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Sanford, Emma and Horner, Louisa

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Teaching Pupils with AUTISTIC SPECTRUM DISORDER

Emma Sanford and Louisa Horner

Autistic spectrum disorder (ASD) is prevalent in approximately 1.1 per cent of the UK population (The National Autistic Society, 2015) and diagnosed in one in 152 children within mainstream schools (Barnard, Broach, Potter and Prior, 2002). ASD is a neuro-developmental condition, characterised by a range of stereotypical behaviours and difficulties with social communication, interaction and imagination (The National Autistic Society, 2015a). Current physical activity guidelines for ASD and neuro-typical children aged 5-18 years of age suggest that 60 minutes of moderate to vigorous intensity physical activity per day should be undertaken (Department of Health, 2011). However, Pan and Frey (2006) recorded that ASD children had no consistent pattern in physical activity and were less active than neuro-typical children. It is essential, therefore, that physical education (PE) teachers and, in particular, newly qualified PE teachers who, due to limited experience, often report feeling unprepared to teach children with special educational needs (SEN), fully understand the condition and how they can engage such pupils in PE.

In order to successfully achieve an inclusive environment within extra-curricular sport and National Curriculum PE, promoted by policies such as *Removing Barriers to Achievement* (Department for Education and Skills, 2004) and the *Equality Act* (Government Equality Office, 2013), PE teachers need to be able to recognise the barriers and facilitators to physical activity for ASD children. This article identifies these, as well as putting forward practical suggestions and strategies.

Although the causes of ASD are ambiguous, neuro-pathological alterations are one proposed explanation for the characteristics of ASD children which can potentially

impact upon sporting involvement. For example, abnormalities in the cerebellum relate to poor motor coordination (Fatemi, 2013) and cognitive functioning (Gordon, 2007), resulting in issues in developing and retaining specific motor skills (Mari, Castiello, Marks, Marraffa and Prior, 2003), which negatively impact upon fundamental movements such as balance (Meneer and Neumeier, 2015).

Pupils who lack motor skills are also strongly correlated with being victims of bullying. ASD children may be more at risk of social isolation (Bejerot, Edgar and Humble, 2011) and may have intra-personal barriers to PE, such as perceived lack of skill (Obrusnikova and Cavalier, 2011). However, interventions looking at fundamental movements have shown to increase physical proficiency, which, in turn, may reduce the likelihood of victimisation. For example, Pan (2011) undertook a 14-week swimming programme for ASD children and their siblings and found an increase in fitness test scores, aquatic ability and self-confidence. Similarly, a ten-week swimming programme by Yilmaz, Yanardag, Birkan and Bumin (2004) showed increased fitness test scores and water orientation. Therefore, a greater emphasis on fundamental movement patterns and sports, such as swimming, that require little cognitive instruction may facilitate the participation of an ASD child and subsequently improve their motor capabilities.

The likelihood of social isolation is also arguably more prevalent in ASD children due to complications in processing and retaining information, resulting in reductions in social understanding and communication complications (Youth Sport Trust, 2008). Neurologically, this may be influenced by abnormalities within the hippocampus which affect “establishing and maintaining social bonds” (Rubin, Watson, Duff and Cohen,

2014, p.1), further supporting the use of simple movements patterns or, alternatively, small group/individual activities which reduce social demands within the PE environment. The use of small groups or solo activities is also promoted by Schenkelberg, Rosenkrnaz, Milliken and Dzewaltowski (2015), who found higher motivation levels for ASD children when exercising alone (13.2 per cent) compared to with a peer (1.5 per cent) or peer group (1.2 per cent).

Repetitive, stereotypical and inappropriate behaviours, caused by abnormalities in the cerebral hemisphere, (Fatemi, Merz and Realmuto, 2003) are a feature of children with ASD and are often manifested during PE lessons, triggered by an unclear routine or sensory integration deficits (Youth Sport Trust, 2008). These behaviours often manifest themselves quickly due to the inability of ASD children to state their emotions (Griffin *et al.*, 2006) and can result in classroom disruption, disruption that may be exacerbated by PE teachers struggling to maintain inclusivity (Smith and Thomas, 2006).

Potential stigmatisation from peers may also contribute to classroom disruption (Cunningham and Schreiberman, 2008) and may further increase the likelihood of social isolation for ASD children. However, some forms of physical activity have been associated with declines in stereotypical symptoms, which may have a facilitating effect on inclusion. For example, research by Levinson and Reid, (1993, cited in Oriel, Cheryl, George, Peckus and Semon, 2011, p188) concluded that “stereotypical behaviours decreased after 15 minutes of continuous jogging but only for 90 minutes post-exercise”. Additionally, Bahrami, Movahedi, Marandi and Abedi (2012) found declines in stereotypical behaviours which remained significantly low 30 days post-intervention by using kata training techniques.



Regardless of the length of effect, the reduction in stereotypy may have occurred due to repetitive body movements that have similarities to stereotypical movements (Bahrami *et al.*, 2012) exhibited in ASD children. Therefore, curriculum activities that promote repetitive action, for example, dance, may reduce stereotypical symptoms and facilitate engagement. Alternatively, defining a space for ASD children to withdraw to temporarily – when they are over-stimulated – may prevent classroom disruption (Youth Sport Trust, 2008).

