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MOTION INDUCED BLINDNESS IS A FORM OF PERCEPTUAL RIVALRY WITH DIAGNOSTIC IMPLICATIONS FOR BIPOLAR DISORDER

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Bonneh and colleagues (2001) have introduced a striking new illusion involving the cyclic disappearance of static targets when viewed against a coherent moving background pattern, in a process they have termed Motion Induced Blindness (MIB). Through an investigation of the temporal dynamics of Bonneh’s illusion and consideration of we showed that the cyclic pattern of timing observed with this phenomenon is consistent with those seen in binocular rivalry. We also compared the rate of alternation between disappearance and appearance phases in a normal and bipolar population. Consistent with findings relating to binocular rivalry (Pettigrew, 1998) a significant prolongation of alternation rates was observed in the sample of subjects with bipolar disorder. We conclude by suggesting that MIB is a form of perceptual rivalry, likely to be driven through alternations in hemispheric dominance, with potential diagnostic capabilities in respect to mood disorders.

References:

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A continuous supply of BDNF is necessary for sustained auditory neuron survival in deafened guinea pigs.

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Neurotrophic factors are well known to be involved in the development and maintenance of the auditory system, and have also been reported to act as survival factors for auditory neurons in both in vitro and in vivo deafness models.

In this study we tested the longevity of the survival effects of brain-derived neurotrophic factor (BDNF) on auditory neurons in deafened guinea pigs – specifically, we aimed to determine if a single dose of BDNF is sufficient to maintain auditory neuron survival following loss of hair cells, or whether sustained delivery is required.

Normal hearing guinea pigs were bilaterally deafened, and the left cochleae infused with 200nl BDNF (62.5ug/ml) over a period of 28 days via a cannula connected to a mini-osmotic pump. The right cochleae acted as deafened and untreated internal controls. Survival periods following the completion of the BDNF treatment varied from zero to two or four weeks. For all surgical procedures, guinea pigs were anaesthetised using ketamine (40mg/kg) and xylazine (4mg/kg). Treatment with BDNF prevented the degeneration of auditory neurons normally seen following loss of hair cells, however, upon cessation of BDNF delivery, auditory neuron survival rates dropped rapidly, indicating that if trophic factor therapy is to be used in the treatment of hearing loss, continuous delivery is likely to be necessary.
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