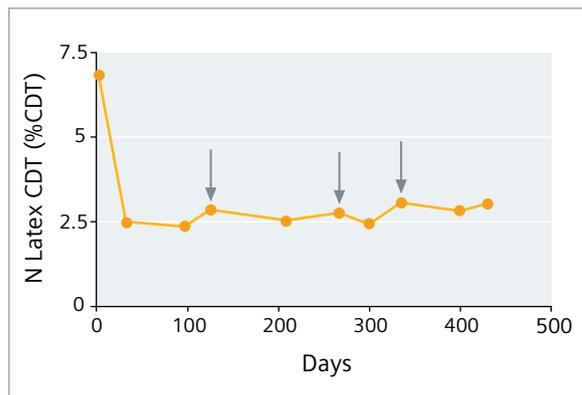


Indications for CDT Testing

- Can be used as a tool in screening for heavy drinking:
 - Patients with high suspicion of alcohol abuse (e.g., clinical symptoms often associated with alcohol abuse, such as sleep disorders, hypertension, gastritis, hand tremor, muscle weakness)
 - Workplace investigations (for safety reasons, aiming for risk reduction)
- Differential diagnosis of liver disease:
 - Patients with unexplained elevated GGT* levels
 - Differentiation of alcohol-induced versus non-alcohol-induced liver disease
- Screening for CDG syndrome
- Legal applications:
 - Confirmation of “sober” lifestyle, (e.g., for regranting driver’s license)
 - Forensic toxicology
- Monitoring alcohol-withdrawal therapy:
 - High sensitivity and early detection of potential relapse drinking (as indicated by arrows in the graph below).

An increase in %CDT results can indicate relapse during withdrawal therapy.



*Gamma-glutamyl transferase.

References

1. Allen JP, et al. Military Medicine. 2003;168:364-7.
2. Golka K, et al. Alcohol Clin Exp Res. 1998;22:908-13.
3. Helander A. J Neural Transm. 2003;66(Suppl):15-33.
4. Meerkerk GJ, et al. Alcohol Clin Exp Res. 1998;22:908-13.
5. Helander A, et al. Evaluation of Dade Behring N Latex CDT: A Novel Homogenous Immunoassay for Carbohydrate-Deficient Transferrin, Poster presented at ISBRA, 12th World Congress, Mannheim 2004.

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Alcohol's Effect on Carbohydrate-Deficient Transferrin (CDT)

Regular alcohol consumption of more than 50–80 g ethanol per day for at least 2 weeks results in a changed glycosylation pattern of transferrin. Heavy drinkers usually show a higher rate of isoforms lacking one or both carbohydrate chains in the transferrin molecule (disialo-, monosialo- and asialotransferrin = CDT) than nondrinkers. After approximately 2–4 weeks of abstinence, CDT concentrations return to normal levels.¹⁻³

- Transferrin synthesized in the liver usually carries two N-linked oligosaccharide chains, with four terminal sialic acid side chains (= tetrasialotransferrin).
- With regular high consumption of alcohol, the relative amount of glycoforms lacking one (disialotransferrin) or two (asialotransferrin) carbohydrate chains increases.
- Trisialotransferrin, which can be present in varying amounts in sera (from healthy as well as diseased individuals), is not related to alcohol consumption and therefore is not detected by N Latex CDT assay.

N Latex CDT Test Interpretation:

Reference range: **28.1–76.0 mg/L**

For improved specificity, CDT results are expressed in:

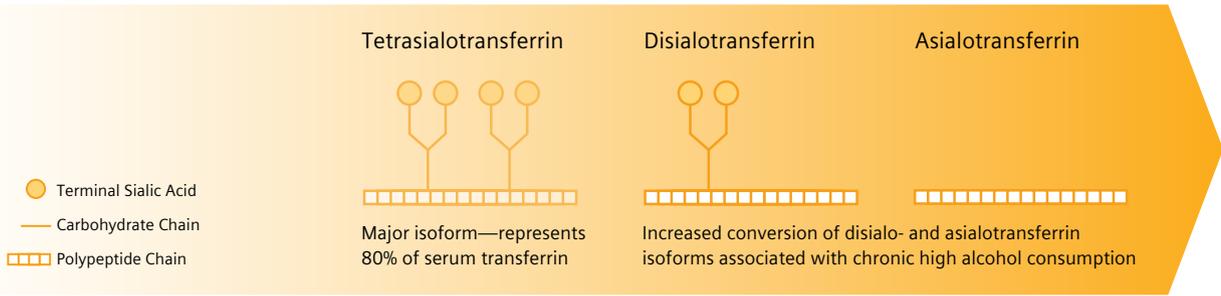
$$\%CDT = \frac{CDT \text{ (mg/L)} \times 10}{\text{Transferrin (g/L)}}$$

Recommended decision level† for a positive test result:

≥2.5 %CDT

In patients with severe alcohol abuse, CDT levels up to 15% can be observed.

- Interpretation of CDT results using %CDT compensates for variations related to the transferrin concentration and avoids misinterpretation due to low or high transferrin concentrations. Nevertheless, %CDT values can be overestimated if the total transferrin concentration is <1.5 g/L.
- Increased %CDT levels are directly related to alcohol consumption and therefore highly specific for alcohol-induced metabolic changes in the liver, %CDT is not influenced by:
 - Any medication
 - Any other non-alcohol-related liver disease
 - Diabetes
 - Hypertension
 - Iron status⁴



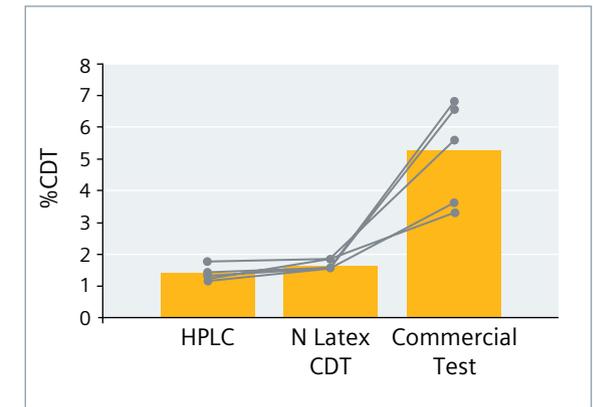
†Based on 99th percentile of reference population.

Conditions Influencing CDT Results

Besides alcohol-induced elevation of CDT, there are some conditions that can increase CDT levels:

- Extremely elevated CDT levels are observed with CDG syndrome (congenital disorder of glycosylation), which is a rare, inherited metabolic disorder with impaired protein glycosylation.
- Genetic transferrin variants can lead to falsely elevated CDT results in certain methods. N Latex CDT, a direct immunoassay using highly specific monoclonal antibodies, is not influenced by these variants.

Comparison of %CDT results for genetically determined transferrin variants CD and C2C3 (n = 5 samples)⁵ Genetic transferrin variants did not interfere with N Latex CDT.



Siemens N Latex CDT—
Rely on the most accurate marker to detect possible chronic alcohol abuse.