

Appendix A: Autistic Hyperfocus

Hyperfocus is the unique and defining characteristic of autism that appears to be responsible for all 44 of its observed traits, as listed below. Hyperfocus is the perpetual and unrelenting state of intense single-minded concentration fixated on one thing at a time, to the exclusion of everything else.

Mental traits

- perpetual hyperfocus: intense single-minded concentration
- trapped in thoughts
- mind always busy, tendency to overthink.
- passionately pursues interests
- amasses encyclopedic knowledge about areas of interest
- self-awareness but no social awareness
- interruptions trigger agitation, confusion, or anxiety

Sensory overload

- hypersensitivity to noise and other sensory assaults
- experiences anxiety from being mentally trapped in the noise or assault
- overwhelmed by overhearing unwanted conversations
- frequently overwhelmed by too much information
- coping with computers/electronics and filling in forms may cause anxiety
- sensory overload makes it impossible to think or focus
- often has difficulty listening to radio or talking with others while driving

Emotional traits

- feels like an outsider
- unable to feel emotion
- may have physiological responses instead of emotion
- processes emotions intellectually
- anxiety bypasses the intellect to warn of unprocessed emotions
- incapable of experiencing fear
- can be angry without knowing so
- never (or rarely) cries or laughs; never has temper tantrums
- cannot nurture self psychologically
- needs to shrink from displays of emotion by others

Social traits

- lacks the innate motivation to socialize
- unaware of feelings, needs, and interests of others
- no awareness of how perceived by others
- unaware of socially appropriate responses
- doesn't get subtleties; unable to take hints.
- no awareness of flirting

In conversation

- takes everything literally
- easier to monologue than dialogue
- oblivious to motivations of others while they are speaking
- doesn't pick up on sarcasm
- misses social cues and nonverbal communication
- participating in conversations with two or more others can be overwhelming
- may have difficulty following topic changes

In relationships

- understands what love is but cannot feel love
- cannot be emotionally available to others
- others cannot provide an emotional safety net

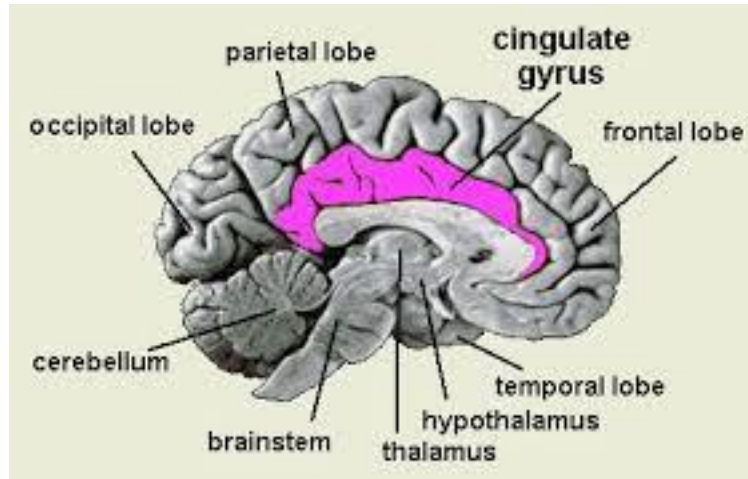
Temperament

- innate forthrightness tends to scare others
- never bored, always engaged in some mental activity
- consistent to daily routines; agitated if the routine is disrupted
- spontaneity not possible; activities need to be pre-planned
- cannot lie spontaneously; can tell only premeditated lies and prefers not to

Appendix B: Cingulate Gyrus

The cingulate gyrus (CG) is that part of the brain which focuses attention. Dysfunction of the CG is the suspected cause of hyperfocus, the perpetual state of intense single-minded concentration fixated on one thing at a time, to the exclusion of everything else. Hyperfocus appears to be the unique and defining characteristic of autism.

Hyperfocus causes under-functioning of the amygdala, the region of the brain which plays a central role in the processing of emotions, especially fear. An autistic person is incapable of experiencing fear.



Source: BrainMind.com

Appendix C: Differential Diagnosis

Differential diagnosis is distinguishing a specific condition from others that have similar clinical features. Based on similar behavior patterns, many with ADHD, OCD and even PTSD have been misdiagnosed as being autistic. However, the neurophysiological differences between autism and such other conditions can be profound. The neurology I am proposing for autism is that:

- a dysfunctional cingulate gyrus (CG) prevents a person from feeling any emotion, with the result that the amygdala is virtually non-functioning. An autistic person typically never experiences fear;
- the right frontal lobe in the autistic brain displays normal activity, with alpha frequencies (8-12 Hz) dominating over beta (12.5-30 Hz). However, a dysfunctional CG prevents access to this right brain activity; and
- the left frontal lobe in the autistic brain displays similar activity to the right frontal lobe, with alpha frequencies dominating over beta (opposite to the neurotypical brain). The dominant alpha frequencies are most probably compensating for the inability to access creativity from the right brain.

	Autism	PTSD	ADHD	OCD
Hyperfocus	hyperfocus ¹	n/a	fickle focus ²	fickle focus ²
	dysfunctional	functional	functional	functional

Cingulate Gyrus				
Amygdala	inactive	hyperactive	active	hyperactive
Left Frontal Lobe	high alpha activity	high alpha activity	high beta activity	high beta activity
Neurochemical Imbalance	n/a	n/a	low dopamine suspected	low serotonin suspected
Concentration	intense	poor	intense	intense
Distraction	never distracted	easily distracted	easily distracted	self-distracts
Social Aspects	unable to understand and respond to the needs of others	social skills unaffected by PTSD	poor social skills	may have social anxiety, fear of disapproval
Multitasking	unable to multitask	may be able to multitask	may be able to multitask	unable to multitask
Defense	n/a	avoidance	n/a	n/a

Emotional Effects	Incapable of feeling emotion. Processes emotions intellectually.	Resists memories of specific events that were emotionally devastating.	Can trigger intense emotions.	Compulsive behaviors may be attempts to relieve emotional stress.
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¹**Hyperfocus** is defined as perpetual and unrelenting attention fixated on one thought or stimulus at a time, to the exclusion of everything else.

²**Fickle focus** is defined as intervals of intensely paying attention interspersed with episodes of distraction or impulsiveness.