

Modern day Autism in human society.

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1. Intro

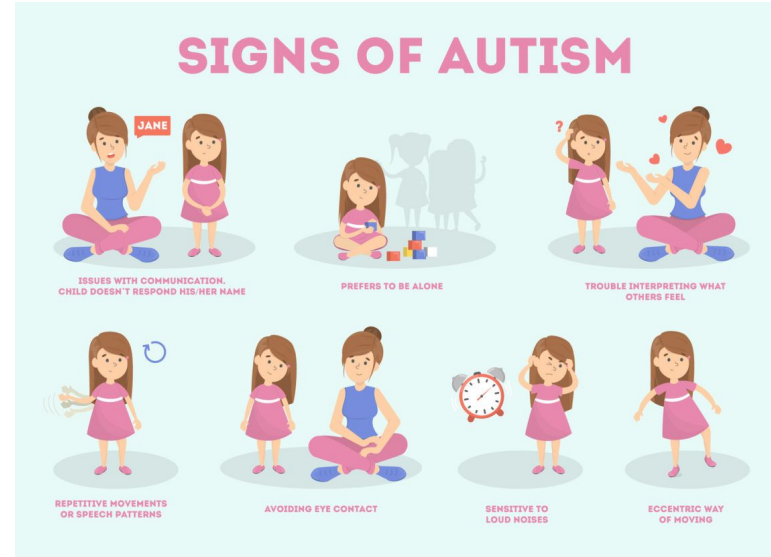


1. Intro



2. Sociological Aspects on ASD: Symptom

- Def-Neurological & Developmental disorder
- Symptoms
 - a serious impediment to language development and communication.
 - repetitive and homogeneous behavior
 - disability of interpersonal and social development



3. Scientific Aspects on ASD: Evidence

1. More than half of autistic children show brain waves abnormalities
2. Physiological awakening mechanisms are different
3. In identical twins, both autistic or autistic siblings show autism more often than ordinary children.

What causes autism?

There is no known single cause of autism, but host of factors are thought to contribute to it. *They include;*



Abnormalities in the brain structure or function.



Heredity (Autism may have a genetic component)



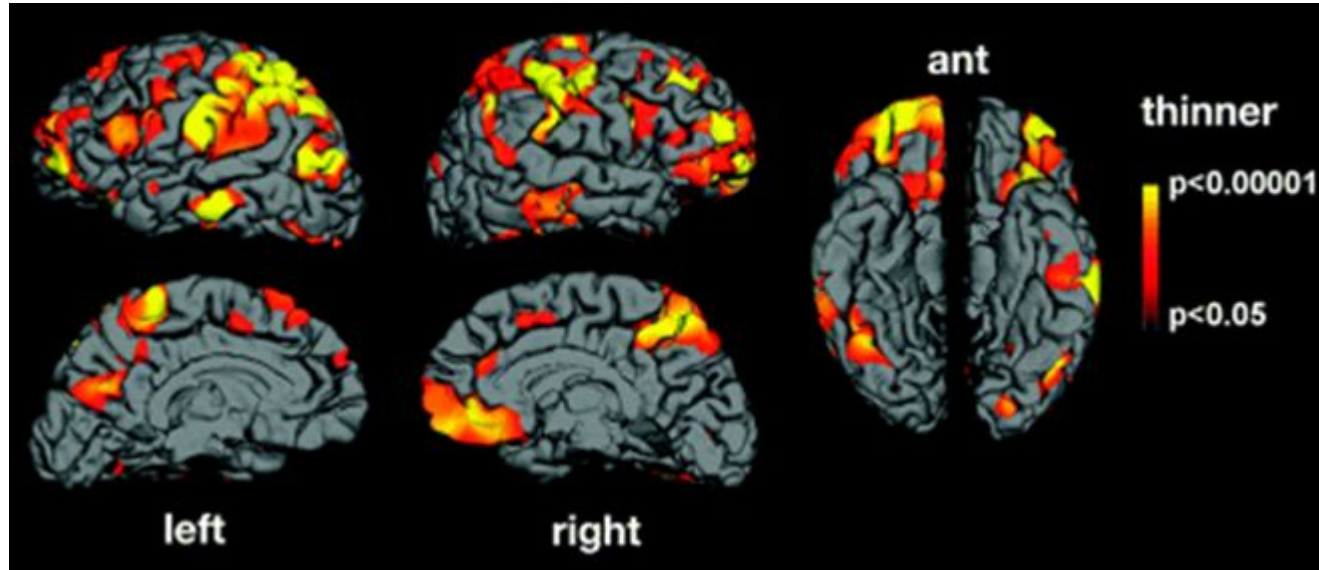
Certain conditions, including Fragile X Syndrome, tuberous sclerosis.



