



Blood Interpretation

Blood Interpretation Report

A comprehensive, personalized analysis that brings all your data together.

AGE
61

SEX
Male

WEIGHT
77 kg

HEIGHT
183 cm

BMI
23

REASON FOR ANALYSIS

Routine health check-up

ALCOHOL USE

Occasionally

TOBACCO USE

More than 5 cigarettes a day

PHYSICAL ACTIVITY

More than 150 minutes a week

SPECIFIC DIETARY REGIMEN

No

PERSONAL MEDICAL HISTORY

No

FAMILY MEDICAL HISTORY

High blood pressure

CURRENT MEDICATIONS

No

CURRENT SYMPTOMS

No

ALLERGY

Pollen



Lab analysis : 08/07/2026 · AI report : 10/03/2026



The Blood Interpretation report is an informational and educational tool generated by AI to help you understand your lab results and prepare for your consultation. It in no way replaces your doctor's advice and does not constitute a diagnosis or treatment.





Interpretations Summary

Requires medical follow-up

Altered Kidney Filtration Function

- The kidneys act as the body's main filtration system, cleaning waste products from the blood.
- In this analysis, the creatinine level is elevated at 1.5 mg/dL (above the upper limit of 1.3 mg/dL), and the estimated kidney filtration rates (eGFR) are reduced, with values of 59 and 49 mL/min/1.73m² depending on the calculation used, both below the normal threshold of 60.
- The BUN (blood urea nitrogen) sits at the upper boundary of its range at 18 mg/dL.
- These findings together suggest that the kidneys may not be filtering waste as efficiently as expected, potentially placing kidney function in the mild-to-moderate impairment range.
- Daily tobacco use and a family predisposition to high blood pressure are both significant risk factors for gradual kidney decline.
- A medical consultation is essential to confirm these findings, assess for protein in the urine, and establish a monitoring and management plan, as only a physician can make a proper diagnosis and determine the next steps.

Elevated Liver Enzyme (Alkaline Phosphatase)

- The liver is the body's main processing plant, breaking down substances and producing essential proteins.
- Alkaline phosphatase, an enzyme found in the liver and bones, is significantly elevated at 166 U/L (well above the upper limit of 116 U/L).
- Importantly, the other liver enzymes (AST at 24 U/L and ALT at 13 U/L) are both within normal limits, and albumin is healthy at 4.4 g/dL, which argues against widespread liver cell damage.
- This isolated elevation could originate from the liver (particularly the bile duct system) or from the bones, and additional testing such as a GGT level would help pinpoint the source.
- Daily tobacco use and occasional alcohol consumption are relevant factors that can affect liver enzyme levels.
- A medical consultation is essential to investigate the origin of this elevation, as only a physician can order the appropriate follow-up tests and determine the cause.

Elevated Bilirubin Level

- Bilirubin is a yellow pigment produced when old red blood cells are recycled, and the liver is responsible for processing and eliminating it.
- The total bilirubin is elevated at 1.9 mg/dL, nearly twice the upper limit of 1.0 mg/dL.
- The most common cause of an isolated bilirubin elevation in an otherwise healthy person with normal liver enzymes is Gilbert syndrome, a harmless inherited trait affecting how the liver processes bilirubin.
- The fact that AST, ALT, and albumin are all normal is very reassuring and makes significant liver disease unlikely.
- However, this finding should be confirmed by a healthcare professional, who may order a breakdown of bilirubin into its direct and indirect components to verify the cause.
- A medical consultation is essential to confirm the diagnosis and provide peace of mind.



Slightly Reduced White Blood Cell Count

- White blood cells are the body's immune defense force, fighting infections and protecting against illness.
- The total white blood cell count is slightly below the reference range at 4.0 K/mcL (lower limit 4.8 K/mcL).
- Daily tobacco use is a well-known factor that can affect white blood cell production and distribution.
- A recent mild viral infection, even one without noticeable symptoms, could also temporarily lower the count.
- No symptoms of frequent infections or immune weakness are reported, which is reassuring.
- A discussion with a healthcare professional is recommended to review this finding, as only a physician can properly interpret it and decide if any follow-up is needed.

Slightly Elevated Mean Platelet Volume

- Platelets are the tiny repair patches that help stop bleeding, and their average size (MPV) provides information about how actively the bone marrow is producing them.
- The MPV is slightly elevated at 10.2 fL (above the upper limit of 9.6 fL), while the platelet count itself is at the lower end of normal at 151 K/mcL.
- This combination often means the bone marrow is compensating by releasing younger, larger platelets to maintain an adequate count, which is a common and generally benign response.
- Daily tobacco use can also contribute to increased platelet turnover and activation.
- A discussion with a healthcare professional is recommended at the next visit to review this finding.

Slightly Elevated Globulin and CO2 Levels

- Globulins are immune proteins that help defend the body, and CO2 (bicarbonate) helps maintain the blood's acid-base balance.
- The globulin level is slightly above the typical range at 4 g/dL (upper limit 3.5 g/dL), which may reflect chronic immune stimulation from daily tobacco use.
- The CO2 level is mildly elevated at 30 (upper limit 29), which can be related to mild dehydration or slight metabolic shifts.
- Both of these findings are minor and not of immediate concern, especially since the total protein, albumin, and electrolytes (sodium, potassium, chloride) are all within normal limits.
- A discussion with a healthcare professional is recommended to review these slightly out-of-range values, as only a physician can properly interpret them and decide on any next steps.



Normal

Normal Red Blood Cell Function

- Red blood cells are responsible for carrying oxygen throughout the body.
- All red blood cell parameters are within normal limits: the red blood cell count ($4.78 \times 10^6/\text{mCL}$), hemoglobin (15.0 g/dL), hematocrit (45.4%), and all size and content indices (MCV, MCH, MCHC, RDW-CV) are healthy.
- This indicates that the body is producing the right number of properly sized and well-loaded red blood cells, ensuring efficient oxygen delivery to all organs and tissues.
- There are no signs of anemia or any red blood cell abnormality.

