Equine-Facilitated Therapy: An Adjunct Treatment for Pre-Adolescent Girls with ADHD

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Equine-Facilitated Therapy:
An Adjunct Treatment for Pre-Adolescent Girls with ADHD

by
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B.A., McGill University, 2013
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DISSERTATION

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Doctor of Psychology in the Department of Clinical Psychology
at Antioch University New England, 2017

Keene, New Hampshire
The undersigned have examined the dissertation entitled:

EQUINE-FACILITATED THERAPY: A POTENTIAL ADJUNCT TREATMENT FOR PRE-ADOLESCENT GIRLS WITH ADHD

presented on July 10, 2017

by

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Abstract

This study examined the potential impact of equine-facilitated therapy (EFT) as an adjunct treatment for pre-adolescent girls with attention deficit hyperactivity disorder (ADHD). Research on EFT has shown some promise in helping children develop a sense of self and greater awareness of their behavior and body language. It has also shown potential for increasing externalizing and internalizing behaviors. The rationale behind the use of EFT with children with ADHD is that by taking part in an EFT program, they will receive immediate feedback on their behavior and will therefore experience an increase in attentional control and a decrease in impulsivity. Two 11-year-old girls with a diagnosis of ADHD took part in a 12-week EFT program. They received 12 sessions and participated in this study for a total of 14 weeks. Measures were administered four times over the course of the study. Participants completed the BASC-2 Self-Report of Personality and the IVA-CPT-2, while the parents filled out the BASC-2 PRS. The focus of this research was to investigate whether EFT can be beneficial in reducing core symptoms of ADHD (i.e., attention problems, hyperactivity, internalizing and externalizing behavior) according to both participants and their parents. The results suggest that the potential benefits of EFT vary depending on the individual. Both parents and participants reported a decrease in symptoms associated with ADHD on the BASC-2. On the IVA-CPT-2, only the Response Control Auditory scale for Participant 1 showed some improvement throughout the program, while the other scales showed improvements until Time 3. These gains were not maintained on the last testing day. The results for Participant 2 showed a decrease in scores on both attention and response control scales throughout the program.

**Keywords:** Equine-facilitated therapy, Attention-deficit hyperactivity disorder (ADHD), Adolescent girls, Immediate feedback
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Equine-Facilitated Therapy:
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ADHD: An Overview

Attention deficit hyperactivity disorder (ADHD) is one of the most common and frequently diagnosed neurodevelopmental disorders of childhood (CDC, 2014a). An estimated 5% to 8% of children and adolescents, and 2.5% of adults, have been diagnosed with ADHD (APA, 2013; Scheffler, Hinshaw, Modrek, & Levine, 2007). ADHD is associated with reduced academic performance, social rejection, and elevated interpersonal conflicts (APA, 2013). Hence, children with ADHD are three times more likely to have poor peer relationships compared to children without ADHD (CDC, 2014a). In addition, children and adolescents with ADHD tend to have fewer friends than children who do not have an ADHD diagnosis (Sibley et al., 2012). ADHD is often associated with victimization, the development of emotional distress and internalization of problems (Sibley et al., 2012). Moreover, children with ADHD have an increased likelihood of developing conduct disorders and engaging in substance abuse. Children with ADHD tend to be more impulsive, which may augment their risk of injury or accident (APA, 2013).

It is important to keep in mind that many other psychiatric disorders can mimic the symptoms of ADHD (APA, 2013; Kolar et al., 2008). These include disruptive, impulse-control and conduct disorders, anxiety disorders, mood disorders, autism spectrum disorder, adjustment and attachment disorders, specific learning disorders and some psychotic disorders (APA, 2013; Kolar et al., 2008).

Gender and Sex Differences

Males are generally more likely to be diagnosed with ADHD than females, with a
male-to-female ratio of 2:1. However, according to DSM-5, females are more likely to be diagnosed with the inattentive subtype of ADHD compared to males (APA, 2013). This sex difference may be explained by the fact that females are less likely to present with hyperactive and/or impulsive features, thus resulting in an under-diagnosis of the disorder in females (APA, 2014). Staller and Faraone (2006) concluded from a review of the literature that ADHD is often underdiagnosed and undertreated in females. They caution readers that females have the same risks as males for impairments and comorbidity. They concluded that this disorder is often not diagnosed in females due to their tendency to present with the inattentive subtype. While girls are more likely to be diagnosed with the inattentive type of ADHD, they are less likely to exhibit problems in school, or other comorbid disorders such as conduct disorder and depression, when compared to boys with a diagnosis of ADHD (APA, 2014; Biederman et al., 2002).

In a study examining sex differences in attentional performance, which included 175 children with ADHD combined subtype and 132 normal controls, Günther, Knospe, Herpertz-Dahlmann, and Konrad (2015) found that although sex differences were present in general measures of attention, these differences were not specific to ADHD. Attentional impairment appears to be identical for both males and females with a diagnosis of ADHD combined subtype. The authors suggest that the sex differences that have been found in children with ADHD may be best explained by sex differences in the general population.

Another study, conducted by Abikoff and colleagues (2002), explored the rates of gender-specific non-normative behavior in children with ADHD. The findings indicated that boys with ADHD had similar rates of soliciting the teacher compared to same-sexed classmates. Boys had higher rates of disruptive classroom behaviors compared to same-sexed classmates and girls with ADHD. On the other hand, girls with ADHD were more likely to solicit the teacher
than girls without ADHD. In addition, girls with ADHD had similar rates of out-of-chair
behavior, physical and verbal aggression, as girls with without ADHD (Abikoff et al., 2002).
Girls with ADHD showed less severe disruptive and aggressive behaviors compared to boys with
ADHD. Yet, both boys and girls with ADHD showed similar rates of non-disruptive ADHD
behaviors such as being off-task or displaying minor motor movements (Abikoff et al., 2002).

**First Line of Treatment: Psychostimulant Medication**

There are several pharmacological and psychosocial treatments available for ADHD. The
first line of treatment for children and adolescents with ADHD is medication. The most
commonly used medications are pharmaceutical stimulants, which are effective in approximately
70% to 85% of cases, and are also affordable and easily accessible (Findling et al., 2011;
Greenhill et al., 2002; Pliszka, 2007; Smith, Waschbusch, Willoughby, & Evans, 2000). This
treatment appears to have some benefits in improving academic performance, writing skills, and
in-class behavior reported and observed by teachers (Evans et al., 2001). A meta-analysis on
long-term efficacy of stimulant medication (i.e., more than 12 weeks) concluded that stimulant
medication was effective in decreasing inattentive and hyperactivity/impulsivity symptoms on
both teachers’ and parents’ reports (Maia et al., 2017).

Stimulant medication has also been linked to improved auditory processing performance
(Lanzetta-Valdo, Alves de Oliveira, Ferreira, & Palacios, 2017). At the start of the study,
children with ADHD who were not on medication showed poorer auditory processing task
performance compared to children who were not diagnosed with ADHD. After starting stimulant
medication, children with ADHD showed a progressive improvement in auditory processing
performance, with the most significant improvement happening six months after the start of
stimulant medication (Lanzetta-Valdo et al., 2017).
Side effects of stimulant medication. There are disadvantages to the use of CNS stimulants due to several reported side effects, including headaches, loss of appetite, nausea, irritability and insomnia (Sibley, Kuriyan, Evans, Waxmonsky, & Smith, 2014). More severe side effects include increase in blood pressure and heart rate, a decrease in weight, and in some cases, stunted growth in children (De Sousa & Kalra, 2012).

Treatment with stimulant medication is not effective for everyone, and, in the case of adolescents, treatment adherence can be problematic (Sibley et al., 2014). According to Molina et al. (2009), about 80% to 90% of children will discontinue medication during adolescence. Other studies have found that adolescents tend to not adhere to their medication regimen and often refuse stimulant medication (e.g., Charach & Gajaria, 2008; Marcus, Wan, Kenmer, & Olfson, 2005; McCarthy et al., 2009; Perwien, Hall, Swensen, & Swindle, 2004). On the other hand, some adolescents with ADHD may not be aware of how the medication benefits them. A study examining the attributions and perception of the effects of stimulant medication on adolescents with ADHD found that adolescents have poor physiological awareness of the medication’s effects, especially at the lower doses (Pelham et al., 2017). In addition, when asked if they took the active medication or a placebo, adolescents were more likely to guess that they took the medication on good days and the placebo on bad days (Pelham et al., 2017). On bad days, the medication was cited on 10% of occasions as the reason for their poor performance. In brief, adolescents lack insight into the effectiveness of the stimulant medication for helping manage ADHD symptoms. In addition, adolescents tend to attribute success to themselves and their effort and failures to external reasons. These attributions and perceptions may lead them to discontinue medication (Pelham et al., 2017).

