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How the Autistic Brain Processes Information

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Abstract

The cingulate gyrus (CG) of the autistic brain keeps attention perpetually fixated in the left frontal lobe (analytical, logical) with no ability to access the right frontal lobe (emotional, creative), which plays a central role in spontaneity, social behavior, and nonverbal abilities. Autistic people have no innate biologically provided ways of emotionally connecting with other people. Emotions and social adaptation are processed as information rather than as feelings. Autistic people process their emotions intellectually, a process that can take 24 hours, by which time it is impossible to have felt anything. Because autistic people do not feel emotion, they have no emotional reactions and no emotional memories. All memories are of events that happened about which they felt no emotion at the time, and about which they feel no emotion when telling someone about it afterward.

Keywords: Autism, Asperger, Asd, Neurophysiology, Neuropsychology

Introduction

Definition: Autism is perpetual and unrelenting hyperfocus, the state of intense single-minded concentration fixated on one thing at a time to the exclusion of everything else, including one's own emotions. The probable cause of hyperfocus is a dysfunctional cingulate gyrus (CG), that part of the brain, which focuses attention. [1]

Description: Autism is an inherent neurophysiological difference in how the brain processes information. Autistic people live in a specialized inner space that is entirely

intellectual, free from emotional and social distractions. They observe the world in detail without feeling any emotional attachment to what they see. [1]

Autism is a neurophysiological idiosyncrasy. The only thing different about an autistic brain is the specialized way in which it processes information. As such, autism does not fit the medical definition of *disorder* (i.e., pathological or diseased condition of mind or body). Michelangelo, Mozart, Paganini, Newton, Darwin, Jefferson, Edison, Tesla, and Einstein were autistic and obviously not suffering from any mental pathology. [1]

Historical Research

Autism, from the Greek word meaning self, was coined in 1911 by Swiss psychiatrist, Eugen Bleuler, who used it to describe withdrawal into one's inner world.[2] Autistic children appear to be in a world of their own, isolated and alone with senses that can easily overload. These children talk endlessly about one subject, engage in repetitive behaviors (e.g., wringing hands, rocking body), continually repeat certain words or phrases (echolalia), and are resistant to change. [3]

In 1943, psychiatrist Leo Kanner studied the case histories of 11 highly intelligent children who shared a common set of symptoms consistent with autism: the need for solitude, the need for sameness, and to be alone in a world that never varied.[4] Kanner assumed that these children came into the world without innate biologically provided ways of emotionally connecting with other people.[5]

In 1944, medical professor Hans Asperger described "a particularly interesting and highly recognizable type of child" who has an autistic personality that is an "extreme variant of

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male intelligence." Asperger described four boys who had severe difficulties of social integration that were compensated for by the kind of high level of thought or experience that can lead to exceptional achievements in later life. He chose the label autism for this condition as referring to an inherent fundamental disturbance of contact, the shutting off relations between self and the outside world. Asperger remarked that for those boys, social adaptation has to proceed via the intellect; and in fact, they have to learn everything by the intellect. He considered the autistic syndrome to be a stable personality trait that is genetically transmitted in families. [6]

In 1979, psychiatrist Lorna Wing introduced the term *Asperger syndrome* to describe the autistic personality. Wing personally examined 34 cases fitting Asperger's description of the autism syndrome and found that they had the following 11 traits in common: **[7]**

- Single-mindedness combined with social isolation;
- Pedantic speech, often consisting of lengthy discourses on favorite subjects;
- Poor comprehension of other people's expressions and gestures;
- Tendency to misinterpret or ignore non-verbal signs;
- Impairment of two-way social interaction;
- Inability to understand rules of social behavior;

- Lack of the intuitive ability to adapt their approaches to fit in with the needs of others;
- Intensely attached to certain possessions;
- Excellent rote memories and intensely interested in one or two subjects;
- Absorb every available fact concerning their chosen field and talk about it at length, regardless if the listener is interested; and
- Thought processes are confined to a literal and logical chain of reasoning.

In 2020, David Rowland discovered that autism is caused by an inherent neurophysiological idiosyncrasy that creates a state of perpetual hyperfocus, which he defines as intense mental concentration fixated on one thought pattern at a time to the exclusion of everything else, including one's own feelings.[8] Hyperfocus is the sole factor responsible for the autistic person's withdrawal into an inner space that is entirely intellectual. Hyperfocus keeps a person's awareness fixated in the analytical/logical left frontal lobe of the brain with no ability to access whatever may be happening in the right frontal lobe, the place where emotions and social connectivity are felt. Hyperfocus explains all 11 traits of Asperger syndrome as listed by Lorna Wing above.



