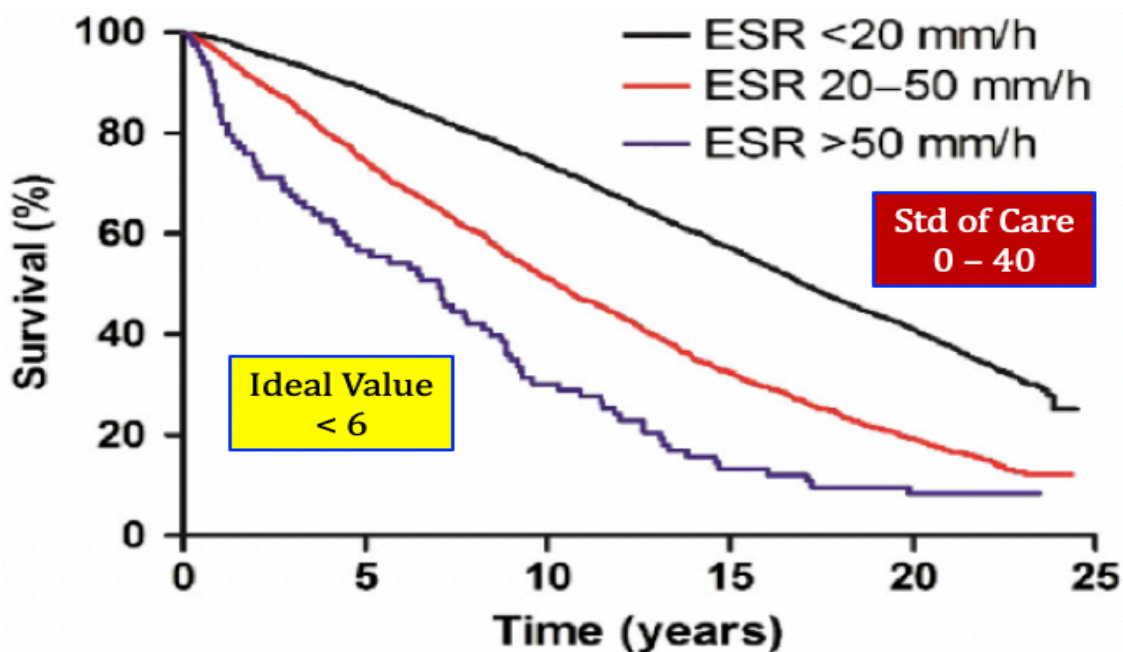
## Erythrocyte Sedimentation Rate (ESR)

Sed rate, or erythrocyte sedimentation rate (ESR), is a blood test that can reveal inflammatory activity in your body. When your blood is placed in a tall, thin tube, red blood cells (erythrocytes) gradually settle to the bottom. Inflammation can cause the cells to clump. Because these clumps are denser than individual cells, they settle to the bottom more quickly. - Source: National Cancer Institute  
**Importantly, the ESR is a measure of the electrical properties of the red blood cell membrane - which is a tiny battery. When ESR is high, your cellular "battery" is discharged.** Source: Dr. Lewis

Category: Inflammation

Traditional Reference (normal) Range: 0 - 40

Spike Risk Optimal Range: < 3 mm/hr



### Selected Publications:

**Title:** Erythrocyte sedimentation rate is associated with severe coronavirus disease 2019 (COVID-19): a pooled analysis

**Finding:** The results of the pooled analysis show that there is a statistically significant difference in ESR values between severe and non-severe COVID-19 cases

**Conclusion:** The findings of this systematic literature search and pooled analysis, although being based on a small sample size and with significant heterogeneity between studies, suggest that severe COVID-19 cases are associated with prominent elevations of ESR, as compared to non-severe cases, reflecting the more profound inflammatory response and expression of acute-phase proteins

**Title:** Cancer Risk and Prognosis after a Hospital Contact for an Elevated Erythrocyte Sedimentation Rate

**Finding:** We observed an increased risk of cancer after a hospital contact with elevated ESR. In the first year of follow-up, the cancer risk was 8.5% and the increase in cancer risk was greater than 5-fold, compared with general population rates.

**Conclusion:** Elevated ESR is a strong marker of undiagnosed cancer and is associated with poorer survival. **Impact:** Our findings may help clinicians in assessing absolute risk, common sites, and prognosis of cancers discovered in patients with elevated ERS.

Erythrocyte Sedimentation Rate (ESR):

35

Optimal: < 3 mm/hr

Optimal

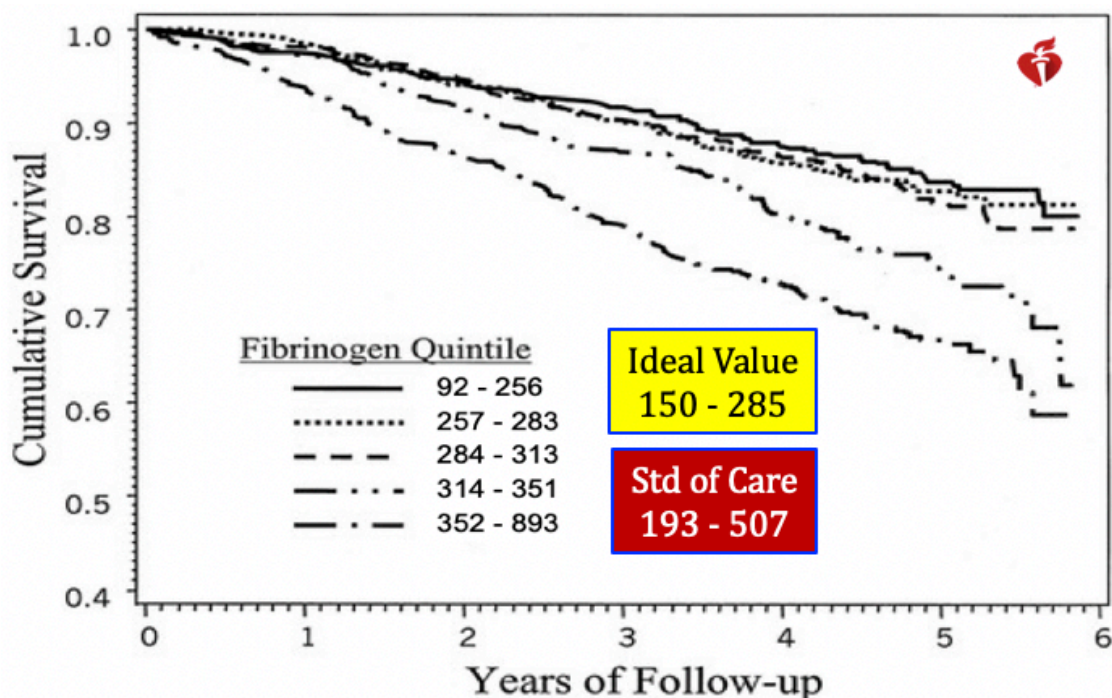
## Fibrinogen

A protein involved in forming blood clots in the body. It is made in the liver and forms fibrin. Fibrin is the main protein in a blood clot that helps stop bleeding and heal wounds. Sometimes fibrin-like substances may be found in higher than normal amounts in the blood and urine of patients with some types of cancer or other conditions. Measuring the amount of these substances may help to check how well cancer treatment is working or if the cancer has gotten worse. **Fibrinogen is a type of tumor marker.** Source: National Cancer Institute

Category: Tissue Damage / Repair

Traditional Reference (normal) Range: 193 - 507

Spike Risk Optimal Range: 150 - 285 mg/dL



### Selected Publications:

**Title:** Smoking, Fibrinogen and Cancer Mortality

**Finding:** Elevated fibrinogen levels were associated with an increased risk of respiratory/intrathoracic organ cancer mortality. Compared to fibrinogen <259 mg/dl, fibrinogen 294-335 mg/dl had an adjusted hazard ratio of **3.68** (95% CI: 1.80-7.55), and fibrinogen > 336 mg/dl had an adjusted hazard ratio of **3.78** (95% CI: 1.84-7.75). **Interpretation: Almost 4 times higher rates of cancer.**

**Conclusion:** Elevated fibrinogen levels has been linked to angiogenesis and metastases of tumors.

**Title:** Abnormal Fibrinogen Level as a Prognostic Indicator in Coronavirus Disease Patients: A Retrospective Cohort Study

**Finding:** Both lowered and elevated FIB level was associated with a greater risk of developing critical disease.

**Conclusion:** Abnormal FIB levels may be associated with mortality risk among COVID-19 patients and could predict critical disease development. Thus, assessment of FIB levels may assist in determining the prognosis of COVID-19 patients.

Fibrinogen:

449

Optimal: 150 - 285 mg/dL

Optimal

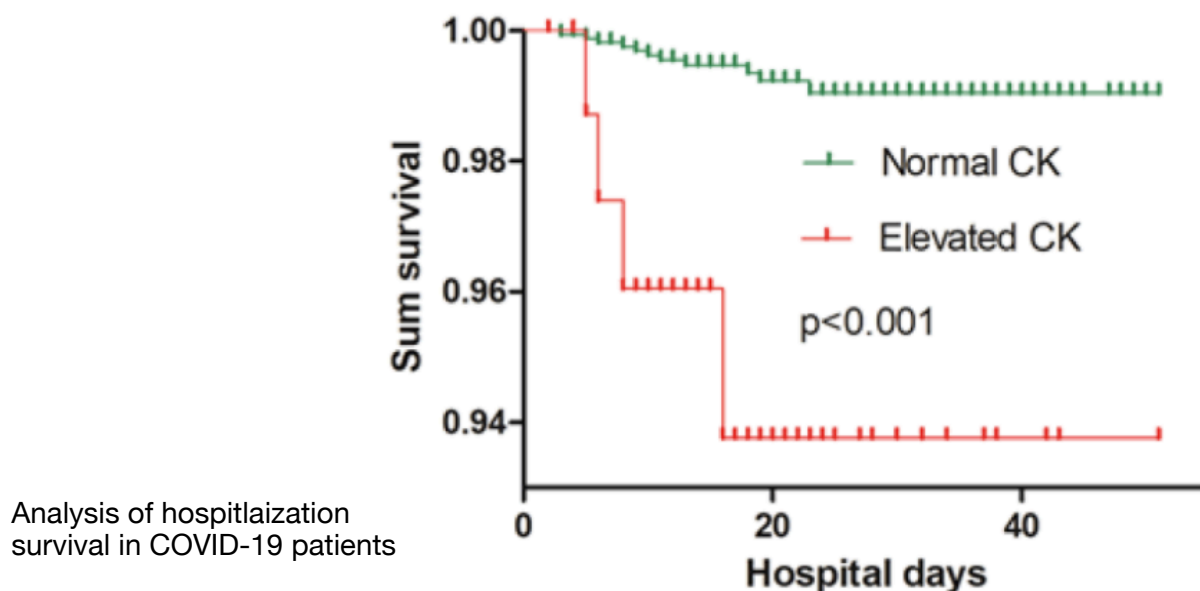
## Creatine Kinase (CK)

