Researchers at the University of South Florida have developed a method that permits the automated grading of the severity of vitritis by applying a computer algorithm to clinical fundus images.

Vitreous haze serves as a surrogate marker for intraocular inflammation caused by a variety of inflammatory diseases known as uveitis. The estimation of the amount of the haze is subjective, so a standardized system for grading of the vitreous haze has been proposed through the use of a digital photographic scale. However, there is often disagreement between multiple graders of the exact value of the grade and it takes a significant amount of time and training to perform the grading.

USF inventors have designed and implemented a computer algorithm to produce a rapid and unbiased measure of fundus clarity that strongly correlates with clinical grading. The algorithm could be used on at clinical reading center or as a stand alone device during patient examination. The invention executes a series of image processing steps using predefined parameters to compute a blur grade and quantify the clarity of ocular fundus images. This allows for a more accurate, quick, and reliable grade of vitreous haze in an unbiased manner compared to the currently used standardized grading. This improved method will enhance the diagnosis of the ocular diseases so that adequate treatment can be provided.

**ADVANTAGES:**
- Produces grading comparable to that of a clinician’s
- Method can be implemented during patient examinations
- Quick results

Comparison of blur scores assigned by three highly-trained clinical graders and the USF researchers’ computer algorithm to a database of 100+ fundus images. The $R^2$ correlation between the algorithm and expert graders was comparable to that between the graders themselves.