# INTERVENTIONAL STRATEGIES FOR CHILDREN WITH SPEICAL NEEDS

## AUTISM SPECTRUM DISORDER

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# WHAT IS AUTISM ?

Autism is a neuro developmental disorder which impacts how a person thinks, learns and experiences the world

- Do not adapt easily to changes
- Like sameness
- Engage in repetitive behaviour
- May have highly developed interests
- Show a liking or aversion to sensory stimuli
- May experience sleep problems
- Benefit from routines

# LATEST CDC DATA

Recently **o**n April 26, 2018, the Centers for Disease Control and Prevention (CDC) released new data on the prevalence of autism in the United States, which puts the figure of autism as <span style="color:red">1 in 59</span>. **Now the latest report has the data as 1 in 54**

CNN Health in its report on May 11, 2020 states that the first U S study of Autism in adults estimates that 2.2.% have ASD

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# WHAT ARE INTERVENTIONS FOR AUTISM SPECTRUM DISORDER?

- Intervention means doing something, taking action or using a treatment to try to improve a particular condition or problem.

- When it comes to autism spectrum disorder (ASD), there are many kinds of interventions.

- Different interventions might involve children, parents or both. They might be one-off events or involve many sessions spread over years.

**What types of interventions are there?**

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There's a huge range of interventions for ASD. They range from those based on behaviour and development to those based on medicine or alternative therapy. Some interventions combine several different types – for example, a mix of behavioural and developmental approaches.

- Interventions are based on different theories about the causes of ASD. These theories guide the approach taken, so hearing the theory behind an intervention helps you understand what it's trying to do. For example, a theory about chemical imbalance in the body leading to ASD might lead to a therapy involving taking prescribed drugs or making changes in diet to address the imbalance.

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# SOME THOUGHTS !
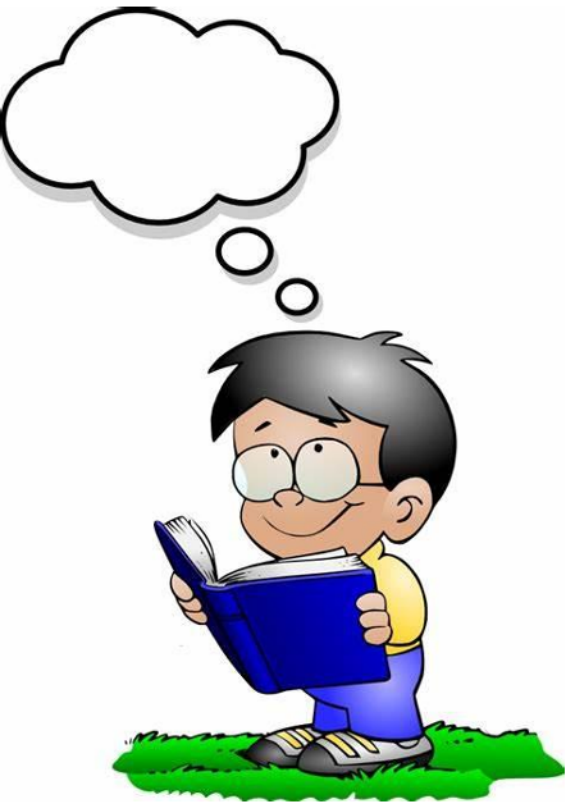
- An effective intervention demands scientific parameters

- individuals diagnosed with Autism poses a great number of challenges in improving their quality of life.

- Though there are many interventions coming up, for that matter if you search in Google about interventions in Autism, there are many lacking support from the scientific fraternity.

