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EQUINE-ASSISTED THERAPY AS INTERVENTION FOR MOTOR PROFICIENCY IN CHILDREN WITH AUTISM SPECTRUM DISORDER: CASE STUDIES

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ABSTRACT

Children with Autism Spectrum Disorder display a range of challenging difficulties in all aspects of their daily living routines. Due to these challenges, parents look for various interventions that will improve the quality of life of their children. The objective of this study was to determine whether an Equine-Assisted Therapy (EAT) intervention would result in an improvement of balance, upper-limb coordination and strength. Two case studies were conducted, where one female (9 years and 4 months) and one male (8 years and 7 months) participated in a 10-week EAT intervention. Motor proficiency was evaluated by means of a pre-post-test research design using selected composites of the Bruininks-Oseretsky Test of Motor Proficiency (BOT-2). Individual changes were observed in balance, upper-limb coordination and strength. EAT interventions could provide a suitable alternative approach for children on this spectrum who experience impairments in low muscle tone, repetitive motor movements, poor motor planning, postural instability, difficulty sequencing a task, as well as poor gross motor performance. Larger studies involving more participants are suggested to ascertain if these findings can be generalised.

***Key words*:** Autism Spectrum Disorder; Equine-assisted intervention; Motor proficiency; Bruininks-Oseretsky Test of Motor Proficiency; Balance; Upper-limb coordination; Strength.

INTRODUCTION

Pervasive developmental disorder (PDD) is defined in the Diagnostic and Statistical Manual of Mental Disorders as severe and pervasive impairment in social interaction skills, communication skills, or the presence of stereotyped behaviour, interest and activities (APA, 2000). Furthermore, Auxter *et al*. (2010) state that PDD consists of four disorders, autistic disorder, Rett syndrome, PDD (not otherwise specified, PDD-NOS), and Asperger's syndrome. Alternatively, the term Autism Spectrum Disorders (ASD) are also used for PDD (Auxter *et al*., 2010). The causes of ASD are still unknown. Each type of ASD demonstrates neurological impairment and is normally evident by the age of three (Lotan, 2007; Auxter *et al*., 2010).

According to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition, (DSM 5) (APA, 2013), the prevalence of ASD is currently estimated to be at least 1% of the population. Boys are also currently being diagnosed more often than girls, estimating the ratio to be 4:1 (Rice, 2009; Van den Hout & Bragonje, 2010; APA, 2013). The prevalence of ASD

is also increasing (Sams *et al*., 2006; Matson & Kozlowski, 2011; Baio, 2012). However, it is not clear if the increase is due to the changes in the diagnostic criteria or the improvement of the recognition of ASD (Van den Hout & Bragonje, 2010; APA, 2013).

ASD is a lifelong condition and therefore, the need persists to identify appropriate interventions (Sams *et al*., 2006; Lotan, 2007; Gabriels *et al.*, 2012) to address the deficits in functioning that are associated with the condition. A variety of interventions have been proposed to improve specific areas of function in children with ASD (Van den Hout & Bragonje, 2010; Wuang *et al*., 2010; O'Haire, 2013). These include verbal communication skills (Sams *et al*., 2006; Keino *et al*., 2009; Memishevikj & Hodzhikj, 2010), social interaction skills (Redefer & Goodman, 1989; Sams *et al*., 2006; Burrows *et al*., 2008; Solomon, 2010), as well as problem behaviour (Lotan, 2007; Van den Hout & Bragonje, 2010; Viau *et al*., 2010). Another domain of development that is rarely reported is that of the motor functioning of children with ASD (Stone *et al*., 1999; Baranek, 2002; Kimberly *et al*., 2010). Although children with ASD struggle with social, communication and behaviour problems, the literature reports that they do have motor deficits as well (Baranek, 2002; Auxter *et al*., 2010). These deficits include low muscle tone, repetitive motor movements, poor motor planning, postural instability (Baranek, 2002), difficulty sequencing a task (Baranek, 2002; Auxter *et al*., 2010) and poor gross motor performance. They also perceive themselves as motor incompetent (Emck *et al*., 2009).

