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# Difficulties in screening and assessment of children with autism and their rehabilitation through physical therapy

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**Abstract**
Autism is a set of heterogeneous neurodevelopmental conditions, characterized by early-onset difficulties in social communication and unusually restricted, repetitive behaviour and interests. The worldwide population prevalence is about 1%. Autism affects more male than female individuals, and comorbidity is common >70% have concurrent conditions). The screening and diagnosis of the children with autism spectrum disorder has been a big challenge for various stakeholders like researchers, parents, professionals and teachers also. There are various degrees of multipledeficits like handwriting deficits, difficulties in the writing process, difficulties in reading comprehension, other comprehension difficulties, math abilities, difficulties in Activities of Daily Living ADL) and difficulties in sports and games found in children with Autism. Lacking of fine motor skills adversely affects writing, drawing as well as many functional activities involving the hands and arms directly and also adversely affects academic activities along with optimal level of functioning. The rehabilitation of children with autism has been more challenging task because of complex issues like socio-communication deficits along with repetitive behavioral patterns with significant deficits in over all motor development. Motor skills among children with autism can be developed through innovative practices like- Neuro- Developmental Therapy NDT), modern equipments and specific exercises. This paper highlights about the Challenges faced by researchers, parents, professionals in screening and assessment of children with Autism along with role of various physical therapy techniques in their rehabilitation. Various Approaches which are effective methods used as interventions and management to improve overall motor activities and functional abilities in children with Autism.

**Keywords:** ASD, Identification and assessment, rehabilitation, physical therapy

## Introduction
Autism is a set of heterogeneous neurodevelopmental conditions, characterized by early-onset difficulties in social communication and unusually restricted, repetitive behaviour and interests. The worldwide population prevalence is about 1%. Autism affects more male than female individuals, and comorbidity is common Lai MC, Lombardo MV, Baron-Cohen S. Autism, 2013 Sep 26) [7]. ASD is almost 5 times more common among boys 1 in 42) than among girls 1 in 189). Centers for disease control and prevention, 2010).
Autism is considered a lifelong disorder, the degree of impairment in functioning because of these challenges varies between individuals with autism.(American Psychiatric Association, 2013) [1] and Autism spectrum disorder ASD) is a developmental disability that can cause significant social, communication and behavioral challenges, Centers for Disease Control and Prevention CDC, 2021, April 29). It is estimated that 1 out of 250 0.4%) children is found with Autism spectrum disorder in India. Autism Society of India, 2007). ). Autism spectrum disorder ASD) is an inclusive term for children who have socio-communication impairments and restricted, repetitive patterns of behaviour along with hyper or hypo-reactivity to sensory input. Diagnostic and Statistical Manual of Mental Disorders, Fifth edition DSM-5), American
Psychiatric Association, 2013) [1].Autism spectrum disorder is a biologically based neurodevelopmental disorder with core deficits in two domains: Social communication/interaction and restrictive, repetitive patterns of behavior.(Indian academy of paediatrics,2022) [5]

## Screening tools
Results of a screening test are not diagnostic; they help the primary care provider identify children who are at risk for a diagnosis of ASD and require additional evaluation. This limitation associated with general developmental screening is why ASD-specific tools are needed to capture differences in social interaction, play, and repetitive behaviors.