Normal Blood Sugar Regulation

- Blood sugar regulation determines how well the body manages its energy fuel.
- Both the fasting glucose (94 mg/dL) and the HbA1c (5.5%) are within normal limits.
- The HbA1c, which reflects average blood sugar over the past 2 to 3 months, confirms excellent long-term sugar control.
- These results together indicate that the body's ability to process and regulate sugar is functioning well, with no signs of diabetes or prediabetes.

Normal Lipid Profile (Cholesterol and Fats)

- The lipid profile measures the fats and cholesterol circulating in the blood, which are important for heart and blood vessel health.
- Total cholesterol (175 mg/dL), triglycerides (113 mg/dL), HDL cholesterol (48 mg/dL), and LDL cholesterol (104 mg/dL) are all within their respective target ranges.
- The cholesterol ratios (Total Cholesterol/HDL at 4 and LDL/HDL at 2) are also favorable.
- These results indicate a healthy lipid balance, which is a positive finding for cardiovascular health.

Normal Thyroid Function

- The thyroid gland regulates the body's metabolism, energy levels, and many other vital functions.
- The TSH level (2.739 uIU/mL) is well within the normal range, indicating that the thyroid is receiving the right signals and producing the appropriate amount of hormones.
- This suggests that the body's metabolic thermostat is properly calibrated.

Normal Prostate Marker

- The PSA (Prostate-Specific Antigen) is a screening marker for prostate health.
- The PSA level is well within the normal range at 0.90 ng/mL (upper limit 4.00 ng/mL).
- This is a reassuring result for a 61-year-old male, suggesting no current prostate concerns based on this blood marker.
- Regular screening as recommended by a healthcare professional remains important.



Normal Electrolyte and Fluid Balance

- Electrolytes (sodium, potassium, chloride) and fluid balance are essential for muscle function, nerve signaling, and hydration.
- Sodium (140 mEq/L), potassium (4.5 mmol/L), chloride (105 mEq/L), calcium (9.4 mg/dL), corrected calcium (9 mg/dL), osmolality (281 mOsm/kg), and the anion gap (10 mEq/L) are all within normal limits.
- These results confirm that the body's fluid balance, mineral levels, and acid-base chemistry are well-maintained.





Results Interpretation

Requires medical follow-up

Alkaline Phosphatase (Alk Phos)

Requires medical follow-up

166 U/L

Reference : 46 – 116 U/L

Alkaline phosphatase is an enzyme found mainly in the liver and bones — think of it as a maintenance worker that helps build bones and process substances in the liver. When its level rises, it can signal that one of these areas needs attention.

- The alkaline phosphatase level shows a significant elevation above the upper reference limit.
- This enzyme is produced mainly by the liver and bones, and a notable rise can point to increased activity in either of these areas.
- The most probable cause, given the reported daily tobacco use and occasional alcohol consumption, is a liver-related origin: both smoking and alcohol are known to stimulate liver enzyme production.
- Bone-related causes, such as increased bone turnover (which can occur naturally with aging, particularly in men over 60), are also a plausible contributing factor.
- Importantly, the other liver enzymes (AST and ALT) are within normal limits, which argues against significant liver cell damage, though alkaline phosphatase can rise independently in conditions affecting the bile ducts or bone.
- This result warrants special medical attention because a persistent elevation of this magnitude should be investigated to determine whether it originates from the liver or bones, typically through additional tests such as GGT (gamma-glutamyl transferase) to help distinguish the source.
- Reducing or eliminating tobacco use is strongly encouraged, as smoking affects liver metabolism.
- Limiting alcohol consumption to rare occasions and small quantities can reduce the burden on the liver.
- Ensuring adequate calcium and vitamin D intake through a balanced diet supports bone health.
- A medical consultation is essential to investigate this significantly elevated result further, as only a physician can order the appropriate follow-up tests, make a diagnosis, and determine the right course of action.



1.5 mg/dL

Reference : 0.6 – 1.3 mg/dL

Creatinine is a waste product from normal muscle activity that the kidneys filter out — like measuring how well a water filter is removing impurities. If creatinine builds up, it may mean the filter is not working at full capacity.

- The creatinine level is elevated above the upper reference limit, which suggests that the kidneys may not be filtering waste as efficiently as expected.
- The most probable cause is a reduction in kidney filtration capacity, as supported by the estimated GFR values (49–59 mL/min/1.73m²), which fall in the mild-to-moderate impairment range.
- A family history of high blood pressure is relevant here, as uncontrolled high blood pressure over time is one of the most common causes of gradual kidney function decline.
- Additionally, tobacco use is a well-established risk factor for kidney damage, as smoking reduces blood flow to the kidneys and accelerates their aging, and given the reported daily cigarette consumption, this is a significant contributing factor.
- This result warrants special medical attention because a creatinine at this level, combined with the reduced eGFR, suggests the kidneys may be working below their optimal capacity and further evaluation is needed to determine whether this is a new finding or a chronic condition.
- Stopping or significantly reducing tobacco use is the most impactful step to protect kidney function from further decline.
- Maintaining adequate hydration with approximately 1.5 to 2 liters of water daily supports the kidneys in their filtering work.
- Limiting salt intake to less than 5 grams per day helps reduce the workload on the kidneys.
- A medical consultation is essential to investigate this elevated creatinine and reduced kidney filtration rate, as only a physician can order additional tests (such as urine albumin testing), make a diagnosis, and determine the appropriate management plan.



59 mL/min/1.73m²Reference : ≥ 60 mL/min/1.73m²

The estimated glomerular filtration rate (eGFR) measures how well the kidneys clean the blood — like measuring the flow rate of a water filter. This particular calculation was historically adjusted for African American patients.