Environmental factors, such as exposure to toxins like mercury.

3. Scientific Aspects on ASD:Neuroscopic Approach

Difference in cerebral cortex thickness

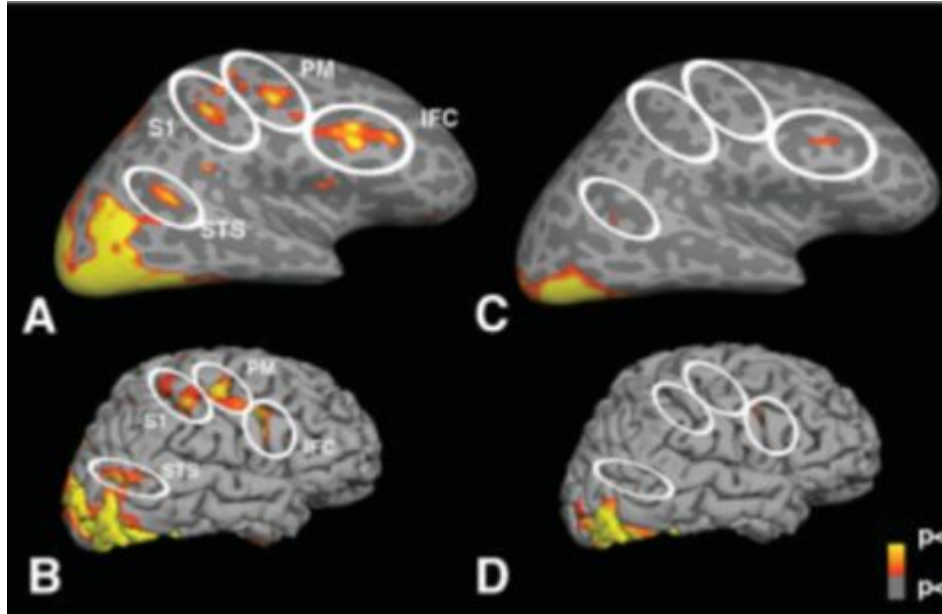


This area contributes to the

1. Creation of facial expression cognition,
2. Imitation
3. Social cognition.

3. Scientific Aspects on ASD:Neuroscopic Approach

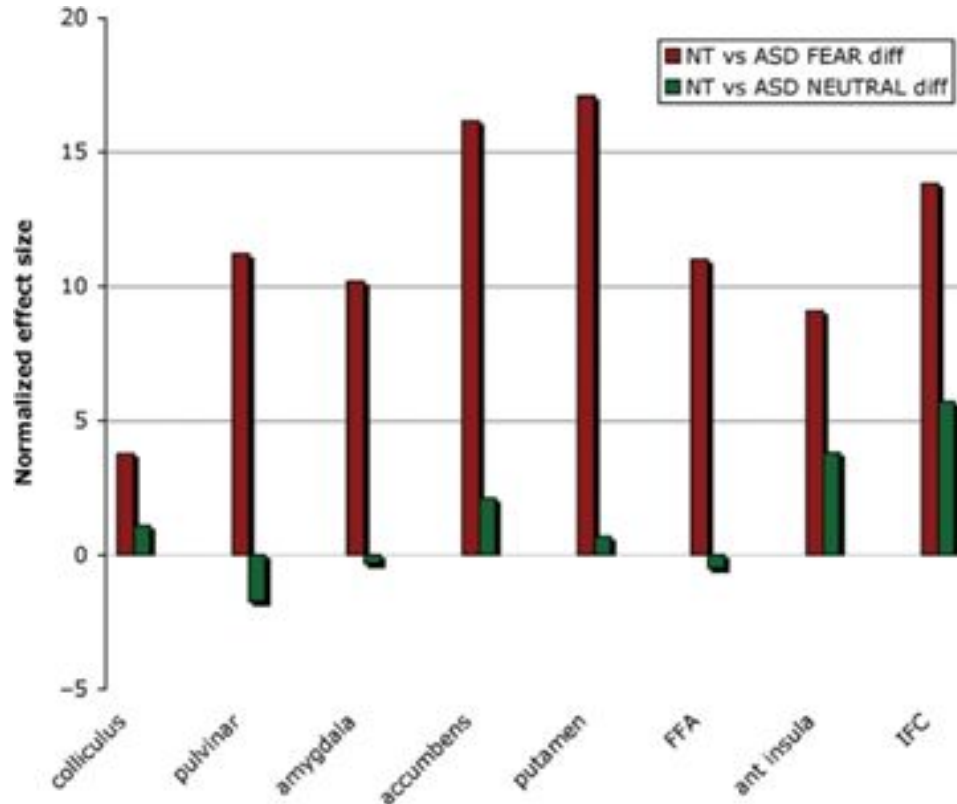
Difference in Emotional condition



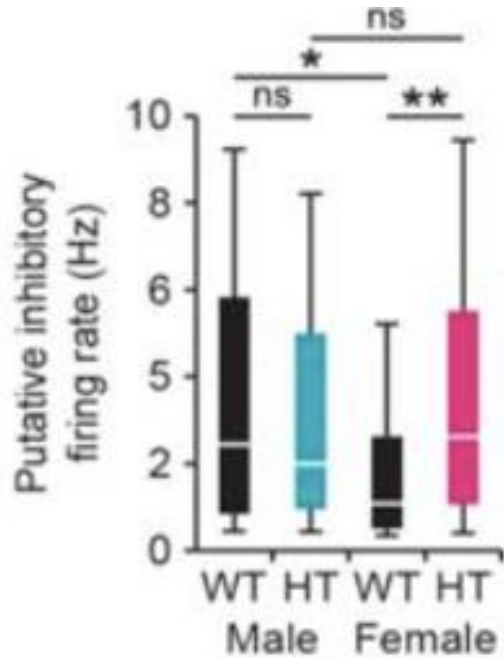
A&B:
several parts related to facial