Creatine kinase (CK), also known as creatine phosphokinase (CPK) or phosphocreatine kinase, is an enzyme expressed by various tissues and cell types. CK catalyses the conversion of creatine and uses adenosine triphosphate (ATP) to create phosphocreatine and adenosine diphosphate (ADP). Clinically, creatine kinase is assayed in blood tests as a marker of damage of CK-rich tissue. Aberrant CK levels may impair cell viability under normal or stressed conditions and induce cell death. The involvement of CK in cell cycle regulation and cellular energy metabolism makes it a potential **diagnostic biomarker and therapeutic target in cancer**. Source: "Practice of Toxicologic Pathology"

Category: Tissue Damage / Repair

Traditional Reference (normal) Range: 32 - 182 U/L

Spike Risk Reference Range: 32 - 150 U/L



### Selected Publications:

**Title:** Elevated Serum Creatine Kinase as an Independent Prognostic Factor for Mortality in Hospitalized Patients with COVID-19

**Finding:** Elevated CK patients were more likely to have critical disease severity on multivariate logistic regression analysis

**Conclusion:** Elevated CK level was an independent risk factor of mortality in COVID-19 patients. Inpatients with elevated CK had a higher risk for mortality, as well as critical severity condition compared with normal CK inpatients.

**Title:** The prognostic value of elevated creatine kinase to predict poor outcome in patients with COVID-19 - A systematic review and meta-analysis

**Finding:** In this pooled analysis, elevated CK confers to a 49% probability for poor outcome and a non-elevated CK confers to a 24% probability. Subgroup analysis and univariate meta-regression indicates that the sensitivity and specificity does not vary with age, male, hypertension, and diabetes.

**Conclusion:** **Elevated CK was associated with increased mortality and severity in patients with COVID-19.**

Creatine Kinase (CK):

268

Optimal: 32 - 150 U/L

Optimal



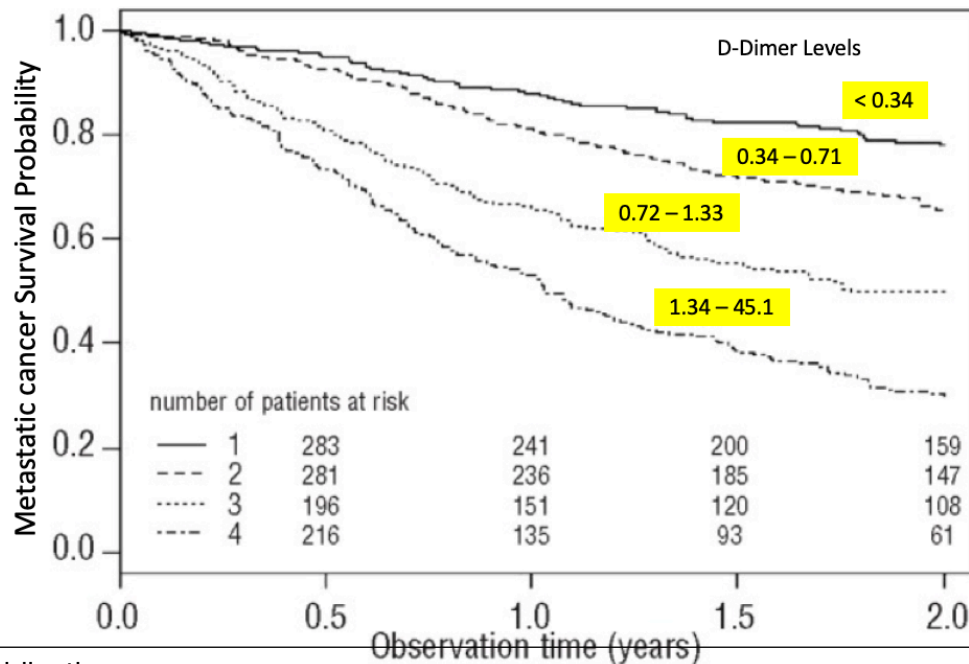
## D-Dimer

D-dimer is a widely used biomarker for indicating the activation of coagulation and fibrinolysis, and is reported to **serve important roles in COVID progression**. As D-dimer plasma levels are elevated after clot formation, the measurement of D-dimer is routinely used in conjunction with clinical parameters in the initial assessment of suspected acute venous thromboembolism. Elevated D-dimer levels may also be observed in other clinical settings, such as cancer, pregnancy and infectious diseases or following trauma and surgery. [Source: Journal of Intensive Care](#)

Category: Tissue Damage / Repair

Traditional Reference (normal) Range: < 0.49

Spike Risk Reference Range: 0.05 - 0.13 mg/L FEU



### Selected Publications:

**Title:** D-dimer as a biomarker for disease severity and mortality in COVID-19 patients: a case control study

**Finding:** Multivariable regression that showed D-dimer > 2.0mg/L at admission was the only variable associated with increased odds of mortality. D-dimer elevation ( $\geq 0.50$ mg/L) was seen in 74.6% (185/248) of the patients.

**Conclusion:** D-dimer is commonly elevated in patients with COVID-19. D-dimer levels correlate with disease severity and are a reliable prognostic marker for in-hospital mortality in patients admitted for COVID-19.

Title: D-dimer as a potential clinical marker for predicting metastasis and progression in cancer

Finding: The plasma levels of D-dimer were significantly higher in patients with breast cancer, gastric cancer, pancreatic cancer, colon cancer and rectal cancer, compared with the healthy controls. It was also determined that **the plasma D-dimer levels were positively associated with clinical cancer stage and metastasis**.

Conclusion: D-dimer is a widely used biomarker for indicating the activation of coagulation and fibrinolysis, and is reported to serve important roles in cancer progression. These findings suggested that the **plasma D-dimer level may be used as marker for predicting cancer metastasis and progression**.

D-Dimer: 0.1



Optimal: 0.05 - 0.20 mg/L FEU

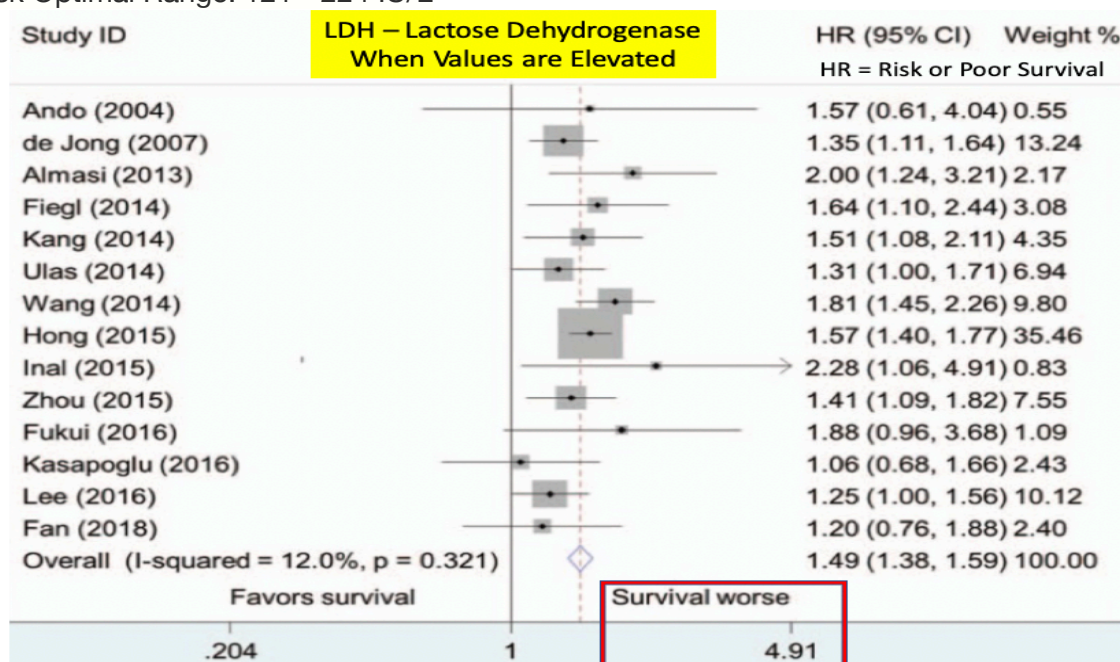
## Lactate Dehydrogenase (LDH)

This test measures the level of lactate dehydrogenase (LDH), also known as lactic acid dehydrogenase, in your blood or sometimes in other body fluids. LDH is a type of protein, known as an enzyme. LDH plays an important role in making your body's energy. It is found in almost all the body's tissues, including those in the blood, heart, kidneys, brain, and lungs. [Source: State Key Laboratory of Cancer Biology, Department of Biochemistry and Molecular Biology, Fourth Military Medical University, Xi'an, Shaanxi, China](#)

Category: Tissue Damage / Repair

Traditional Reference (normal) Range: 121 - 224

Spike Risk Optimal Range: 121 - 224 IU/L



Selected Publications:

**Title:** Lactate dehydrogenase, COVID-19 and mortality

**Finding:** LDH is an enzyme involved in energy production and that is found in almost all cells in the body. Tests that measure the concentration of LDH in the blood are commonly used to monitor tissue damage associated with a wide range of disorders, including liver disease and interstitial lung disease. The increase of LDH reflects tissue/cell destruction and is regarded as a common sign of tissue/cell damage, suggesting viral infection or lung damage, such as the pneumonia induced by SARS-CoV-2

**Title:** Higher pretreatment lactate dehydrogenase concentration predicts worse overall survival in patients with lung cancer

**Finding:** Our results demonstrate that higher pretreatment LDH concentration is associated with worse overall survival in patients with lung cancer. The findings may assist future diagnostics by helping predict prognosis in lung cancer patients.

