



CHECKLIST FOR LABORATORY DIAGNOSIS

IRON DEFICIENCY

Preparation for the blood test:

- ✓ On an empty stomach, but not more than 14 hours of fasting;
- ✓ On the day before and on the day of donation, do not smoke, drink alcohol or engage in physical exertion;
- ✓ donate blood within one hour of waking up;
- ✓ Drink water on the day of donation;
- ✓ Do not take a blood test if you are ill, and not for more than 2 weeks after your recovery;
- ✓ It is recommended that all blood samples are taken at the same laboratory, in order to monitor the progress of the test;
- ✓ After taking iron supplements, a waiting period of 3 weeks should be observed before testing (if ferritin is monitored, a minimum of 3 months).

Laboratory indicators:

Indicator	Signs of iron deficiency
Serum iron	Reference 10-32.2 $\mu\text{mol/l}$ Optimum is in the middle of the reference range. Isolatedly not an indicative parameter. Can vary according to diet and lifestyle.
Ferritin	Reduced in iron deficiency. Optimum: women 30 -100 $\mu\text{g/l}$, men 50-150 $\mu\text{g/l}$. Important: Ferritin may be falsely elevated in cases of inflammation, taking oral contraceptives, liver disease or alcohol abuse.
Transferrin	Elevated in iron deficiency Reference 2-3.6 g/l Optimum - middle of reference
TSF (total serum iron-binding capacity) Increased in iron deficiency	Reference 45-55 $\mu\text{mol/l}$ Optimum is closer to the upper limit of the reference
LFSS (latent serum iron-binding capacity)	Increased in iron deficiency Reference 20-62 $\mu\text{mol/l}$
General blood count with white blood cell count	✓ Hemoglobin - decreased (female maximum 125-160 g/l, male 130-170 g/l; ✓ ✓ Erythrocytes - decreased (optimum female $4.3-4.9 \cdot 10^{12}/\text{l}$, male $4.5-5.5 \cdot 10^{12}/\text{l}$) ✓ ✓ Mean red cell volume (MCV) - decreased (female optimum 89-93 fl, male 88-95 fl) ✓ ✓ Mean red blood cell haemoglobin content (MCH) - low ✓ Reference 28-32 pg ✓ Optimum - mid-reference ✓ ✓ Mean red cell Hb concentration (MCHC) - low ✓ 320-360 g/l ✓ Optimum: Mid range ✓ ✓ Red blood cell volume distribution width (RDW) - Increased

	✓ Reference 11-13% ✓ Optimum 12%
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Additional diagnostics for decreased ferritin:

If ferritin is low and serum iron is elevated, it is advisable to test for a mutation in MTHFR (the main gene responsible for methylation). In the presence of polymorphisms in this gene, which is responsible for the absorption of vitamin B9, iron is not absorbed by the body. And iron concentrations in the blood remain elevated, while ferritin is low. People with the MTHFR gene mutation are given increased doses of B9, B12 and B6 in the active form.

This cheque sheet is for information purposes only. It does not replace a doctor's visit. Be aware of the individual characteristics of each body's development.