**Modified checklist for autism in toddlers (M-chat)**

Domains which are assessed, the child enjoys being swung, bounces on parent's knee, taking an interest in other children, climbs on things-such as upstairs, enjoys playing peek-a-boo/hide-and-seek, pretends for example, to talk on the phone or take care of dolls, orpretends other things, ever uses his/her index finger to point, to ask for something, ever uses his/her index finger to point, indicates interest in something, plays properly with small toys e.g. cars or bricks) without just mouthing, fiddling, or dropping themever bring objects over to parent to show them something, looks parent in the eye for more than a second or two, ever seems oversensitive to noise, plugging ears, smiling in response to parent's face or parent's smile, imitates parents, responds to his/her name when parent call, looks a toy when parent have it across the room, walking, looks at things parent are looking at, makes unusual finger movements near his/her face, tries to attract your attention to his/her own activity, parent's wonder if the child is deaf, understands what people say, sometimes stares at nothing or wander with no purpose, looks at your face to check your reaction when faced with something unfamiliar. For Children Ages 18 to 30 Months-The most commonly used questionnaire-based screening tool is the M-CHAT. It has been further validated, and the scoring has been modified for ease of administration in primary care settings for children ages 16 to 30 months. For Children Older Than 30 Months, at present, for children older than 30 months, there are no validated screening tools available for use in pediatric practice, nor the current recommendations by the AAP for universal screening for ASD in that age group.

**Assessment Tools**

Once a child is determined to be at risk for a diagnosis of ASD, either by screening or surveillance, a timely referral for clinical diagnostic evaluation and early intervention or school services, depending on his or her age, is indicated.

**Indian Scale for Assessment of Autism-(ISAA)**

ISAA is an objective assessment tool for persons with autism which uses observation, clinical evaluation of behaviour, testing by interaction with the subject and also information supplemented by parents or caretakers in order to diagnose autism. ISAA consists of 40 items rated on a 5-point scale ranging from 1 never) to 5 always). The 40 items of ISAA are divided under six domains which are-Social Relationship and Reciprocity, Emotional Responsiveness, Speech - Language and Communication, Behaviour Patterns Sensory Aspects and Cognitive Component.

**DSM-5 Criteria for Autism Spectrum Disorder**

It contains domains like-Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history; must have all 3 symptoms in this domain andrestricted, repetitive patterns of behavior, interests, or activities, as manifested by at least 2 of the following, currently or by history; must have 2 of the 4 symptoms.

One widely used rating scale for the detection and diagnosis of autism is the Childhood Autism Rating Scale CARS; Schopler *et al*. 1980, 1988) [14]. The CARS consists of 14 domains assessing behaviors associated with autism, with a 15th domain rating general impressions of autism. Each domain is scored on a scale ranging from one to four; higher scores are associated with a higher level of impairment. Total scores can range from a low of 15 to a high of 60; scores below 30 indicate that the individual is in the non-autistic range, scores between 30 and 36.5 indicate mild to moderate autism, and scores from 37 to 60 indicate severe autism Schopler *et al*. 1988) [14]. The psychometrics of the CARS has been well documented Schopler *et al*. 1988; Perry and Freeman 1996; Nordin *et al*. 1998; Tachimori *et al*. 2003) [14].

**Review of related literature**

An Indian study finding suggest that the specific symptoms that parents initially recognize may be associated with the speed with which they receive a diagnosis, and that the saliency of symptoms may be culturally shaped. Environmental, cultural, and socioeconomic factors may also have an impact on whether a parent receives a diagnosis. Implications for professional awareness and increased accuracy of diagnosis are also suggested. Daley TC. 2004 Apr.) [3]. A study reports that delay in the diagnosis and early intervention for Autism spectrum disorders has been observed across cultures and within the same cultural context. With the current evidence base for early intervention there is a need for greater awareness for early recognition, evaluation and intervention. This brief report discusses the average age at recognition to initiation of intervention and possible ways to address delay. Since early intervention programs for ASD results in favourable outcome, it would be good practice to routinely screen children at first consultation and initiate intervention in any child suspected to be 'At Risk' for ASD. K DP, Srinath DS, Seshadri DS, Girimaji DS, Kommu DJ,2017, feb.) [6].Children with milder symptoms and/or average or above-average intelligence may not be identified with symptoms until school age, when differences in social language or personal rigidities affect function. Some children who are later diagnosed with ASD are initially believed to have precocious language, reading, or math skills, and it is not until the social demands of school that the social language symptoms become problematic. It has also been suggested that girls may have lesser intensity of symptoms and fewer externalizing behaviors. These differences may, in part, result in under-diagnosis in girls. Ratto AB, Kenworthy L, Yerys BE, *et al*.,2018) [13]. A study documented that Word reading abilities generally fall in the average to above-average range, in individuals with ASD Calhoon

