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## Monocular occlusion can improve binocular control and reading indysexics.

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#### Abstract

Developmental dyslexia is a neurodevelopmental condition which causes 5-10% of children to have unexpected difficulty learning to read. Many dyslexics have impaired development of the magnocellular component of the visual system, which is important for timing visual events and controlling eye movements. Poor control of eye movement may lead to unstable binocular fixation, and hence unsteady vision; this could explain why many dyslexics report that letters appear to move around, causing visual confusion. Previous research has suggested that such binocular confusion can be permanently alleviated by temporarily occluding one eye. The aim of the present study was therefore to assess the binocular control and reading progress of dyslexic children with initially unstable binocular control after the left eye was patched. One hundred and forty-three dyslexics were studied. They were selected from children aged 7-11 years referred to a learning disabilities clinic if they were dyslexic and had unstable binocular control. They were randomly assigned to wear yellow spectacles with or without the left lens occluded, and were followed for 9 months. Significantly more of the children who were given occlusion gained stable binocular fixation in the first 3 months (59%) compared with children given the unoccluded glasses (36%). This advantage was independent of IQ or initial reading ability. Furthermore, at all the 3-month follow-ups, children were more likely to have gained stable binocular control if they had been wearing the occluded glasses. Gaining stable binocular control significantly improved reading. The children who did so with the help of occlusion improved their reading by 9.4 months in the first 3 months, compared with 3.9 months in those who were not patched and did not gain stable fixation. Over the whole 9 months, children who received occlusion and gained stable fixation nearly doubled their rate of progress in reading compared with those who remained unstable. At all the follow-ups the reading of those given occlusion was significantly better than that of those not occluded.

Thus monocularocclusion helped children with unstable binocular control to gain good binocular fixation. If they gained stability, they made significantly faster reading progress. The progress made by the children who gained stable fixation was much greater than that achieved with other remedial techniques.

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