recognition are observed to be
activated

C&D:
observed to have lost several
areas of activity compared to
normal people.

3. Scientific Aspects on ASD:Neuroscopic Approach



3. Scientific Aspects on ASD: Male vs Female



Female protective effect:

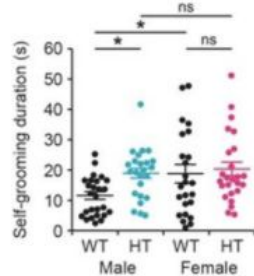
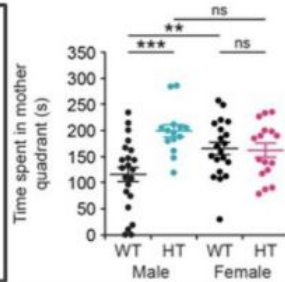
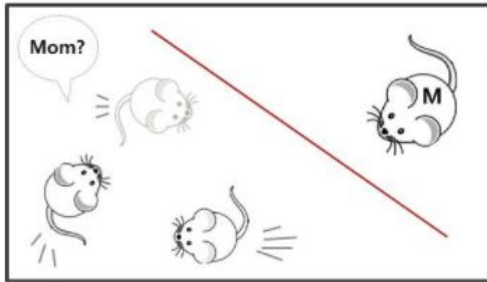
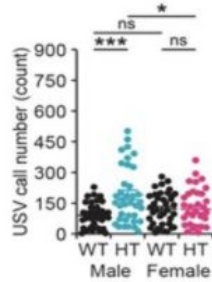
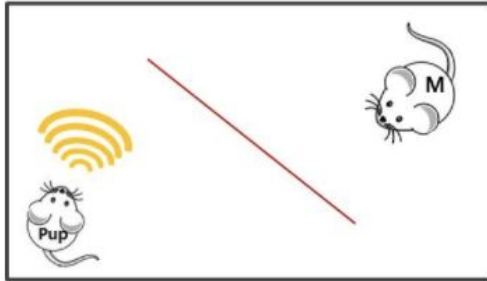
Shows more effectiveness against autism