- This eGFR value falls just below the threshold of 60 mL/min/1.73m², placing it in the mild-to-moderate kidney impairment range (stage 3a).
- The most probable causes are the same as those discussed for the elevated creatinine: long-term effects of tobacco use on kidney blood vessels, and the potential influence of a family predisposition to high blood pressure, which is a leading cause of gradual kidney function decline.
- This result requires medical attention because a GFR below 60 may indicate that the kidneys have lost a meaningful portion of their filtering capacity, and further investigation is needed to determine whether this is a stable, chronic finding or a progressive condition.
- Stopping tobacco use is the most critical protective measure for the kidneys.
- Adopting a diet lower in sodium (less than 5 grams of salt per day) and moderate in protein can help reduce the kidneys' workload.
- Maintaining regular physical activity, as currently practiced, supports cardiovascular and kidney health.
- A medical consultation is essential to evaluate this finding further, including urine testing for albumin and repeat blood work to confirm whether this represents chronic kidney disease, as only a physician can make this determination and plan appropriate care.
- Note: the CKD-EPI calculation provides an estimate that should be interpreted with caution, as strictly noted in standard laboratory protocols.



49 mL/min/1.73m²Reference : ≥ 60 mL/min/1.73m²

This is another version of the kidney filtration rate estimate, calculated for non-African American patients — it serves the same purpose of measuring how efficiently the kidneys are cleaning the blood.

- This eGFR value is notably below the 60 mL/min/1.73m² threshold, placing it in the moderate kidney impairment range (stage 3b).
- This is the more concerning of the two eGFR estimates provided.
- The probable causes remain consistent: chronic effects of daily tobacco use on kidney blood flow, and the potential long-term impact of a familial tendency toward high blood pressure on kidney health.
- At this level of filtration, the kidneys have lost a significant portion of their cleaning capacity, which means waste products and fluid balance may be affected over time if the condition progresses.
- Quitting smoking is the single most important action to slow any further decline in kidney function.
- Keeping blood pressure well-controlled through a low-salt diet and regular physical activity is essential for kidney protection.
- Avoiding over-the-counter anti-inflammatory medications (such as ibuprofen or naproxen) without medical guidance is important, as these can further stress the kidneys.
- A medical consultation is essential and should be arranged promptly to confirm this finding, assess for albumin in the urine, and establish a monitoring plan, as only a physician can determine the stage and cause of kidney impairment and decide on the best course of action.
- Note: the CKD-EPI calculation provides an estimate that should be interpreted with caution, as strictly noted in standard laboratory protocols.



1.9 mg/dL

Reference : 0.1 – 1.0 mg/dL

Bilirubin is a yellow pigment produced when old red blood cells are broken down and recycled — think of it as the leftover dye from recycling old delivery trucks. The liver processes this dye and sends it out through bile.

- The total bilirubin level shows a significant elevation, nearly twice the upper reference limit.
- This means there is more of this recycling byproduct in the blood than expected.
- The most probable cause is Gilbert syndrome, a very common and harmless inherited condition (affecting about 5-10% of the population) where the liver is slightly slower at processing bilirubin — this is the leading cause of isolated elevated bilirubin in otherwise healthy individuals, especially when all other liver markers (AST, ALT, and albumin) are completely normal, as they are here.
- Tobacco use and occasional alcohol consumption can also mildly affect how the liver handles bilirubin, though these are less likely to be the primary explanation for this degree of elevation.
- This result deserves medical attention to confirm the cause, even though the most likely explanation (Gilbert syndrome) is benign.
- The fact that AST, ALT, and albumin are all normal is reassuring and argues against significant liver disease.
- Maintaining a balanced diet and staying well hydrated (approximately 1.5 to 2 liters of water daily) supports the liver's processing functions.
- Reducing tobacco and alcohol intake helps minimize any additional burden on the liver.
- Avoiding prolonged fasting, as skipping meals can temporarily raise bilirubin levels further in individuals with Gilbert syndrome.
- A medical consultation is essential to confirm the cause of this elevated bilirubin, as only a physician can order the appropriate tests and provide a definitive explanation.



WBC (White Blood Cells)

To monitor

4.0 K/mcL

Reference : 4.8 – 10.8 K/mcL

White blood cells are the body's defense soldiers, patrolling the bloodstream to fight off infections and foreign invaders, much like a security team guarding a building.

- The white blood cell count is slightly below the reference range.
- A mildly low count can be related to several factors: tobacco use is a well-known cause of fluctuations in white blood cell production and distribution, and given the reported daily cigarette consumption, this is the most probable contributing factor.
- A recent mild viral infection, even one without noticeable symptoms, can also temporarily lower the count.
- This slight decrease is generally not of immediate concern, especially in the absence of any reported symptoms such as frequent infections or fever, and all other blood cell lines appear within acceptable limits.
- Maintaining a balanced diet rich in fruits and vegetables (at least 5 servings per day), ensuring 7 to 8 hours of quality sleep per night, and practicing good hand hygiene can support the immune system.
- A discussion with a healthcare professional is advisable to review this slightly low result, as only a physician can properly interpret it, make a diagnosis, and decide on any next steps.

MPV (Mean Platelet Volume)

To monitor

10.2 fL

Reference : 6.8 – 9.6 fL

MPV measures the average size of the platelet repair patches — larger patches can sometimes mean the body is working harder to produce new ones, like a factory rushing to make bigger replacement parts.

- The mean platelet volume is slightly above the reference range.
- This means the platelet repair patches are a bit larger than typical.
- The most probable explanation is that the bone marrow is releasing younger, larger platelets to maintain the platelet count, which sits at the lower end of normal — this is a common and generally benign compensatory response.
- Tobacco use can also contribute to platelet activation and turnover, leading to slightly larger platelets, and given the reported daily cigarette consumption, this is a relevant contributing factor.
- This finding is not of immediate concern, particularly since the platelet count itself is within the normal range, suggesting adequate clotting ability.
- Reducing or stopping tobacco use is the single most impactful step, as smoking directly affects platelet behavior.
- Eating foods rich in omega-3 fatty acids (such as fatty fish like salmon or mackerel, 2 to 3 servings per week) can support healthy platelet function.
- Staying well hydrated with approximately 1.5 to 2 liters of water daily helps maintain good blood flow.
- A discussion with a healthcare professional at the next visit is recommended to review this result, as only a physician can properly interpret it and determine if any follow-up is needed.