Another concern with medication is how it is perceived and understood by children who
are taking it. Although medications may be effective in the short term, particularly for improving academic performance, they may be counterproductive or ineffective in the longer term (Travell & Visser, 2006). For many individuals taking medication, the dosage has to be progressively increased, as it may become less effective over time. Yet most parents and children have reported positive effects related to treatment with medication, mainly noting an improvement in the child’s behavior and a decreased tendency to get into trouble at school. This suggests that although medications work in alleviating some of the symptoms, they do not address the underlying causes of ADHD (Travell & Visser, 2006).

Some studies suggest that the psychological effects of taking medication to treat ADHD can lead the child to lose confidence in being able to accomplish anything without it. This can lead to decreased motivation, self-efficacy and self-esteem (Hamilton & Astramovich, 2014). The symptoms of ADHD can affect self-esteem and lead children to see themselves as “naughty” or “stupid” (Travell & Visser, 2006, p. 207).

Although, psychostimulants are effective for the majority of individuals with ADHD, between 10–30% will not respond to stimulant medication or experience adverse side-effects (Briars & Todd, 2016; Kaye & Darke, 2012). Moreover, the literature indicates that prescription rates for stimulants have greatly increased over the past two decades (Scheffler et al., 2007). In the United States, about half of all children and adolescents diagnosed with ADHD take stimulant medications (Scheffler et al., 2007). Between 2007 and 2011, the percentage of children taking medication increased by 28% (CDC, 2014b). Thus, some professionals argue that ADHD is overdiagnosed as well as that medication to treat it is overprescribed and often not supplemented with other possible forms of therapy. There is growing interest in the field of psychology in finding alternative treatment and/or adjunct treatment to medication alone. This is
due in part to the fact that although medication can be very effective in alleviating some symptoms of ADHD, the effect only lasts as long as the medication is taken. In addition, medication does not always appear to address all symptoms associated with ADHD such as school performance, peer relationships and interactions (Clay, 2013; Travell & Visser, 2006). For example, a study conducted by Pelham et al. (2013) concluded that even though children with ADHD showed a positive response to methylphenidate, they often had poorer mother–child interactions compared to children without ADHD.

Considering this information, it is clear that psychostimulant medication is effective in helping reduce many symptoms associated with ADHD. However, the literature suggests that although expectations are very high for medication, adherence is difficult at times and medication may not manage all symptoms associated with ADHD (e.g., social skills, peer relations). There are many different treatment modalities available to help manage symptoms of ADHD. These other treatments may provide other benefits or augment the efficacy of medication by addressing other aspects of the disorder. These other treatments include: (a) non-stimulant medication, (b) cognitive-enhancement training, (c) behavioral therapy, (d) parent behavioral training, and (e) a combination of these treatments with medication.

**Other Available Treatments**

Non-stimulant medication is another pharmacological treatment option available to children and adolescents with ADHD. In adolescents, non-stimulant medication has shown to reduce symptoms of ADHD compared to placebo (Adler et al., 2012). Non-stimulants may be an effective alternative for individuals for whom taking stimulants is contraindicated or who have comorbid anxiety or tics to help them manage their symptoms of ADHD (De Sousa & Kalra, 2012; Kolar et al., 2008). In addition, compared to stimulants, non-stimulants are not a controlled
substance and have a lower risk of being abused (Briars & Todd, 2016; De Sousa & Kalra, 2012; Kolar et al., 2008). Non-stimulants also have some side effects including irritability, insomnia or sedation, fatigue, dizziness, abdominal pain, and decreased appetite and weight (De Sousa & Kalra, 2012).

Cognitive-enhancement training (CET) focuses on ADHD-related cognitive symptoms, such as impaired memory and inattention (Sibley et al., 2014). There are two types of CET: (a) neurofeedback or biofeedback, and (b) working-memory training. However, these treatments have not been widely studied. Results of two randomized control trials on working-memory training suggest no effects on academic or classroom behavior, as reported by children and teachers (Gray et al., 2012; Steiner, Sheldrick, Gotthelf, & Perrin, 2011). A study conducted by Steiner et al. found that parents of children with ADHD reported significant changes on scales associated with inattention, hyperactivity and ADHD when their child received neurofeedback. However, the children and teachers did not report any improvements in behavioral symptoms associated with ADHD on self-report measures. Furthermore, no improvements were noted on scales associated with attention and impulsivity on the Integrated Visual Auditory-Continuous Performance Test (IVA-CPT), which participants in this current study were asked to complete. Furthermore, two meta-analyses on the efficacy of working-memory training concluded that this intervention does not enhance daily functioning for children with ADHD (Melby-Lervåg & Hulme, 2013; Rapport, Orban, Kolfer, & Freidman, 2013). Therefore, it appears that neurofeedback may help improve some symptoms of ADHD, but according to studies investigating the use of CET, it appears that such improvements are only marginal (Sibley et al., 2014).

Behavior therapy has shown some promise in boosting parents’ ratings of outcomes, as
well as in the observed outcomes for adolescents, yet it does not appear to impact students’ reported GPA and impairment in peer relationships (Pelham & Fabiano, 2008; Sibley et al., 2014). Behavioral therapy will likely be successful if the goals for therapy are clear and focused on skills that will be useful to the child. In addition, the implementation of these skills needs to be consistently monitored by adults in the child’s life. Therefore, a lack of resources may make it difficult to implement clinical and school-based behavioral-therapy interventions. It may also be difficult for some children to have access to an adult who can help them implement behavioral skills (Sibley et al., 2014).

A literature review conducted by Coates, Taylor, and Sayal (2015) concluded that parent-administered behavioral interventions led to a moderate reduction in both ADHD symptoms and conduct problems. In addition, it appears that this type of intervention also increased parental self-esteem (Coates et al., 2015). Another study, using parent training for children with ADHD and defiant and aggressive behavior, was conducted in a group format with nine to ten families per group (Danforth, Harvey, Ulaszek, & McKee, 2006). A total of 49 families took part in the eight-week program. Parents in these groups received some didactic material and theory and were then given an opportunity to practice the skills. Findings from this study indicated a significant decrease in hyperactive and aggression scale scores on the Behavioral Assessment System for Children according to both mothers and fathers. On the Home Situation Questionnaire, both fathers and mothers reported a significant decrease in the pervasiveness and severity of noncompliance. In addition, both parents reported a significant decrease in behavioral problems. The authors concluded that the results on the multiple measures used in this study suggest that the group parent training program decreased aggressive, hyperactive and oppositional behavior, while also improving parental behavior and reducing
parental stress (Danforth et al., 2006).

A study examining the effects of Behavioral Parent Training (BPT) on fathers of children with ADHD found that fathers who received the training were observed to have fewer negative and more positive interactions with their child compared to the wait-list control group. In addition, fathers who received the training displayed a reduction in the rate of negative talk and rated the intensity of their child behavioral problems as being less severe at the end of the program. That being said, fathers still indicated that their child continued to exhibit problematic behaviors (Fabiano et al., 2012).

A study conducted by Mohammadi, Soleimanu, Ahmadi and Davoodi (2016) examined the difference in effectiveness of parent behavioral management training (PBMT) paired with psychostimulant medication and medication alone in the reduction of ADHD symptoms in children. The combined treatment group was composed of 22 children with ADHD who received methylphenidate treatment. Their mothers were asked to complete the Conners Parent Rating Scale (CPRS) pre- and post-treatment to assess the severity of ADHD symptoms. The PBMT intervention consisted of two hours of sessions a week for a total of 10 weeks. The control group was composed of 25 children receiving only psychostimulant medication. Results on the CPRS suggest that there was a greater decrease in reported ADHD symptom severity in the combined treatment group compared to receiving medication alone (Mohammadi et al., 2016).