Research conducted by Ghaziuddin and Butler (1998) on the motor proficiency levels of children with ASD indicated that the children showed impaired coordination as assessed by the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP). The findings of Ghaziuddin and Butler (1998) is in agreement with Kimberly *et al*. (2010) who reported a difference between the motor coordination levels of children with ASD compared to typical developing children. This clearly indicates that although motor performance is not a core element of ASD, appropriate interventions should be established to improve the motor functioning of children diagnosed with ASD (Kimberly *et al*., 2010).

An alternative intervention gaining interest among therapists is animal assisted intervention (AAI) (Lotan, 2007; Van den Hout & Bragonje, 2010; O'Haire, 2013). AAI refers to a goal-directed intervention in which an animal meeting specific criteria is an integral part of a treatment that assists in the healing process and rehabilitation of children with acute or chronic diseases (Martin & Farnum, 2002; Rothe *et al*., 2005). A variety of activities, such as caring for the animal, knowledge and games are included in a typical AAI session (O'Haire, 2013).

Research evidence is very limited with regard to AAI, specifically regarding children with ASD (Van den Hout & Bragonje, 2010; O'Haire, 2013). O'Haire (2013) pointed out that the majority of these papers (13/22) had been published since 2008. The various animals used in these studies were as follows: dolphins (5 studies), dogs (7 studies), horses (8 studies), guinea pigs (1 study), and another study made use of three animals, namely a dog, a lama and a rabbit. Since the current study made use of horses, the discussion will be centre on Equine-assisted therapy (EAT).

EAT is a collective term for equine therapy, hippo therapy, equine-facilitated psychotherapy, as well as equine-assisted psychotherapy, and used to describe the role of horses in the educational, physical or psychological domains (Bizub *et al*., 2003). EAT is a physical

treatment strategy in which children with or without motor difficulties perform activities on and alongside a horse with the goal of using equine movements to improve balance, posture, gross and fine motor skills (Snider *et al*., 2007). Snider *et al*. (2007) states that the warmth, shape and rhythmical, three-dimensional movements of the horse improve flexibility, posture, balance and mobility of the rider. In addition, EAT provides a multisensory environment that will prove beneficial to children with profound social and communication deficits (Bass *et al*., 2009).

PURPOSE OF RESEARCH

Research on AAI, specifically in children with ASD, is very limited (Stone *et al*., 1999; Baranek, 2002). Limited studies have been conducted to determine the improvement of motor functioning using EAT specifically in children with ASD. Thus, limited comparisons could be made with previous research. The aim of the current study was to explore the efficacy of an EAT intervention by means of two case studies in children diagnosed with Autism Spectrum Disorder in order to improve their motor functioning levels.

METHODOLOGY

Participants

Both the children used in this study were medically diagnosed with Autism Spectrum Disorder by their family physicians, as well as by a psychologist. The inclusion criteria for participation in this study were as follows: (1) should not be afraid of horses and (2) should not receive any other concurrent therapy with regard to the motor aspects that were tested in this study. The parents of the children involved in this study voluntarily offered to participate. The children were approached at the school. Only two children were involved. The children came from families of an average socio-economic environment and the same school.

The *female participant* (J-H) was 9 years and 4 months old at the time. She was diagnosed with Autism Spectrum Disorder, oppositional-defiant disorder and hyperactivity. She had attended the class since 2010. J-H is usually impulsive, impatient, disorganised and easily distracted. She will start an activity without waiting for the instructions. She becomes confused and forgets how to do the activity. She enjoys participating in activities, but needs a lot of encouragement in order to accomplish a task. During the intervention J-H was on medication, namely Atomoxitine to improve her concentration levels and Risperidone for impulse control.

The *male participant* (J-B) was 8 years and 7 months old. He was diagnosed with Autism Spectrum Disorder, as well as ADHD, which often is associated with Asperger's disorder. In addition, he has sensory problems and epilepsy. He had attended the class since 2010. J-B can complete tasks, but sometimes needs guidance in order to complete his homework. When he takes part in activities that he enjoys, such as building blocks or folding airplanes, he will have no trouble to complete the task. Sometimes he might be impulsive, but most of the time his behaviour is typical and he will function independently. He enjoys running around and can be very busy. Most of the time he will play alone, but occasionally he prefers to play with others even though he struggles to adapt to their ways. He is very possessive over his belongings and each week he is interested in something new, such as blocks, cars, pictures or his photo

collection. J-B loves to be funny and enjoys challenges. If his mind is set on doing something, it is difficult to change it. During the intervention J-B was on medication, namely Methylphenidate in the mornings and in the evenings, to improve his attention and concentration, Valproic Acid for epilepsy and Imipramine later in the evenings to help him sleep.