2001; Cardoso-Martins and Ribeiro da Silva 2008; Gabig 2010; Huemer and Mann 2010;). Studies also suggests that some children with ASD display poor word reading abilities in addition to poor comprehension Grimm, *et al*. 2017). Problems with fine and gross motor functions are consistently observed in individuals with ASD. Such problems could make precise manipulations of a writing tool difficult. In terms of sensory functioning, first-hand accounts from individuals with ASD reveal difficulties in sensing limb position, and experiments have indirectly suggested that children with autism have proprioceptive deficits. As mathematical abilities could be impaired in students with ASD, it is possible that their math performance may vary according to the type of stimuli involved Mody and Belliveau, 2013). Recent findings regarding the motor aspects of individuals with ASD suggest that a walking program improved the physical condition of adolescents with severe ASD and reduced their BMI index. Gibson BE, Jachyra P.(2019) have studied in their paper titled "Exploring the Role of Physiotherapists in the Care of Children with Autism Spectrum Disorder" found that Physiotherapists could educate and partner with parents, teachers, and community service providers to enhance gross motor development and individualize physical activity needs of children with autism. A study done by Campos-Pozzi, Denise; ( 2016) found that the physiotherapy was effective in the treatment of children with autism with positive effect.
Need of the study: Currently, very few researches has examined potential role of physiotherapy in Indian context in enhancing motor activities and functions and rehabilitation of children with autism. The purpose of this paper is to examine the difficulties in screening and assessment of children with Autism faced by the stakeholders like researchers, parents, professionals and teachers.

**Physical Therapy**
Various innovative Approaches and methods are available to improve the motor skills as well as optimal level of functioning among the children with Autism. Major approaches and methods are as under-

**Neurodevelopmental Therapy (NDT)**
Neurodevelopmental therapy is related to neuro-motor and basically controls Postural tonus, Reflexes & reactions and Movement patterns of human body. One of the primary purposes of NDT is the facilitation of normal muscle tone in order to maintain normal postural and movement patterns as well as involve in activities. The neurodevelopmental therapy approach (NDT) is one of the most common intervention methods which utilized in the intervention of children with developmental dysfunction and first of all it was used in the therapy of children with cerebral palsy. Later, it was used in the intervention of many developmental disabilities. The NDT approach focuses on the normalization of hyper or hypotonic muscles, the specific handling intervention of equilibrium reactions & the child's movement and its facilitation. NDT is a popular therapy method within the intervention approaches of infants and children with neuro-motor dysfunction Bobath 1980, Harris 1981).
Grip exerciser, hand gym kit board, finger exerciser, Therapy balls and therapy putty are used in physical therapy to enhance fine motor activities and functions in children with autism. Trampolines, Hopscotch and some physical exercises used in physical therapy to enhance gross motor activities and functions in children with autism.
Hydrotherapy may be used as tool to enhance gross motor activities and functions in children with autism

**Exercises**
1. Frenkel's exercises to improve co-ordination.
2. Exercises to improve Functional mobility such as walking and running.
3. Postural correction exercises to improve Postural strength and control.
4. Strengthening exercises to improve motor activities.

**Summary and Conclusion**
This paper concludes that the screening and diagnosis of the children with autism spectrum disorder has been a big challenge for various stakeholders like researchers, parents, professionals and teachers because of its complexities with social, communication and behavioral aspects. There is a necessity to simplify the tools for screening and assessment of children with autism, this will help in early identification and early intervention for rehabilitation of these children. There is an evidence to support the widely held view that various therapeutic interventions like NDT, Specific equipments, Exercises and other interventions may be effective in the rehabilitation of children with Autism. In the same manner NDT, Specific equipments, Exercises and other interventions are also effective in minimizing the challenges faced in motor development and academic skills of children with Autism. Children with autism can be rehabilitated in developing their motor skills as well as academic skills like reading, writing and arithmetic with the help of appropriate physical therapy interventions in very early stage with strong supportive collaboration of parents, professionals, teachers and other grass root level para-professional personnel.

