

Eye-Tracking Technology shows Social Preferences in Rett Syndrome

Drs. Aleksandra Djukic and Maria Valicenti McDermott at the Rett Syndrome Center at Montefiore Medical Center have recently published in *Pediatric Neurology* this month on their exciting study of girls with Rett syndrome (RTT) and whether their strong eye gaze can indicate their preferences and be used as a mode of non-verbal communication.

This pilot study investigated 49 girls genetically diagnosed with Rett syndrome between the ages of 1.5-25 years and examined their pattern of visual fixation (eye gaze) using a Tobii eye-tracking device (<http://www.tobii.com/en/eye-tracking-research/global/products/hardware/tobii-t60t120-eye-tracker/>) that displayed various pictures and monitored where on the picture the girls would look and fixate. This device was able to also determine how long the girls looked at these pictures. The results of this study indicate that “girls with Rett syndrome exhibited a preference for socially weighted stimuli”. The study participants would focus more on people in the pictures, rather than any other objects (e.g. a fountain or a statue within the same picture). A picture containing people would be looked at more times than an adjacent picture of a red dress. When a picture of a person’s face is shown, the girls would focus much more on the eyes rather than the nose or mouth. A comparison with the control group of 33 typically developing girls showed that the females with Rett syndrome were more likely to look at the eyes of people in the pictures. This study also underscores a real difference in the visual attention of girls with Rett syndrome versus children with autism, who tend to avoid eyes and face. This suggests that girls with Rett syndrome, an Autism Spectrum Disorder, both process and prioritize – i.e. learn – information differently than children with autism.

This cutting-edge eye-gaze technology provides an alternative mode to communicating for the majority of those with RTT who cannot communicate either verbally or with their hands. Eye tracking has also shown that girls with Rett syndrome can indeed communicate and demonstrate their intellectual abilities by using their eyes to point to something when asked a question. Eye tracking technology is a feasible method to include in future intervention strategies to enhance their communication capabilities between the girls and the people in their immediate surrounding including parents, family, teachers, and their doctors.

An IRSF microgrant and the international Rett syndrome consortium RettSearch funded Dr. Djukic for her project “Eye tracking / Visual preferences in patients with Rett syndrome –Pilot study”. This study is the first of four studies that have been funded by IRSF, and the remaining is expected to be published in upcoming months. Dr Djukic will be presenting her work in more detail this summer at the upcoming World Rett Syndrome Congress in New Orleans.

Social Preferences in Rett Syndrome

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Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/22490770>

Article: [http://www.pedneur.com/article/S0887-8994\(12\)00019-7/abstract](http://www.pedneur.com/article/S0887-8994(12)00019-7/abstract)

Press Release from the Montefiore medical center

<http://www.montefiore.org/body.cfm?id=1738&action=detail&ref=433>

YouTube interview with Dr. Djukic:

<http://www.youtube.com/watch?v=zJ8c2dihf2o&feature=colike>

Investigator Spotlight on Dr. Djukic:

<http://www.rettsyndrome.org/content/view/767/944/#Djukic>