

Plain English Summary

Traditional vision tests, such as letter chart tests, mainly measure central vision and often are unable to detect small vision changes that result from eye disease. In addition, some patients with specific eye diseases that affect the retina, the light-sensitive layer at the back of the eye, are unable to perform standard peripheral vision tests and get useful results. Research to develop new treatments for eye diseases affecting the retina is ongoing. For this research to be successful, vision tests must be able to detect vision changes that matter to patients in everyday life. The Visual Function in Retinal Degeneration project assessed a range of alternative vision tests.

Project results

Low-light microperimetry (a computer-based test that measures how sensitive the central retina is to light) was found to be the most suitable test. It reliably measures vision in the treated area of the retina and is associated with quality-of-life questionnaires, suggesting it reflects aspects of vision that are important to daily activities. Alternative letter chart tests did not show any additional benefits compared to standard letter chart testing. Scotopic microperimetry (a version of microperimetry carried out in very low light to assess night vision) was also evaluated, but many patients found the test difficult to complete. Patient feedback showed that some tests can be tiring, highlighting opportunities to improve test delivery through clearer explanations, reassurance, and regular breaks.

Conclusion

Overall, the project supports microperimetry as a key outcome measure for future retinal gene therapy trials and provides recommendations to improve patient experience.