**Conclusion:** After pooling the results of the 14 studies together, higher pretreatment **LDH concentration was significantly associated with an increased risk of overall mortality in patients with lung cancer.**

Lactate Dehydrogenase (LDH):

161

Optimal: 121 - 224 IU/L

Optimal

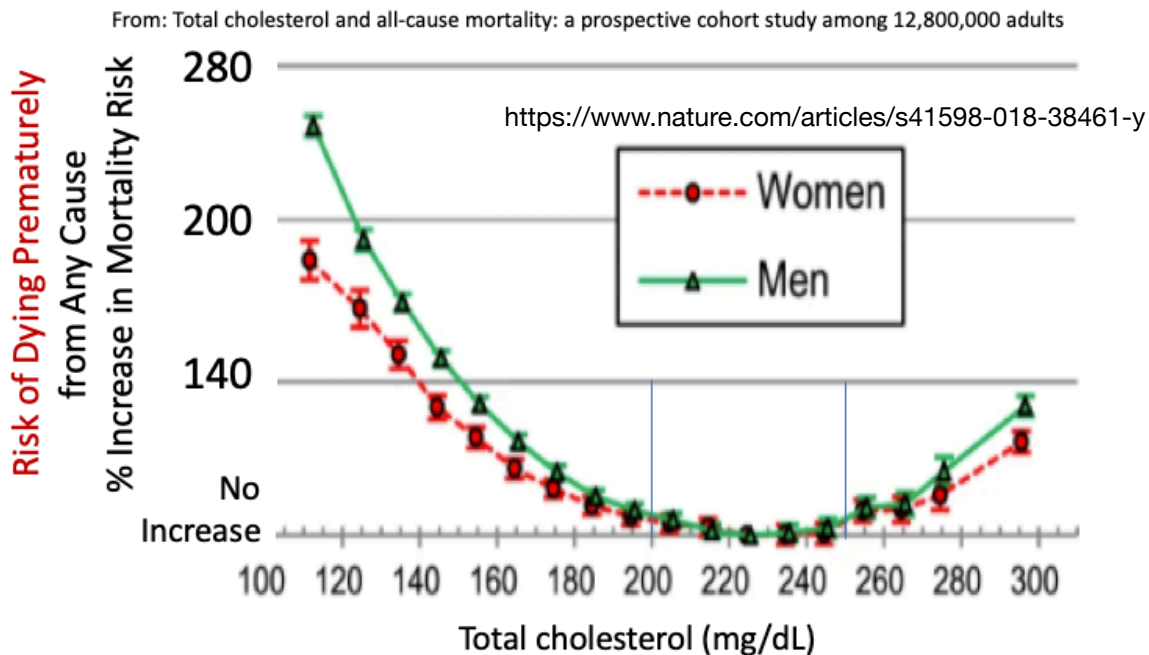
## Total Cholesterol ( Page 1 of 2)

Cholesterol is essential for human health. It is the building block of steroid hormones, including the stress hormone cortisol and the male and female sex hormones, including testosterone and the estrogens. Cholesterol is also an essential component of the membranes that surround all human cells. More than simply holding cells together, these membranes have a crucial role in regulating cell function and allowing chemicals to pass into and out of cells. Increased serum cholesterol levels have been reported to be positively correlated with a higher risk of developing cancers, such as colon, rectal, prostatic and testicular cancer as cholesterol is produced by the liver in response to the damage exerted by cancerous tissue. [Source: Harvard Medical School](#)

Category: Tissue Damage / Repair

Traditional Reference (normal) Range: <199 mg/dL

Spike Risk Optimal Range: 200 - 240 mg/dL



Selected Publications:

**Title:** Total cholesterol and all-cause mortality by sex and age: a prospective cohort study among 12.8 million adults

**Finding:** several cancers have been suggested to be associated with lower TC. thus, **the ranges associated with lowest risk might be even higher for these diseases than those for all-cause mortality.**

**Conclusion:** Cancer risk goes **DOWN** as total cholesterol goes **UP**.

Title: Low-density lipoprotein cholesterol levels are associated with poor clinical outcomes in COVID-19

Finding: In a multivariate analysis, LDL-c  $\leq 69$  mg/dl at admission were independently associated with 30-day mortality

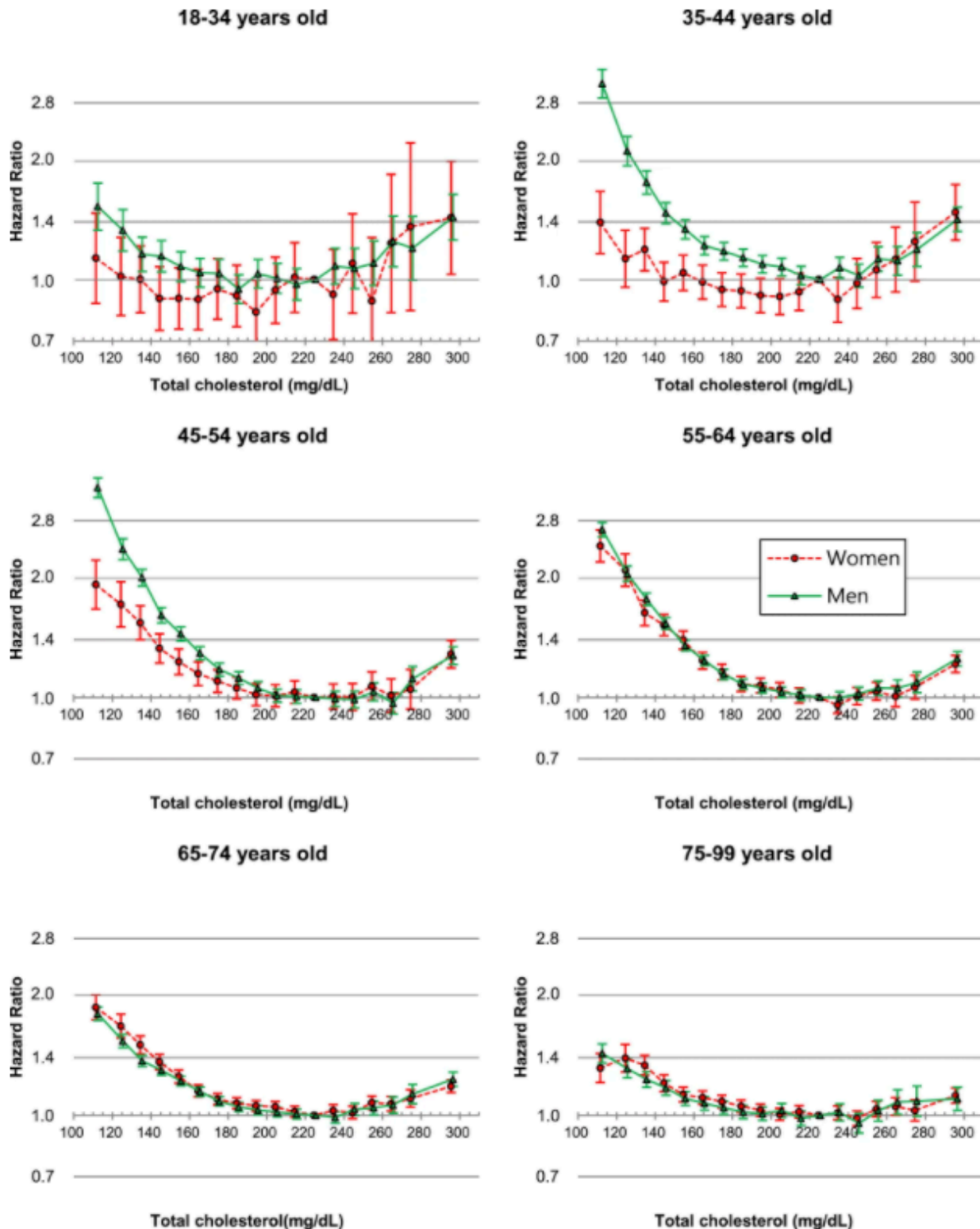
Conclusion: Hypolipidemia in SARS-CoV-2 infection may be secondary to an immuneinflammatory response, with complete recovery in survivors. Low LDL-c serum levels are independently associated with higher 30-day mortality in COVID-19 patients.

Total Cholesterol (TC): **187** Optimal: 200 - 250 mg/dL

Optimal

*Nature* has an impact factor (2014) of 42.351, making it the **most cited science journal in the world**.

From: Total cholesterol and all-cause mortality by sex and age: a prospective cohort study among 12.8 million adults



## Insulin (Fasting)

Insulin is a hormone made by the islet cells of the pancreas. Insulin controls the amount of sugar in the blood by moving it into the cells, where it can be used by the body for energy. Fasting insulin is superior to HbA1C and fasting glucose at assessing diabetes status and cancer risk. Diabetes is a disease of insulin resistance **first** and elevated blood glucose **second**. Cancer mortality rates are directly proportional to fasting insulin levels. [Source: National Cancer Institute](#)

Category: Metabolic

Traditional Reference (normal) Range: 2.6 - 24.9 uIU/mL

Spike Risk Optimal Range: 1.5 - 6 uIU/mL

review article

Diabetes, Obesity and Metabolism 16: 97–110, 2014.  
© 2013 The Authors. Diabetes, Obesity and Metabolism published by John Wiley & Sons Ltd.

