Investigating Head Movements Induced by 'Riloid' Patterns in Migraine and Control Groups using a Virtual Reality Display

Louise O'Hare[1,*], Alex Sharp[1], Patrick Dickinson[2], Graham Richardson[3] and John Shearer[2]

[1] School of Psychology, University of Lincoln, Brayford Pool, Lincoln, LN6 7TS. UK

[2] School of Computer Science, University of Lincoln, Brayford Pool, Lincoln, LN6 7TS, UK

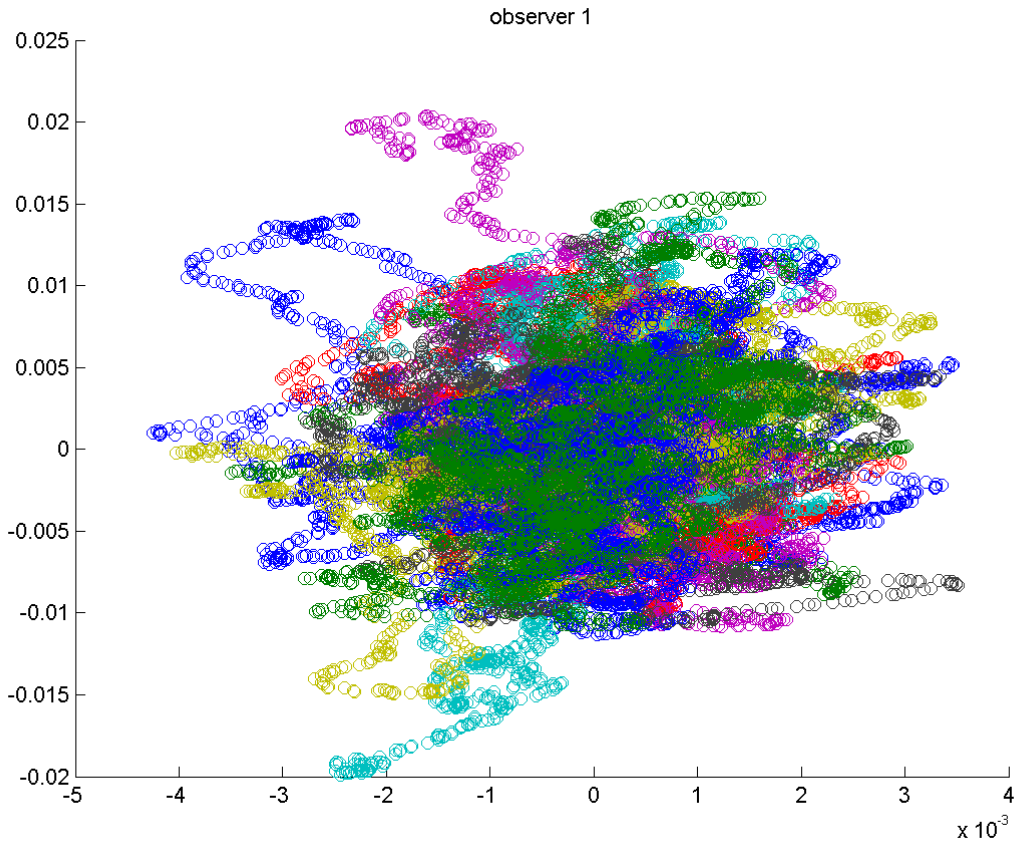
[3] School of Life Sciences, University of Lincoln, Brayford Pool, Lincoln, LN6 7TS, UK