Children with developmental disorders have also been found to have a 60 per cent risk of obesity compared to neuro-typical children (Phillips *et al.*, 2014), potentially due to a more sedentary lifestyle, which may be influenced by a lack of physical ability. For example, Pan, Tsai, Chu and Hsieh (2011) reported that ASD children only spent 33 per cent of their PE lessons in moderate to vigorous physical activity (MVPA), compared to 45 per cent spent by typically developing children. However, other studies reported no real time difference between ASD children and typically developing children undertaking MVPA within PE (Sandt and Frey, 2005; Bandini *et al.*, 2013). Nevertheless, in an obesogenic society any child at risk should be the focus of PE teachers. Interestingly, both of these studies indicate that motivation for PE from ASD children can decline with age.

Due to lower levels of motivation to participate in physical activity, ASD children potentially possess lower levels

of cardiovascular fitness and muscular endurance than their peers (Murphy and Carbone, 2008), which is more evident in male pupils after the age of 12 when maximal aerobic power begins to differ between the genders (Bar-Or and Rowland, 2004). As a consequence of this lack of motivation and potential poor physical capabilities, exclusion from PE and school sport may be intensified and further affect their ability to develop motor skills. For example, Pan (2014) found that variables such as motivation are needed for the development and refinement of motor capabilities. PE teachers therefore need to focus on motivating and engaging ASD children to take part in all aspects of school sport. Engaging ASD children, for example, by allowing them to work at their own physical capabilities – by modifying lesson plans (Smith and Thomas, 2006), or by facilitating their interests (Zhang and Griffin, 2007), may increase inclusion and success in PE and extra-curricular activities, as well as preventing obesity and its associated co-morbidities.

Initial teacher training programmes do not seem to provide adequate training in regards to SEN: 84 per cent of recently qualified PE teachers felt they were not prepared sufficiently to teach SEN children (Vickerman and Coates, 2009) and, therefore, are arguably unable to meet the aims of policies such as the Salamanca Statement on Education (UNESCO, 1994). When fully included, SEN children have found PE to be empowering (Huzler, Fliess, Chacham and Auweele, 2002, cited in

Coates and Vickerman, 2008) compared to non-inclusive environments, which have contributed towards “isolation, questioned competence and restricted participation” (Goodwin and Watkinson, 2000, p.144).

Positive relations and inclusion within a physical activity setting have been found to contribute towards enjoyment of sport and positive participation (Coates and Vickerman, 2010). For example, Pan (2010, p.25) found “individualised instruction and positive feedback” as the main facilitators accounting for behaviour change following a ten-week swimming intervention for ASD children. Conversely, if exclusion from a physical activity occurs for an ASD child, sport may be remembered as an unfavourable experience, resulting in lifelong withdrawal from sport and exercise (Lavage *et al.*, 2004, cited in Coates and Vickerman, 2008). Therefore, to facilitate inclusion, a parallel activity within a mainstream class could be considered (Youth Sport Trust, 2008) enabling ASD children to continue to access a mainstream PE setting but also work on an activity that matches their developmental and physical age (Training and Development Agency for Schools, 2009).

Inappropriate or poor behaviour has also been found to act as a barrier to participation in community sport (Jones, 2003), which is normally facilitated by school-club links; this may reduce the likelihood of an active life, which is an aim of the PE National Curriculum (Department for Education, 2013; Department for Education, 2013a).

Additional barriers, such as lack of self-esteem and a heavy emphasis on competitive games, have also been noted as preventing the participation of SEN children, especially within after-school programmes, as they are often performance-oriented and therefore selective of high ability pupils (Smith, 2004). These factors potentially contribute towards higher levels of physical activity within school hours compared to after-school hours for ASD children (Rosser and Frey, 2005 cited in Pan and Frey, 2006) and, as a consequence, greater pressure on PE teachers to ensure participation.

As physical activity behaviours during childhood are positively correlated with physical activity behaviours in adulthood (Curtin *et al.*, 2010, cited in Sorensen and Zarrett, 2014), exclusion from after-school settings may result in a lack of physical activity post-school for ASD children. Therefore, alternative initiatives such as the School Games programme or Project Ability (Youth Sport Trust, 2013), which promote inclusive sport competitions for those with disabilities, should be encouraged to promote physical activity rather than segregated physical activity. Potentially, segregated physical activity could reinforce “negative differences between disabled and non-disabled students” (Fitzgerald and Kirk, 2009 cited in Haycock and Smith, p.523) and result in further social isolation. As the social aspects of physical activity can contribute towards positive development (Perkins and Noam, 2007), involvement in extra-curricular activities may give ASD children self-confidence and adequate behavioural skills to access community sport.

The benefits of physical activity for ASD children have been identified with improvements in fitness levels and motor skills (Pan, 2011; Yilmaz *et al.*, 2004), stereotypical behaviour (Levinson and Reid, 1993; Bahrami *et al.*, 2012) and communication (Bahrami *et al.*, 2016). Using simplified instructions that match a child’s developmental age, within a fully inclusive environment, and implementing physical activity that meets the physical capabilities of an ASD pupil, should allow ASD children to participate fully in National Curriculum PE and extra-curricular opportunities. However, if the PE National Curriculum continues to emphasise “performance, excellence and skills” (Smith and Thomas, 2006, p.76) ASD children will continue to be excluded. Additionally, if skills are not simplified to match an ASD child’s capabilities, they will continue to be disengaged from PE due to the inability to perform or understand the required task and will continue to be socially isolated from their peers in PE or extra-curricular environments. ■

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Emma Sanford is a Graduate in Sport, Exercise and Nutrition Sciences/trainee PE teacher and Louisa Horner is Senior Lecturer in Sport, Exercise and Nutrition Sciences at Huddersfield University.