### Diabetes and cancer: two diseases with obesity as a common risk factor

S. K. Garg<sup>1,2,3</sup>, H. Maurer<sup>1</sup>, K. Reed<sup>1</sup> & R. Selagamsetty<sup>1,4</sup>

#### Increased cancer mortality in diabetic patients

	Men	Women
All	1.44	1.35
Liver	5.16	6.37
Pancreas	1.67	2.13
Breast	--	1.65
Prostate	1.30	--

**Table 2.** Cancer mortality in men and women with diabetes [60].

Type of cancer	Men	Women
All cancer		
Mortality	8.52	5.04
HR (95% CI)	1.44 (1.21–1.70)	1.35 (1.08–1.68)
Stomach		
Mortality	1.74	0.24
HR (95% CI)	1.84 (1.25–2.71)	0.48 (0.19–1.21)
Liver		
Mortality	0.73	0.43
HR (95% CI)	5.16 (2.56–10.41)	6.37 (2.18–18.62)
Pancreas		
Mortality	0.77	0.62
HR (95% CI)	1.67 (0.94–2.97)	2.13 (1.09–4.16)
Bronchus/lung		
Mortality	1.21	0.52
HR (95% CI)	0.88 (0.58–1.35)	0.93 (0.48–1.81)
Prostate		
Mortality	1.31	—
HR (95% CI)	1.30 (0.84–2.01)	—
Breast		
Mortality	—	0.81
HR (95% CI)	—	1.65 (0.93–2.93)
Kidney/bladder		
Mortality	0.53	0.33
HR (95% CI)	1.20 (0.61–2.37)	1.97 (0.75–5.15)

Garg SK et al. *Diabetes, Obesity and Metabolism*. 2014;16:97-110

#### Selected Publications:

**Title:** Diabetes and cancer: Two diseases with obesity as a common risk factor

**Finding:** There is a growing body of evidence to support a connection between diabetes, elevated insulin levels, obesity and cancer. Multiple meta-analyses of epidemiological data show that **people with diabetes are at increased risk of developing many different types of cancers, along with an increased risk of cancer mortality.**

**Conclusion:** Mortality rates in diabetes, obesity and cancer populations are high, with both T2DM and obesity being independently associated with an increased risk of cancer-related mortality.

**Title:** The Relationship Between Insulin Use And Increased Mortality In Patients With COVID-19 And Diabetes: A Meta-Analysis

**Finding:** Overall, 1,338 patients over six studies were ultimately included. Insulin use was related to a higher risk of death in diabetic patients with COVID-19 compared to those who did not use insulin.

**Conclusion:** This meta-analysis revealed a correlation between insulin usage and increased mortality in diabetic patients with COVID-19. These results showed that insulin requirement in patients with COVID-19 and diabetes might indicate a poor prognosis.

Insulin: **24.1** Optimal: 1.5 - 6 uIU/mL

Optimal



## Hemoglobin A1c

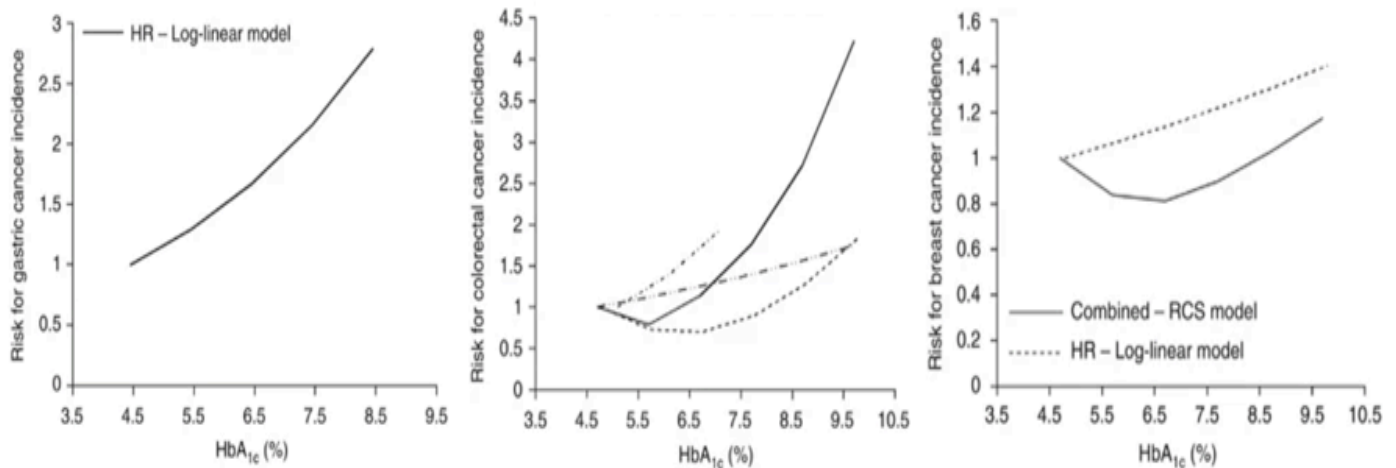
Hemoglobin A1c, also called A1c or glycated hemoglobin, is hemoglobin with glucose attached. The A1c test evaluates the average amount of glucose in the blood over the last 4 to 6 months by measuring the percentage of glycated hemoglobin in the blood. Even people in the "non-diabetic" range as measured by Hemoglobin A1c have an increased risk associated with all cancers. [Source: Department of Diabetes Research, Diabetes Research Center, National Center for Global Health and Medicine, Tokyo, Japan](#)

Category: Metabolic

Traditional Reference (normal) Range: 4.8 - 6.4 %

Spike Risk Optimal Range: 4.0 - 5.3 %

### Risk of Developing Cancer with HbA1C Values: Gastric, Colorectal, and Breast Cancer



### Does cancer risk increase with HbA<sub>1c</sub> independent of diabetes?

#### Selected Publications:

**Title:** Haemoglobin A1c is a predictor of COVID-19 severity in patients with diabetes

**Finding:** In a multivariate analysis, controlling for multiple prior clinical conditions, the only parameter associated with a significantly increased risk for hospitalization was HbA1c  $\geq 9\%$ .

**Conclusion:** Using pre-infection glycaemic control data, we identify HbA1c as a clear predictor of COVID-19 severity

**Title:** Clinically Defined Type 2 Diabetes Mellitus and Prognosis in Early-Stage Breast Cancer

**Finding:** In a study of people with early-stage breast cancer, the risk of all-cause mortality was found to be twice as high in women with HbA1c  $\geq 7\%$  compared with women with HbA1c  $<6.5\%$ . Fasting insulin levels were elevated consistent with the elevation of A1C.

**Conclusion:** Chronic hyperglycemia is statistically significantly associated with reduced overall survival in survivors of early-stage breast cancer.

HbA1C: 6.3 Optimal: 4.0 - 5.3 %

+

Optimal

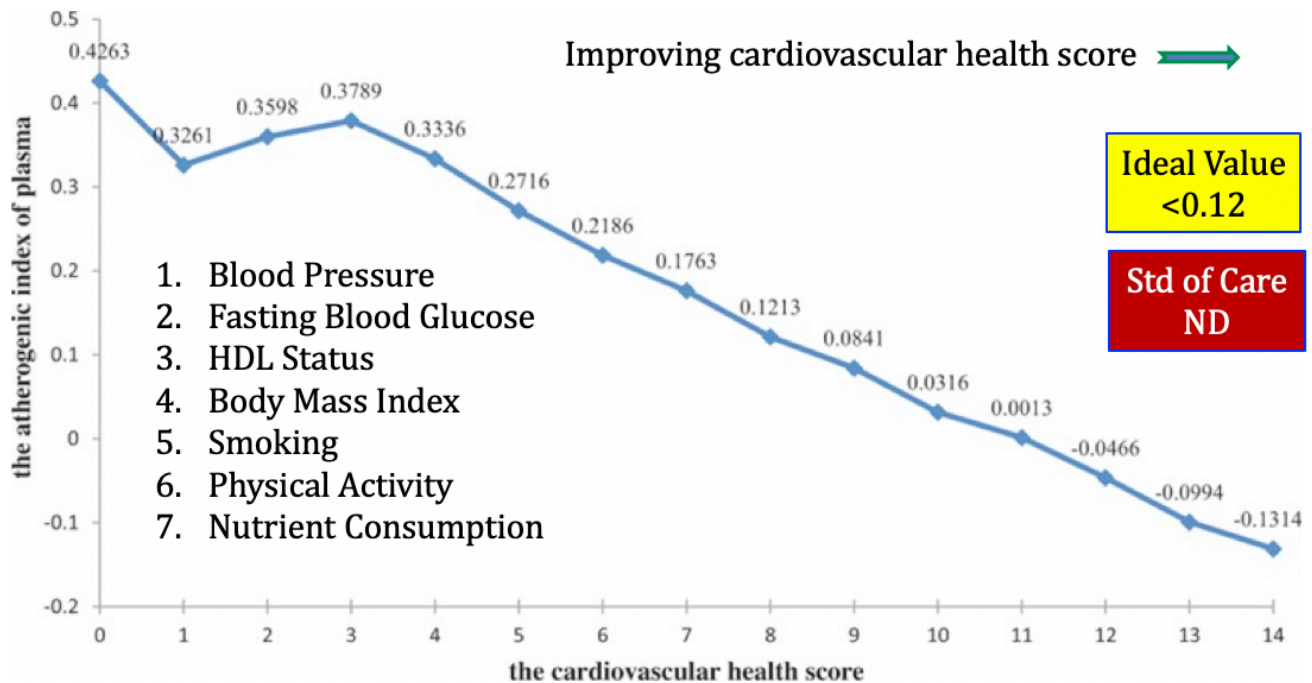
## Atherogenic Index of Plasma (AIP) aka Plasma Atherogenic Index (PIA)

Atherogenic index of plasma (AIP), a logarithmically transformed ratio of triglycerides (TGs) / high-density lipoprotein (HDL), is considered a marker of cardiovascular disease risk, based on observed strong, positive associations between AIP and lipoprotein particle size. Importantly, since triglycerides are considered a marker of excess blood sugars and HDL infers lack of essential fats in circulation, the AIP translates into an important single indicator of sugar excess and fat deficiency. [Source: Mayo Proceedings](#)

Category: Metabolic

Traditional Reference (normal) Range: Not Established

Spike Risk Optimal Range: < 0.11



### Selected Publications:

**Title:** High atherogenic index of plasma and cardiovascular risk factors among Ghanaian breast cancer patients

**Finding:** Comorbidities impact negatively on breast cancer prognosis. **AIP was significantly elevated in the breast cancer patients compared to the controls** and a greater proportion(88%) of the patients presented with advanced breast cancer.

**Conclusion:** AIP and cardiovascular risk factors were high in the breast cancer patients.

**Title:** Relationship between plasma Atherogenic index and final pathology of Bosniak III-IV renal masses: a retrospective, single-center study

**Finding:** AIP correlated with the degree of RCC and malignancy. Median PAI value was 0.63 and significantly higher in malignant cases. **The AIP cut-off value for malignancy was  $\geq 0.34$ .** The sensitivity was calculated as 88.2% and specificity as 45.8%, the positive predictive value as 90.8. Cancer did NOT track with triglycerides but did with AIP.