Pelham et al. (2016) compared the combination of behavioral training for both parents and child with medication to the effectiveness of a single treatment modality. In this study, 146 children were randomly assigned to two groups. Children in the first group received behavioral training first. In addition, intervention for this group included eight weekly sessions of group behavioral parent training, group social skills training for children, and booster parent training
sessions. The second group received stimulant medication first. After eight weeks, children who responded insufficiently were randomized once again to a secondary intervention. This new intervention provided either an increase in dosage or intensity of the initial treatment or added the other treatment modality. Findings from this study suggest that the group who began with behavioral treatment showed significantly lower rates of classroom violations at the end of the study as well as fewer out-of-class disciplinary events. According to the authors, adding medication after behavioral treatment resulted in better outcomes on classroom violation, and parents’ and teachers’ ratings showed a decrease in oppositional behavior compared to the condition adding behavioral treatment to medication. Lastly, the authors concluded that parents who began with behavioral training had significantly better attendance for sessions than parents who received this training after medication was initiated (Pelham et al., 2016).

In brief, from the literature presented, a combination of behavioral therapy, behavioral parent training and medication may be the most effective treatment for children with ADHD. It also appears that combining medication with another treatment is more efficacious than medication alone. Therefore, finding new adjunct treatment to help augment the effect of medication may be useful in treating ADHD. The goal of this study was to explore the potential efficacy of using equine-facilitated therapy (EFT) as an adjunct treatment for girls with ADHD. In the following sections, the rationale for using EFT as an adjunct treatment is presented followed by a review of the literature on equine therapy.

**Theoretical Frameworks**

EFT is a specific area of animal assisted therapy in which horses are used as co-facilitators in the learning process. EFT integrates a range of counselling, education and personal development approaches, strategies and techniques in order to help the individual heal,
grow, and learn (CanTRA, 2015). EFT requires the individual to participate in the horse’s environment, where the individual will have to learn to communicate with and respect this imposing animal (Ewing, MacDonald, Taylor, & Bowers, 2007).

The framework behind the use of EFT with children and youth with ADHD can be understood through behavioral applications, more specifically the concept of immediate feedback. According to Clay (2013), medication does not always appear to be effective when it comes to improving school performance and interactions with peers. Using immediate feedback is a simple yet effective behavioral intervention that helps increase the attention of children with ADHD (Clay, 2013). Receiving video feedback on social interactions has also shown some promise in decreasing the rates of disruptive and inappropriate behavior among youths (Sibley et al., 2012). The rationale behind this intervention is that by attending to the consequences of their social behaviors and receiving feedback from a therapist, children and adolescents will develop a greater awareness of how they interact and in turn will be able to improve their interactions with others (Sibley et al., 2012). Results of a single-case study conducted by Sibley et al. (2012) suggest that video feedback intervention might reduce inappropriate social behavior and could also be generalizable outside of the intervention.

The concept of immediate feedback has shown some promise in helping children with a diagnosis of ADHD to better control their behavior. It is important to highlight the fact that immediate feedback appears to be more effective than delayed feedback in increasing appropriate behaviors in individuals with ADHD (Price, Martella, Marchand-Martella, & Cleanthous, 2002). A study in which a young boy with ADHD wore an FM headset throughout his school day found that immediate feedback was more effective in decreasing inappropriate behavior in class when compared to delayed feedback (Price et al., 2002).
EFT uses a similar process whereby the child interacts with the horse and is made aware, through the therapist’s feedback, of how the horse perceives the interaction. Thus, the therapist provides feedback on behavior, which can then help the child become more aware of his/her actions with peers. This could be taken a step further during an EFT session, as the therapist could ask the child to think about other circumstances where his/her interactions had a negative impact due to their inappropriate behavior (Karol, 2007).

Jane Karol (2000) explains the interactions between horse and rider:

The horse offers a singular relational experience for the client, not least because of its extraordinary sentient abilities. When a rider attempts to communicate physically with a horse (i.e., through the use of sensorimotor skills), s/he gets immediate feedback, as the horse expresses pleasure, anger, fear, or forgiveness. In turn, the rider’s emotions are usually equally immediate in response to the horse. The therapy can examine the quality and idiosyncrasies of this communication and can compare it with the client’s relationships with humans. (p. 10)

EFT provides a setting where the here-and-now predominates. When interacting with a child, a horse tends to mirror and respond to the child’s emotions, behaviors and movements. This immediate feedback allows for two interventions. First, it provides feedback to the child on his/her behavior and how it is perceived. This, with the help of the therapist, will allow the child to understand how his/her actions influence people and the surrounding environment. Second, the therapist can use the horse as a metaphor to explore difficulties in everyday life and help the child to resolve problems (Karol, 2007; Meinersmann, Bradberry, & Roberts, 2008). One hypothesis that has been proposed regarding the benefits of EFT is that the horse provides immediate feedback to the individual interacting with it.
Children with ADHD may also present with low self-esteem as a result of feeling incompetent and experiencing failure and social rejection (Hamilton & Astramovich, 2014). It has been suggested that providing opportunities for children with ADHD to take on leadership roles during therapeutic activities may increase their self-esteem (Portrie-Bethke, Hill, & Bethke, 2009). In EFT, the goal would be to provide the child with a positive experience whereby the child is able to learn new skills by completing tasks with the horse. Research suggests that partaking in an EFT program may help individuals increase their self-efficacy and develop the confidence that will allow them to deal with other challenges (Bizub & Davidson, 2003; Cumella, 2003).

Tucker and Dixon (2009) proposed that children with ADHD are less inclined to engage in new behaviors because they have often faced many negative experiences in different settings. According to Bandura (1977), children are less likely to put in the effort if they believe that they will be unsuccessful. Children with ADHD may have low self-efficacy, which may be due to their previous experiences of repeated failure and rejection. In EFT, the child needs to be in control of the horse, leading the horse to accomplish a specific task or exercise that is required. Hence, the child needs to be the leader in the relationship, while still respecting and being attentive to the horse and its reactions.

**How EFT May Answer Some Diversity Questions**

When considering a diagnosis and the treatment of ADHD, it is important to also understand how people of different religions, cultures and individual character view this disorder. Followers of some religions prefer a scriptural-counseling approach to mental illness or behavioral problems. Others may consider certain psychiatric disorders as sins manifested as medical diseases. Furthermore, some may perceive the use of medication for such disorders as a
superficial solution to a bigger moral/religious problem (Li, 2013). EFT could be useful when treating individuals whose religious beliefs prevent them from using medication for a psychiatric disorder, as it does not require medication administration. Furthermore, some religions maintain that bad behavior will lead to negative consequences and that medication does not address underlying causes (Li, 2013). Thus, EFT can be understood as an activity that helps children and adolescents learn, receive feedback and better understand the consequences of their behavior.

Belief systems and customs differ in various segments of the American population. Rothe (2005) cites as an example that individuals from Colombia, Guatemala, and the Dominican Republic prefer a holistic approach as opposed to prescribing medication. Rothe suggests that concerns about the long-term and potentially harmful effects of using stimulants may be, in part, the reason why some cultures tend to turn toward a more natural approach. For example, mothers from Puerto Rico, Cuba, and the Dominican Republic feared their children becoming addicted to stimulant medications, as well as the dampening effects such medications could potentially have on their cognitive process (Arcia, Fernandez, & Jaquez, 2004). EFT is a more natural and holistic approach to treating behavioral and emotional disorders than medication alone. This may be of great significance when individuals want a more natural and holistic approach to treating ADHD.

Most therapies require the client to discuss their experiences in the therapist’s office. However, not all clients can easily verbalize their feelings and experiences in this setting. One advantage of using horses to conduct therapy is that the communication between the client and the horse is non-verbal; hence, language barriers are less likely to interfere with treatment (Karol, 2007). The horse has the ability to interact with each client differently by adapting itself to the level of the individual. Karol (2000) writes: “Riders of differing abilities can each communicate with the same horse according to their particular level of knowledge, and the horse will learn to
respond and react to each rider at his or her own level” (p. 37). Furthermore, the horse will also adapt its behavior depending on the client’s level of experience (Karol, 2000).