30

Reference : 23 – 29 mmol/L

CO2 in the blood mainly reflects bicarbonate, which acts like a buffer — it helps neutralize acids in the blood to keep the body's chemistry balanced, like a shock absorber smoothing out bumps.

- The total CO2 level is slightly above the typical reference range.
- This value mainly reflects bicarbonate, the body's acid-buffering system.
- A mildly elevated level can suggest a slight excess of bicarbonate (mild metabolic alkalosis), which may be related to mild dehydration or volume depletion, as the body retains bicarbonate when fluid levels drop slightly.
- Occasional alcohol consumption can also contribute to mild metabolic shifts.
- This slight elevation is generally not of immediate concern, especially since sodium, potassium, and chloride levels are all within normal limits, suggesting overall electrolyte balance is well-maintained.
- Ensuring adequate daily water intake of approximately 1.5 to 2 liters can help maintain proper fluid balance.
- Eating a balanced diet with plenty of fruits and vegetables supports the body's natural acid-base regulation.
- Limiting alcohol intake to no more than 2 standard drinks on any occasion can help prevent metabolic fluctuations.
- A discussion with a healthcare professional is recommended to review this slightly elevated result, as only a physician can properly interpret it and decide on any next steps.

4 g/dL

Reference : 2.0 – 3.5 g/dL

Globulins are a group of proteins in the blood that include antibodies and other immune defenders — they are like the security guards and specialized agents that protect the body from infections and diseases.

- The globulin level is slightly above the typical reference range.
- Globulins include immune system proteins (antibodies), and a mild elevation often reflects increased immune activity.
- The most probable cause is chronic stimulation of the immune system related to daily tobacco use, as smoking triggers ongoing low-grade immune activation and increased antibody production.
- Occasional alcohol consumption can also contribute to a mild rise in certain globulin fractions.
- This slight elevation is generally not of immediate concern, especially since the total protein level is within normal limits and there is no evidence of significant inflammation (the liver enzymes AST and ALT are normal).
- Reducing or stopping tobacco use is the most effective way to decrease chronic immune stimulation.
- Limiting alcohol intake to rare occasions supports overall immune balance.
- Eating a diet rich in antioxidants from colorful fruits and vegetables (at least 5 servings per day) can help modulate the immune response.
- A discussion with a healthcare professional is recommended to review this mildly elevated globulin, as only a physician can determine if further testing (such as protein electrophoresis) is warranted and decide on any next steps.



Normal

RBC (Red Blood Cells)

Normal

4.78 $\times 10^6/\text{mL}$

Reference : 4.70 – 6.10 $\times 10^6/\text{mL}$

Red blood cells are like tiny delivery trucks circulating through the body, carrying oxygen from the lungs to every organ and tissue that needs it.

- The red blood cell count is within the normal range, indicating that the body has an adequate number of delivery trucks to transport oxygen efficiently to all tissues.

Hemoglobin (Hgb)

Normal

15.0 g/dL

Reference : 13.7 – 16.7 g/dL

Hemoglobin is the cargo inside each red blood cell delivery truck — it is the protein that actually grabs onto oxygen in the lungs and releases it where the body needs it.

- The hemoglobin level is well within the normal range, confirming that each delivery truck is carrying a healthy amount of oxygen cargo, ensuring good oxygen supply throughout the body.

Hematocrit (Hct)

Normal

45.4 %

Reference : 40.0 – 50.0 %

Hematocrit measures the proportion of blood that is made up of red blood cell delivery trucks versus the liquid part (plasma), like measuring how much of a highway is occupied by trucks versus open road.

- The hematocrit is within the normal range, indicating a healthy balance between red blood cells and plasma in the bloodstream.

MCV (Mean Corpuscular Volume)

Normal

95.0 fL

Reference : 80.0 – 100.0 fL

MCV measures the average size of each red blood cell delivery truck — whether the trucks are the right size to do their job efficiently.

- The average size of the red blood cell delivery trucks is within the normal range, suggesting they are properly formed and functioning well.

MCH (Mean Corpuscular Hemoglobin)

Normal

31.4 pg

Reference : 27.0 – 34.0 pg

MCH measures the average amount of oxygen cargo (hemoglobin) loaded into each red blood cell delivery truck.

- The average amount of oxygen cargo per delivery truck is within the normal range, meaning each red blood cell is carrying an appropriate load of hemoglobin.

MCHC (Mean Corpuscular Hemoglobin Concentration)

Normal

33.0 g/dL

Reference : 31.0 – 36.0 g/dL

MCHC measures how densely packed the oxygen cargo is inside each red blood cell delivery truck — like checking if the cargo space is being used efficiently.

- The concentration of hemoglobin within each red blood cell is normal, indicating that the cargo space inside each delivery truck is being used efficiently.



RDW-CV (Red Cell Distribution Width)

Normal

13.1 %

Reference : 10.0 – 15.0 %

RDW-CV measures how uniform the red blood cell delivery trucks are in size — like checking if all trucks in a fleet are roughly the same size or if some are much bigger or smaller than others.

- The variation in red blood cell size is within the normal range, meaning the fleet of delivery trucks is uniform and consistent, which is a sign of healthy red blood cell production.

Platelets

Normal

151 K/mcL

Reference : 150 – 440 K/mcL

Platelets are like tiny repair patches in the blood — when there is a cut or injury to a blood vessel, they rush to the site and stick together to form a plug and stop the bleeding.

- The platelet count sits right at the lower boundary of the normal range, meaning there are enough repair patches available for normal blood clotting.
- Since a value equal to the lower bound of a closed range is considered within range, this is a normal result.

Sodium Level

Normal

140 mEq/L

Reference : 136 – 145 mEq/L

Sodium is like the water-level regulator in the body — it controls how much water stays inside and outside cells, keeping the body's fluid balance just right, similar to a thermostat for hydration.