**Conclusion:** **The AIP can be used as a predictive tool in suspicion of malignant renal masses.** In case of a benign pathology, AIP levels may be encouraging for surgeons for nephron-sparing surgery.

Atherogenic Index of Plasma (AIP): **0.50** Optimal: < 0.11

Optimal

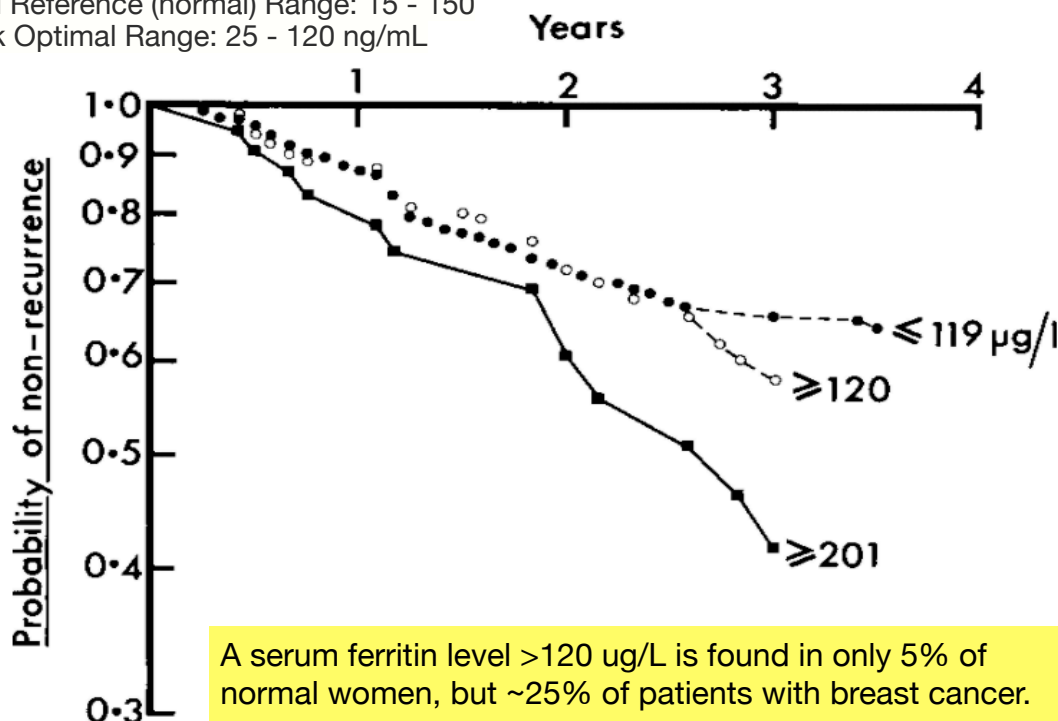
## Ferritin

Ferritin is a protein that binds to iron and stores it for use by the body. Ferritin is found in cells in the liver, spleen, bone marrow, and other tissues.. Serum ferritin level increases in malignancy and high serum ferritin level is associated with poor survival in various cancers. [Source: Department of Clinical Oncology, College of Korean Medicine](#)

Category: Oxidative Stress

Traditional Reference (normal) Range: 15 - 150

Spike Risk Optimal Range: 25 - 120 ng/mL



Probability of non-recurrence in breast cancer patients comparing 3 groups distinguished by their initial plasma ferritin concentration on first presentation.

### Selected Publications:

**Title:** Role of ferritin alterations in human breast cancer cells

**Finding:** Breast cancer is the most common malignancy in women. Recent studies show a crucial role of perturbations in ferritin levels and tightly associated with this, the **deregulation of intracellular iron homeostasis, and poor breast cancer prognosis.**

**Conclusion:** These results suggest that **perturbations in ferritin levels are associated with the progression of breast cancer toward a more advanced malignant phenotype.**

**Title:** Evaluation of serum ferritin for prediction of severity and mortality in COVID-19- A cross sectional study

**Finding:** Statistically significant difference in ferritin was found in the two categories based on severity and mortality. Binary logistic regression showed ferritin to be an independent predictor of all-cause mortality

**Conclusion:** Serum ferritin concentration is a promising predictor of mortality in COVID-19 cases.

Ferritin: 40 Optimal: 25 - 120 ng/mL





## Neutrophil to Lymphocyte Ratio (NLR)

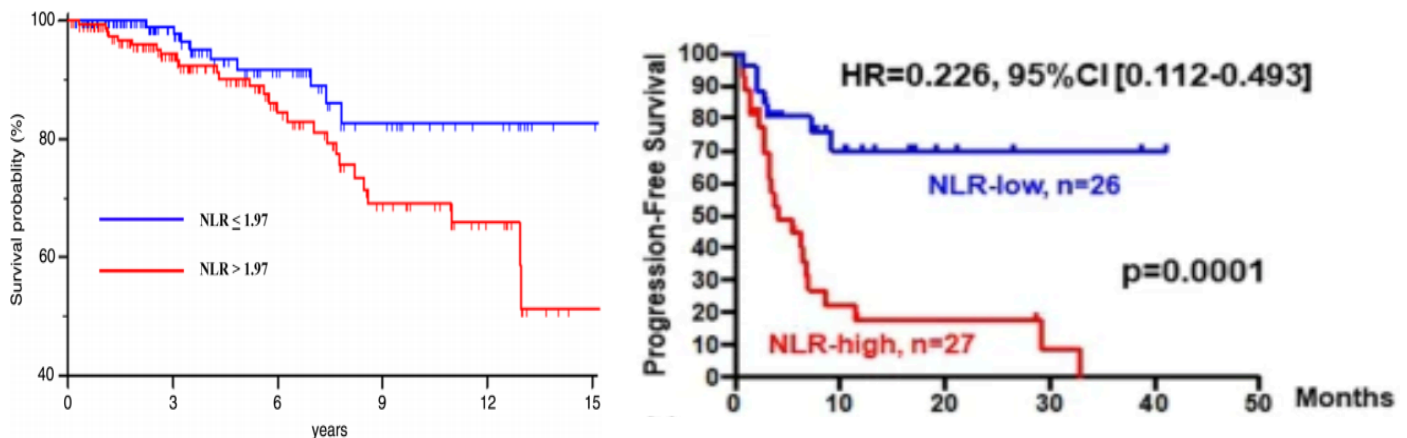
The NLR is the number of neutrophils divided by the number of lymphocytes. In general, neutrophils, a type of white blood cell, elevate in the presence of bacterial infection. Lymphocytes, also a type of white blood cell, decrease in the presence of a viral infection. Thus the NLR is a measure of your infectious burden. Importantly, the NLR value is amplified or magnified compared to other individual markers, providing better measurement or prediction of very early disease like cancer. [Source: Journal of the National Cancer Institute](#)

### Category: Immune Health

Traditional Reference (normal) Range: None

Spike Risk Optimal Range: 0.6 - 1.5

Two Different Breast Cancer Studies



#### Selected Publications:

**Title:** Neutrophil-to-lymphocyte ratio on admission to predict the severity and mortality of COVID-19 patients: A meta-analysis

**Finding:** A total of 38 articles, including 5699 patients with severity outcomes and 6033 patients with mortality outcomes, were included. The meta-analysis showed that severe and non-survivors of COVID-19 had higher on-admission NLR levels than non-severe and survivors - with a cut-off value of 2.74

**Conclusion:** High NLR levels on admission were associated with severe COVID-19 and mortality. Further studies need to focus on determining the optimal cut-off value for NLR before clinical use.

**Title:** Prognostic Role of Neutrophil-to-Lymphocyte Ratio in Solid Tumors: A Systematic Review and Meta-Analysis

**Finding:** One hundred studies comprising 40559 patients were included in the analysis. An NLR of <4 was used to determine risks. Overall, NLR > 4 was associated with: **Overall Survival decline by 181%, an effect observed in all disease subgroups, sites, and stages.** Risks for NLR > 4 for cancer-specific survival, progression-free survival, and disease-free survival were 161%, 163% and 227%, respectively.

**Conclusion:** A high NLR is associated with an adverse overall survival (OS = high mortality) in many solid tumors. The NLR is a readily available and inexpensive biomarker, and is a valuable addition to establishment of prognostic scores for clinical decision making across a broad array of cancers.

Neutrophil to Lymphocyte Ratio (NLR): 1.6 Optimal: 0.6 - 1.5

Optimal

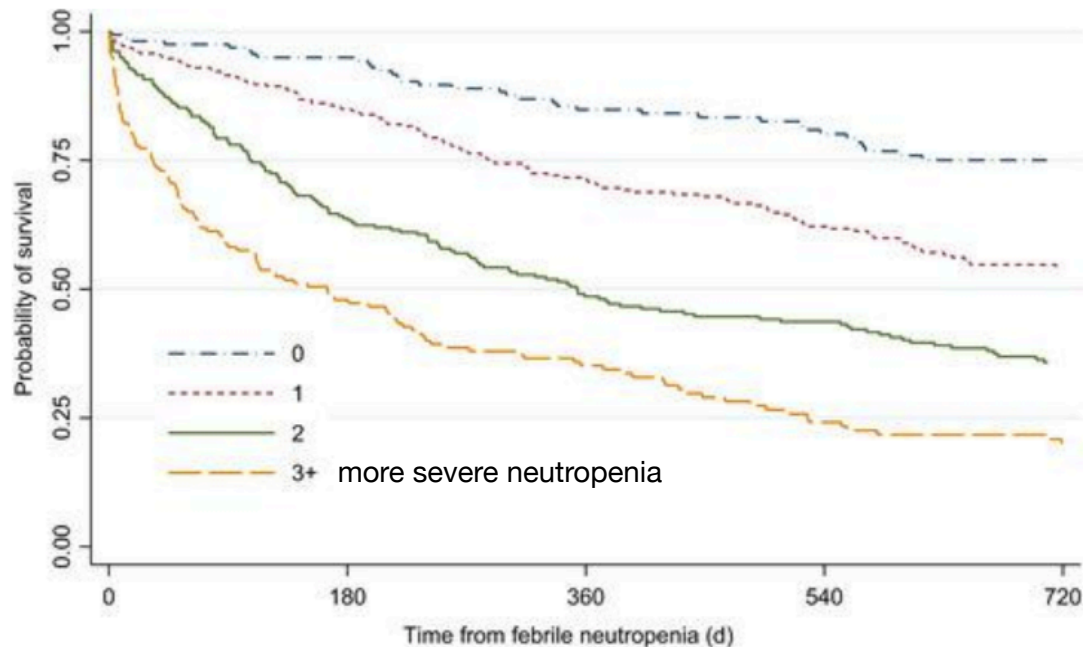
## Neutrophil %

An increased % of neutrophils is an indication of bacterial or fungal infection, smoking, rigorous exercise, inflammation, or chronic leukemia. Decreased % of neutrophils is an indication of bone marrow disease, anemia, a severe or widespread bacterial or viral infection, or cancer immune suppression therapy. [Source: Healthline](#)

### Category: Immune Health

Traditional Reference (normal) Range: None

Spike Risk Optimal Range: 40 - 58%



#### Selected Publications:

**Title:** Risk Score for Predicting In-Hospital Mortality in COVID-19 (RIM Score)

**Finding:** Following variables were included: age, sex, oxygen saturation, level of C-reactive-protein, neutrophil-to-platelet-ratio (NPR), neutrophil-to-lymphocyteratio (NLR) and the rate of changes of both hemogram ratios (VNLR and VNPR) during the first week after admission

**Conclusion:** The parameters used in the nomogram are objective, easy to obtain, and reproducible in most health care centers.