One other aspect of reluctance to initiate medication management may be explained by parental perspective on medication. A study of 27 parents of children with a diagnosis of ADHD looked at the factors facilitating adherence and the barriers to initiating medication management (Coletti et al., 2012). The results of their focus group concluded that parents were often wary of initiating medication management due to a desire to try other avenues of treatment first, such as social skills training or behavioral therapy. Parental perception was also influenced by their social groups’ perception of medication and its implications for their parenting abilities. In addition, parents’ understanding of possible side effects and the mechanism of action of the stimulant medication was not completely accurate, leading them to discontinue the medication due to unrealistic expectations or fear it was harming their child. However, parents in the focus groups agreed that once stimulant medication was initiated, they felt that medication was effective in stabilizing ADHD symptoms, which led to functional improvements in areas such as sleep, mood, academic performance and social functioning. In addition, some of the parents also commented that the medication helped keep their child safe, as they were not acting as impulsively or engaging in dangerous behaviors (Coletti et al., 2012). In brief, some parents may not initiate medication because they worry about its potential impact or are misinformed about stimulant medication. Others may prefer to be able to explore avenues other than medication alone. In this case, EFT could be offered as a potential adjunct treatment to medication. Medication management could help stabilize symptoms of ADHD, while EFT could potentially provide a space for learning new skills. Appropriate psychoeducation about a variety of treatment modalities should also be offered to the parents in order to help them chose the best
course of treatment.

**Literature Review**

**EFT in Alleviating Some Symptoms of ADHD**

There is very little research on EFT with children with ADHD, which include only three known peer-reviewed studies that look at the potential outcome of EFT with children with ADHD. One such study was conducted by Cuypers, De Ridder, and Strandheim (2011). In this study, there were five male participants between the ages of 10 and 11 years old, all taking Concerta. This study was a time-series quasi-experimental design that lasted 24 weeks, where measures were taken at eight-week intervals. Each participant received two 60-minute riding lessons per week over an eight-week period (i.e., between the two pre-test periods and the post-test one). It is important to note that the participants only rode for 15 minutes; the remaining time was spent grooming the horse. In addition, one of the main limitations of this study was that it included only boys.

Using the Strengths and Difficulties Questionnaire (SDQ) and the mean score values of the Wilcoxon test, EFT appeared to alleviate emotional symptoms, conduct problems, hyperactivity and inattention, and total difficulties as reported by the boys with ADHD who participated in the study (Cuypers et al., 2011). In addition, parents reported a significant change in hyperactivity/inattention and total difficulties, while teachers reported positive significant changes in overall difficulties. On the KINDL–Health-Related Quality of Life Questionnaire (HQoL), only two of the five participants showed improvements as reported by parents and participants. Taking into consideration the changes reported by participants, parents, and teachers, this study suggests that EFT may be a promising adjunct treatment for children with ADHD.
In a more recent peer-reviewed study, 20 children (19 boys and one girl) with ADHD, aged 6 to 13 years, participated in an equine therapy program (Jang et al., 2015). The program involved two weekly sessions of equine-assisted activities/therapy (EAA/T) for a total of 12 weeks. All participants were recruited from the Child and Adolescent Psychiatry Service Unit at Samsung Medical Center, Seoul, South Korea. None of the participants were allowed to be on medication for ADHD within 90 days of baseline or during the intervention. Other exclusion criteria included significant medical conditions, schizophrenia, psychotic disorders and bipolar disorder. Furthermore, participants could not be taking any medication for depression, Tourette’s disorder, or obsessive-compulsive disorder (Jang et al., 2015).

Investigators administered the following measures twice during the course of this study to measure improvements in symptoms of ADHD: ADHD-Rating Scale (ARS-I), the Clinical Global Impressions Scale (CGI), and the Gordon Diagnostic System (GDS), as well as the Korea-Child Behavior Checklist (K-CBCL) to measure changes in social and behavioral competence, and the Self-Esteem Scale (SES) to measure self-esteem. To assess for changes in motor functions, the second edition of the Bruininks-Oseretsky Test of motor proficiency (BOT-2) was also administered (Jang et al., 2015). Participants completed these measures two weeks before the start of the EAA/T program to establish a baseline. Within two weeks of the end of the EAA/T program, all measures were re-administered. The EAA/T program consisted of unmounted and mounted activities during which participants engaged in psycho-exercises and activities to help improve attention and inhibit impulsivity.

The results indicated a decrease in mean scores on the ARS-I inattentive and hyperactive-impulsive subscales, after participation in the EAA/T program compared to baseline. On the CGI-S scores, 17 participants were rated as being either very much improved or much
improved from baseline, and only three participants had minimal improvement. However, these three participants were all diagnosed with developmental coordination disorder (DCD). On the K-CBCL, only the scores on the social problem subscale improved significantly after the EAA/T intervention. The mean scores on the SES also increased after the intervention. There was also an improvement at post-test on the manual dexterity, bi-lateral coordination and total motor composite subscales of the BOT-2. Lastly, on the GDS, a continuous performance test that measures the ability to inhibit and/or delay a response, mean scores also increased at post-test (Jang et al., 2015).

The authors concluded that after participating in the EAA/T program, participants showed a decrease in attention problems and hyperactive/impulsive behaviors. Also, the scores on the social problems subscales of the K-CBCL suggest that participants also had improved peer relations (Jang et al., 2015). One of the strengths of this study is that participants were not taking medication, which reduced the effect of this confounding factor. However, the size of the sample, in addition to girls being under-represented and the absence of a control group, were some limitations of this research.

In a peer-reviewed study conducted by García-Gómez and colleagues (2016), 14 children with ADHD were randomly assigned to the control group (i.e., no equine therapy) or the equine therapy group. Participants were seven to 14 years old, with a prior diagnosis of ADHD made by a neuro-pediatrician. There were no exclusion criteria other than any medical condition that would prevent interaction with horses.

For this study, the investigators used the Spanish version of the Behavioral Assessment System for Children (BASC). More specifically, they used only the Teacher Rating Scale (TRS) and its subscales: aggressiveness, hyperactivity, conduct problems, anxiety, depression,
somatization, attention problems, atypicality, withdrawal, adaptability, leadership, social skills, learning problems and study skills (García-Gómez et al., 2016). The Quality of Life Questionnaire was administered to the participants’ parents to assess physical wellbeing, emotional wellbeing, interpersonal relationships, social inclusion, personal development, material wellbeing, and self-determination (García-Gómez et al., 2016).

Prior to the start of the intervention, teachers evaluated the participants on the BASC TRS in order to obtain a baseline measure of the symptoms of ADHD as reported by their teachers. Participants in the experimental group took part in the equine therapy program for a total of three months. They received two weekly sessions of 45 minutes each in groups of four for a total of 24 sessions. The participants in the control group continued with their normal daily activities for the duration of the study. At the end of the program, all measures were re-administered to all of the teachers and parents.

The research findings indicated no differences between pre- and post-test scores of the experimental and control group on all scales of the BASC TRS. Regarding this measure, the authors concluded that the effects of treatment on the studied constructs were very minimal. On the Quality of Life Questionnaire, only the interpersonal relationships scale differed significantly between the experimental group and control group at post-test (García-Gómez et al., 2016).

The authors concluded that, unlike Cuypers and colleagues (2011), this study did not show any evidence of reduction in teacher-perceived hyperactivity or an increase in general quality of life. However, both studies report some increase in social relationships (Cuypers et al., 2011; García-Gómez et al., 2016). There were some limitations to this study, including the small sample size and the fact that only teachers rated the children’s behavior (García-Gómez et al., 2016).
Due to the lack of research focusing specifically on EFT and ADHD, it may be useful and informative to do a brief literature review of research focusing on differential diagnosis of ADHD. More specifically, it would be important to explore the potential benefits of EFT for other disorders with similar symptoms found in ADHD.