Frequency: Female > Male

Activation of Excitatory Neurons:

Male > Female

3. Scientific Aspects on ASD: Male vs Female



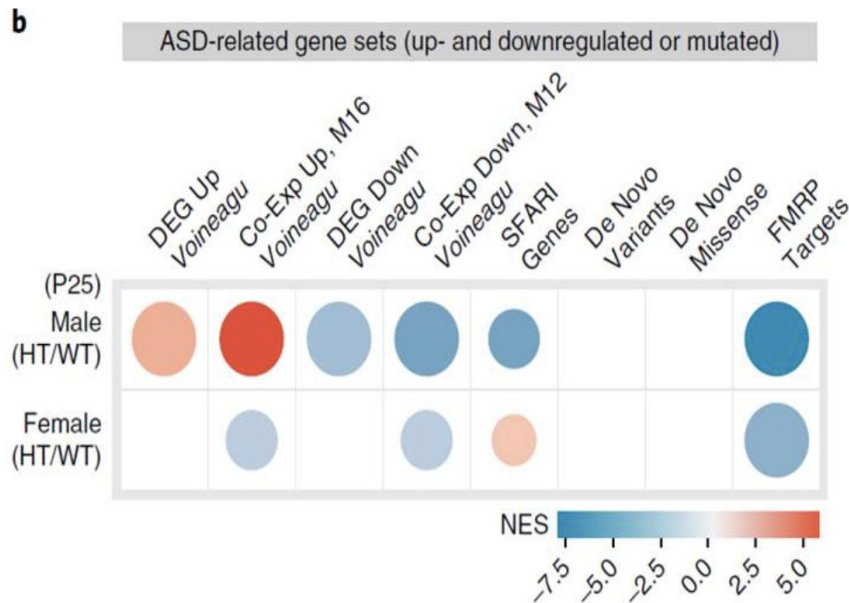
Behavior Analysis Experiment

Result:

Male mice showed more anxiety

3. Scientific Aspects on ASD: Male vs Female

Gene Comparison analysis



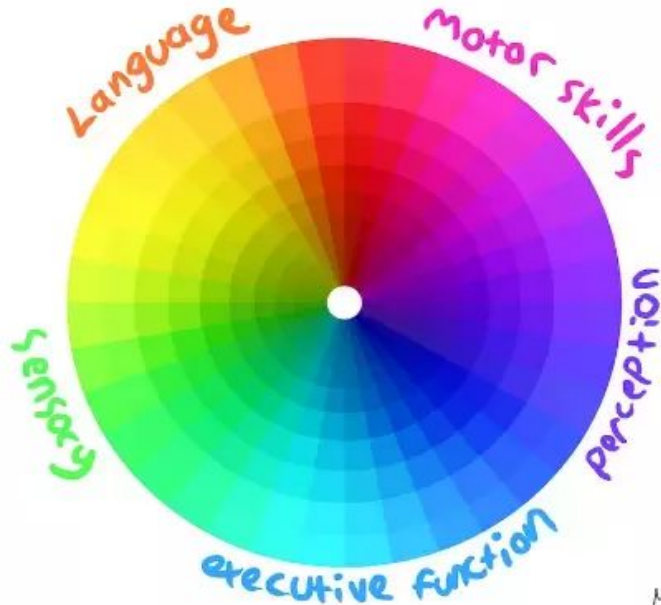
4. Different diagnostics of autism

What does the autism spectrum look like?



