

Interpretation results

Date: **01.06.2026**

User: **Female, 27 y.o.**



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Test type

Blood chemistry: carbohydrate metabolism, lipid profile, vitamin D status, iron stores, inflammatory marker.

Summary table of results

Marker	Result	Reference (from the form)	Status
Glucose	92 mg/dL	70–99 mg/dL	NORMAL
Insulin, fasting	16 uIU/mL	2–17 uIU/mL	NORMAL
HOMA-IR	3.6	< 2.7	HIGH
Total cholesterol	217 mg/dL	< 200 mg/dL	HIGH
LDL cholesterol	131 mg/dL	< 100 mg/dL	HIGH
Vitamin D, 25-OH	21 ng/mL	30–100 ng/mL	LOW
Ferritin	25 ng/mL	15–150 ng/mL	NORMAL
C-reactive protein, CRP	4.8 mg/L	< 5 mg/L	NORMAL

Interpretation of deviations

HOMA-IR — 3.6, high

- Clinical meaning: This suggests **reduced** insulin sensitivity, also called insulin resistance. Glucose is still **normal**, but the body may need relatively higher insulin activity to maintain **normal** blood sugar.

- Possible causes: Insulin resistance can be associated with genetic predisposition, excess visceral fat, sedentary lifestyle, sleep disruption, chronic stress, and some endocrine conditions.

- Considering your complaints — acne, oily skin, and irregular periods — insulin resistance can be seen in conditions with androgen excess, including possible polycystic ovary syndrome, PCOS. This result alone does not diagnose PCOS, but it supports the need for hormonal evaluation.

Total cholesterol — 217 mg/dL, high

- Clinical meaning: Mild elevation of total cholesterol. Cardiovascular risk depends not only on total cholesterol, but also LDL, HDL, triglycerides, blood pressure, smoking status, family history, body weight, and glucose metabolism.

- Possible causes: Diet composition, genetics, **low** physical activity, insulin resistance, hypothyroidism, and some hormonal/metabolic conditions.

LDL cholesterol — 131 mg/dL, high

- Clinical meaning: LDL is the “atherogenic” cholesterol fraction. Mild elevation may increase long-term cardiovascular risk, especially if combined with insulin resistance or other risk factors.

- Possible causes: Genetic lipid tendency, diet **high** in saturated/trans fats, **low** fiber intake, **reduced** physical activity, hypothyroidism, and metabolic syndrome tendencies.

Vitamin D, 25-OH — 21 ng/mL, low

- Clinical meaning: Vitamin D insufficiency/deficiency range according to the form reference. **Low** vitamin D may contribute to fatigue, muscle aches, **reduced** bone mineral support, and may be associated with metabolic and inflammatory dysregulation.

- Possible causes: **Low** sun exposure, sunscreen/covered clothing, darker skin phototype, **low** dietary intake, malabsorption, higher body fat percentage, or seasonal variation.

Combined assessment

The main pattern is:

- **Normal** fasting glucose, but **elevated** HOMA-IR → possible early insulin resistance.
- Mildly **elevated** total cholesterol and LDL → lipid metabolism shift, which can be linked with insulin resistance.
- **Low** vitamin D → common and correctable, but worth addressing.
- Ferritin is within the lab reference range, but at the lower end. If you have heavy periods, fatigue, hair shedding, restless legs, or vegetarian/**low**-iron diet, iron status may need closer review.
- CRP is technically **normal** by the form reference, but close to the upper limit. This can occur with recent infection, inflammation, excess weight, intense exercise before testing, dental/skin inflammation, or other inflammatory states.

Given acne, oily skin, and irregular periods, the combination of symptoms plus **elevated** HOMA-IR may indicate a hormonal/metabolic pattern such as possible PCOS or another cause of androgen excess. This requires clinical assessment and hormone testing; the current labs are not enough to make a diagnosis.

Recommended additional tests

For irregular periods, acne/oily skin, and possible androgen excess:

- Total testosterone and free testosterone — to assess androgen excess.
- SHBG — helps interpret free androgen activity; often lower with insulin resistance.
- DHEA-S — adrenal androgen marker.
- Androstenedione — additional androgen marker.
- 17-OH progesterone — to screen for non-classic congenital adrenal hyperplasia if clinically relevant.
- LH, FSH, estradiol — to assess ovarian hormonal pattern; timing depends on cycle day if cycles are present.
- Prolactin — **elevated** levels can cause irregular periods.
- TSH and free T4 — thyroid dysfunction can affect cycles, lipids, skin, and energy.
- HbA1c — average glucose control over ~3 months.
- Oral glucose tolerance test with insulin measurements — more informative if insulin resistance is suspected despite **normal** fasting glucose.
- Full lipid profile including HDL and triglycerides — needed to assess metabolic risk more completely.
- Pelvic ultrasound — to assess ovarian morphology, if recommended by a gynecologist.
- Repeat CRP or **high**-sensitivity CRP — if there are cardiovascular risk concerns or persistent inflammation suspicion.

If iron-related symptoms are present:

- Complete blood count, CBC — to check for anemia.
- Serum iron, transferrin/TIBC, transferrin saturation — to clarify iron availability.

Which doctor to consult

- Gynecologist or gynecologist-endocrinologist — for irregular periods, acne/oily skin, and evaluation for possible PCOS or other hormonal causes.
- Endocrinologist — for insulin resistance, metabolic assessment, and hormone interpretation.

- Primary care physician or lipid specialist/cardiologist if risk factors are present — for LDL cholesterol management and cardiovascular risk evaluation.

General recommendations

- Discuss the **elevated** HOMA-IR with a clinician, especially given irregular periods and acne.
- Aim for regular physical activity: a combination of resistance training and aerobic activity improves insulin sensitivity.
- Emphasize a lower-glycemic, **high**-fiber eating pattern: vegetables, legumes, whole grains, protein with meals, nuts/seeds, and **reduced** sugary drinks/sweets.
- For LDL reduction: reduce saturated fats and trans fats, increase soluble fiber, and consider more fish, olive oil, and plant-based protein sources.
- Vitamin D supplementation may be needed; dose should be chosen with your physician based on local guidance, body weight, sun exposure, and repeat testing.
- If periods are heavy or fatigue/hair shedding is present, ferritin may deserve follow-up despite being "**normal**" on the form.
- Avoid starting hormonal medications or anti-androgens without proper evaluation, especially if pregnancy is possible.

Important: This decoding is preliminary. Reference values are taken from your form. Consult a physician for diagnosis.

Important notice

This interpretation is for informational purposes only and is not medical advice, a diagnosis, or a treatment recommendation. Test results must be reviewed by a qualified physician taking into account your medical history and clinical picture.