Equine-Facilitated Therapy in Alleviating Core Symptoms of Autism

The effects of EFT have been widely studied with children with autism. In one study, children with autism who participated in an equine therapy program showed improvements in perception, tonus, motor control, and communication when compared to a control group (Hameury et al., 2010). The results were evaluated using the Behavior Function Inventory and the Revised Behavior Summarized Evaluation Scale. Other studies suggest that EFT shows promising results in improving social interactions and sensory processing and in decreasing the severity of core symptoms in children with autism (Memishevikj & Hodzhikj, 2010; Ward, Whalon, Rusnak, Wendell, & Paschall, 2013). Furthermore, a study examining the effects of EFT on children with autism found that those in the EFT group displayed greater sensory seeking, sensitivity and social motivation, and less inattention, distractibility, and sedentary behavior, than the wait-list control group (Bass, Duchowny, & Llabre, 2009). In conclusion, EFT has shown promise when used with children with autism in improving communication, social interaction, and social motivation. Furthermore, EFT has shown some promise in decreasing inattention and distractibility in children with autism.

These results suggest the potential for EFT to alleviate core symptoms of autism. What is interesting when looking at children with autism is the overlap of symptoms between this disorder and ADHD. Reiersen, Constantino, Volk, and Todd (2007) used the Social Responsiveness Scale (SRS) to measure autistic traits in children with ADHD. The results
showed that the inattentive and combined subtypes had significantly higher SRS means compared to the non-ADHD group. Furthermore, levels of social impairment varied depending on the ADHD subtype (Reiersen et al., 2007). Another similarity between some children with ADHD and some children with autism spectrum disorder is their difficult-to-manage behavior (APA, 2013). However, the reasons for these behaviors differ, being due to poor self-control, as in children with ADHD, or an inability to tolerate change, as with children on the autism spectrum (APA, 2013).

**Equine-Facilitated Therapy in Alleviating Acting-Out Behaviors**

A study using the Child Behavior Checklist (CBCL) with the parents of 15 children who had been abused reported a greater reduction in externalizing and internalizing behavior of their children following their participation in a 9 to 10-week EFT program compared to in-clinic counseling alone (Kemp, Signal, Botros, Taylor, & Prentice, 2014).

In another study, children and adolescents presenting with serious behavioral issues, learning difficulties, or social adjustment concerns who participated in an EFT program showed a greater increase in positive behavior and a decrease in negative behavior on the Psychosocial Session Form (PSF) compared to children and adolescents who participated in a classroom-based counseling program (Trotter, Chandler, Goodwin-Bond, & Casey, 2008). In conclusion, EFT shows some promise in alleviating behavioral problems.

**Equine-Facilitated Therapy in Alleviating Anxiety and PTSD**

Another study of EFT followed 15 adolescents who had experienced abuse and found a greater decrease in reported trauma-related symptoms as assessed by the Trauma Symptom Checklist (TSCC) after 9 to 10 weeks of EFT compared to scores after attending in-clinic counseling alone (Kemp et al., 2014). In addition, Beck Anxiety Inventory (BAI) scores
indicated a significant decrease in anxiety symptoms after completing the EFT program, compared to counseling alone (Kemp et al., 2014).

One study explored the benefits of a six-week EFT program with 16 adults reporting current PTSD symptoms (Earles, Vernon, & Yetz, 2015). Using a multitude of measures (i.e., the 17-item PTSD Checklist-Specific; 18-item Trauma Emotion Questionnaire; 7-item Generalized Anxiety Disorder Scale; and the 9-item Patient Health Questionnaire measuring depression), the authors found that participants reported that PTSD symptoms, emotional distress, anxiety symptoms, and depression symptoms decreased significantly at the end of the six-week EFT program (Earles et al., 2015).

Another study (Mueller & McCullough, 2017) explored the potential effectiveness of equine-facilitated psychotherapy (EFP) as an alternative treatment for PTSD in youth. Their study included 54 youth, 25 in the EFP group and 29 in the control group. For 10 weeks, the control group received cognitive-behavioral therapy, while the other participants attended EFP sessions. The Revised-Children’s Inventory of Events Scale-13 (CRIES-13) was administered at three time points to assess the reported symptoms of PTSD. The authors found that both groups were observed to have a significant decrease in PTSD symptoms across the 10-week intervention. However, no differences were found between the control group and the EFP group. The authors concluded that EFP is an effective treatment modality for PTSD in youth, but it is not more effective than cognitive behavioral therapy.

**Equine-Facilitated Therapy in Alleviating Depression**

In regard to depression, a study of 15 adolescents, who had abuse histories, showed a greater decrease in reported symptoms of depression as measured by the Beck Depression Inventory (BDI) after 9 to 10 weeks of EFT compared to in-clinic counseling alone (Kemp et al.,
2014). Similar results were found by Kemp et al., who showed a greater decrease in symptoms of depression after completing an EFT program compared to in-clinic counseling sessions alone, as assessed by the Child Depression Inventory (CDI).

Another study (Frederick, Hatz, & Lanning, 2015) explored the potential effectiveness of equine assisted learning (EAL) on levels of hope and depression in 26 at-risk adolescents. The Major Depression Inventory and Adolescent Domain-Specific Hope Scale were administered throughout the five-week EAL program. The authors concluded that even a brief course of EAL may be effective in increasing levels of hope and decreasing levels of depression in this sample of at-risk youths compared to a control group.

**Equine-Facilitated Therapy in Enhancing Daily Functioning**

EFT has shown some potential for improving overall functioning in children who were victims of abuse and/or violence, as measured by the Children’s Global Assessment of Functioning (GAF; Schultz, Remick-Barlow, & Robbins, 2007). There is a statistically significant correlation between the increase in the percentage of improvement of the GAF scores and the number of sessions received by the participants (Schultz et al., 2007).

Many EFT case studies of children and youth have reported perceived improvements in general quality of life and awareness of body language, along with an increased ability to process and express emotions as well as articulate problems such as trauma or grief (Ewing et al., 2007; Karol, 2007).

**EFT as an Adjunct Treatment for ADHD: The Need for More Evidence**

As previously mentioned, ADHD is one of the most commonly diagnosed disorders among children (CDC, 2014a). Pharmacological and psychosocial treatments presently available are not always efficacious or available for all children, and they can have serious or multiple
adverse side effects (Sibley et al., 2014), hence the need to find alternative and adjunct treatment options. In addition, research findings suggest that the combination of stimulant medication and psychosocial intervention appear to be the most efficacious (Mohammadi et al., 2016; Pelham et al., 2016). Furthermore, the results of the aforementioned studies suggest that EFT has shown promise in improving social and communication skills, increasing attention and decreasing impulsivity, and decreasing internalizing and externalizing behaviors (Bass et al., 2009; Cuypers et al., 2011; García-Gómez et al., 2016; Hameury et al., 2010; Jang et al., 2015; Karol, 2007; Kemp et al., 2014). Furthermore, research suggests that EFT shows some promise in improving overall functioning in children (Ewing et al., 2007; Schultz et al., 2007).

The three previously mentioned peer-reviewed studies on EFT for children with ADHD suggest EFT has promise as an adjunct treatment option for ADHD (Cuypers et al., 2011; García-Gómez et al., 2016; Jang et al., 2015). However, there are some limitations in these studies. First, the participants in these studies were almost all boys. Second, in the study by Cuypers et al., the participants only received 30 minutes per week of actual riding time (i.e., two sessions of 15 minutes per week); the remaining time was spent grooming the horse. Hence, if the modality of the treatment were to change (i.e., increasing riding time), the effectiveness may also change. Third, in the study by García-Gómez and colleagues, only the teachers were asked to complete the BASC and report on the children’s behavior. It would be important to gather the parents’ perspective on behavioral changes, if any, in their child after their participation in EFT. Furthermore, considering there is very little direct evidence on the use of EFT and the potential outcomes with children with ADHD (particularly girls with ADHD), there is a need to gather more data on this form of treatment.
Research Questions

Bearing this information in mind, the focus of this research was to examine the potential benefits of EFT in a small sample of pre-adolescent girls with a diagnosis of ADHD as an adjunct treatment to medication. More specifically, the research questions were:

1. Will attentional control, as measured by the IVA-CPT-2, increase over the course of the EFT program in the sample of pre-adolescent girls with ADHD?
2. Over the course of the EFT program, will both parents and participants report improvements in ADHD symptoms, such as attention, hyperactivity, externalizing and internalizing behaviors, as measured by the parent and child ratings on the BASC-2?
3. Will both parents and participants report improvements in interpersonal relationships (i.e., relationships with peers and parents) on the BASC-2 during the EFT program?