Research design

The study had a pre-post-test design. It was an empirical study and the researchers made use of quantitative data. The study involved a pre-test in order to determine the motor proficiency levels of the two children. The children were tested at their school (during the Life Orientation class period) by Kinderkineticists who were familiar with the testing procedures of the relevant instrument, Bruininks-Oseretsky Test of Motor Proficiency-2 (BOT-2). The children took part in a 10-week intervention programme (EAT), comprising a 30-minute session once a week at the stables, where the horses were kept. The reason for the 10-week intervention, instead of the prescribed 12-week intervention, was due to the fact that a school term only allowed the researchers 10 consecutive weeks.

One of the Kinderkineticists was also a horse specialist and riding instructor, implying that the researcher was qualified to conduct the EAT intervention programme accordingly. The EAT intervention was conducted on the horse and combined with various fundamental movements, such as manipulation and stability skills. The intervention was conducted at the stables after school hours. A post-test using the same procedure as the pre-test took place at the school in order to observe any individual changes following their EAT treatment, thus the participants served as their own control. A summary of the EAT programme consisting of balance (programme 1), strength (programme 2) and upper-limb coordination (programme 3) that were done on the horse riding bareback is attached as an Appendix. In addition, each programme started out with grooming the horse implementing tactile stimulation which plays an integral part in the EAT treatment.

Ethical considerations

Privacy is considered to be essential, therefore, subjects were evaluated individually and their information treated confidentially. The principal of the school granted permission for the research to be conducted on the school premises during the Life Orientation class periods, thus the class learning time of the participants were not compromised. Approval had been obtained from the ethics committee of the Faculty of Health Sciences, University of the Free State (ECUFS06/2014). The parents of the participants completed an informed consent form for each child participating in this study. In addition, the two children each signed an assent form.

School context

The school where the study was conducted is a public primary school that forms part of the main stream education and is located in the city of Bloemfontein, South Africa. The class for learners with Asperger's disorder was founded in 2010. It currently is the only main stream school in the Free State province that provides for the special needs of these children. The class often organises outdoor activities for the children. The school provides four classes in Afrikaans and English, a sensory room, a computer room, a separate hygiene room and a small

garden. The children attend classes during the week and also take part in Physical Education classes (30 minutes twice a week), and have art lessons on Fridays. The class is attended by 15 children, two girls and 13 boys between the ages of 7 and 13 years. They are educated by four teachers of whom all are MA-level special education graduates who frequently attend additional courses relevant to the understanding of the special developmental disorders of primary school children. There is very good cooperation between the teachers and parents.

Measuring instruments

Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM-IV-TR)

For the purpose of this study, the DSM-IV-TR was used by the clinicians in order to make a diagnosis of ASD. Therefore, this study will recognise Asperger's as one of the disorders on the autistic spectrum. However, it is important to note that the DSM-5 (APA, 2013:51) states that "individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or PDD-NOS should be given the diagnosis of ASD".

Bruininks-Oseretsky Test of Motor Proficiency-2 (BOT-2)

The BOTMP is considered to be one of the most widely used measuring instruments to determine motor difficulties in children with a variety of disabilities, including cerebral palsy, developmental coordination disorder (DCD), attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) (Dewey *et al*., 2007; Gordon *et al*., 2007; Wuang & Su, 2009; Kimberly *et al*., 2010).

The BOT-2 can be administered in various ways, such as the complete test (the recommended version), the short form or by using selected subtests depending on the abilities of the child (Bruininks & Bruininks, 2005). This study made use of selected subtests, since the three selected subtests were most relevant to the efficacy of the EAT intervention. The children in this study were tested using Subtest 5, which tested their balance to enable noting postural instability; Subtest 7, which tested their upper-limb coordination in order to note improvement of motor planning and gross motor performance, and in addition, Subtest 8, which tested their strength for assessing the improvement of low muscle tone.

