

The primacy of movement in child development

Walter G Solomon

The Waldon Center, Jerusalem

The role of movement in the development of cognitive, emotional and social development was relatively neglected until recently. Only recently have psychologists come to appreciate that acting and knowing are inseparable. The young child's motivation to reach is at the foundation of a perception action cycle, which creates new skills and hence new opportunities for cognitive development. Failure to move in a typical manner in early childhood is a predictor of difficulties later in life. Infants who were more motorically mature and who explored more actively at 5 months of age achieved higher academic levels as 14-year-olds. The developmental cascade arising from the child's movements, leads to perceptual, cognitive and social development. A research topic Autism: The Movement Perspective opened up in *Frontiers in Integrative Science* (2013) and was followed by over 30 scientific research articles on the topic from research institutions around the world. An editorial for the research topic: 'Autism: The Movement Perspective' wrote that movement could be our best ally in autism, at all fronts. Studies of human movement demonstrate the intentionality of movement even as early as the second trimester in utero. Autism spectrum disorders (ASD) has its origin in early prenatal failure of movement, timing and coordination. Foetuses that move in an atypical manner may, post-partum, display a problem in qualitative and temporal-dynamic control, i.e. flexibility in affective response and precision in motor timing. This is associated with delay in cognitive development and language, which in turn is associated with a diagnosis of ASD.

Autism, now called Autism Spectrum Disorder (ASD), was first mentioned by Kanner. He described 11 children in his clinic who lacked the social instinct to relate towards other people, who were mostly focused or even obsessed with objects, and who had a "need for sameness" or a "resistance to (unexpected) change". Kanner coined the term "infantile autism" as the name for this newly described condition. His article made medical history. Over recent years there has been a dramatic increase in the reported incidence of ASD. In a USA report from 2014, 1 in 68 US children has an autism spectrum disorder (ASD), a 30% increase from 1 in 88 two years ago. This report does not say why the incidence of autism is rising, however, raised awareness amongst school staff, and parents, might influence referrals for diagnosis amongst children who were earlier described as 'difficult'. If DSM cannot be consistent even with such an apparently simple question as to who has ASD and the role of SCD in the diagnosis, it is unlikely that we will find a single cause or to be able to establish a simple diagnostic test which could lead to early diagnosis leading to screening and effective early therapies.

Amongst the spectrum of behaviors associated with ASD it is not clear which are causal and which are consequential. The failure to identify a single cause leads us to believe that there is no single aetiology for the condition. The UK National Health Service states that ASD is a difficult condition to define: "The exact cause of autism spectrum disorder (ASD) is currently unknown. It is a complex condition and may occur as a result of genetic predisposition (a natural tendency), environmental or unknown factors".

Many researchers believe that certain inherited genes could make children more vulnerable to developing ASD. Cases of ASD have been known to run in families (younger siblings of children with ASD sometimes also develop the condition, and it is not uncommon for identical twins to both develop ASD). No specific genes linked to ASD have been identified, but it may be a presenting feature of some rare genetic syndromes, including Fragile X syndrome, Williams syndrome and Angelman syndrome. Some researchers believe that certain people are born with a genetic vulnerability to environmental triggers and that ASD only develops if they are exposed to a specific environmental trigger, such as being born prematurely or being exposed in the womb to alcohol or to certain medications. No conclusive evidence has been found linking pollution or maternal infections in pregnancy with an increased risk of ASD.

The multi causal aspect of ASD has been explained above. The primary condition can lead to the disruption of movement commencing in-utero and continuing in the early years. We have shown an association between disruption of movement and the adoption of ASD type behaviors. The movement-based therapy (The Waldon Approach) may fill the gaps in movement development and consequently lead to a development of General Understanding and the reduction of ASD behaviors at any age. Started early enough, this therapy, practiced in a daily lesson given by the parents from 20 to 40 minutes, and demonstrated weekly by the practitioner, may even prevent the onset of these behaviors. A pilot study is under review (Princess Basma School, for Children with Disabilities in Jerusalem) and a Helsinki based study is needed to validate this concept.