The neurological structure of the autistic brain is the same as for any other brain. What is different about the autistic brain is how it functions with respect to its neurophysiology.

Table 1: Autistic

Neurophysiology

Cingulate	Dysfunctional	The cingulate gyrus (CG) is that part of the brain which focuses attention. In autism, the CG	
Cortex/Gyrus		keeps the person's attention trapped in the left frontal lobe, creating a perpetual state of	
		hyperfocus.	
Left Frontal	Dysregulated	In the autistic left frontal lobe, alpha frequencies (8-12 Hz) predominate over beta (12.5-30	
Cortex/Lobe		Hz), which is the exact opposite of the neurotypical brain. Higher alpha frequencies in the left	
		brain appear to be compensating for the inability to access creativity and intuition from the	
		right brain.	

Neurophysiology of the Autistic Brain

Right Frontal	Inaccessible	There is normal brainwave activity in the right frontal lobe, with alpha frequencies	
Cortex/Lobe		predominating over beta. However, neural networks may be underdeveloped. The autistic	
		person is completely unaware of anything that happens in his/her right frontal lobe, the place	
		where emotions and social connectivity are experienced by neurotypical people.	
Amygdala	Inactive	The amygdala plays a central role in the expressing of emotions, especially fear. A	
		dysfunctional CG prevents the autistic person from feeling any emotion, with the result that	
		the amygdala is non-functional. An autistic person never experiences fear.	

In a neurotypical brain, the cingulate gyrus (CG) acts like an automatic transmission that seamlessly switches attention back and forth between frontal lobes, as needed. In autism, a dysfunctional CG keeps the person's attention trapped in the left frontal lobe (logical/analytical) – with no ability to access the right frontal lobe (emotional/creative), which plays a central role in spontaneity, social behavior, and nonverbal abilities. Some neurotypical people are left-brain dominant whereas others are right brain dominant. Autistic people, however, are left brain exclusive. They speak factually, in a monotone voice, and with an expressionless face.[**8**]

The right frontal lobe, the place where emotions are experienced, is inaccessible to autistic people. The amygdala, the place where emotions are expressed, is inactive in the autistic brain. These facts are consistent with Leo Kanner's belief that autistic children come into the world without innate biologically provided ways of emotionally connecting with other people. [5]

In a neurotypical brain, the amygdala processes emotions associated with fear and stores emotional memories. When faced with a dangerous situation, the amygdala sounds an alarm that sets off a chain of events: hormones course through the body, pupils dilate, heartrate increases, and the body experiences a *fight or flight* reaction. In extreme situations, all nervous energy goes to the amygdala, which runs totally on instinct and emotion; and that part of the brain which uses logic shuts down completely. In the autistic brain, none of this happens because the amygdala is nonfunctional. In every dangerous situation, the autistic person is fully focused on the event itself and is incapable of feeling fear. [9]

Autistic Fearlessness

Autistic people have no involuntary fear response. Innate fearlessness makes autistic children oblivious to danger. In life-threatening situations, the autistic adult is fully focused on the event itself and incapable of feeling fear or even nervousness in that moment. She or he feels a mildly heightened sense of awareness while coldly calculating risks and mitigating factors that quickly form an immediate plan of action. The author of this article is autistic and in his entire life, including 17 years of experience in martial arts, has never once felt fear of any kind.[1] He has never had a fight-orflight reaction and has no awareness of how that could feel. Sometimes autistic people may intellectualize about fear, for example saying that after thinking about such-and-such decided it could be a scary thing. However, they are incapable of experiencing any actual fear. If you encounter someone who has never felt fear, this person is most probably locked into autistic hyperfocus. [1]

Litmus Test

Hyperfocus is the unique and defining causal state of autism that creates all of its observed characteristics. Hyperfocus prevents someone from dividing attention between two thought patterns or two stimuli at the same time. An autistic person talking to you is incapable of feeling any emotion in that moment. The surest way to find out if someone is autistic is to ask these five questions, to which you will receive the following responses. [1]

1.	How often do you cry?	"never" or "rarely"
2.	How often do you laugh?	"never" or "rarely"
3.	What are you afraid of?	"nothing" or an intellectual answer
4.	What are you feeling now?	"nothing" or an intellectual answer
5.	Do you ever get bored?	"never"

Example of an intellectual answer: "No, I'm not angry. That wouldn't be logical."