What should we know about the Autism Spectrum Disorder?

- People with autism may share common symptoms but they're still not the same.
- Since autism isn't same for everyone, we cannot directly compare individuals.
- Each individual with ASD has their own unusual characteristics and each has their own hardships.



Circular spectrum by
Rebecca Burgess
Montage @sciencebase

Autism Spectrum Disorder



Autistic disorder



Asperger's Syndrome (SD)



**Pervasive Developmental
Disorder - Not Otherwise
Specified (PDD-NOS)**

Autistic disorder → The classical autism that people imagine when they hear the word “autism”

Common characteristics	
Social and communication challenges	Very common
Echolalia	Very common
Unusual, repetitive, (aggressive) behaviors	Very common
Unusual Interests	Very common
Physical clumsiness	Very Common (depends on type)
Sensory response problem	Very Common (depends on type)
Intellectual disability	Very Common (Can vary from very low to slightly below normal)

MEASURED INTELLIGENCE

Intellectual disability ————— Gifted

SOCIAL INTERACTION

(Making eye contact, enjoying interaction with others, etc.)

Not interested in others ————— A variety of friendships

COMMUNICATION

(Using words correctly to communicate)

Nonverbal ————— Verbal

BEHAVIORS

(Repetitive behaviors, unusual behaviors such as hand flapping, etc.)

Intense ————— Mild

SENSORY

(Response to touch, smell, sound, taste, and feel)

Not very sensitive ————— Very sensitive

Pain Sounds

MOTOR

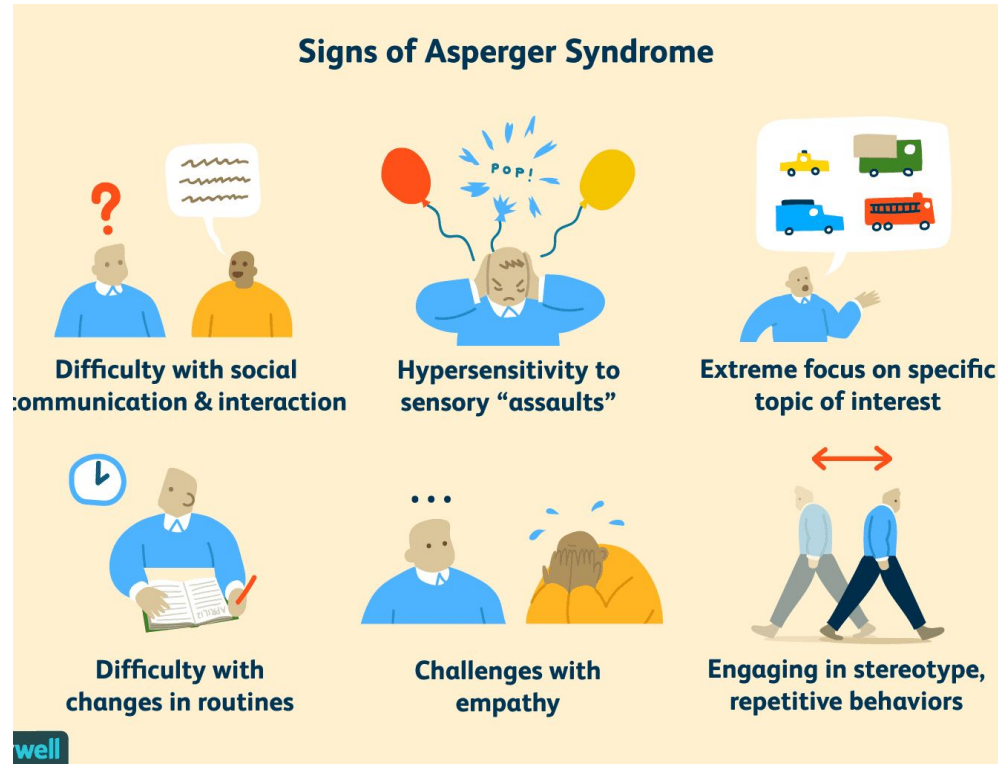
(Gross motor, such as walking)
(Fine motor, such as using fingers to grasp a small item)

