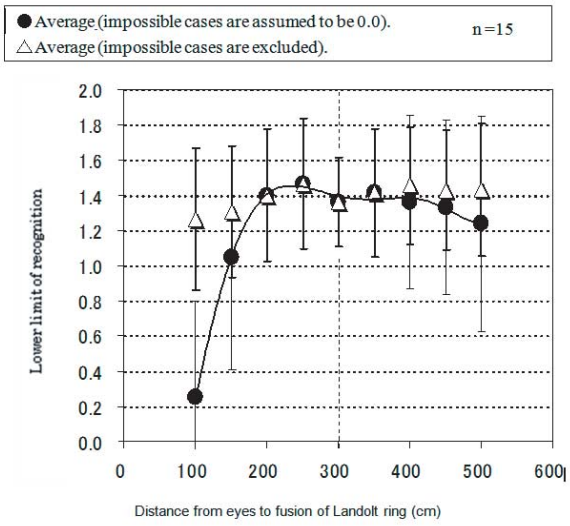

Fig. 9. Result of experiment 2: Visibility measured using Landolt rings.

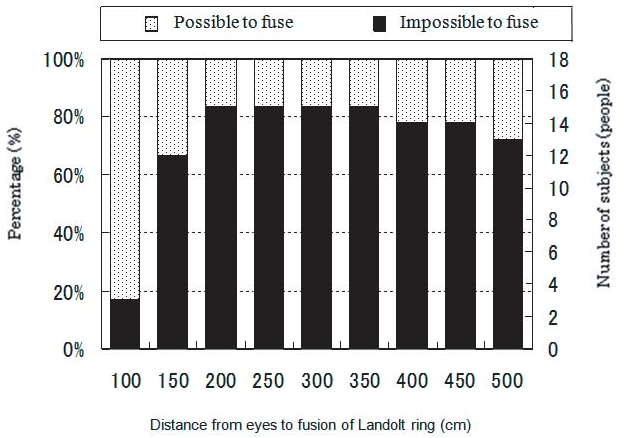

Fig. 10. Number of subjects who could/could not see stereoscopic views.

Eye™ skill and stereoacuity (Wilmer and Backus, 2008), the conditioning of blur adaptation in 3D viewing contexts (Battaglia *et al.*, 2004; Yaroslavsky *et al.*, 2005), and the relation between stereoscopic acuity and observation distance (Wann *et al.*, 1995; Bradshaw and Glennerster, 2006). However, few studies have reported the measurement of visual acuity estimated using stereoscopic Landolt rings.

We therefore estimated the visibility of 3D images using a Landolt ring test in experiment 2. Visibility did not deteriorate regardless of the depth of the 3D images if the parallax was not larger than the fusional upper limit.

5. Conclusion

In this study, agreement of accommodation and convergence in stereoscopic vision and undeteriorated visibility of the fusion images were shown when fusion vision was possible. Appropriate parallax of stereoscopic vision on HMD induced accommodation to stereoscopic fusion images by expansion and contraction of the ciliary muscle and did not reduce the visibility of stereoscopic virtual objects. Guidelines for safe and harmless stereoscopic images should be developed based on scientific knowledge in the near future.

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