- The sodium level is well within the normal range, indicating that the body's fluid balance and hydration regulation are functioning properly.

Potassium Level

Normal

4.5 mmol/L

Reference : 3.5 – 5.1 mmol/L

Potassium is like a battery for the muscles and heart — it provides the electrical charge needed for muscles to contract and the heart to beat in a steady rhythm.

- The potassium level is within the normal range, meaning the body's electrical system for muscle and heart function is well-powered.

Chloride Level

Normal

105 mEq/L

Reference : 98 – 107 mEq/L

Chloride works alongside sodium like a partner — together they maintain the body's fluid balance and help keep the blood at the right acidity level, like a co-pilot helping steer the ship.

- The chloride level is within the normal range, confirming that the body's fluid and acid-base balance is well-maintained.

AST (Aspartate Aminotransferase)

Normal

24 U/L

Reference : 15 – 37 U/L

AST is an enzyme found in the liver and heart — it is like a smoke detector that goes off when these organs are under stress or damaged, signaling that something may need attention.

- The AST level is within the normal range, suggesting that the liver and heart cells are not showing signs of significant stress or damage.



ALT (Alanine Aminotransferase)

Normal

13 U/L

Reference : 12 – 78 U/L

ALT is an enzyme found primarily in the liver — it is a more specific smoke detector for the liver compared to AST, sounding the alarm mainly when liver cells are injured.

- The ALT level is within the normal range, indicating that the liver cells appear healthy and are not showing signs of injury.

BUN (Blood Urea Nitrogen)

Normal

18 mg/dL

Reference : 7 – 18 mg/dL

BUN measures the amount of waste product (urea) in the blood that the kidneys are supposed to filter out — like checking how much trash is waiting to be taken out, which tells how well the kidneys are doing their cleaning job.

- The BUN level sits at the upper boundary of the normal range.
- Since a value equal to the bound of a closed range is considered within range, this is a normal result.
- However, when viewed alongside the elevated creatinine, this value at the upper limit is worth noting during the medical consultation regarding kidney function.

Glucose Level (Fasting)

Normal

94 mg/dL

Reference : 74 – 106 mg/dL

Blood glucose is the body's main fuel — like the gasoline level in a car's tank. Measuring it after fasting shows how well the body manages its fuel supply when it has not eaten recently.

- The fasting blood glucose level is within the normal range, indicating that the body is managing its blood sugar fuel supply effectively.

BUN/Creatinine Ratio

Normal

12.0

Reference : 10 – 20

This ratio compares two waste products filtered by the kidneys — it helps determine whether a kidney issue is related to the kidneys themselves or to other factors like dehydration, much like comparing two gauges to pinpoint the source of a problem.

- The BUN/Creatinine ratio is within the normal range, which suggests that the elevated creatinine is more likely related to the kidneys' own filtering capacity rather than to dehydration or other pre-renal causes.

Calcium Level

Normal

9.4 mg/dL

Reference : 8.3 – 10.6 mg/dL

Calcium is the building block for strong bones and teeth, and it also helps muscles contract and nerves send signals — like the mortar that holds bricks together in a wall while also serving as the wiring for the electrical system.

- The calcium level is within the normal range.
- The albumin level is also provided and is normal (4.4 g/dL), and the corrected calcium is 9 mg/dL, which further confirms that the true calcium status is well within normal limits.

Total Protein

Normal

7.9 g/dL

Reference : 6.4 – 8.2 g/dL

Total protein measures all the proteins circulating in the blood — think of it as the total workforce in the body, including both the security team (antibodies) and the transport workers (albumin) that keep everything running smoothly.

- The total protein level is within the normal range, indicating that the body has an adequate workforce of proteins for immune defense, transport, and other essential functions.



Albumin Level

Normal

4.4 g/dL

Reference : 3.4 – 5.0 g/dL

Albumin is the most abundant protein in the blood — it acts like a cargo ship, transporting hormones, vitamins, and medications through the bloodstream while also helping to keep fluid from leaking out of blood vessels.

- The albumin level is within the normal range, indicating that the body's main transport protein is present in healthy amounts, supporting proper fluid balance and nutrient delivery.

Corrected Calcium

Normal

9 mg/dL

Reference : 8.3 – 10.6 mg/dL

Corrected calcium adjusts the total calcium measurement to account for the albumin level — it gives a more accurate picture of the true calcium available in the blood, like recalibrating a scale to get a more precise weight.

- The corrected calcium level is within the normal range, confirming that the body's true calcium status is healthy when accounting for the albumin level.

A/G Ratio (Albumin/Globulin Ratio)

Normal

1

Reference : 1.0 – 2.5

The A/G ratio compares the amount of albumin (transport workers) to globulins (security guards) in the blood — it helps check whether the balance between these two protein teams is healthy.

- The A/G ratio sits at the lower boundary of the normal range.
- Since a value equal to the bound of a closed range is considered within range, this is a normal result.
- The ratio reflects the slightly elevated globulin level, but the albumin level itself is healthy.

Anion Gap

Normal

10

Reference : 3 – 11 mEq/L

The anion gap is a calculation that checks the balance of charged particles (electrolytes) in the blood — it is like an accounting check to make sure all the electrical charges in the body add up correctly.

- The anion gap is within the normal range, indicating that the balance of electrolytes and acids in the blood is well-maintained.

Hemoglobin A1c (HbA1c)

Normal

5.5 %

Reference : 4.8 – 5.9 %

HbA1c is like a 3-month report card for blood sugar — it shows the average blood sugar level over the past 2 to 3 months, giving a much broader picture than a single glucose reading, like reviewing a semester grade instead of one test score.

- The HbA1c level is within the normal range, indicating excellent blood sugar control over the past 2 to 3 months.
- Combined with the normal fasting glucose, this confirms healthy sugar metabolism.

Osmolality

Normal

281 mOsm/kg

Reference : 275 – 295 mOsm/kg

Osmolality measures the concentration of dissolved particles in the blood — it is like checking how thick or diluted a soup is, which tells how well the body is balancing its water and dissolved substances.