Balance was tested through the use of nine items, all of which evaluated the stability of the trunk in static, as well as dynamic situations. These items include: standing with feet apart on a line (eyes open and closed); walking forward on a line; standing on one leg on a line (eyes open and closed); walking forward heel-to-toe on a line; standing on one leg on a balance beam (eyes open and closed); and standing heel-to-toe on a balance beam. Upper-limb coordination was tested through the use of seven items that evaluated visual tracking along with coordinated arm and hand movements. Items, such as: dropping and catching ball (with one hand as well as both hands); catching a tossed ball (with one hand and with both hands); dribbling a ball (with one hand and alternating hands); and throwing a ball at a target were conducted. Strength was tested through the use of five items that measured: trunk, upper- and lower-body strength and included the following items, standing long jump; knee push-ups; sit-ups; wall sit; and the V-up sit.

The results (raw data converted to scale scores) of the children were converted into age-related, sex-specific norms (Bruininks & Bruininks, 2005). The different subtest scores indicated the level of motor proficiency the child was functioning at in comparison to children in the same age group (Bruininks & Bruininks, 2005).

Analysis of data

The data were captured electronically in Microsoft Office Excel 2007. Raw data were converted to scaled scores in order to determine the age equivalent, as well as the descriptive categories (ranging from "well below average" to "well above average") as determined by Bruininks and Bruininks (2005). Therefore, each child was compared to herself/himself according to their chronological age and descriptive categories before and after the EAT intervention to determine individual changes. The reason is because children with ASD have different behaviours within each distinct diagnosis of ASD and, therefore are considered to be a heterogenic group. According to McGibbon *et al*. (1998), a small sample design, where the participants can serve as their own control is acceptable to determine individual changes following their treatment (McGibbon *et al*., 1998; Taylor *et al*., 2009).

RESULTS

Table 1 presents the criteria given by Bruininks and Bruininks (2005). This table allows the examiner to determine the cut-off scale scores for the various descriptive categories and was used to determine the applicable descriptive categories by using the measured scale scores.

Table 1. **DESCRIPTIVE CATEGORIES OF BOT-2 CORRESPONDING TO SCALE SCORES**

Descriptive category	Scale Score range
Well above average (WAA)	25 or greater
Above average (AA)	20-24
Average (A)	11-19
Below average (BA)	6-10
Well below average (WBA)	5 or less

Adapted from Bruininks and Bruininks (2005)

Table 2 displays the descriptive categories with the corresponding scale scores for the 2 participants. The female participant obtained a scale score of 11 in the pre-test, placing her in the "average" category for upper-limb coordination. Her post-test scale score was 24, which placed her in the "above average" category. Concerning balance, her performance improved from a scale score of 6 in the "below average" category to a scale score of 17 in the "average" category. The only subtests and descriptive category that remained unchanged was strength ("average"). However, there was still a change in the scale score from 11 to 14.

Regarding upper-limb coordination, the male participant was ranked "below average", with a pre-test scale score of 7 and a post-test score of 10. Although the descriptive category remained

the same, there was an increase in the scale score which can be considered as an improvement. For balance, the descriptive categories for both the pre-test and post-test were "average". An improvement was noted in the scale score which increased from 12 to 15. The only variable for which there was a change in the descriptive category was strength, which had improved from the "below average" category with a scale score of 8 to the "average" category with a scale score of 12.

Table 2. **DESCRIPTIVE CATEGORIES AND CORRESPONDING SCALE SCORES OF BOT-2: CASE STUDY 1 AND 2**

	Pre-test Scale Score		**Descriptive category**		**Post-test Scale Score**		**Descriptive category**		**Difference**	
Variables	Case 1 (♀)	Case 2 (♂)	Case 1 (♀)	Case 2 (♂)	Case 1 (♀)	Case 2 (♂)	Case 1 (♀)	Case 2 (♂)	Case 1 (♀)	Case 2 (♂)
Coordination	11	7	A	BA	24	10	AA	BA	13	3
Balance	6	12	BA	A	17	15	A	A	11	3
Strength	11	8	BA	A	14	12	A	A	AA	3

WAA=Well above average; AA=Above average; A=Average; BA=Below average; WBA=Well below average.

Table 3 is a representation of the pre- and post-test age equivalences of the participants and of the improvements made over the 10-week intervention. For both the participants, the pre- and post-test results are presented according to their age equivalents for the 3 measured subtests, namely upper-limb coordination, balance and strength, as determined by the BOT-2. An improvement was observed with regard to all 3 subtests.

