Background:
• Chronic liver disease is a major cause of morbidity and mortality in the industrial nations.
• Abnormalities in serum content of liver transaminases (LT) often reflect significant liver disease. However, normal values can persist with severe liver damage.
• The prevalence of liver related diseases in Germany is estimated at roughly 5 Mio. people (6.25%). Though, the prevalence of elevated aminotransferases in asymptomatic subjects in Germany is unknown.

Methods:
• Data analysis of participants (n=4814, aged 45-75 years) from the Heinz Nixdorf Recall study, a population-based cohort study.
• Normal ranges: LT (alanine aminotransferase [ALT], aspartate aminotransferase [AST]) were considered abnormal if they were >50 U/l for male, >35 U/l for female.

Results:
• Mean ALT: 16 ± 8.8 U/l; Mean AST: 13 ± 4.6 U/l; both well below the normal threshold for normal values.
• Stratified by gender, ALT was significantly higher in male subjects than in females (19 ± 9.7 U/l vs. 14 ± 7.1 U/l; p< 0.0001), which was also observable for AST (14 ± 4.8 U/l vs. 12 ± 4.2 U/l; p< 0.0001), respectively.
• However, the percentage of female subjects with elevated AST was significantly higher compared to male subjects [15/2406 (0.6%) vs. 5/2383 (0.2%); p=0.0045]. A similar proportion was found for ALT, with 1.8% (43/2407) females above normal range compared to 1.5% (36/2384) males (p= 0.0075).
• Mean Body-Mass-Index (BMI) : 27.9 kg/m²; typ-2-diabetes: n=656 (13.7%).
• A large discrepancy was observed between estimated numbers of liver disease (6.25% of the population) and the number of subjects with elevated LT (below 2%) in the analyzed study cohort. Facing the overweight BMI and the prevalence of typ-2-diabetes, the small number of abnormal transaminases surprises.

Conclusion:
• Being the main alarm signal for liver diseases or injury before enrolling further diagnostics, current LT thresholds might miss a significant part of liver pathologies.
• Current normal range limits should be re-assessed, to provide an improved focus concerning chronic liver disease.