- Parents and professionals – difficulty in formulating an opinion about scientific validity of the intervention (Simpson, R.L 2005)
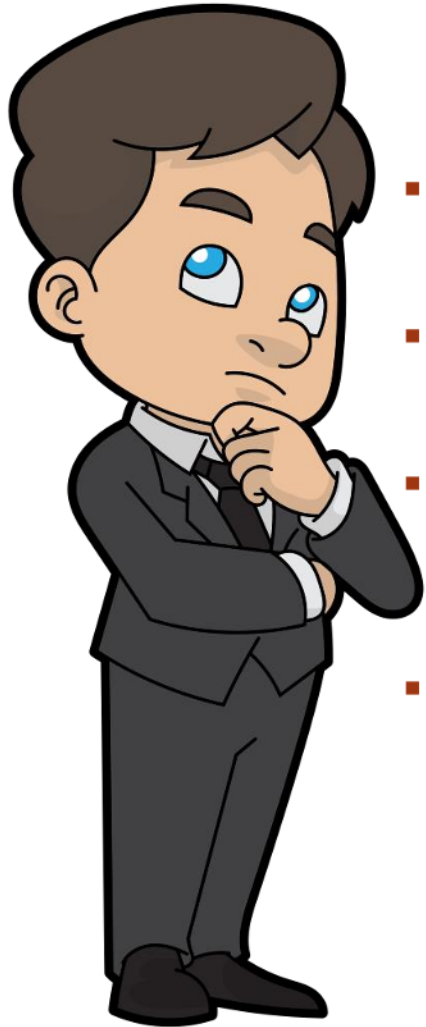
# WHAT IS EBP ?
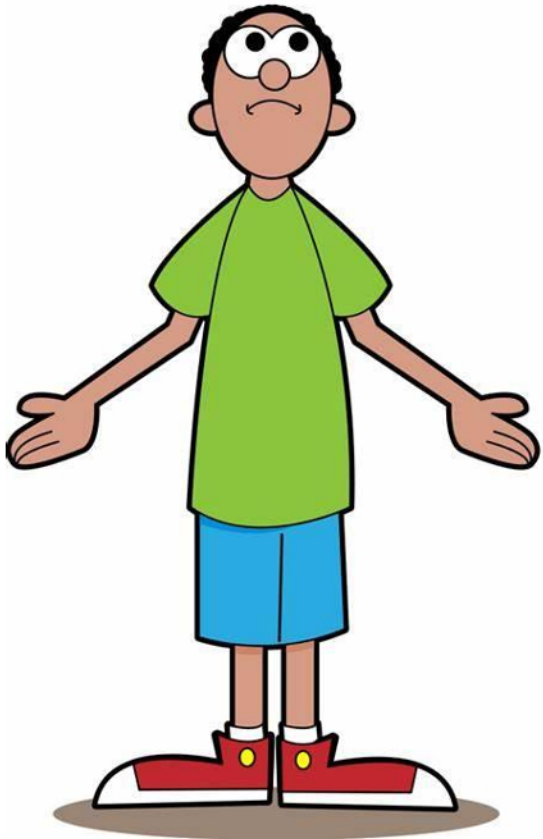
- Conceptualization, ideals, guidelines – emerged first in the Medical field as EBM
- EBP ➡ Social Sciences (Concept adopted & Expanded to match the ideologies)
- Though many Practitioners were contend with EBP but on survey found that practitioners face many barriers in EBP

# CHALLENGES FACED IN PROVIDING EBIS

- Providing services to this growing population of students who have a plethora of unique needs can be challenging for schools, administrators, and teachers **(Constable S, Grossi B, Moniz A, & Ryan L. 2013)**

- procedural implementation fidelity (the degree to which a treatment is implemented as prescribed) **(Stahmer et.al. 2015)**

- evidence-based practices for children with autism in community settings is the complexity of these practices **(Stahmer et.al. 2015)**

- Some strategies, are highly structured and occur in one-on-one settings, while others are naturalistic, can be conducted individually or during daily activities, and tend to be more complex to implement **(Stahmer et.al. 2015)**

- the evidence can only indicate, and not prescribe indications of interventions for the educational field. The teacher is the one who should judge which practices could work best in his school with his student, adapting them from his educational experience **(Lubas et.al. 2015)**

# BEHAVIOURAL INTERVENTIONS

Behaviour-based approaches to autism spectrum disorder (ASD) focus on teaching children new behaviours and skills by using specialised, structured techniques. These techniques are the best teaching tools for developing skills and encouraging appropriate behaviour.

Behaviour-based approaches are probably the most studied and best supported by evidence and research. Therefore, they're the most commonly used type of intervention for children with ASD. Interventions using an Applied Behaviour Analysis (ABA) approach are particularly common and well supported.

There's still some discussion about different behaviour-based interventions and how the research on them should be interpreted. For example, it isn't always clear whether the research is claiming that the intervention has led to 'recovery' or to a reduction in symptoms.

# EXAMPLES OF BEHAVIOUR-BASED INTERVENTIONS INCLUDE

- Discrete trail training (DTT)
- Incidental teaching
- Lovaas programme
- Pivotal response treatment (PRT)
- Positive Behaviour Support (PBS)

# DEVELOPMENTAL INTERVENTIONS

Developmental approaches to autism spectrum disorder (ASD) aim to help children form positive, meaningful relationships with other people. They focus on teaching children social and communication skills in everyday, structured settings. They also aim to help children develop skills for daily living.