Table 3. **AGE EQUIVALENCE IN YEARS AND MONTHS: CASE STUDY 1 AND 2**

Case study 1 (♀)				**Case study 2** (♂)			
Variables	Pre-Test AE	Post-test AE	Improvement AE	**Variables**	Pre-Test AE	Post-test AE	Improvement AE
Coordination	7.11	19.00	11.1	Coordination	5.11	7.2	1.3
Balance	4.11	15.11	11.0	Balance	6.80	8.5	1.9
Strength	6.11	8.50	1.6	Strength	5.90	8.2	2.5

AE=Age equivalence

The female participant was 9 years and 4 months old when the test commenced. With regard to upper-limb coordination, she showed progression from an age equivalent of 7 years and 11 months to the level of a child of 19 years, thus an improvement of 11 years and 1 month. With regard to balance there was an increase from an age equivalent of 4 years and 11 months to 15

years and 11 months, thus the improvement observed is 11 years. Finally, strength increased from being equal to that of a child of 6 years and 11 months to 8 years and 5 months, suggesting an improvement of 1 year and 6 months, although the age equivalence was still lower than her chronological age.

The male participant, who was 8 years and 7 months old when the test commenced, progressed from an age equivalent of 5 years and 11 months to 7 years and 2 months, thus an improvement of 1 year and 3 months. Regarding balance, the participant advanced from an age equivalence of 6 years and 8 months to 8 years and 5 months, suggesting an improvement of 1 year and 9 months. Lastly, there was an improvement in his age equivalence from 5 years and 9 months to 8 years and 2 months with regard to strength, thus an improvement of 2 years and 5 months. All his age equivalences were, however, still below his chronological age.

DISCUSSION OF RESULTS

The research aimed to provide a possible treatment strategy for the improvement of motor proficiency in children with Autism Spectrum Disorder. As intended, the children involved in the EAT intervention improved as far as their motor proficiency is concerned. What had not been anticipated was neither the intra-subject variability of the domains assessed nor the vast difference in benefits the two subjects appeared to have made using the same intervention. Although both participants improved with regard to their chronological age, the gains made by the female participant was greater in all three subtests that were measured. It is, therefore, clear that when adding EAT to the treatment interventions of children with Autism Spectrum Disorder universal improvements cannot be expected, nor does it appear that it is a "one-size-fits-all" scenario.

The female participant improved remarkably in both the domains of balance and upper limb co-ordination. She did not make any real improvement as far as strength was concerned. It may suggest that in these children who have a fairly normal nervous system, great strides could be made in the upper-limb co-ordination and balance domains with this therapy, although, even if strength did increase in absolute values, the gain was not really significant. Perhaps the EAT intervention does not particularly address the development of strength, or perhaps it would take a longer time of intervention to make significant improvements in strength.

The male participant on the other hand performed relatively poorer in all domains prior to EAT, and although he had some gains, he did not benefit as remarkably from the intervention. What sets him aside though is the fact that he has epilepsy. Although his epilepsy is well controlled on Valproate, it may be a marker of an altered central nervous system. Early onset is a well-known confounding factor in the development of children, and a common co-morbidity in children with ASD. In order to investigate this intervention further, it may be necessary to have a cohort of children with ASD large enough to tease out some of these confounding variables.

As stated previously, limited studies have been conducted to determine the improvement of motor proficiency using EAT specifically in children with ASD. Thus, limited comparisons could be made with previous research. Comparing the present study with the results obtained by Wuang *et al*. (2010), using a simulated developmental horse riding programme, which is an innovative horse riding exercise machine also known as a "Joba" on children with ASD. The

researchers conducted a 20-week intervention with 30 children diagnosed with ASD between the ages of 6 years and 5 months and 8 years and 9 months, where similar gains in motor proficiency in the specific subtests measured were reported. This indicates that EAT improved balance, strength and upper-limb coordination in children with ASD.

There appeared to be other general and less specific advantages observed by the researchers that also correlate with the findings of Wuang *et al*. (2010). These advantages include that the children were able to follow instructions more easily whilst in the vicinity of the horse. The EAT, therefore, provided the opportunity for indirect learning to take place. The constant movement of the horse also required high levels of concentration, which might have had a positive influence on their cognitive ability. Furthermore, the constant movement on the horse stimulates the vestibular system that may have resulted in a calming effect in both participants and in addition, it could have improved their balance abilities and muscle tone.