Received 12 December 2017; accepted 23 April 2018

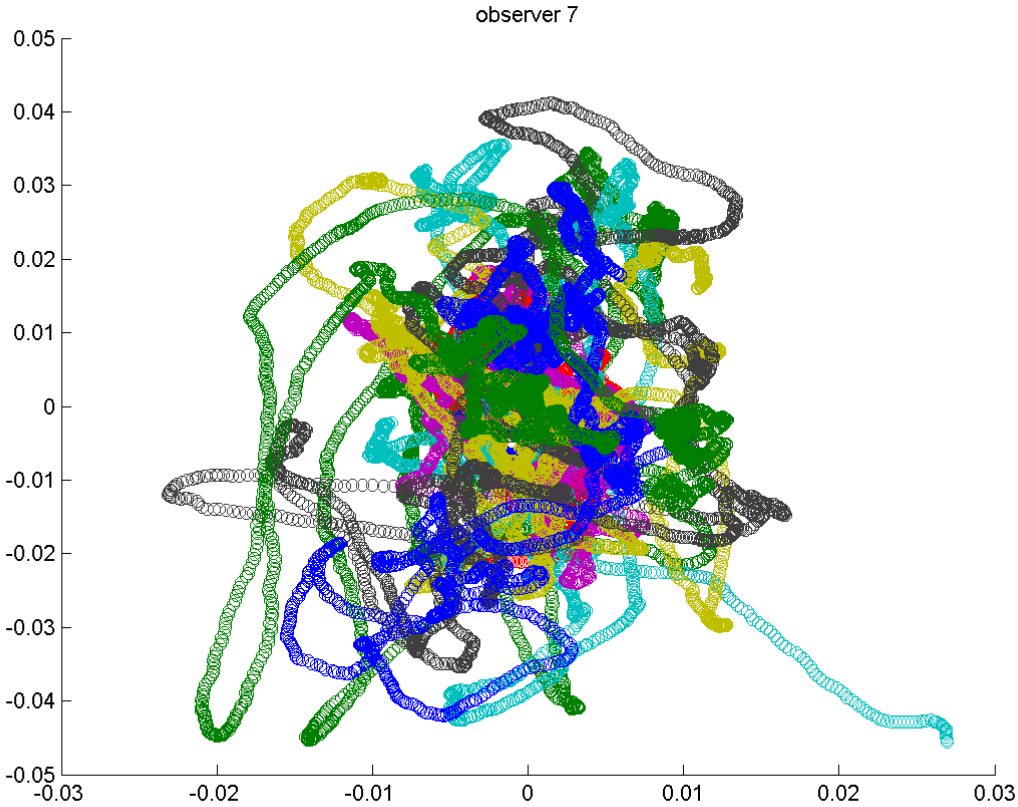
* To whom correspondence should be addressed. E-mail: lohare@lincoln.ac.uk

