

**LETTER TO THE EDITOR****Autism as emergent: Comments on Mottron 2021**

Dear Editor,

Responding to Lauren Mottron and subsequent commentaries, I suggest that the limitation of 'trait reductionism' (and, as Mottron says, of analogies such as with hypertension) lies in the complex-system nature of brain and mental development, and the way such complex systems can generate higher order emergent properties with their own unique characteristics (Goldstein, 1999). That 'autism' can be considered an emergent phenomenon within complex development (Anderson, 2008) is attested by three developmental observations. First, *the autism phenotype is emergent in development*. It is not 'preformed'—not apparent in the first years of life, although we can glimpse it in antecedents. Its emergence in the prototypical way characterized by Mottron is a phenotype more than the sum of its parts; which is why the complex gestalt has resisted disaggregation, and why the striking historical stability of this prototypical description lies in the complex whole and not constituent traits. Second, *just as autism emerges, it can also do the opposite*. Deborah Fein's well-known descriptive series (Fein et al., 2013) articulates what it also a common clinical experience. Third, *the autistic state is malleable to changed environmental conditions*. Clinically in its waxing and waning in response to environmental stressors, for instance inappropriate education environment; but more convincingly when the environmental conditions are experimentally altered in random allocation treatment studies. Our recently published trial (Whitehouse et al., 2021) for instance shows that an early pre-emptive intervention, systematically adapting the psychosocial parental environment around the infant, results, first, in a sustained lifting of general (dimensional) social engagement and competency over the next few years, but also then a substantive reduction in emergence of the clinical (prototypical descriptive) 'diagnoses' at 3 years, from 20.5% in regular care to 6.7% in the treated group. This evidence challenges diagnostic constructs and suggests that autism

is more than a biological unfolding (although it is clearly this too); the prototypical description represents an emergent transactional social outcome, as the neurodivergent brain and mind interact with its social world.

Jonathan Michael Green 

*University of Manchester and Manchester Academic Health Sciences Centre, Hon Consultant, Royal Manchester Children's Hospital, Manchester, UK*

**Correspondence**

Jonathan Michael Green, University of Manchester and Manchester Academic Health Sciences Centre, Hon Consultant, Royal Manchester Children's Hospital, Room 3.311, Jean McFarlane Building, Oxford Road, Manchester M13 9PL, UK.  
Email: jonathan.green@manchester.ac.uk

**ORCID**

Jonathan Michael Green  <https://orcid.org/0000-0002-0143-181X>

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