**Title:** Mortality and admission to intensive care units after febrile neutropenia in patients with cancer.

**Finding:** FN was associated with increased risk of all-cause mortality, infectious mortality, and ICU admissions with **additional risks up to 230%**.

**Conclusion:** Febrile neutropenia (FN) is a critical complication of chemotherapy associated with increased in-hospital mortality.

Neutrophils %: **54** Optimal: 40 - 58 %

Optimal

## Helicobacter pylori (H pylori)

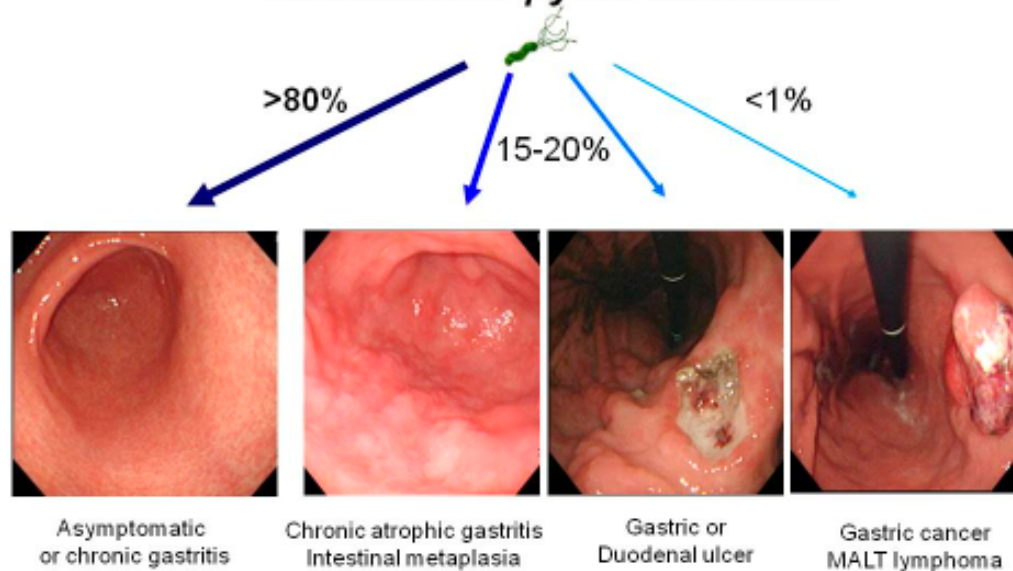
Helicobacter pylori, or H. pylori, is a spiral-shaped bacterium that grows in the mucus layer that coats the inside of the human stomach. It is a causal agent in a number of gut-related cancers. To survive in the harsh, acidic environment of the stomach, H. pylori secretes an enzyme called urease, which converts the chemical urea to ammonia. The production of ammonia around H. pylori neutralizes the acidity of the stomach, making it more hospitable for the bacterium. H. pylori enters the gut through the mouth. Source: National Cancer Institute.

### Category: Immune Health

Traditional Reference (normal) Range: IgG Abs < 0.80

Spike Risk Optimal Range: < 0.25

### The Clinical Outcomes of *Helicobacter pylori* Infections



#### Selected Publications:

**Title:** Ivermectin: a multifaceted drug of Nobel prize-honoured distinction with indicated efficacy against a new global scourge, COVID-19

**Finding:** Since March 2020, when IVM was first used against a new global scourge, COVID-19, more than 20 randomized clinical trials (RCTs) have tracked such inpatient and outpatient treatments. Six of seven meta-analyses of IVM treatment RCTs reporting in 2021 found notable reductions in COVID-19 fatalities, with a mean 31% relative risk of mortality vs. controls.

**Conclusion:** The curative potential of combination therapy was demonstrated in a medical breakthrough of three decades prior for another disease, peptic ulcers, for which the discovery of its underlying bacterial cause, *Helicobacter pylori*, was honoured with the Nobel Prize for Medicine in 2005

**Title:** Effects of *Helicobacter pylori* Treatment on Gastric Cancer Incidence and Mortality in Subgroups

**Finding:** Treatment was associated with a statistically significant decrease of 280% in gastric cancer incidence and mortality decrease of 380% at ages 55 years and older.

**Conclusion:** H. pylori treatment can benefit older members and those with advanced baseline histopathology, and benefits are present even with post-treatment infection, suggesting treatment can benefit an entire population, not just the young or those with mild histopathology.

H-Pylori: 1.74 Optimal: IgG Antibodies < 0.25

Optimal

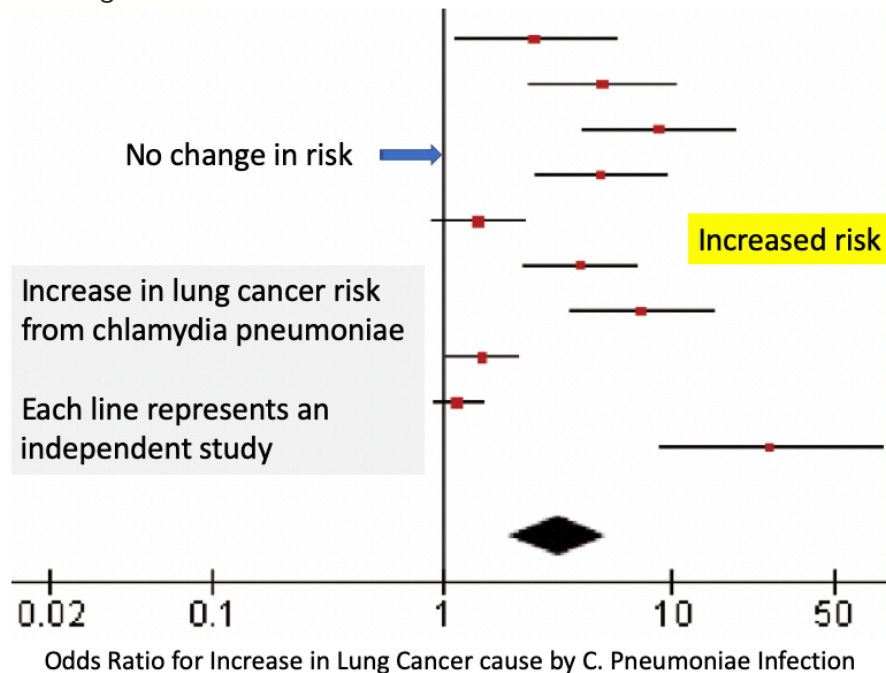
## Chlamydia pneumoniae (Chlamydia or C. pneumoniae)

Chlamydia pneumoniae is a species of Chlamydia, an obligate intracellular bacterium that infects humans and is a major cause of pneumonia. Independent of pneumonia, this organism invades endothelium (blood vessels) creating vascular inflammation, calcification, and a localized hypoxic (oxygen-starved) environment leading to tissue destruction and disease. **C. pneumoniae is a major cause of lung cancer in both smokers and non-smokers.** Source: European Journal of Cancer

### Category: Immune Health

Traditional Reference (normal) Range: IgG Abs < 0.91

Spike Risk Optimal Range: Same



#### Selected Publications:

**Title:** Association between Chlamydia pneumoniae infection and lung cancer: a meta-analysis

**Finding:** Lung carcinoma is reported to be the most common cancer among women and men, representing huge social and economic burdens in both developing and developed countries. Results showed that C. pneumoniae infection was significantly related to the risk of lung carcinoma, with a 320% increased risk compared to a negative titre for IgA and 200% for IgG.

**Conclusion:** C. pneumoniae infection not only lead to worldwide widespread respiratory infections such as pneumonia, pharyngitis, bronchitis, and sinusitis, but also associated with asthma, chronic obstructive pulmonary disease, atherosclerosis, cancer, and Alzheimer's disease.

**Title:** Oxidative Stress and Inflammation in SARS-CoV-2- and Chlamydia pneumoniae-Associated Cardiovascular Diseases

**Finding:** The present review highlights the common oxidative and inflammatory molecular pathways underlying the cardiovascular diseases associated with SARS-CoV-2 or C. pneumoniae infections.

**Conclusion:** Coronavirus 2 (SARS-CoV-2), a novel coronavirus, and Chlamydia pneumoniae, a widely known intracellular obligate bacteria, seem to have an essential role in promoting ROS and cytokine production.