Supplementary Material

Data from Additional Observers



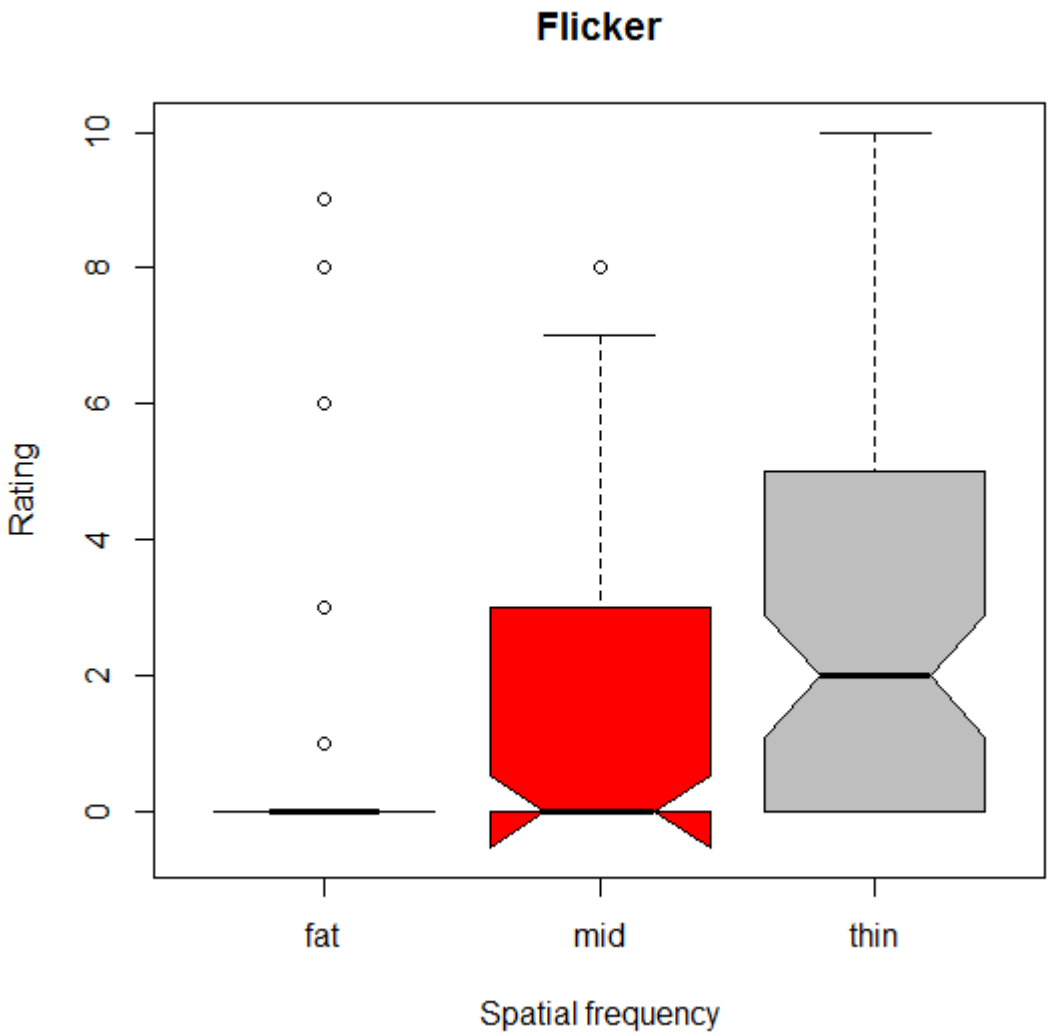
Supplementary Figure 1. A sample observer's data. Displacement is normalised to 0,0 as the centre of gravity, distances are in metres.



Supplementary Figure 2. A sample observer's data. Displacement is normalised to 0,0 as the centre of gravity, distances are in metres.

