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Autism

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Synonyms

Autistic thinking

Autism is a *spectrum* condition, meaning that it is manifested to varying degrees of severity. At one extreme, a person may have no social skills, no language, and major learning difficulties. At the other extreme, the individual may have average or even above average IQ, precocious vocabulary (though a lack of interest in small-talk or chatting), and odd social skills (being one-sided or extremely self-centered). The former would receive a diagnosis of *classic autism*. The latter would receive a diagnosis of *Asperger Syndrome* (AS). Both of these are subgroups on the autistic spectrum. Both also share a strong preference for routines and repetition, and “obsessional” interest in highly specific topics.

The empathizing-systemizing (E-S) theory proposes that there are empathizing deficits in autism, while systemizing is either intact or superior. Empathy involves imagining another person’s thoughts and feelings, and having an appropriate emotional reaction to those feelings.

Children and adults with AS show their empathizing deficits on age-appropriate tests of emotion recognition, theory of mind, and spontaneous empathy. Systemizing is the drive to analyze a system in terms of underlying rules in order to understand and predict its behavior. People with autism spectrum conditions show precocious understanding of systems, relative to their mental age, on tests of intuitive physics or questionnaires assessing how interested a person is in different types of systems (maps, train timetables, machines, syntax, etc.). The unusually strong repetitive behavior, the strong desire for routines, and the “need for sameness,” can be seen as the result of a strong drive to systemize. Systemizing also requires excellent attention to detail, and people with autism and AS are faster on visual search tasks.

Anatomical abnormalities have been identified in different brain regions in autism. The brain regions that have been reported to be atypical include the cerebellum, corpus callosum hippocampus and the amygdala. Epilepsy also occurs in a proportion of individuals with autism spectrum conditions, though the exact rate is no longer clear. The number of Purkinje cells in the cerebellar cortex is abnormally low. Abnormalities have also been reported in the density of packing of neurons in the hippocampus, amygdala, and other parts of the limbic system. Abnormalities have also been found in the functioning of the amygdala, the orbito- and medial-frontal cortex. These atypical patterns of neural activity arise in relation to the empathizing deficits.

65 Today, we recognize that 1% of children have
66 an autism spectrum condition. The sibling recur-
67 rence rate is 5–10%. Regarding twin studies, 60%
68 of monozygotic (MZ) pairs are concordant for
69 autism versus no dizygotic (DZ) pairs. When
70 a broader phenotype is considered, 92% of MZ
71 pairs are concordant as compared to 10% of DZ
72 pairs. Molecular linkage genetic studies have led

to a number of chromosomal regions being impli- 73
cated, such as 2q, 7q, and 15q. 74

References

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