It was hypothesized that the participants’ scores on the IVA-CPT-2 would increase, indicating improved ability for attentional control and a decrease in their display of impulsive behavior. In addition, it was predicted that both parents and children would report a decrease in core ADHD symptoms (i.e., problems with attention and hyperactivity), as well as in externalizing and internalizing behaviors on the BASC-2 throughout the program. Furthermore, both parents and pre-adolescent girls were predicted to report improved interpersonal relationships. It was predicted that participants might experience a greater positive change than that reported by parents on the BASC-2, possibly due to the participants feeling more self-efficacious in their ability to manage their symptoms of ADHD. However, having another objective measure (i.e., the IVA-CPT-2) will help corroborate the data gathered for both the Parent Rating Scale and Self-Report Scale of the BASC-2.
The hypothesis was based on the assumption that interacting with horses will provide the children with immediate feedback on their behavior. As mentioned above, research suggests that immediate feedback has shown some promise in helping children with ADHD to be less impulsive. Furthermore, EFT research suggests that this form of therapy increases the sense of self-efficacy, which has been reported to be a problem for children with ADHD. This is in part due to the fact that ADHD can be very debilitating. In addition, some children may perceive their success as a result of taking their medication and not because of their own efforts.

Method

Participants

The study used a purposeful sampling in order to answer specific questions regarding girls with a confirmed diagnosis of ADHD. The participants were eligible to participate in this study if they had a formal diagnosis of ADHD with no other comorbid disorder. Participants in this study were not required to be on medication, but if they were, they were required to have taken the medication for a minimum of three months prior to the start of the study to ensure that the participant had stabilized on the medication. Additionally, the participants had to be (a) physically able to ride horses (i.e., should not be hindered by any physical disabilities), (b) unafraid of them, and (c) comfortable working alongside them. Participants with previous experience in similar programs or knowledge of riding were excluded from the study. Parental consent was essential and obtained prior to the start of the study.

With the help of the Canadian Therapeutic Riding Association (CanTRA), two organizations were contacted in order to help recruit participants: the Local Community Service Centre of Montérégie (in French: Centre local de services communautaires or CLSC de la Montérégie) and the Regroupement des associations PANDA du Québec. The Local Community
Service Centre is a government-run consortium of health and social services that serves the population of the region (in this case the Montérégie region of the Province of Quebec). Its mandate is to coordinate numerous services, including access to preventative and curative health services, medical and mental health treatments, rehabilitation and reintegration (Gouvernement du Québec, 2017).

The second organization, the *Regroupement des associations PANDA du Québec*, provides support specifically to children with a diagnosis of ADHD and their families across the Province of Quebec. It offers information regarding medication and evaluation, as well as training and seminars on ADHD. The organization’s mandate states that it is committed to helping individuals and/or other organizations that work to answer the needs of individuals with ADHD (Regroupement des associations PANDA du Québec, 2016).

A total of six individuals were initially interested in participating in this research. However, only two met all the inclusion criteria. Most potential participants were excluded due to a comorbid disorder. Thus, two girls, both aged 11 and French-speaking, were recruited. Both participants had a formal diagnosis of ADHD made by their primary care physician and no comorbid disorder. Both were on medication prior to the start of this study. Participant 1 was prescribed 36 mg of Concerta per day, while Participant 2 took 70 mg of Strattera per day. Both participants were always accompanied by one of their parents to each session. Only the mothers completed the BASC-2 PRS.

**Measures**

*IVA-CPT-2.* To measure the dependent variables of attentional control and impulsivity, the study used the Integrated Visual and Auditory Continuous Performance Test 2nd Edition (*IVA-CPT-2*; Sandford & Turner, 2007). This measure is a computer-based performance
task, which required the participant to click a mouse button when the target stimulus is presented either visually or auditorily and to not respond when a distractor is presented. This measure was designed to help diagnose and quantify the symptoms of ADHD for people aged six and above, and can also be used as a measure of treatment progression for individuals with ADHD. The test-retest reliability for the six composite quotient scores ranged from .37 to .75 (full-response control quotient is .41, auditory response control quotient is .39, visual response control quotient is .37, full-scale attention quotient is .74, auditory attention quotient is .66 and visual attention quotient is .75; Maddux, 2007). Although both the auditory and visual response control quotients had low test-retest reliability, the attention quotients demonstrated good test-retest reliability. This is important, as this study focused on the attentional factor. The validity of the IVA-CPT-2 was assessed according to whether this measure was able to correctly differentiate ADHD from non-ADHD individuals. The IVA-CPT-2 correctly identified 92% of the individuals with ADHD and 90% of non-ADHD individuals (BrainTrain, 2015; Maddux, 2007). The IVA-CPT has less than 10% of false positives. Furthermore, IVA-CPT-2 has the lowest rate of false negatives among the visual CPTs. In terms of concurrent validity, the IVA-CPT-2 is excellent when compared to CPTs and parental ADHD rating scales. Research suggests that the IVA-CPT-2 is an accurate psychological test that can provide data as part of a comprehensive evaluation (BrainTrain, 2015). This test has an administration time of approximately 20 minutes. The measure has 25 scales: Full Scale Attention, Attention Auditory, Attention Visual, Sustained Attention Auditory, Sustained Attention Visual, Full Scale Response Control, Response Control Auditory, Response Control Visual, Vigilance Auditory, Vigilance Visual, Focus Auditory, Focus Visual, Speed Auditory, Speed Visual, Prudence Auditory, Prudence Visual, Consistency Auditory, Consistency Visual, Stamina Auditory, Stamina Visual, Fine Motor Hyperactivity,
Comprehension Auditory, Comprehension Visual, Sensory/Motor Auditory, and Sensory/Motor Visual. The response-control and attention scales were the main focus of this study. The results are quotients and have a standard deviation of 15 (BrainTrain, 2015).

**BASC-2** The BASC-2 is a self-report measure that can be completed by children, parents and teachers. For the purposes of the present study, the focus was on the parent form and the child form. The parent form took between 10 to 20 minutes to fill out, while the self-report took approximately 30 minutes to complete (Reynolds & Kamphaus, 2004). The measure was designed to identify emotional strengths and weaknesses of children aged six through college years (Reynolds & Kamphaus, 2004). The BASC-2 has four scales: (a) Externalizing Problems (composed of hyperactivity, conduct problems, and aggression); (b) Internalizing Problems (depression, anxiety, and somatization); (c) Behavioral Symptoms Index (attention problems, atypicality, and withdrawal); and (d) Adaptive Skills (activities of daily living, functional communications, leadership, adaptability, and social skills). This measure was designed to track treatment progression and can therefore be administered multiple times (Reynolds & Kamphaus, 2004).

It is important to note that although there is a new version of the BASC (the third edition), it has yet to be translated into French. As this study took place in the Province of Quebec, where most of the population is French-speaking, the second edition of the BASC, which is available in French, was used.

The Parent Rating Scale consists of 134 to 160 items and focuses on the parents’ evaluation of their child’s adaptive and maladaptive behaviors both at home and outside the home. The forms describe specific behaviors, which parents rate on a scale from “never” to “almost always.” This form also offers validity and response set indexes to help judge the quality
of the completed forms and is written at a fourth-grade reading level (Reynolds & Kamphaus, 2004). The self-report provides a better understanding of what the child is experiencing and feeling. As with the Parent Rating Scale, this form also offers validity and response set indexes to help judge the quality of the completed forms (Reynolds & Kamphaus, 2004).

The BASC-2 was compared to the Achenbach System of Empirically Based Assessment (ASEBA) to assess the concurrent validity. For the Parent Rating Scales, the BASC-2 was high on similar constructs; externalizing problems were higher (ranging from .73 to .84) than internalizing problems (ranging from .65 to .75; Stein & Watson, 2007). When compared to the Conners Parent Rating Scale–Revised, the construct validity was higher for the child sample than the adolescent sample (moderate to high correlations). Correlations between the PRS and the Behavior Rating Inventory of Executive Functioning (BRIEF) Parent form were also moderate to high (Stein & Watson, 2007).