Anyone who answers all five questions as above is autistic. Anyone who answers four or fewer as above is not autistic. **50 Autistic Traits Have a Single Cause** Hyperfocus is the unique cause for all 50 of its observed traits listed below. Hyperfocus is the perpetual and unrelenting state of intense single-minded concentration fixated on one thought pattern at a time, to the exclusion of everything else. All 50 of these traits are caused by the inability to run two mental programs simultaneously. [1]

Table 2: 50 Autistic Traits Caused by Hyperfocus

Mental Traits	Intense single-mindedness	
	•	Trapped in thoughts, mind always busy

	•	Tends to overthink everything
	•	Passionately pursues interests, often to extremes
	•	Amasses encyclopedic knowledge about areas of interest
	•	Self-awareness but no social awareness
	•	Interruptions trigger agitation, confusion, or anxiety
	•	Cannot multitask
Sensory Overload	•	Hypersensitive to loud noises and bright lights
	•	Sensory assaults can trigger physiological anxiety
	•	Overwhelmed from hearing unwanted conversations
	•	Overwhelmed by too much information
	•	Sensory overload makes it impossible to think or focus
	•	Difficulty listening to radio or talking with others while driving
Emotional Traits	•	Biologically incapable of feeling emotion
	•	Incapable of emotionally reacting to anything
	•	Processes emotions intellectually
	•	May have physiological responses instead of emotions
	•	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
	•	Cannot nurture self psychologically
	•	Shrinks from emotional displays by others
	•	Unable to defend against emotional attacks
Social Traits	•	Considers self to be an outsider
	•	Lacks innate ability to socialize
	•	Unaware of feelings and needs of others
	•	Oblivious to how perceived by others
	•	Unaware of socially appropriate responses
	•	Cannot pick up on subtleties, unable to take hints
In Conversation	•	Cannot stand small talk
	•	Interested only in information
	•	Content of conversation important, context irrelevant
	•	Speaks factually, without emotion
	•	Takes everything literally
	•	Easier to monologue than dialogue
	•	Misses social cues and nonverbal communication
	•	Participating in 3-way conversations may be overwhelming
I D L (° L °	•	May have difficulty following topic changes
In Relationships	•	Understands love intellectually but cannot feel love
	•	May understand empathy but unable to feel it
	•	Cannot be emotionally available to others
T+	•	Others cannot provide an emotional safety net
Temperament	•	Drawn more strongly to certain things than to people
	•	Innate forthrightness tends to scare others
	•	Never bored, always engaged in mental activity
		Consistent to daily routilies, agriated if routilie is disturbed
	•	Spontanenty not possible; activities must be pre-planned
	•	Cannot he spontaneously; can tell only premeditated lies

Intellectual Processing

Autistic people live in an inner space that is entirely intellectual.[11] They learn everything by the intellect, including social adaptation.[6]

This inner space is logical and analytical. Thinking is in black-and-white terms (e.g., something is either true or it is not, a theory either makes sense or it does not). The autistic mind is on a continual quest for information about topics of interest. These people engage in conversation for the sole purpose of exchanging information.

Emotions as Information

Autistic people have no innate biologically provided way of emotionally connecting with other people. [5] They process their emotions intellectually, a process that can take 24 hours, by which time it is too late to have felt anything. Physiological anxiety warns of an unprocessed emotion. Identifying and naming the emotion in question instantly relieves the anxiety. [10]

Emotions are processed by the autistic brain as information. Because autistic people do not feel emotion, they have no emotional reactions and no emotional memories. All memories are of events that happened about which they felt no emotion at the time, and about which they feel no emotion when telling someone about it afterward. [9]

Sensory Processing

Autistic people focus their eyes on what is directly in front of them and pay no attention to their peripheral vision. When walking forward, they see where they are going but tend to be oblivious to where they are stepping or to low doorways. They trip, fall, and bang their heads more frequently than do neurotypical people.

Autistic people can be subject to visual overload. Seeing too many words on a page may cause the person's mind to go disturbingly blank. Seeing too many products on shelves may trigger anxiety. Bright lighting displays in stores may trigger intense anxiety.

Autistic people have hypersensitive hearing that subjects them to sensory overload from hearing unwanted conversations and from background noises. Sudden loud noises may trigger anxiety.

Some autistic people are hypersensitive to touch. Rough textures and close-fitting clothing flood the brain with more information than it can process. Hugs are unbearable to these people.

Conclusions

What is different about the autistic brain is how it processes information. Hyperfocus keeps the person's attention fixated in the left frontal lobe (analytical, logical) with no ability to access the right frontal lobe (emotional, creative), which plays a central role in spontaneity, social behavior, and nonverbal abilities. Autistic people have no innate biologically provided ways of emotionally connecting with other people. Social adaptation proceeds by the intellect.

Autistic people process their emotions intellectually; a process that can take 24 hours, by which time it is too late to have felt anything. Physiological anxiety warns of an unprocessed emotion. Identifying and naming the emotion in question instantly relieves the anxiety.

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