Chlamydia Pneumoniae (CP):

2.50

Optimal: < 0.91

Optimal

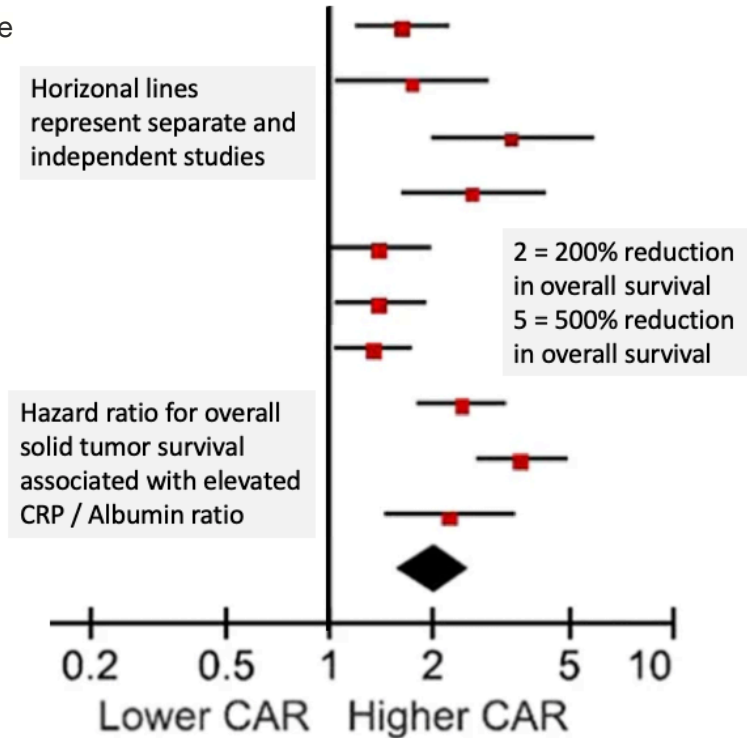
## CRP / Albumin Ratio

Albumin is a type of protein found in blood, egg white, milk, and other substances. Albumin is made by the liver and makes up about 60% of the total protein in the blood and plays many roles. Albumin keeps fluid from leaking out of blood vessels, nourishes tissues, and transports hormones, vitamins, drugs, and substances like calcium throughout the body. Relationship between the c-reactive protein - albumin ration and various human cancers has been reported by many groups [Source: National Cancer Institute](#)

**Category:** Inflammation

Traditional Reference (normal) Range: None

Spike Risk Optimal Range: 0.15 - 0.50



### Selected Publications:

**Title:** C-reactive protein and albumin association with mortality of hospitalized SARS-CoV-2 patients: A tertiary hospital experience

**Finding:** One-hundred and four patients (32.4%) died. Age >65 years, neutrophils, neutrophil:lymphocyte ratio, CRP and albumin were associated with mortality. When analysis adjusted for age, CRP and albumin remained associated with mortality.

**Conclusion:** COVID-19 has high mortality. BAME and male patients were associated with ICU admission. High CRP and low albumin (after correcting for age) were associated with mortality.

**Title:** The prognostic value of the preoperative c-reactive protein/albumin ratio in ovarian cancer

**Finding:** Patients with high CRP/Alb had poor overall survival compared to those with low CRP/Alb. Multivariable analysis showed that CRP/Alb, tumor stage, residual tumor and age were independent prognostic factors for overall survival.

**Conclusion:** The CRP/Alb is a novel independent marker of poor prognosis among ovarian cancer patients and **shows superior prognostic ability compared to the established inflammation-based prognostic indices.**

CRP / Albumin Ratio

0.2

Optimal < 0.55



Optimal



## Prothrombin Time

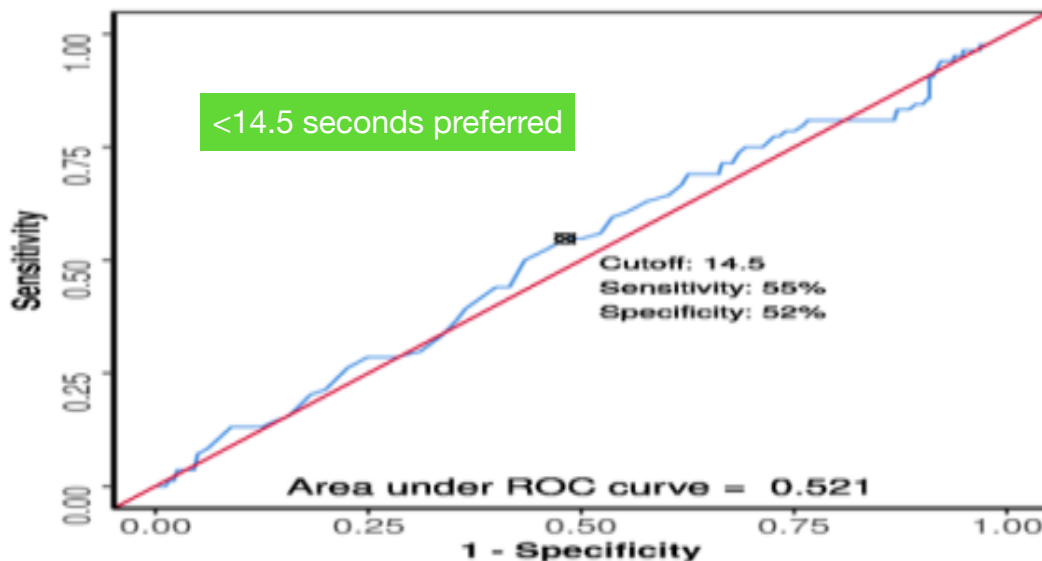
The prothrombin time, sometimes referred to as PT or pro time test, is a test to evaluate blood clotting. Prothrombin is a protein produced by your liver. It is one of many factors in your blood that help it to clot appropriately.

Most often, the prothrombin time is monitored if you are taking the blood-thinning medication warfarin. In this situation, the prothrombin time is expressed as an international normalized ratio (INR). Your doctor may recommend a prothrombin time test prior to surgery if there is any concern about your blood's ability to clot.

The prothrombin time test may also be performed to evaluate you for liver disease. It is one of several tests used to screen people waiting for liver transplants.

Category: Clotting

Traditional Reference (normal) Range: 9.1 - 12.0 seconds



### Selected Publications:

**Title:** D-Dimer and Prothrombin Time Are the Significant Indicators of Severe COVID-19 and Poor Prognosis

**Finding:** Coagulation dysfunction is more likely to occur in severe and critically ill patients. DD and PT could be used as the significant indicators in predicting the mortality of COVID-19.

**Conclusion:** It is particularly noteworthy that some severe, critical, and deceased patients have significant coagulation dysfunction.

**Title:** Coagulation abnormalities and thrombosis in patients with COVID-19

**Finding:** The prothrombin time in patients with severe COVID-19 was shown to be mildly prolonged (15.6 s, range 14.4–16.3) in patients who died versus patients who survived (13.6 s, 13.0–14.3).<sup>3</sup> Of note, these subtle changes might go undetected when the prothrombin time is expressed as international normalised ratio (INR).

**Conclusion:** It is particularly noteworthy that some severe, critical, and deceased patients have significant coagulation dysfunction.

Prothrombin Time **10.0** Optimal: 9.1 - 12.0 Seconds



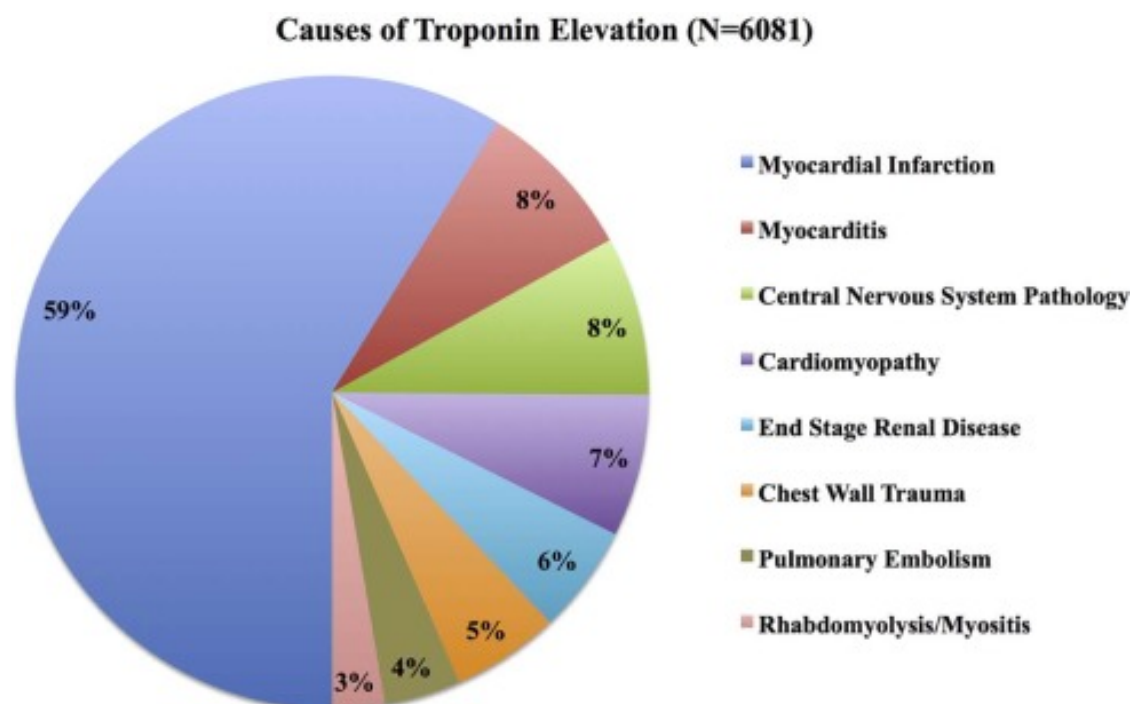
Optimal

## Troponin T - Heart Muscle Damage Indicator

Circulating cardiac troponin is a marker of myocardial injury, including but not limited to myocardial infarction or myocarditis, and the clinical relevance of this distinction has never been so clear. Clinicians who have used troponin measurement as a binary test for myocardial infarction independent of clinical context and those who consider an elevated cardiac troponin concentration to be a mandate for invasive coronary angiography must recalibrate. Rather than encouraging avoidance of troponin testing, we must harness the unheralded engagement from the cardiovascular community attributable to COVID-19 to better understand the usefulness of this essential biomarker and to educate clinicians on its interpretation and implications for prognosis and clinical decision making. Source: American Heart Association

Category: Tissue Damage / Repair

Traditional Reference (normal) Range: 0 - 14 ng/L



Selected Publications:

**Title:** High-Sensitivity Cardiac Troponin Can Be an Ally in the Fight Against COVID-19

**Finding:** It is imperative that we risk-stratify patients to determine those at highest risk who may require more intensive surveillance and support. Similarly, in patients most vulnerable to adverse outcomes, early recognition of a clinical state that is incompatible with survival may inform clinical decision making to prioritize palliative care and influence resource allocation, in a manner similar to triage after a major incident.