Concurrent validity studies with the Self-Report Scales, when compared to the ASEBA Youth Self-Report and the Conners–Wells Adolescent Self-Report Scale, showed moderate to strong correlations. With the Children’s Depression Inventory, the Self-Report Scales showed higher correlations with the depression scales at the adolescent level (.69) than the child level (.29; Stein & Watson, 2007). Self-Report Scales showed moderate correlation with the Revised Children’s Manifest Anxiety Scale (RCMAS; Stein & Watson, 2007).

Internal consistency of the composite scores was in the .80 to .90 range, while the scale scores fell in the .60s to .90s. Lower reliabilities were reported for the subscales of the Self-Report Scales. Overall, the test-retest correlations were moderate to high. For the Parent Report Scales, test-retest reliabilities for the composites were in the low .80s to low .90s. Test-retest for the Self-Report Scales ranged from mid-.70s to the low .90s (Stein & Watson,
Medication survey. Before administering the BASC-2 and IVA-CPT-2, a brief survey of the participants’ medication was administered (see Appendix K). This survey asked the name of the medication, the dosage and when it was last taken. This was done to ensure that medication was not influencing the results. This survey was also translated into French for the convenience of both participants (see Appendix L).

Procedures

A two-phase, single-case research design was used for this study. The study was conducted in two phases over a 14-week period. This design used two single cases rather than a group design, which allowed me to obtain in-depth case information. Hence, this research is a single-case-design study that had two different participants at the same time. While the lack of a control group, large sample size, and randomization may limit my ability to claim the effectiveness of EFT programs with girls with ADHD, the ability to repeat findings across two participants may provide further clinical evidence as to its effectiveness.

Because this study required children to interact with horses, it was essential to ensure the safety of the participants. Antioch University New England’s Institutional Review Board (IRB) reviewed and approved the present research study. Also, since this research took place in the Province of Quebec, all consent and assent forms were translated from English to French (see Appendices A, B, C and D for both the English and French versions). Per IRB regulations, a permission letter confirming the stable’s support and assistance in this research was also obtained (see Appendix E), along with proof of insurance. The stable chosen for this study was certified by CanTRA, the only pan-Canadian network of equestrian centers that promote challenge, achievement, and empowerment for children and adults with disabilities through the
use of therapeutic horseback riding. CanTRA is a member of Horses in Education and Therapy International (HETI), a global organization that connects 47 countries (including the United States and Canada), linking centers and individuals offering equine-facilitated activities around the world. As this study took place in Canada, it followed both the standards of Antioch University New England and those of the Health Canada and the Public Health Agency of Canada’s Research Ethics Board (REB). A document was therefore provided to the IRB listing the requirements of the Research Ethical Board and how this research met them (see Appendix F). Lastly, the IRB was provided with the letters of recruitment in English for both agencies and parents (see Appendices G and H), which were later translated into French (see Appendices I and J). The next step after obtaining approval from Antioch University New England’s IRB was, in collaboration with CanTRA, to recruit participants with a formal diagnosis of ADHD made by a professional (e.g., mental health professional, primary care physician) and to obtain parental consent.

The first phase was to establish a baseline for attentional control and impulsivity as well as externalizing and internalizing problems, adaptive skills and behavioral symptoms; stability, level, and trend of these behaviors were established during this phase. Both the IVA-CPT-2 and BASC-2 SRP were administered to participants at the start of Week 1 and Week 2 in Phase 1. Parents of the participants completed the BASC-2 Parent Rating Scale (PRS) at those times.

The second phase, during which EFT was implemented, began at Week 3. Participants attended sessions at the stable once a week for 60 minutes to care for, interact with, and ride the horse. At the end of Week 8, after having completed six sessions, the IVA-CPT-2 and the BASC-2 SRP were administered to participants, and the BASC-2 PRS was administered to parents. From Week 9 to Week 14, participants once again attended weekly hour-long sessions.
During the last week (Week 14), the IVA-CPT-2 and the BASC-2 SRP were administered one last time to participants, and the parents completed their final BASC-2 PRS. Both participants were also asked to fill out a quick survey about their use of medication on each test day. This was done to ensure that I was aware of this potential confounding variable. The survey asked for the type of medication used, dosage and when it was last taken. The therapist was required to be a CanTRA-certified equine therapist. Following CanTRA’s guidelines, the sessions were conducted individually. This ensured that the participants would have constant interactions with their equine therapist. The individual sessions also helped to keep distractions to a minimum. Furthermore, because the horse is used as a therapeutic object, the structure of the sessions (i.e., having one horse, one rider and one coach), allowed space to provide feedback on the personal interactions with the horse. The therapist supervised, provided feedback, and helped the participants while they cared for their horses before and after their lessons. Other volunteers were present to assist the coach in setting up visual aids (e.g., cones, hula hoops, poles) in the arena. As stated above, at the start of each session, each child had someone leading the horse in order to ensure their safety. However, the leader would not stay for the entire session, as participants were responsible for controlling their horse after a warming-up period.

The study began in September 2016 after the beginning of the school year, on weekends. This ensured that the participants had a set schedule and could attend their sessions regularly. Due to the structure of the program, which was already in place at the Les Amis de Joey stable, the participants were expected to attend weekly one-hour sessions for 12 weeks. Although both participants attended all sessions, it would have been possible for them to reschedule their sessions for a few days later. The parents were informed at the start of the research that the participants should not miss more than one session over the course of this study, as this could
impact the findings of the study.

**Analysis**

The Attention and Response Control scores on the IVA-CPT-2, a psychological test that helps assess both visual and auditory attention and response control, measured the dependent variables. The IVA-CPT-2 software provided a comparative analysis in which the quotient scale scores of two selected tests were compared. The report provided a visual representation of the comparison, as well as a table indicating whether the difference was significant and to what degree (slight, mild, moderate or major; BrainTrain, 2015). This was particularly useful for determining if an intervention was deemed successful.

Other dependent variables included the Externalizing and Internalizing Problems scores, as well as scores on the Behavioral Symptoms Index and Adaptive Skills on the Behavior Assessment System for Children – Second Edition (BASC-2). BASC-2 uses a software called ASSIST: Scoring and Reporting System (Version 1.2; Rightsholder, 2007), which scores the profiles and provides validity indexes as well as a research file to track progress. It provides t-scores along with a percentile rank for both the composite and scale scores. The study’s independent variable was the phase of intervention completed by the participant.

**Results**

The results section presents all results pertaining to Participant 1, followed by the results of Participant 2. The IVA-CPT-2 is used to measure attentional control and impulsivity. This measure was designed to help diagnose and quantify the symptoms of ADHD for people aged six and older, and can also be used as a measure of treatment progression for individuals with ADHD. Although this measure has 25 scales, this study focused on the following scales: (a) Full Scale Attention, (b) Attention Auditory, (c) Attention Visual, (d) Sustained Attention Auditory,
(e) Sustained Attention Visual, (f) Full Scale Response Control, (g) Response Control Auditory, (h) and (i) Response Control Visual. Quotient scores on each of these scales were compared between each test day in order to gather information on any changes that occurred.

The BASC-2 was designed to identify emotional strengths and weaknesses of children ages six through young adulthood in their college years. The results for the Self-Report of Personality (SRP) are presented first, followed by the Parent Rating Scale (PRS). For the self-report, the focus of this study was limited to both clinical and adaptive scales, and therefore the scores for the school-related scales were not reported, as they fell outside the scope of this research. For the Parent Rating Scale, the results for the clinical and adaptive scales are reported.

Lastly, comments gathered from both participants and their mothers will be presented. The comments provided by the head coach at the end of the 12-week program will also be included to provide additional information about perceived changes that may have occurred during this program.

**Participant 1**

**IVA-2 results.** The comparison analysis was provided by the IVA-2 system. The IVA-2 scoring system determines the extent to which the changes in quotient scores are significant. The IVA-2 results are presented below (see Table 1 and Figure 1).

It is important to note that, according to the IVA-2 system, the results were valid for the first, second, and third administration. However, the IVA-2 software questioned the validity of the results on the last testing day (Time 4). Therefore, comparisons including Time 4 should be interpreted with some caution.