- The blood osmolality is within the normal range, indicating that the body is maintaining a healthy balance between water and dissolved substances.



Triglycerides

Normal

113 mg/dL

Reference : 30 – 150 mg/dL

Triglycerides are a type of fat circulating in the blood — they are like fuel reserves stored in the bloodstream, ready to be used for energy. Too much stored fuel can clog the blood vessels over time.

- The triglyceride level is within the normal range, indicating a healthy amount of circulating fat reserves in the blood.

Total Cholesterol

Normal

175 mg/dL

Reference : < 200 mg/dL

Total cholesterol measures all the cholesterol in the blood — cholesterol is a waxy substance the body needs to build cells, but too much of it can build up in blood vessel walls like plaque in a pipe.

- The total cholesterol level is within the desirable range, indicating a healthy overall cholesterol balance.

HDL Cholesterol

Normal

48 mg/dL

Reference : 40 – 60 mg/dL

HDL cholesterol is often thought of as the cleanup crew in the blood vessels — it helps remove excess cholesterol from artery walls and carries it back to the liver for disposal.

- The HDL cholesterol level is within the normal range.
- It is worth noting that recent research has shown that HDL cholesterol is not as reliable a marker of cardiovascular protection as once believed, and a high level does not automatically guarantee reduced heart disease risk.

Total Cholesterol/HDL Ratio

Normal

4

Reference : < 5.0

This ratio compares total cholesterol to HDL — it is like measuring the balance between all the cholesterol in the blood and the cleanup crew removing it. A lower ratio generally suggests a better balance.

- The total cholesterol to HDL ratio is within the desirable range, suggesting a reasonable balance between total cholesterol and the cholesterol removal system.



LDL Cholesterol

Normal

104 mg/dL

Reference : < 116 mg/dL

LDL cholesterol carries cholesterol from the liver to the rest of the body — when there is too much, it can deposit cholesterol in artery walls like sediment building up in a pipe, which over time can narrow the vessels.

- The LDL cholesterol level is within the target range.
- The laboratory-provided reference range and flag appear inconsistent with standard clinical practice (showing 120–246 U/L), so the applicable target has been determined based on the cardiovascular risk profile.
- Given the family history of high blood pressure and current tobacco use (which are cardiovascular risk modifiers), the appropriate target for a patient at moderate cardiovascular risk is less than 116 mg/dL (3.0 mmol/L), and the result of 104 mg/dL falls within this target.
- Maintaining a balanced diet and continuing regular physical activity supports this healthy level.
- Foods rich in fiber such as oats, legumes, and fruits can help maintain favorable LDL levels.

LDL/HDL Ratio

Normal

2

Reference : < 3.5

This ratio compares the amount of cholesterol being deposited in arteries (LDL) to the amount being cleaned up (HDL) — a lower number means the cleanup crew is keeping up well with the deposits.

- The LDL/HDL ratio is within the desirable range, indicating a favorable balance between cholesterol deposition and removal in the blood vessels.

TSH (Thyroid Stimulating Hormone)

Normal

2.739 uIU/mL

Reference : 0.358 – 3.740 uIU/mL

TSH is a hormone that acts like a thermostat for the thyroid gland — it tells the thyroid how much energy-regulating hormone to produce. If the thermostat is set too high or too low, the body's energy levels can be affected.

- The TSH level is within the normal range, indicating that the thyroid gland's thermostat is properly calibrated and the thyroid is producing the right amount of energy-regulating hormones.

PSA Total Screening

Normal

0.90 ng/mL

Reference : 0.00 – 4.00 ng/mL

PSA (Prostate-Specific Antigen) is a protein produced by the prostate gland — measuring it is like checking a gauge that can signal whether the prostate needs attention, though many factors can influence the reading.

- The PSA level is well within the normal range, suggesting no current signs of prostate concern based on this marker.
- This is a reassuring result for a 61-year-old male.





Wellness Advice



Medical Consultation

- Given the significantly elevated creatinine and reduced kidney filtration rates, the notably elevated alkaline phosphatase, and the elevated bilirubin, a prompt consultation with a healthcare professional is strongly recommended.
- The kidney findings in particular warrant timely evaluation, as the estimated filtration rate suggests the kidneys may be working below their expected capacity, and early intervention can help preserve kidney function.
- The healthcare professional will likely order additional tests, such as a urine albumin test and a GGT level, to clarify the kidney and liver findings.
- This report is a tool designed to facilitate understanding of these results, for purely informational and educational purposes.
- It does not replace medical advice in any way.
- Therefore, before making any decisions regarding health or initiating treatment for a medical condition, consultation with a physician is essential.



Weight Management

- For a 61-year-old male standing 183 cm tall and weighing 77 kg, the calculated Body Mass Index (BMI) is 23.0, which falls squarely within the normal healthy range (18.5–24.9 for adults under 70).
- This is an excellent foundation for overall health, and maintaining this weight is an important goal.
- Continuing the current level of physical activity and eating a balanced diet will help sustain this healthy weight over time.
- Keeping the BMI in this range supports kidney health, cardiovascular function, and overall well-being, all of which are particularly relevant given the current findings.
- This information is provided for educational purposes only and does not replace the advice of a healthcare professional, which remains essential for any decision related to weight.