Flicker

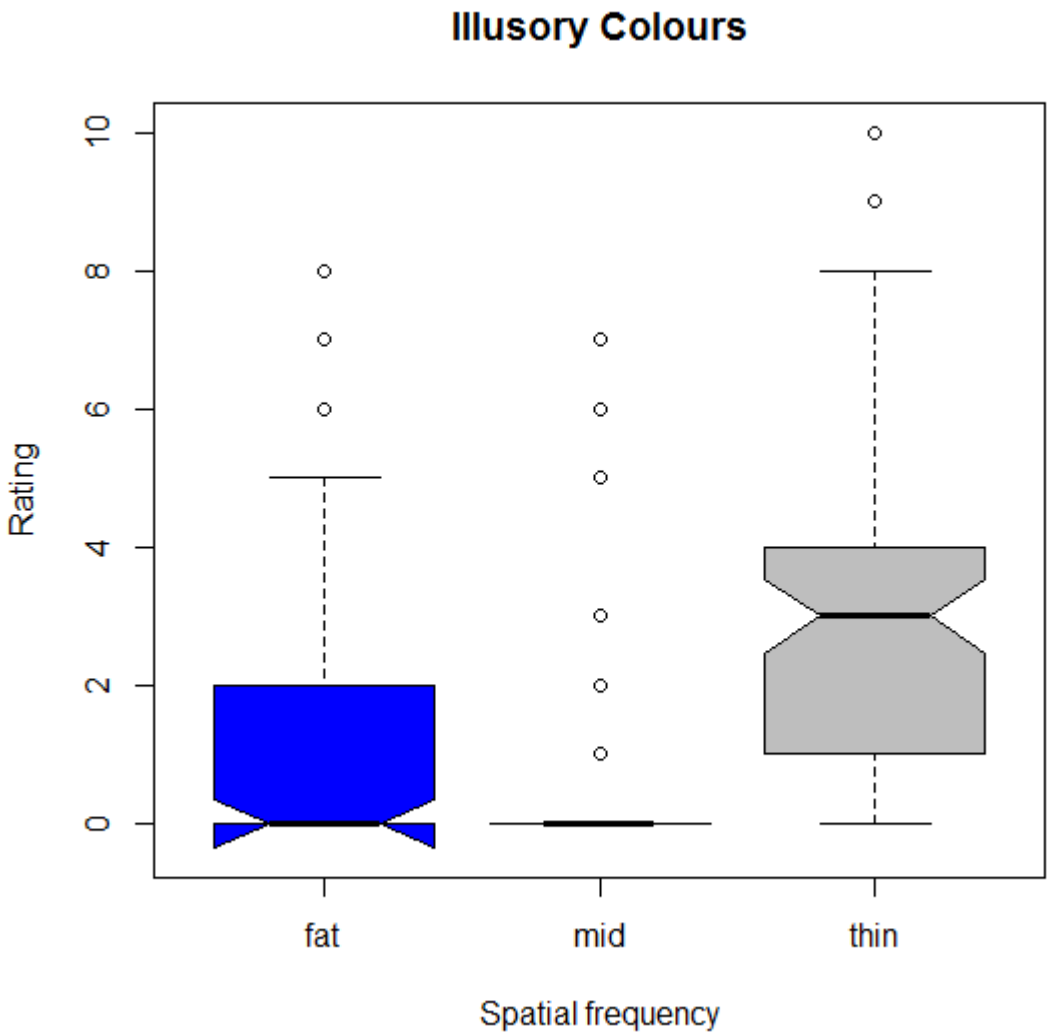
Supplementary Figure 3 shows perceived flicker against spatial frequency. There was a significant main effect of spatial frequency [$F(1.53, 36.67) = 13.42$, $p < 0.05$, $\eta^2_G = 0.14$] and line waviness [$F(1.89, 45.44) = 4.71$, $p < 0.05$, $\eta^2_G = 0.02$] on perceived flicker. There was also an interaction between spatial frequency and line waviness on perceived flicker [$F(2.49, 59.66) = 7.01$, $p < 0.05$, $\eta^2_G = 0.06$].



Supplementary Figure 3. Ratings for flicker for three spatial frequencies. Notches indicate the median, box boundaries show the 25th and 75th percentiles, whiskers indicate the range, outliers are marked by individual points.