Studies on small parts of some of these interventions have shown potentially positive results.
Developmental interventions are sometimes called 'normalised' interventions.

Examples of developmental interventions include:
- Developmental social-pragmatic (DSP) model
- DIR®/Floortime®
- Relationship Development Intervention® (RDI®)
- Responsive teaching.

# COMBINED/HOLISTIC INTERVENTIONS

Some approaches combine elements of behavioural and developmental methods, and also use new information about autism spectrum disorder (ASD) and typical development.

Often a combined approach is the most effective, because it brings together characteristics of several good interventions. For example, any behavioural intervention will be much more effective if it's also family-based.

Examples of combined interventions include:
• Early Start Denver Model
• SCERTS® Model
• TEACCH.

# FAMILY-BASED INTERVENTIONS

Family-based interventions for autism spectrum disorder (ASD) emphasise the idea that family involvement in therapy is central to meeting children's developmental needs. In particular, parents not only drive the decision-making about interventions, but they also take a key role in delivering them.

These interventions are designed to provide guidance, training, information and support to family members.

Research on how well family-based interventions work is limited but growing. The success of these interventions depends on having strong and collaborative parent-professional relationships. Their effectiveness also relies on addressing the needs of the whole family, so that everyone in the family benefits, not just the child with ASD.

An example of a family-based intervention is the More Than Words® program.



**Welcome to More Than Words**

A Hanen Certification Workshop

# EXAMPLES OF EVIDENCE-BASED PRACTICES BASED ON A RECENT RESEARCH REPORT BY THE FRANK PORTER GRAHAM CHILD DEVELOPMENT INSTITUTE, USA

- Video modeling
- Social stories
- Visual supports
- Routines

Early Childhood Inclusion at the Frank Porter Graham Child Care Program:

A Collaborative and Routines-Based Approach

SINCE 1966
50 YEARS

FRANK PORTER GRAHAM
Child Development Institute

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# THERAPY-BASED INTERVENTIONS

Therapy-based approaches to autism spectrum disorder (ASD) provide a specific therapy that targets specific difficulties.

Examples include using:
•speech therapy to develop a child's communication and social skills
•occupational therapy to develop skills for daily life, including physical skills.
Therapy-based approaches are often used together with, or as part of, other intervention programs.

Examples of therapy-based interventions include:
•Functional Communication Training (FCT)
•Sign language
•Picture Exchange Communication System (PECS).

# MEDICAL INTERVENTIONS

Every now and then, you'll hear about a new 'miracle cure' for autism spectrum disorder (ASD). So far there is no medicine proven as a cure for ASD. Rather, most medication is used to improve, but not necessarily remove, problems that are sometimes seen in children with ASD. The problems include:
•behaviour associated with ADHD, like inattention or hyperactivity
•symptoms of anxiety
•obsessive compulsive behaviour
•self-harming behaviour
•sleep disorders.
Prescribed medications might reduce these behaviours enough so that behavioural or developmental interventions are more effective.

Things to consider about medications
It's always best to talk through medication options and use with your doctor, because there are clear rules about how medical interventions should be managed. Some medications have had positive effects on particular symptoms, like aggressive or hyperactive behaviour. But measuring the effects properly isn't easy, and symptoms need to be monitored very carefully.
Also, more research is needed on the long-term side effects of medication. Check with your doctor that the medication suggested has been tested with children.

