‘Saccadic strategies in children with hemianopia’

SIR—We would like to commend Mezey et al. for their report in Developmental Medicine and Child Neurology volume 40 in which they reported on the saccadic strategies of 10 children with hemianopia. They concluded that ‘multiple hypometric saccades into the blind hemifield are a persistent “strategy” in children with hemianopia...’ and that children with homonymous hemianopia do not develop a consistent strategy of saccadic hypermetria into the blind hemifield. We would like to indicate an interesting trend in the authors’ data and ask the authors to comment on an additional clinical feature.

We reported the concurrence of an anomalous face turn toward the blind hemifield in 10 children with early onset hemianopia, with a range of onset between in utero and 1 year 6 months of age. We postulated that children with early onset hemianopia adopted an anomalous head posture to enlarge the ‘functional’ visual field on the blind side by allowing a larger saccade into the blind hemifield. Zangemeister et al. reported through the use of infra-red recordings that patients with early onset or congenital homonymous hemianopia use large ‘overshooting’ saccades into the blind hemifield. Although we did not formally test the saccades in our patients, we believed that the anomalous face turn allowed affected children to take better advantage of adaptive strategies such as hypermetric saccades, as Zangemeister et al. described. While none of the authors’ patients used a preponderance of hypermetric saccades in the blind hemifield, the four patients with onset of the hemianopia during the first year of life used a greater percentage of hypermetric saccades than patients with onset after 1 year of age. The ages of patients who showed a greater percentage of hypermetric saccades are similar to those of the patients that we reported with anomalous face turns toward the blind hemifield.

We would be interested to know whether the authors noted anomalous head postures in any of their patients. Additionally, we would be interested to know whether any correlation between the presence of a face turn toward the blind hemifield and increased use of hypermetric saccades occurred. If such a correlation exists, this would provide some support for the theory that only children with the most immature visual systems are likely to develop and use these adaptive mechanisms. The authors’ work provides valuable new information which may have important implications in the evaluation and treatment of children with childhood-onset hemianopia, and we hope they will continue this important work.

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References

Laura Mezey et al. reply

SIR—We thank Coats and Paysse for their interest in our work and their suggestions regarding the relationship between the development of adaptive saccadic strategies and the occurrence of an anomalous face turn towards the blind field in early onset homonymous hemianopia. We cannot provide reliable information regarding the presence of anomalous face turns in our patients because our data were obtained retrospectively and the medical records of our patients showed no clear evidence of such face turns. However, a general body orientation was noted in one patient (patient 1) with cerebral palsy. Of course, a subtle face turn may have gone unnoticed or may not have been recorded. Thus we cannot comment on the relationship between hypermetric saccades and the use of a face turn in our patients, or how the time of onset of the hemianopic defect may affect any adaptive strategy.

The use of ipsilateral face turn in hemianopic patients is open to a number of intriguing interpretations. Firstly, if the face is turned ipsilateral to the blind field while the eyes are kept looking straight ahead, a greater oculomotor range into the blind field is made available, as proposed in Coats and Paysse’s letter. This greater oculomotor range would facilitate the generation of hypermetric saccades into the blind field because smaller saccades made ipsilaterally to the blind field from the primary position would reach ‘deeper’ into the blind field.

Alternatively, a face turn could allow saccades of a visual scanning sequence to incorporate more of the otherwise unseen field. Most saccades of a scanning sequence are distributed around the primary position. So, while there would be a bias towards scanning on one side of body-centred space, information from the other side would still be available in the intact peripheral visual field.

A third benefit of an anomalous face turn could come from an improved optic flow field during natural locomotion. The optic flow field is the fluctuating patterns of reflected light that pass across the retina as a result of any relative movement between the observer and the environment. These patterns radiate from the centre of expansion when moving in the forward direction. If the face and eyes are turned to the side, the centre of expansion and a more symmetrical optic flow field would be regained. This would be expected to aid the control of speed and direction of locomotion. These are just three examples of how a face turn might be beneficial in different contexts.
Without further research it is difficult to postulate which, if any, of these interpretations of an anomalous face turn is valid. We are continuing with our research in this field, using more accurate eye movement recording techniques, and we shall certainly make an effort to address this interesting question in the future.

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‘Multidisciplinary Appraisal of the British Institute for Brain Injured Children, Somerset, UK’

Sir—I am writing in response to Dr Richard Morton’s letter in Developmental Medicine and Child Neurology (41: 211–2) concerning an assessment of the British Institute for Brain Injured Children (BIBIC). This appraisal was undertaken in 1995 and 1996 and was the instrument that the BIBIC needed to make changes that were already thought to be necessary. We no longer practise the Doman–Delocato approach to neurodisability, but have restructured our programme to reflect more up-to-date methods. A physiotherapist, nursery nurse, and teachers of special needs have been recruited to enrich the skills available. Furthermore, continuing training of the staff has taken place. Some of this training has been conducted with the assistance of the original assessment team.

We extend our thanks to Dr Morton and his team and look forward to his visit later this year so that he may see for himself the progress we have made and continue to make.

Jo Judge MRCPCH, Medical Director, BIBIC  
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Mac Keith Meetings

Transition to Adulthood (Open meeting)  
Royal Society of Medicine, London. Monday 28th June 1999  
Organised by Martin Bax and Greg O’Brien

Non-accidental Head Injury (Open meeting)  
Royal Society of Medicine, London. Friday 9th July 1999  
Organised by Bob Minns and Keith Brown

Neuroprotection of the Infant (Closed research workshop)  
Royal Society of Medicine, London. Thursday 7th to Friday 8th October 1999  
Organised by Martin Bax, Murray Goldstein, Philippe Evrard, and David Edwards

Rett Syndrome (Open meeting)  
Royal Society of Medicine, London. Friday 15th October 1999  
Organised by Alison Kerr

Specific Learning Disorders (Open meeting)  
Royal Society of Medicine, London. November 1999 – date to be confirmed  
Organised by Martin Bax and Greg O’Brien

Disordered Auditory Processing (Closed research workshop)  
Royal Society of Medicine, London. December 1999 – date to be confirmed  
Organised by Anne O’Hare

For further information, and to book places at open meetings, contact Vesna Milenkovic, CME Department, The Royal Society of Medicine, 1 Wimpole St, London W1M 8AE.  
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