Illusory Colours

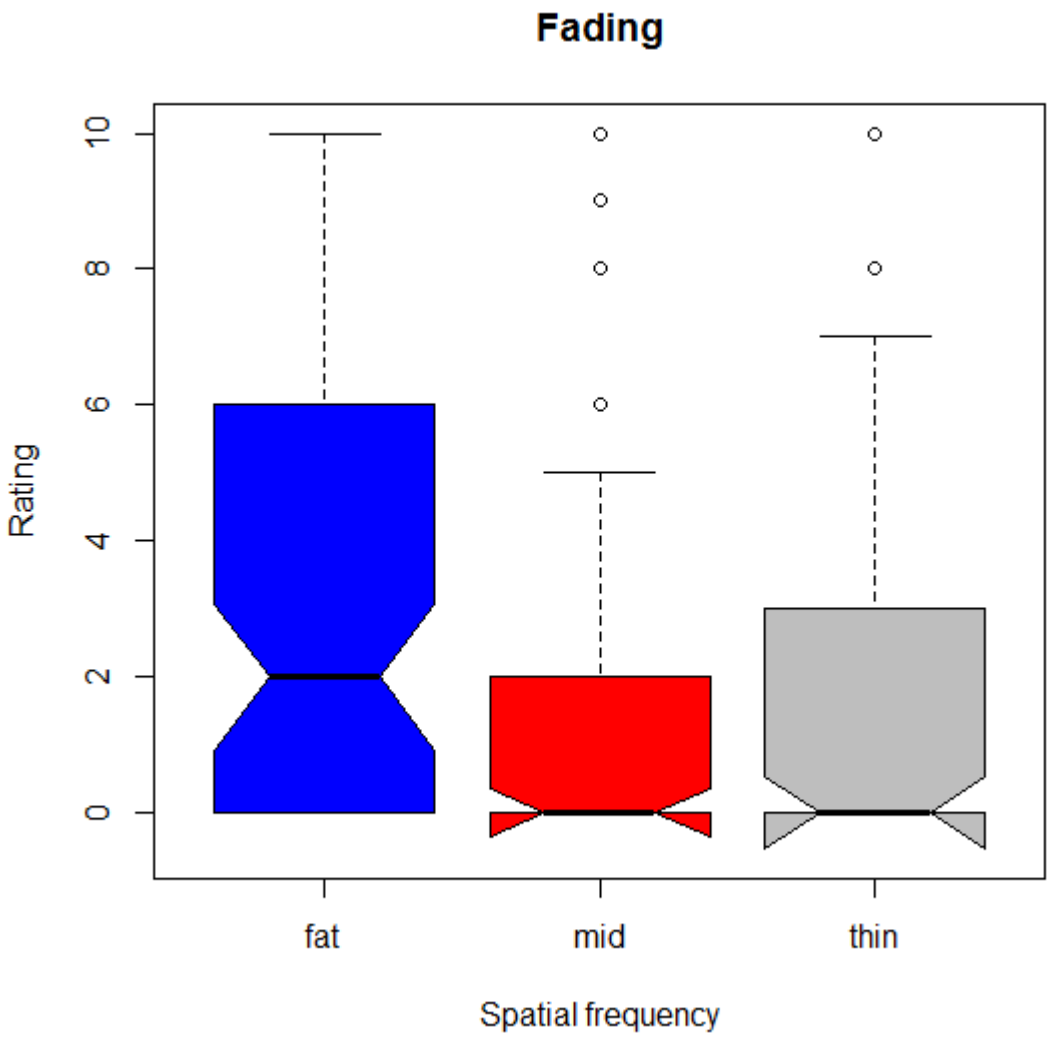
Supplementary Figure 4 shows perceived colour against spatial frequency. There was a significant main effect of spatial frequency [$F(1.19, 28.60) = 27.19$, $p < 0.05$, $\eta^2_G = 0.26$] and of line waviness [$F(1.55, 37.29) = 12.82$, $p < 0.05$, $\eta^2_G = 0.05$] on illusory colours reported. There was also a significant interaction between spatial frequency and line waviness [$F(2.45, 58.76) = 6.10$, $p < 0.05$, $\eta^2_G = 0.05$).



Supplementary Figure 4. Boxplot showing median ratings for illusory colours for three levels of spatial frequency. Notches indicate the median, box boundaries show the 25th and 75th percentiles, whiskers indicate the range, outliers are marked by individual points.