Another informal observation of the current study was an improvement in the children's confidence levels and their self-esteem. Over the period of the intervention, they became more confident in approaching the horses on their own (with supervision), mounting them with more confidence and playing a bigger role in manipulating the horse. Far less time was spent preparing the participants before the actual therapy commenced. This may possibly be due to the fact that each participant could take control over the situation he/she was placed in, and experienced a sense of authority over the horse. According to Rothe *et al*. (2005), horses can put children therapeutically in touch with their own vitality by their large and gentle presence. Children who usually avoid physical and emotional closeness are often willing to accept such closeness from horses and could transfer these skills to their daily lives by means of therapy. These researchers are of the opinion that the behaviour of a sensitive horse serves as an important instrument with which therapists can teach children different skills.

CONCLUSION

This research was aimed at determining if an EAT intervention could result in improvement of balance, upper-limb coordination and strength as aspects of motor proficiency in children with ASD. The results suggest that an EAT intervention improved all three aspects in both participants, although the range of benefits varied notably between the two participants. Possible reasons for this have been referred to already although the result is considered understandable taking into account the heterogeneous nature of underlying problems of these children.

Although positive results were obtained from both participants, it is suggested that future research should be conducted with a larger sample to determine the efficacy of EAT on the motor proficiency of children with ASD, and possibly also determine the role of concurrent co-morbidities and even medical interventions. The researchers are of the opinion that the 10 contact sessions should be increased, although the average sessions that have been reported for EAT were 12 weeks and lasted 40 minutes each (O'Haire, 2013). Finally, the study did not evaluate the sustained effects of the EAT intervention, although it is considered important to determine if the effects of such interventions can be sustained. Further research is, therefore, recommended in this area in order to study the benefits of EAT interventions on motor proficiency of children with ASD in more depth. Although no definite conclusions can be

drawn, the results of this study suggest that an EAT intervention may be beneficial to improve the balance, upper limb coordination and possibly strength of children with ASD in a way that is acceptable but also enjoyable to these children.

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APPENDIX
EQUINNE-ASSISTED THERAPY PROGRAMMES

Intervention programmes

The intervention programme of the current study alternated between three separate programmes. The researchers had 12 weeks to conduct the study. Week 1 and Week 12 were used for the pre- and post-test and during Week 2 the children got to know the horse. During weeks 3, 6 and 9, Programme 1 was followed in order to attempt to improve balance. During weeks 4, 7 and 10, Programme 2 was followed in order to attempt to improve strength. During weeks 5, 8 and 11, Programme 3 was followed for the purpose of improving upper-limb coordination.

Week 1: Pre-test evaluation

Week 2: Getting to know the horse
Tactile stimulation through grooming of horse;
Leading the horse through different obstacles;
Riding bareback.

Programme 1: Tactile stimulation (Grooming of horse)
The following activities are all performed on the horse whilst the horse is in motion:
Ride with hands on head;
Ride with arms stretched out like an airplane;
Balance a beanbag on head;
Balance beanbag on shoulders;
Balance a beanbag on palm of hand whilst arms are stretched out like an airplane.
(Balance activities are performed while the horse is bareback in order to incorporate tactile stimulation as well as to intensify the improvement of balance.)

Programme 2: Tactile stimulation (Grooming and saddling of horse)
The following activities are all performed on the horse whilst the horse is in motion:
Hold beanbags between upper thighs against saddle;
Jockey seat: Push on horse's neck whilst lifting hips;
Upper-limb strength: Perform lateral arm raises;
Cross over: Bring left hand to right foot and right hand to left foot;
Move arm in circular motion whilst tracking with eyes.
(Strength exercises are performed on the saddle, because these exercises cannot be performed without the use of stirrups).

Programme 3: Tactile stimulation (Grooming and saddling of horse)
The following activities are all performed on the horse whilst the horse is in motion:
Throw tiny handball from left to right hand and vice versa;
Throwing and catching:
Catch tiny handball with both hands;

Catch beanbag with one hand;
Throw beanbag into bucket;
Pass ball around the body from one hand to the other hand.

Week 12: Post-test evaluation

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