Uncoordinated ————— Coordinated

Fine Gross

Asperger's syndrome - The high-functioning end of the ASD

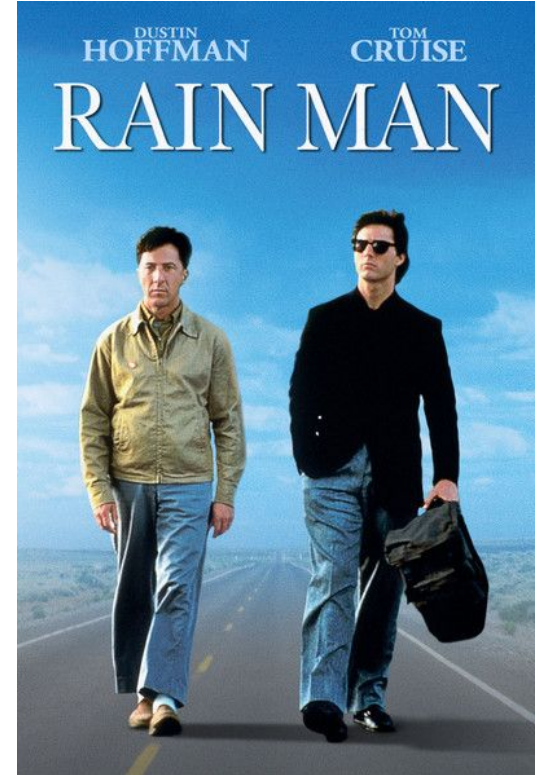
- Average to high intelligence
- Difficulty with social interaction; social anxiety
- Hypersensitivity to sensory "assaults"
- Difficulty with changes in routine
- Specialized interests and extreme focus on them
- Are detail oriented and have good memory, especially for facts in their area of interest
- Engage in stereotypical repetitive behaviors.
- Physical clumsiness



An interesting facts about the Asperger's

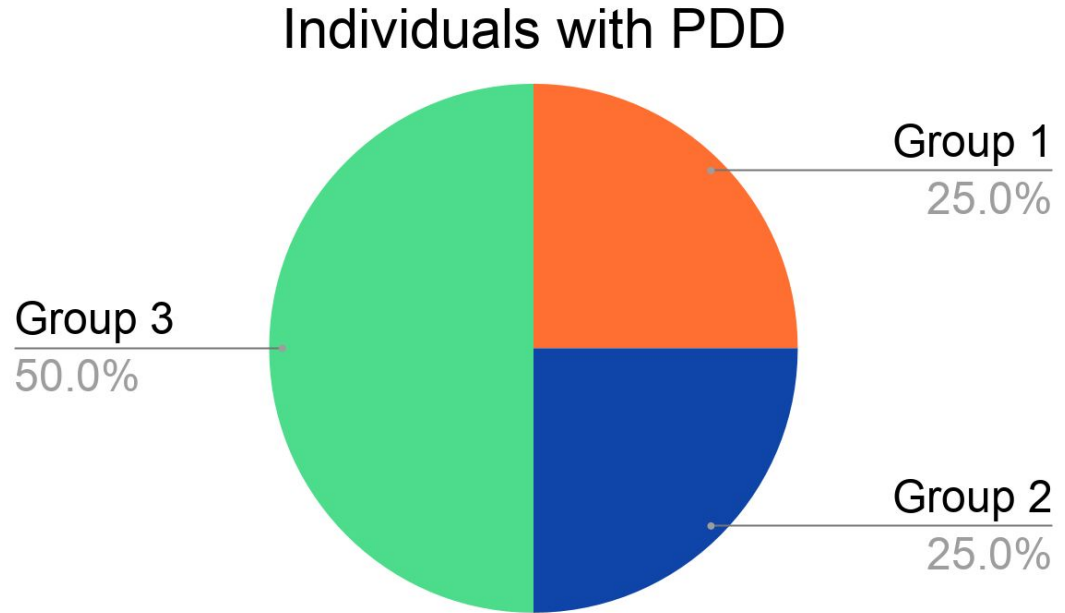
The disorder is sometimes nicknamed "geek syndrome" or "little professor syndrome."

