



Autism Spectrum Disorder is a pervasive neurological disorder that affects social functioning, communication, and associated with restricted, repetitive patterns of behaviors.

Difference in Brain Functioning in ASD

By: Yonca Cam, Research Assistant

Researchers at the TEND Lab at San Diego State University and the University of Michigan have discovered that the brain of individuals with ASD function differently at the resting state.

Our brains function non-stop even when we are not doing anything in particular. This is called intrinsic or resting connectivity and it has multiple functions:

- Making sense of self: autobiographical information, self-reference, understanding own emotions
- Thinking about others: moral reasoning, social evaluations, understanding others' emotions
- Remembering past and thinking about the future: imagining the future, episodic memory, story comprehension

Occurs within the default network (DN) which is a set of structures that are active in absence of a task.

Researchers wanted to evaluate the default network in ASD & understand how the severity of the symptoms of ASD relate to the activation in the default network.

Participants included 12 adults with ASD and 12 adults without ASD for comparison.



Participants were shown a visual fixation cross and asked to keep their eye on for 10 minutes without thinking about anything while their brain connectivity was being measured with an fMRI machine.

Results shown that ASD group had

- Alterations in functional connectivity
- **Both weaker and stronger connectivity at specific regions at rest**
- Poorer social functioning was associated with weaker connectivity between some regions of DN
- **More severe restricted and repetitive behaviors was associated with stronger connectivity between specific parts of DN**

These results mean that

- Components of default network may play a role in ASD
- Severe repetitive behaviors might be the result of hyperactivity of DN
- **Poor social functioning might be the result of hypo-activity of DN**

Monk, C., Peltier, S., Wiggins, J., Weng, S., Carrasco, M., Risi, S., Lord, C. (2009). Abnormalities of Intrinsic Functional Connectivity in Autism Spectrum Disorders. *NeuroImage*. 47. 764-72. 10.1016/j.neuroimage.2009.04.069.