New low-contrast vision charts: reliability and test characteristics in patients with multiple sclerosis.

The quantitative assessment of visual function in multiple sclerosis (MS) clinical trials has been limited to Snellen visual acuity. The purpose of this study was to examine the inter-rater reliability and test characteristics of a new visual outcome measure, the Low-Contrast Sloan Letter Charts, in patients with MS and visually-asymptomatic volunteers. Contrast letter acuity scores (letter scores) were measured at each of four contrast levels (100, 5, 1.25 and 0.6%) by two independent raters. Inter-rater agreement was described with the intraclass correlation coefficient (ICC) and comparison of mean scores. Excellent inter-rater agreement (ICC=0.86 - 0.95) was demonstrated at each contrast level among MS patients (n=100) and visually-asymptomatic volunteers (n=33). Average letter scores at the lowest contrast level (0.6%) were highly variable in the MS group, even among patients with visual acuities of 20/20 or better, and among those who required no assistance for ambulation. Low-Contrast Sloan Letter Chart testing is a highly reliable method of visual assessment, and provides information on an aspect of neurologic impairment in MS which is not captured by Snellen visual acuity or ambulation status. This new method demonstrates excellent potential as a visual function outcome measure for future MS clinical trials.