Approximately 10% of people with ASD have special "savant" skills, such as Dustin Hoffman portrayed in the film "Rain Man".



Pervasive Developmental Disorder-Not otherwise Specified (PDD-NOS)

1. Group 1 (25%) - the high functioning group
2. Group 2 (25%) - some but not all symptoms resemble autistic disorder.
3. Group 3 (50%) - meet all criteria for AD, except repetitive and stereotypical behaviors are mild.



5. Treatments of autism

Treatments of autism

1. There is no one standard treatment for autism.
2. ASD is diagnosed based on the presence of multiple symptoms.
3. Scientists agree that early interventions can make significant differences.
4. Effective programs focus on developing communication, social and cognitive skills.
5. Currently there are no approved drugs that target core features



Treatments of autism

Therapies	Medications
Applied Behavior Analysis (ABA)	Stimulants
Speech Therapy	Anticonvulsants
Occupational Therapy	Anti-anxiety medications
Physical Therapy	SSRIs
Other Specialized Therapies	Psychoactive or antipsychotic medications

Treatments of autism

- **Applied Behavior Analysis (ABA)** is a therapy based on the science of learning and behavior.
- The goal is to increase helpful behaviors and decrease behaviors that are harmful or affect learning.
- **ABA** therapies:
 1. Increase language and communication skills
 2. Increase attention, focus, social skills, memory, and focus
 3. Decrease problem behaviors.



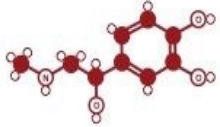
Treatments of autism

- **Speech therapy:**
 - For children with **echolalia**.
 - Speech therapy with a licensed speech-language pathologist helps to improve a person's communication skills.
- **Occupational Therapy (OT):**
 - often used as a treatment for the sensory integration issues associated with ASDs
 - skills that involve fine-motor movements, such as dressing, using utensils, cutting with scissors, and writing
- **Physical Therapy (PT):**
 - Physical therapy is used to improve gross motor skills and handle sensory integration issues, particularly those involving the individual's ability to feel and be aware of his body in space.