Diet and Nutrition

- The current dietary pattern is not specified, so general evidence-based guidance is provided here.
- To support kidney health, reducing daily salt intake to less than 5 grams (about one teaspoon) is important — replacing processed or pre-packaged snacks with fresh fruits, nuts, or homemade alternatives is a practical way to achieve this.
- Replacing red meat at 2 or more meals per week with fatty fish (such as salmon, mackerel, or sardines) provides omega-3 fatty acids that benefit both the kidneys and blood vessels.
- Including at least 5 servings of colorful fruits and vegetables daily provides antioxidants that support liver function and immune balance.
- Replacing refined grains (white bread, white rice) with whole grains (oats, brown rice, whole wheat bread) at most meals adds fiber that supports cholesterol maintenance and overall metabolic health.
- Limiting alcohol to no more than 2 standard drinks on any occasion helps reduce the burden on the liver, which is relevant given the elevated alkaline phosphatase and bilirubin.
- Foods rich in cruciferous vegetables (broccoli, cauliflower, cabbage) support the liver's natural detoxification processes.
- Avoiding excessive protein intake (more than 1.0 g per kg of body weight per day) may help reduce the workload on the kidneys until the healthcare professional provides specific guidance.
- Pollen allergy does not typically affect food choices, though some individuals experience cross-reactivity with certain raw fruits — if any oral tingling occurs with fresh apples, cherries, or celery, cooking these foods usually resolves the issue.
- This information is provided for educational purposes only and does not constitute a personalized diet plan, which would require the expertise of a nutrition professional.



Physical Activity and Exercise

- As a 61-year-old male with a healthy BMI of 23.0 and currently exceeding 150 minutes of physical activity per week, the existing exercise routine is commendable and aligns well with international guidelines for cardiovascular and metabolic health.
- Continuing this level of activity is strongly encouraged, as regular exercise supports kidney function by helping maintain healthy blood pressure and blood flow.
- To optimize the benefits, incorporating a mix of moderate aerobic activities (such as brisk walking, cycling, or swimming for 30 minutes at least 5 days per week) and resistance training (such as bodyweight exercises or light weights, 2 sessions per week) can help maintain muscle mass and bone density, which become increasingly important after age 60.
- Given the family history of high blood pressure and the current kidney findings, monitoring how the body responds during exercise (avoiding extreme exertion that causes dizziness or chest discomfort) is a sensible precaution.
- This information is provided for educational purposes only and does not constitute a personalized exercise program, which should ideally be developed with a qualified professional.





Stress Management and Relaxation

- Chronic stress can affect blood pressure, immune function, and overall well-being, all of which are relevant given the family history of high blood pressure and the current kidney findings.
- Practicing deep breathing exercises (such as the 4-7-8 technique: inhale for 4 seconds, hold for 7, exhale for 8) for 5 to 10 minutes daily can provide immediate relief and help lower blood pressure over time.
- Spending time outdoors in nature for at least 20 to 30 minutes several times per week has been shown to reduce stress hormones and improve mood.
- Maintaining social connections through regular contact with friends, family, or community groups provides emotional support and resilience.
- Mindfulness meditation, even for just 10 minutes per day using a guided app, can help manage stress and has been associated with improved immune function.
- This information is shared for educational purposes only and does not constitute therapeutic recommendations, which would require the advice of a qualified professional.



Sleep and Recovery

- For a 61-year-old adult, sleep research organizations recommend 7 to 8 hours of quality sleep per night.
- Since the average sleep duration was not reported, it is important to assess whether this target is being met, as adequate sleep plays a critical role in immune function, kidney health, and cardiovascular well-being.
- Establishing a consistent sleep schedule by going to bed and waking up at the same time every day, including weekends, helps regulate the body's internal clock.
- Creating a cool, dark, and quiet sleep environment and avoiding screens (phones, tablets, computers) for at least 30 to 60 minutes before bedtime can significantly improve sleep quality.
- Limiting caffeine intake after 2 PM and avoiding heavy meals within 2 to 3 hours of bedtime are practical strategies for falling asleep more easily and maintaining uninterrupted sleep throughout the night.
- This information is shared for educational and informational purposes only, and does not constitute personalized medical recommendations.



Hydration

- For a 61-year-old male with a healthy BMI of 23.0 and reduced kidney filtration, maintaining proper hydration is particularly important to support the kidneys in their filtering work.
- A daily fluid intake of approximately 1.5 to 2.0 liters of water is recommended, spread evenly throughout the day rather than consumed in large amounts at once.
- Water should be the primary beverage, though herbal teas (without added sugar) can also contribute to daily fluid intake.
- Carrying a reusable water bottle and setting reminders to drink at regular intervals can help maintain consistent hydration.
- Monitoring urine color is a simple way to gauge hydration status — a pale straw color generally indicates adequate hydration, while dark yellow suggests more fluids are needed.
- This information is provided for educational purposes only and does not constitute personalized medical advice.



Disease Prevention

- Given the family history of high blood pressure, regular blood pressure monitoring is an important preventive measure.
- Having blood pressure checked at least once a year during routine medical visits, or more frequently if advised by a healthcare professional, allows for early detection and management.
- Maintaining a healthy weight, staying physically active, limiting salt intake, and managing stress are all evidence-based strategies that help keep blood pressure in a healthy range.
- Periodic lipid and glucose assessments, as performed in this analysis, are also valuable for monitoring cardiovascular risk factors over time.
- This information is presented for informational and educational purposes only, and any decision regarding the monitoring of hereditary factors should be discussed with a qualified healthcare professional.





Smoking Cessation

- The current pattern of smoking more than 5 cigarettes per day is a significant health concern that directly impacts several of the findings in this analysis.
- Tobacco use is a major risk factor for kidney disease progression, and given the reduced kidney filtration rates observed, quitting smoking is the single most impactful step to help protect kidney function from further decline.
- Smoking also affects liver enzyme levels, white blood cell counts, and platelet behavior, all of which showed mild abnormalities in this analysis.
- The health benefits of quitting begin within hours: blood pressure and heart rate start to normalize within 20 minutes, and lung function begins to improve within weeks.
- Evidence-based cessation strategies include nicotine replacement therapy (patches, gum, lozenges), prescription medications, and behavioral support programs.
- Setting a quit date, identifying triggers, and seeking support from a healthcare professional or a smoking cessation hotline (such as 1-800-QUIT-NOW) can significantly increase the chances of success.
- This information is provided for educational purposes only and does not constitute a personalized cessation plan, which should be developed with the help of a healthcare professional.