Fading

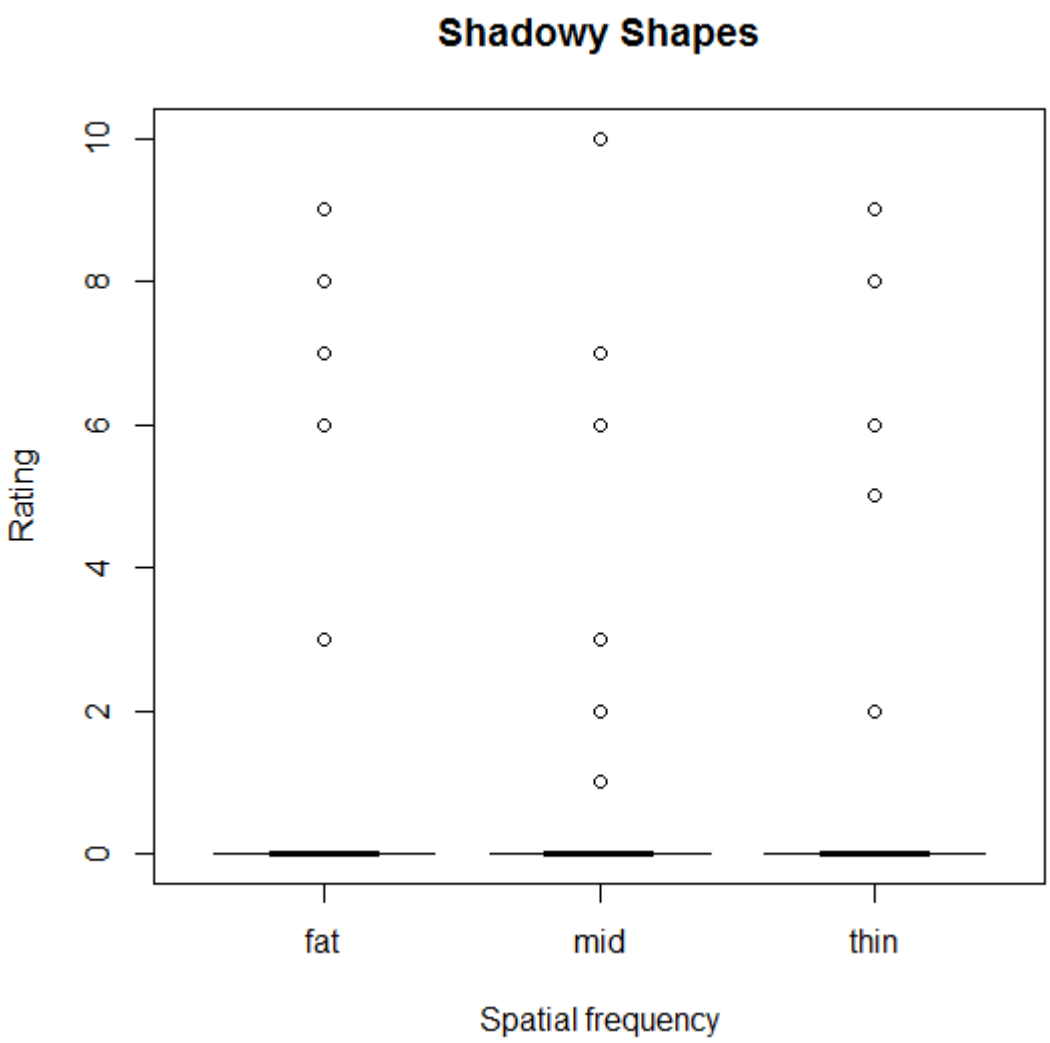
Supplementary Figure 5 shows the ratings of fading against spatial frequency. There was a significant main effect of spatial frequency only on fading [$F(1.34, 32.08) = 6.29$, $p < 0.05$, $\eta^2_G = 0.08$].



Supplementary Figure 5. Ratings for fading against spatial frequency. Notches indicate the median, box boundaries show the 25th and 75th percentiles, whiskers indicate the range, outliers are marked by individual points.

Shadowy Shapes

Supplementary Figure 6 shows the ratings for shadowy shapes. There was a significant interaction between spatial frequency and line waviness on ratings of shadowy shapes [$F(3.09, 74.08) = 3.15$, $p < 0.05$, $\eta^2_G = 0.02$].



Supplementary Figure 6. Ratings for shadowy shapes against spatial frequency. Notches indicate the median, box boundaries show the 25th and 75th percentiles, whiskers indicate the range, outliers are marked by individual points.