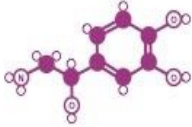
Treatments of autism

ADRENALINE



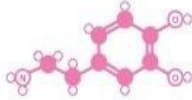
Fight or flight
neurotransmitter

NORADRENALINE



Concentration
neurotransmitter

DOPAMINE



Pleasure
neurotransmitter

SEROTONIN



Mood
neurotransmitter

GABA



Calming
neurotransmitter

ACETYLCHOLINE



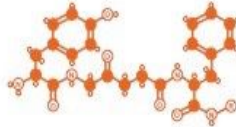
Learning
neurotransmitter

GLUTAMATE

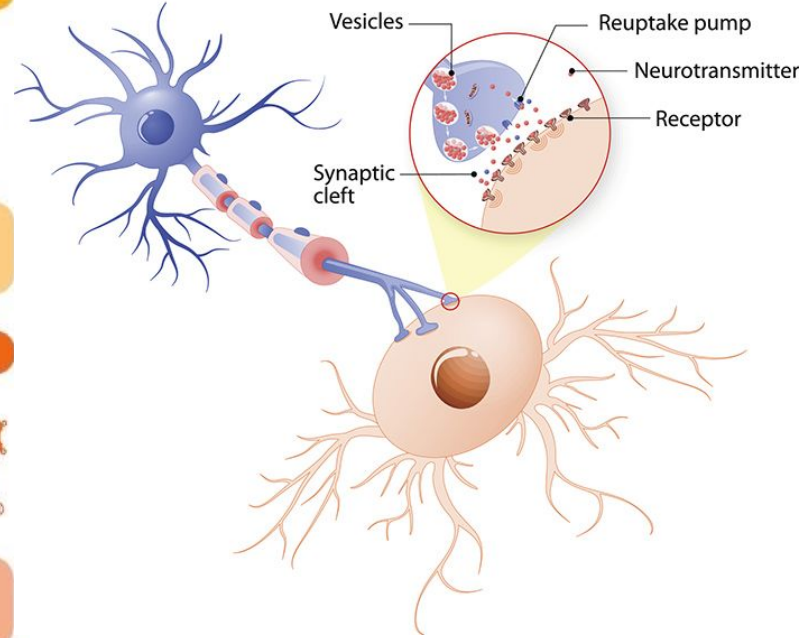


Memory
neurotransmitter

ENDORPHINS



Euphoria
neurotransmitter



Treatments of autism

What are stimulants?

Stimulants are drugs that temporarily increase mental or physical function or both (Ex: dexamphetamine and methylphenidate) These are also used for people with ADHD.

What are stimulants used for?

Stimulants are used to improve difficulties with attention, impulsivity and hyperactivity.

What is the idea behind stimulants?

Stimulant medications increase levels of a brain chemical called dopamine.



dopamine levels can help control impulsivity, hyperactivity and inattention.

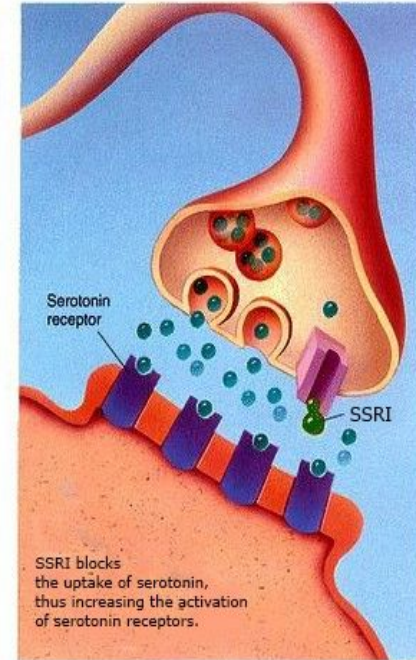
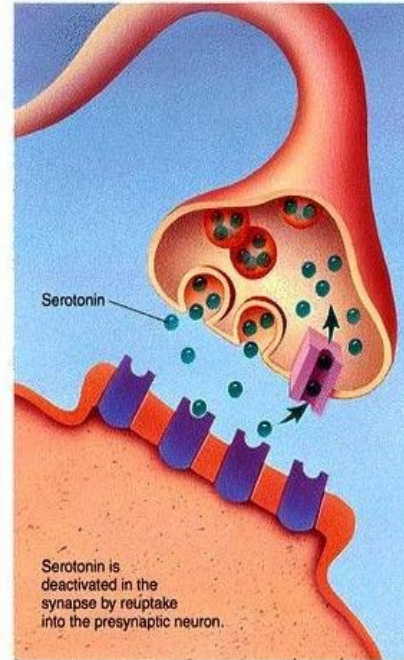
Effects: enhanced alertness, wakefulness and energy. etc.

Warnings: This therapy requires careful monitoring of effectiveness and side effects. In some people, it can increase repetitive movements, decrease appetite and disturb sleep.



Treatments of autism

Type	Might help by
Anticonvulsants	reducing seizures and seizure disorders
Anti-anxiety medications	relieving anxiety and panic disorders
Selective Serotonin reuptake Inhibitors	reducing frequency and intensity of repetitive behaviors; decreasing anxiety, irritability, tantrums, and aggressive behavior; and improving eye contact.
Psychoactive or Antipsychotic Medications	decreasing hyperactivity, reducing stereotyped behaviors, and minimizing withdrawal and aggression among people with autism.



The first and best step is to consult a specialist as early as possible...

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Thank you for attention!