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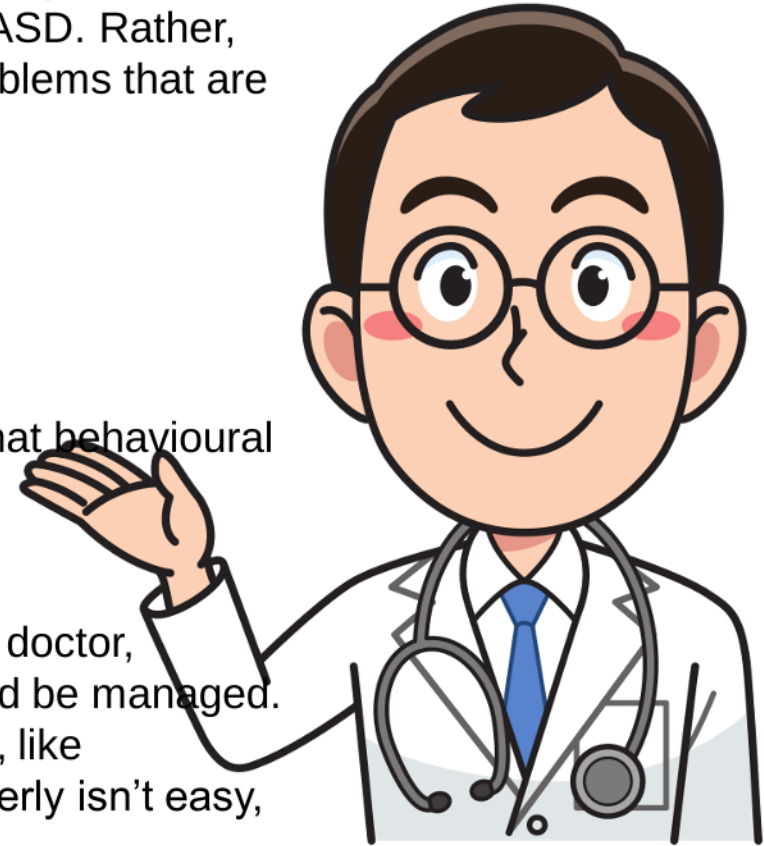
# ALTERNATIVE INTERVENTIONS

Alternative interventions for autism spectrum disorder (ASD) include a broad range of treatments not often used in the mainstream medical system, because they're not supported by scientific evidence. There's a lot of discussion and controversy about alternative treatments for ASD. This is because there is little or no evidence to support their effectiveness. Considerable evidence shows no effect at all for some – for example, secretin. And there are potential risks associated with some of these treatments – for example, withholding the MMR vaccine.

Another common concern about these types of therapies – even those that do no direct harm – is that they use time, energy and sometimes money that families could otherwise spend on well-established and well-supported therapies.

Examples of alternative interventions include:

- chelation
- elimination diets
- secretin
- yeast overgrowth management.

## Other

These include a range of interventions that sit outside the categories listed above. So far there isn't much quality research testing the outcomes for these programs.

An example of this type of intervention is music therapy.

# SOME MORE PRACTICES

**Language Acquisition through Motor Planning (LAMP) approach**

It is a therapeutic approach based on neurological and motor learning principles as well as clinical experiences to address the language development and communication needs of children with autism or other developmental disabilities. It provides a consistent motor pattern for words and a systematic way to develop communication skills allowing for unlimited language growth opportunities.

Helping Autism through Learning and Outreach (HALO)

HALO is an organization that provides the services of Soma®RPM (Soma-Rapid Prompting Method), an academic program leading towards communication, the expression of reasoning and understanding, more reliable motor skills, and greater sensory tolerance.

### Previous Review of RPM
(Deacy et al., 2016)

**Three** studies were included and "findings were summarised into four categories. Findings appear to indicate an association between RPM and a decrease in repetitive behaviours." (p. 92)

"Further research in the area of RPM is warranted in order for it to be considered as a qualifying evidence-based practice" (p. 92)

Deacy, E., Jennings, F., & O'Halloran, A. (2016). Rapid Prompting Method (RPM): A suitable intervention for students with ASD?. *Reach, 29*(2), 92-100.

#ASHA17

RAPID PROMPTING METHOD
"A NEW WAY TO LOOK AT AUTISM"

Parasuram Ramamoorthi - Chairman - VELVI

**Drama and Autism**
Bringing People Together

# Some more practices- cont-

**Lakshmi Mohan** is the founder of Sowmanasya. She is a Music Therapist who works with persons with special needs. She has also written several short stories and novels in Tamil based on her experiences with persons with Special Needs, these are written with the aim of spreading awareness about the abilities that are hidden in people with Special Needs.

One of the unique features of Sowmanasya is the focus towards bringing out the hidden musical talent of persons with Autism and getting them to perform on stage at various events. Two Music Albums have also been released so far where the Singers were persons with Autism/Special Needs.

FAILS- Scale (Functional Academics and Independent living skill- scale) Ramachandran, Rajesh & Sujathamalini, J (2020)

→ Reliability & Validity going on

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# SOME MORE PRACTICES- CONT-

Dr. Prathibha Karanth is the Founder Director and Managing Trustee of The Communication DEALL Trust.
Communication DEALL intervention program targets the sensory perceptual, motor and communication issues in ASD.