**References**
1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders *DSM-5)*. Washington, DC: American Psychiatric Association Publishing, 2013.

2. Cynthia C, Duck M, McQuillan R, Brazill L, Malik S, Hartman L, *et al*. Exploring the Role of Physiotherapists in the Care of Children with Autism Spectrum Disorder. Phys Occup Ther Pediatr,2019:39:(6):614-628. doi: 10.1080/01942638.2019.1585405. Epub 2019 Apr 8. PMID: 30957621.
3. Daley TC. From symptom recognition to diagnosis: children with autism in urban India. Soc Sci Med,2004:58:(7):1323-35. doi: 10.1016/S0277-9536(03)00330-7. PMID: 14759679.
4. Ferreira Jackeline, Mira Natália, Carbonero Flávia, Campos Pozzi, Denise. Effects of physical therapy in autistic children: case series study. Cadernos de Pós-Graduação em Distúrbios do Desenvolvimento,2016:16:24-32. 10.5935/1809-4139.20160004
5. INDIAN SCALE FOR ASSESSMENT OF AUTISM ISAA),The national trust, New Delhi, 2009.
6. K DP, Srinath DS, Seshadri DS, Girimaji DS, Kommu DJ. Lost time-Need for more awareness in early intervention of autism spectrum disorder. Asian J Psychiatr,2017:25:13-15. doi: 10.1016/j.ajp.2016.07.021. Epub 2016 Sep 28. PMID: 28262133
7. Lai MC, Lombardo MV, Baron-Cohen S, Autism Lancet,2014:8:383(9920):896-910. doi: 10.1016/S0140-6736(13)61539-1. Epub 2013 Sep 26. PMID: 24074734.
8. McIntyre N, Solari E, Gonzales J, Solomon M, Lerro L, Novotny S, *et al*. The scope and nature of reading comprehension impairments in school-aged children with higher-functioning autism spectrum disorder. Journal of Autism and Developmental Disorders, 2017. doi: 10.1007/s10803-017-3209-y
9. Ming, *et al*. Prevalence of motor impairments in autism spectrum disorders. Brain & development,2007:29(9):565-570 doi-10.1016/j.braindev.2007.30.002
10. Pinto Martin JA, Young LM, Mandell DS, Poghosyan L, Giarelli E, Levy SE. Screening strategies for autism spectrum disorders in pediatric primary care. J Dev Behav Pediatr,2008:29(5):345-350.
11. Pitetti KH, Rendoff AD, Grover T, Beets MW. The efficacy of a 9-month treadmill walking program on the exercise capacity and weight reduction for adolescents with severe autism. J Autism Dev Disord,2007:37:997-1006 10.1007/s10803-006-0238-3
12. Provost B, Heimerl, S, Lopez BR. Levels of gross and fine motor development in young children with autism spectrum disorder, Physical & Occupational Therapy in Pediatrics,2007:27:21-36.
13. Ratto AB, Kenworthy L, Yerys BE, *et al*. What about the girls? Sex-based differences in autistic traits and adaptive skills. J Autism Dev Disord,2018:48(5):1698-1711.
14. Schopler E, Reichler R, Rochen Renner B. *The childhood autism rating scale*. Western Psychological Services, 1988.
15. Wetherby AM, Brosnan-Maddox S, Peace V, Newton L. Validation of the Infant-Toddler Checklist as a broadband screener for autism spectrum disorders from 9 to 24 months of age. Autism,2008:12(5):487-511