**Conclusion:** We must harness the unheralded engagement from the cardiovascular community attributable to COVID-19 to better understand the usefulness of this essential biomarker and to educate clinicians on its interpretation and implications for prognosis and clinical decision making.

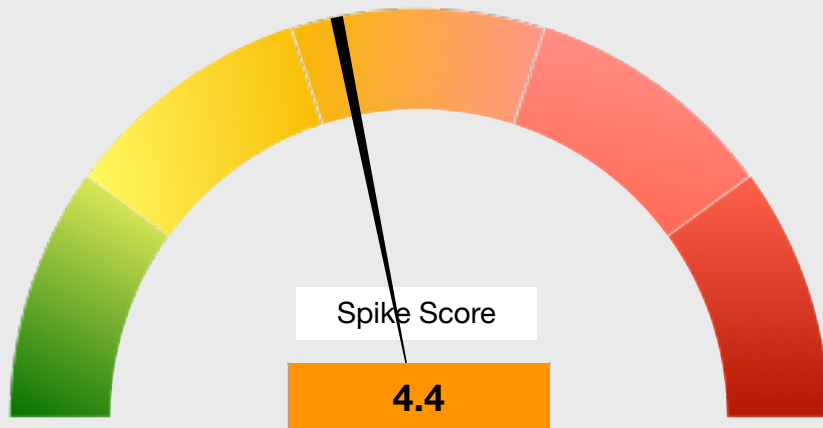
Troponin: **7** Optimal: < 13 ng/L



## Last Biomarker on the Report

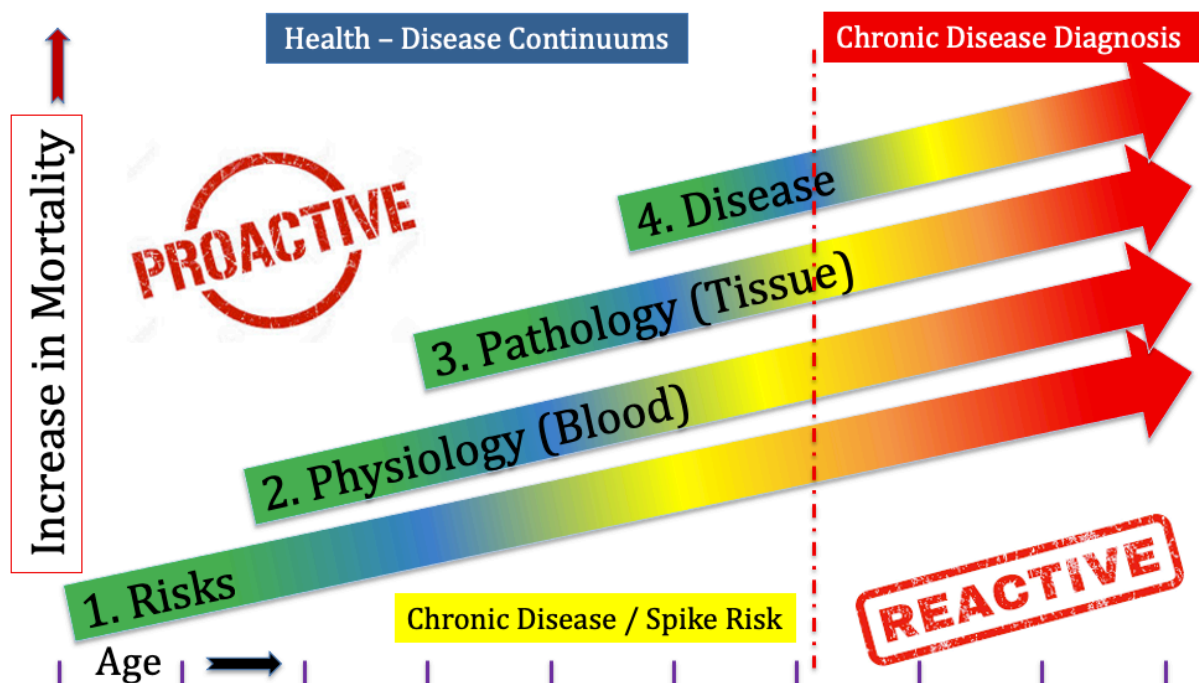
# REVIEW

## Spike Protein Risk Score and Prognosis Report Your Position on the Spike Protein Risk Continuum



## What can you do now?

Recognize that chronic disease risk IS Spike Protein risk. In arguably every case of COVID / Spike Protein disease, **there are risk factors that contribute to the development and severity of the disease**. The image below explains your position on the "Spike Protein Risk Continuum" as a composite of 4 continuums: 1. Risks; 2. Physiology; 3. Pathology, and 4. Disease (overt diagnosis of Cancer).





# What is modifiable by me?

**Your Risks ARE Modifiable!** Take our comprehensive risk assessment and work with one of our Spike Protein risk specialists to start mitigating even the smallest risks. What we find is that embracing and changing several seeming small risks provides substantially better outcomes compared to focusing on a single or a few perceived "big" risks.

This journey may lead to additional testing but will most likely lead to a more profound understanding of your health and how you can take charge of it!

Interventions: Besides improving risks, our team may recommend both nutraceutical and pharmaceutical interventions, all of which have evidence-based peer-reviewed data supporting their use. In particular, we use interventions that lower the physiological markers associated with risk for future poor prognosis if you are diagnosed with COVID or got the Spike.

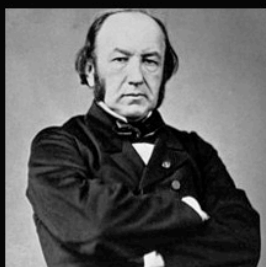
## OUR PROMISE *to you!*

**We will bring new insights into your risk or disease.** We firmly believe that the current approach to cancer is symptomatic only and that:

1. Cancer can be predicted with reasonable certainty with the right set of assessments.
2. Your risk for cancer, based on the assessments, may be reduced significantly.
3. Your prognosis for a poor outcome may be improved by the same process.

If you have a tumor, recognize that there are **factors underlying the tumor responsible** for your condition. We will be diligent to uncover these factors, bring new light upon your situation, develop a path to follow to improve your odds, and provide the tools to objectively follow your progress.

Our mentor from the 19th Century - the first scientific doctor - explains what we do compared just treatment. We look everywhere we have to in order to find **your solutions**.



The experimenter who does not know what he is looking for will not understand what he finds.

~ Claude Bernard

# and lastly

Our “flagship” biomarker panel is what we call your “Chronic Disease Temperature” panel. This panel is part of this Spike Protein panel - so we are able to calculate your

**“Chronic Disease Temperature.”**

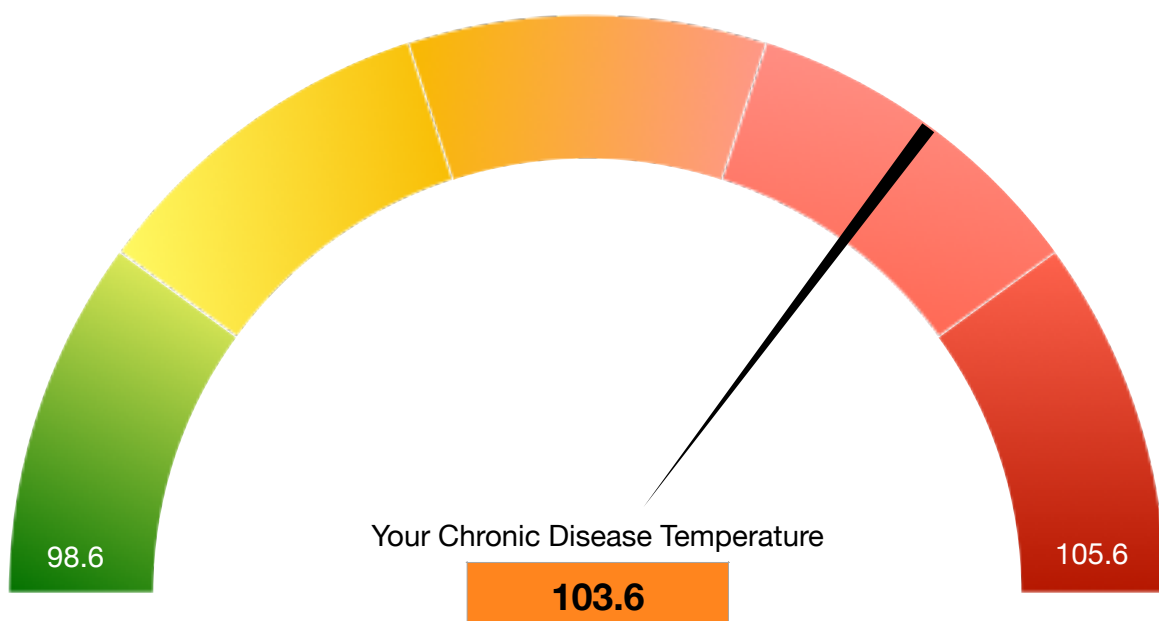
We present this value here because we run this panel most frequently. By calculating and presenting this value, we are able to compare your health - your chronic disease temperature number - to a large population who have taken that panel and obtained that number.

This helps us understand where you lie on our general **HEALTH-DISEASE CONTINUUM**.

Read the following explanation of your chronic disease temperature.

**Your “Chronic Disease Temperature” (CDT):** This single value is the combination for excess mortality risk from many of the important biomarkers for chronic risk. Of all the individual biomarkers, it is the single most predictive of your current and future health risk because it combines markers that predict chronic disease across a broad spectrum, from cancer and heart disease, to diabetes and kidney diseases.

Your optimal Chronic Disease temperature is **98.6**. We use the same scale as your core body temperature (thermometer) scale - because no value above **98.6** is desirable - elevated values imply some level of excess risk. However, a chronic disease temperature of **98.6** implies near perfect health - which is difficult to achieve. Importantly, if you work to and are successful at lowering your chronic disease temperature - and keep it as low as possible - you most likely will live a longer and healthier life.



Example Spike Risks
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09/03/2021
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# END OF REPORT