EDITT- **Educating parents on Interactive teaching techniques- (Krithika Rajaram, Anusha Jayaraman, Nandini Mungkur),** Centre for Child Development and Disabilities, Bengaluru

GITANJALI SARANGAN
Arts Based Therapy Practitioner

Snehadhara Foundation is the first centre in the country that uses Arts Based Therapy as the only methodology to work with children and adults with special needs.

| | Interpersonal Relationship Interventions & Treatment | Skill Based Interventions and Treatments | Cognitive interventions & Treatments | Physiological/ Biological/ Neurological interventions & treatments | Other interventions, treatments & related agents |
|---|---|---|---|---|---|
| **Scientific practice** | | ❖ (ABA), (DTT), (PRT) | ❖ (LEAP) | | |
| **Promising practice** | ❖ Play oriented strategies | ❖ (AAC)<br>❖ Incidental teaching<br>❖ Joint Action Routines (JARS)<br>❖ (PECS)<br>❖ (TEACCH) | ❖ Cognitive behavioural modification<br>❖ Cognitive learning strategies<br>❖ Social Decision making strategies<br>❖ Social Stories | ❖ Pharmacology<br>❖ Sensory Integration (SI) | |
| **Limited supporting information for practice** | ❖ Gentle Teaching<br>❖ Option Method (Son Rise Programme)<br>❖ Floor Time<br>❖ Pet/Animal Therapy<br>❖ (RDI) | ❖ Fast ForWord<br>❖ Van Dijk Curricular approach | ❖ Cartooning<br>❖ Cognitive scripts<br>❖ Power cards | ❖ (AIT)<br>❖ Megavitamin Therapy<br>❖ Scotopic Sensitivity Syndrome (SSS): Irlen Lenses | ❖ Art Therapy<br>❖ Candida: Autism Connection<br>❖ Feingold Diet, Herb, Mineral & Other supplements<br>❖ Gluten- Casein Intolerance<br>❖ Mercury Vaccinations and Autism<br>❖ Music Therapy |
| **Not Recommend** | ❖ Holding Therapy | ❖ Facilitated Communication | *Adapted from Autism Spectrum Disorders- Intervention* | | |

| Evidence-Based Practices Identified (NCAEP) | Established Interventions Identified by NSP |
|---|---|

| Evidence-Based Practices Identified (NCAEP) | Behavioral Interventions | Cognitive Behavioral Intervention Package | Modeling | Naturalistic Teaching Strategies | Parent Training | Peer Training Package | Pivotal Response Treatment* | Schedules | Scripting | Self-management | Social Skills Package | Story-based Intervention | Language Training (Production) | Comprehensive Behavioral Treatment for Young Children |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antecedent-Based Intervention (ABI) | ✓ | | | | | | | | | | | | | |
| Cognitive Behavioral Instructional Strategies (CBIS) | | ✓ | | | | | | | | | | | | |
| Differential Reinforcement (DR) | ✓ | | | | | | | | | | | | | |
| Discrete Trial Training (DTT) | ✓ | | | | | | | | | | | | | |
| Extinction (EXT) | ✓ | | | | | | | | | | | | | |
| Modeling (MD) | ✓ | | ✓ | | | | | | | | | | | |
| Naturalistic Interventions (NI) | | | | ✓ | | | ✓ | | | | | | | |
| Parent-Implemented Interventions (PII) | | | | | ✓ | | | | | | | | | |
| Peer-Based Instruction & Intervention (PBII) | | | | | | ✓ | | | | | | | | |
| Prompting (PP) | ✓ | | | | | | | | ✓ | | | | | |
| Reinforcement (R) | ✓ | | | | | | | | | | | | | |
| Response Interruption & Redirection (RIR) | ✓ | | | | | | | | | | | | | |
| Self-Management (SM) | | | | | | | | | | ✓ | | | | |
| Social Narratives (SN) | | | | | | | | | | | | ✓ | | |
| Social Skills Training (SST) | | | | | | | | | | | ✓ | | | |
| Task Analysis (TA) | ✓ | | | | | | | | | | | | | |
| Time Delay (TD) | ✓ | | | | | | | | | | | | | |
| Video Modeling (VM) | ✓ | | ✓ | | | | | | | | | | | |
| Visual Supports (VS) | ✓ | | | | | | | ✓ | ✓ | | | | | |

Language Training did not emerge as a focused intervention by the NCAEP. Components of Language Training (Production) overlap with NCAEP identified practices that may support language production, such as modeling, prompting, reinforcement, visual supports, and music-mediated interventions.

