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## Comparative analysis of the relationship between four hepatic steatosis indices and muscle mass

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Several studies have attempted to validate the relationship between hepatic steatosis and sarcopenia. The crucial limitation is to establish the status of hepatic steatosis by costly or invasive methods. Therefore, several models predicting non-alcoholic fatty liver disease (NAFLD) have been developed but have exhibited heterogeneous results. In this study, we aimed to review and compare four representative models and analyze their relationship with the risk of low muscle mass. Korea National Health and Nutrition Examination Surveys from 2008 to 2011 were used to confirm our hypothesis. Dual-energy X-ray absorptiometry was used to measure the amount of skeletal muscle mass. We used four hepatic steatosis indices: hepatic steatosis index (HSI), Framingham steatosis index (FSI), liver fat score (LFS), and fatty liver index (FLI). Multivariate linear and logistic regressions were used to reveal the relationship between NAFLD and low skeletal muscle index (LSMI). Pairs of FSI-FLI and HSI-FLI exhibited the best and second-best correlations among all possible pairs. The four hepatic steatosis models were associated with increased risk for LSMI. After removing the body mass index effect, HSI and FLI remained robust predictors for LSMI. NAFLD was a significant and potent risk factor for low skeletal muscle.