Alcohol Management

- The reported occasional alcohol consumption is a moderate pattern.
- Given the elevated alkaline phosphatase and bilirubin levels, it is particularly important to be mindful of alcohol intake, as even moderate consumption can affect liver enzyme levels.
- Evidence-based guidelines recommend no more than 2 standard drinks per day for men, and ideally fewer, with several alcohol-free days per week.
- A standard drink is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of distilled spirits.
- Keeping a mental note of consumption frequency and quantity can help maintain awareness and control.
- This information is provided for educational purposes only and does not constitute personalized medical advice.



Allergy Management

- The reported pollen allergy is a common condition that can cause seasonal symptoms such as sneezing, nasal congestion, and itchy eyes.
- Monitoring local pollen forecasts and limiting outdoor activities during peak pollen times (typically early morning and on windy days) can help reduce exposure.
- Keeping windows closed during high pollen seasons and showering after spending time outdoors helps remove pollen from hair and skin.
- Over-the-counter antihistamines and nasal saline rinses can provide symptom relief, though it is important to check with a healthcare professional before starting any new medication, especially given the current kidney findings, as some medications may need dose adjustments.
- Wearing sunglasses outdoors can help protect the eyes from pollen exposure.
- This information is provided for educational purposes only and does not replace the treatment plan established by a healthcare professional, which remains the reference for anyone suffering from allergies.





ACTION	DETAILS	HEALTH OBJECTIVES
High Medical Consultation	- Promptly consult a healthcare professional to discuss the elevated creatinine, reduced kidney filtration rates (eGFR), elevated alkaline phosphatase, and elevated bilirubin. - Bring this report to the appointment to facilitate the discussion, and expect that additional tests (urine albumin, GGT, bilirubin fractionation) may be ordered.	- Early evaluation of kidney function can help identify the cause and prevent further decline. - Clarifying the source of the elevated alkaline phosphatase and bilirubin will provide peace of mind and guide any necessary management. - Taking this step now is an investment in long-term health.
High Smoking Cessation	- Begin planning to quit smoking by setting a target quit date within the next 2 to 4 weeks. - Contact 1-800-QUIT-NOW or download a cessation support app (such as QuitGuide or Smokefree) to access free resources and personalized support. - Discuss cessation aids with the healthcare professional at the upcoming consultation.	- Quitting smoking is the single most impactful action to protect kidney function, improve liver health, normalize white blood cell and platelet levels, and dramatically reduce cardiovascular risk. - Every cigarette not smoked is a step toward better health.
Medium Dietary Adjustments for Kidney and Liver Support	- Reduce daily salt intake to less than 5 grams by replacing processed foods with fresh alternatives. - Replace red meat with fatty fish (salmon, mackerel) at least 2 times per week, and increase daily fruit and vegetable intake to at least 5 servings. - Use a food tracking app (such as MyFitnessPal) to monitor sodium intake for the first few weeks.	- A kidney-friendly, liver-supportive diet helps reduce the workload on these organs and supports their recovery. - These dietary changes also benefit blood pressure, cholesterol, and overall well-being, creating a positive ripple effect across multiple health markers.
Medium Maintain Physical Activity	- Continue the current exercise routine of more than 150 minutes per week, aiming for a mix of moderate aerobic activity (brisk walking, cycling, swimming) and 2 sessions of resistance training per week. - Monitor for any unusual symptoms during exercise such as dizziness or excessive fatigue.	- Regular physical activity supports healthy blood pressure, kidney function, and cardiovascular health. - Maintaining this excellent habit is one of the strongest protective factors for long-term well-being and helps counteract some of the negative effects of smoking.
Medium Blood Pressure Monitoring	- Purchase a validated home blood pressure monitor and measure blood pressure at least twice a week, recording the results to share with the healthcare professional. - Measure in the morning before eating or taking any substances, sitting quietly for 5 minutes beforehand.	Given the family history of high blood pressure and the current kidney findings, regular blood pressure monitoring allows for early detection of any elevation, which is critical for protecting kidney function and preventing cardiovascular complications.



Low

Hydration Optimization

- Aim for 1.5 to 2.0 liters of water daily, spread throughout the day.
- Use a marked water bottle to track intake and set phone reminders every 2 to 3 hours.
- Proper hydration supports the kidneys in filtering waste products efficiently and helps maintain healthy blood chemistry.
- This simple habit can make a meaningful difference in kidney health over time.

Low

Stress Management and Sleep Optimization

- Practice deep breathing exercises (4–7–8 technique) for 5 to 10 minutes daily, and establish a consistent sleep schedule aiming for 7 to 8 hours per night.
- Limit screen time for at least 30 minutes before bed.
- Quality sleep and effective stress management support immune function, blood pressure regulation, and overall recovery.
- These habits complement the other lifestyle changes and contribute to a stronger foundation for long-term health.





Suggested Questions for Your Doctor

1

KIDNEY HEALTH

The creatinine level is elevated and the kidney filtration rate is reduced — could this be a sign of early kidney disease, and what additional tests are needed to find out the cause and how to protect kidney function going forward?

2

LIVER AND BONE HEALTH

The alkaline phosphatase is significantly elevated while the other liver enzymes are normal — would a GGT test or other follow-up help determine whether this is coming from the liver or the bones, and is this something to be concerned about?

3

BILIRUBIN

The bilirubin level is nearly twice the upper limit — could this be Gilbert syndrome (a harmless inherited trait), and what test would confirm this so there is no need for ongoing worry?

4

SMOKING AND OVERALL RISK

Given that smoking appears to be affecting several results in this analysis (white blood cells, platelets, kidney function, and liver enzymes), what smoking cessation approach would be most effective and safe given the current health situation?

5

PREVENTIVE SCREENING

With a family history of high blood pressure and the current kidney findings, how often should blood pressure, kidney function, and other cardiovascular risk factors be monitored going forward?



Nature of the tool: The Blood Interpretation solution is not designed to be used as a tool to treat, diagnose, or cure any medical conditions. It is intended to help you better understand your results before discussing them with your doctor. It does not replace medical advice under any circumstances. Before making any health-related decisions or treating a medical condition, you must consult your doctor or a qualified healthcare professional.



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