The NCAEP did not review comprehensive treatment models. Components of the Comprehensive Behavioral Treatment of Young Children may overlap with many NCAEP identified practices, such as discrete trial training, modeling, prompting, time delay, and behavior momentum intervention.

| Evidence-Based Practices Identified (NCAEP) | |
|---|---|
| Augmentative & Alternative Communication (AAC) | Identified as an emerging intervention by the NSP. |
| Exercise & Movement (EXM) | Identified as an emerging intervention by the NSP. |
| Functional Communication Training (FCT) | Identified as an emerging intervention by the NSP. |
| Music-Mediated Interventions (MMI) | Identified as an emerging intervention by the NSP. |
| Technology-aided Instruction & Intervention (TAII) | Identified as an emerging intervention by the NSP. |
| Behavior Momentum Intervention (BMI) | The NSP did not consider this as a category for intervention. |
| Direct Instruction (DI) | The NSP did not consider this as a category for intervention. |
| Functional Behavior Assessment (FBA) | The NSP did not consider this as a category for intervention. |
| Sensory Integration® (SI) | The NSP did not consider this as a category for intervention. |

The National Clearinghouse on Autism Evidence and Practice (NCAEP) recently released their new report identifying EBPs. The new report reviews literature published from 1990–2017 and identifies 28 EBPs and 10 manualized interventions that also met criteria.

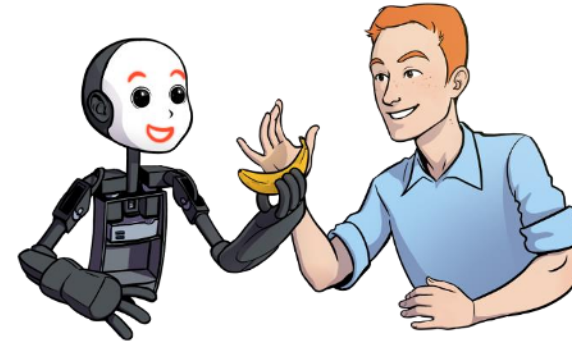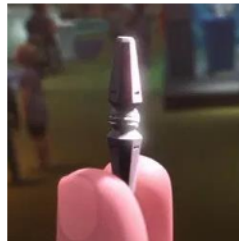# NEW ADVANCES

## Artificially Intelligent Robots

A new study published in Science Robotics shows that Artificially intelligent robots can help children with ASD to develop social skills, they need in order to communicate more effectively

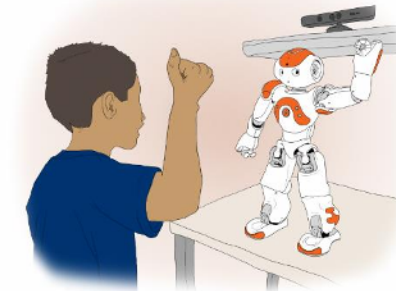**Miko 2 (**Social robot designed by Mumbai based Emotix)

**Micro bots-** Miniature robotics

**Cobots-** Collaborative robots

## Assistive Robots – Socially assistive robotics (SAR)

It is a promising new subfield of human robot interaction (HRI)

*Exploratory studies from dozens of research groups have shown that many individuals with ASD enjoy interacting with robots (B. Scassellati, H. Admoni, M.J. Mataric, Robots for use in autism research. Annu.Rev.Biomed. Eng.14, 275-294, 2012)*

# SOME APPS (RESEARCHED)



Avaz



Touch and Speak: Autism Communication Tool and Methods of Speech Development for Kids with Special Needs

Social Skills for Autism

https://www.autismconnect.com/resources/apps/app/4

AutiSpark Learning Video #3
Ways to
Make Mealtime Easier

**NATIONAL INSTITUTE FOR EMPOWERMENT OF PERSONS WITH MULTIPLE DISABILITIES (DIVYANGJAN)**

# Immediate steps to take if an individual has Epilepsy at Home

Created in Public Interest by

Auti
SPARK

www.autispark.com

**App Specially Designed for Kids with Autism**

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# REFERNCES AND CONTENT COURTESY

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Data & Statistics on Autism Spectrum Disorder. (n.d.). Retrieved May 5, 2020, from https://www.cdc.gov/

McIntyre, N. S., Yücesoy-Özkan, S., & Savage, M. N. (2020). Evidence-based practices for children, youth,and young adults with Autism. The University of North Carolina at Chapel Hill, Frank Porter Graham

Rama Cousik (2020) How to address problem behaviours In Individuals With Autism Spectrum Disorder [Special focus-during crisis ]- Webinar dated 3rd May 2020

https://www.halo-soma.org/

https://aacapps.com/home

https://autismpdc.fpg.unc.edu/evidence-based-practices

https://autispark.com/

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