**Time 1 X Time 2.** The differences between the two baseline points were as follows: no significant changes between Time 1 and Time 2 on the Attention Auditory scale (Time 1 = 97,
Time 2 = 103) or the Response Control Auditory scale (Time 1 = 102, Time 2 = 108). Participant 1’s scores on these scales remained within the average range.

Scores on the Full Scale Attention scale showed an increase of 11 points (Time 1 = 97, Time 2 = 108), which is considered a mildly significant change. At both Time 1 and Time 2, the scores remained in the average range. The Attention Visual scale showed a mildly significant increase of 14 points (Time 1 = 98, Time 2 = 112). At Time 1, Participant 1’s score was considered to be in the average range, whereas scores were in the above-average range at Time 2.

The Sustained Attention Auditory scale showed an increase of 14 points (Time 1 = 101, Time 2 = 115), which is considered a mildly significant change. At Time 1, Participant 1’s score was in the average range, but moved into the above-average range at Time 2. The Sustained Attention Visual scale score increased by 10 points (Time 1 = 105, Time 2 = 115), which is considered a slightly significant change. At Time 1, Participant 1’s score was considered to be in the average range, and it was in the above-average range at Time 2.

The Full Scale Response Control scale showed an increase of 14 points (Time 1 = 96, Time 2 = 110), which is considered a mildly significant change. At Time 1, Participant 1’s score fell in the average range, becoming above-average Time 2. The Response Control Visual scale showed an increase of 20 points (Time 1 = 91, Time 2 = 111), a moderately significant change. At Time 1, Participant 1’s score was in the average range, then above-average at Time 2.
Table 1

*Quotient Scores on IVA-CPT-2 Scales Participant 1*

<table>
<thead>
<tr>
<th></th>
<th>FSA</th>
<th>AAS</th>
<th>AVS</th>
<th>SAAS</th>
<th>SAVS</th>
<th>FSRC</th>
<th>RCAS</th>
<th>RCVS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 T-scores</td>
<td>97</td>
<td>97</td>
<td>98</td>
<td>101</td>
<td>105</td>
<td>96</td>
<td>102</td>
<td>91</td>
</tr>
<tr>
<td>Time 2 T-scores</td>
<td>108</td>
<td>103</td>
<td>112</td>
<td>115</td>
<td>115</td>
<td>110</td>
<td>108</td>
<td>111</td>
</tr>
<tr>
<td>Time 3 T-scores</td>
<td>110</td>
<td>104</td>
<td>114</td>
<td>108</td>
<td>116</td>
<td>111</td>
<td>116</td>
<td>105</td>
</tr>
<tr>
<td>Time 4 T-scores</td>
<td>76</td>
<td>56</td>
<td>97</td>
<td>35</td>
<td>85</td>
<td>83</td>
<td>66</td>
<td>101</td>
</tr>
</tbody>
</table>

Figure 1. Bar graph depicting Participant 1’s scores on the IVA-CPT-2 scales for each test day (BrainTrain, 2015). FSA= Full Scale Attention, AAS= Attention Auditory Scale, AVS= Attention Visual Scale, SAAS= Sustained Attention Auditory Scale, SAVS= Sustained Attention Visual Scale, FSRC= Full Scale Response Control, RCAS= Response Control Auditory Scale, RCVS= Response Control Visual Scale.

**Time 1 X Time 3.** There were no significant changes between Time 1 and Time 3 on the Attention Auditory scale (Time 1 = 97, Time 3 = 104) and the Sustained Attention Auditory scale (Time 1 = 101, Time 3 = 108). Participant 1 had average scores on these scales.

The Full Scale Attention scale showed an increase of 13 points (Time 1 = 97, Time 3 = 110), which is considered a mildly significant change. At Time 1, Participant 1’s score was considered to be in the average range, and it was in the above-average range at Time 3. The Attention Visual scale showed an increase of 16 points (Time 1 = 98, Time 3 = 114), a mildly significant change. At Time 1, Participant 1’s score was considered to be in the average range, and it fell in the above-average range at Time 3.
The 11-point increase in Participant 1’s score on the Sustained Attention Visual scale was mildly significant (Time 1 = 105, Time 3 = 116). The score rose from average at Time 1 to the above-average range at Time 3.

The Full Scale Response Control scale score rose by 15 points (Time 1 = 96, Time 3 = 111), which is a mildly significant change. At Time 1, Participant 1’s score was considered to be in the average range, moving into the above-average range at Time 3. The Response Control Auditory Scale increased by 14 points (Time 1 = 102, Time 3 = 116), which is a mildly significant change. As on the previously mentioned scales, Participant 1’s score moved from average at Time 1 to above-average at Time 3. The Response Control Visual scale showed an increase of 14 points (Time 1 = 91, Time 3 = 105), a mildly significant change. Unlike the other scales in this section, at both Time 1 and Time 3, Participant 1’s scores fell in the average range.

**Time 1 X Time 4.** No significant changes were observed between Time 1 and Time 4 for the Attention Visual scale (Time 1 = 98, Time 4 = 97). Participant 1’s scores on these scales remained within the average range.

The Full Scale Attention scale score fell by a moderately significant 21 points (Time 1 = 97, Time 4 = 76). At Time 1, Participant 1’s score was considered to be in the average range, and then in the mildly to moderately impaired range at Time 4. The Attention Auditory scale showed a decrease of 41 points (Time 1 = 97, Time 4 = 56), which is considered a major significant change. At Time 1, Participant 1’s score was in the average range, moving to the extremely impaired range at Time 4.

The Sustained Attention Auditory scale showed a decrease of 66 points (Time 1 = 101, Time 4 = 35), which is considered a major significant change. Participant 1’s score started in the average range, but fell into the extremely impaired range at Time 4. The Sustained Attention
Visual scale also decreased by 20 points (Time 1 = 105, Time 4 = 85), which is considered a moderately significant change. At Time 1, Participant 1’s score was considered to be in the average range, falling to slightly impaired at Time 4.

The Full Scale Response Control scale score decreased by 13 points (Time 1 = 96, Time 4 = 83), which is a mildly significant change. At Time 1, Participant 1’s score started in the average range, falling slightly into the mildly impaired range at Time 4. The Response Control Auditory Scale score went down by 36 points (Time 1 = 102, Time 4 = 66), a major significant change from an average score at Time 1 to the severely impaired range at Time 4. The Response Control Visual scale showed a less dramatic increase of 10 points (Time 1 = 91, Time 4 = 101), which is a mildly significant change, and Participant 1’s scores remained in the average range.

**Time 2 X Time 3.** There were no significant changes between Time 2 and Time 3 on the Full Scale Attention scale (Time 2 = 108, Time 3 = 110), Attention Auditory scale (Time 2 = 103, Time 3 = 104), the Attention Visual scale (Time 2 = 112, Time 3 = 114), the Sustain Attention Auditory scale (Time 2 = 115, Time 3 = 108), the Sustained Attention Visual scale (Time 2 = 115, Time 3 = 116), the Full Scale Response Control scale (Time 2 = 110, Time 3 = 111), and the Response Control Visual scale (Time 2 = 111, Time 3 = 105).

There was a gain of 8 points on the Response Control Auditory scale (Time 2 = 108, Time 3 = 116), which is a slightly significant change. At Time 2, Participant 1’s score was considered to be in the average range, moving into the above-average range at Time 3.

**Time 2 X Time 4.** The Full Scale Attention scale exhibited a majorly significant decrease of 32 points (Time 2 = 108, Time 4 = 76). Between Time 2 and Time 4, Participant 1’s score shifted from the average range to the mild to moderately impaired range. The Attention Auditory scale showed a decrease of 47 points (Time 2 = 103, Time 4 = 56), considered a major
significant change. At Time 2, Participant 1’s score was considered to be in the average range, but then was in the extremely impaired range at Time 4. The Attention Visual scale decreased by 15 points (Time 2 = 112, Time 4 = 97), which is considered a mildly significant change. At Time 2, Participant 1’s score was considered to be in the above-average range, and it was in the average range at Time 4.

The Sustained Attention Auditory scale showed a decrease of 80 points (Time 2 = 115, Time 4 = 35), which is a major significant change. At Time 2, Participant 1’s score was considered to be in the above-average range, whereas her score at Time 4 was in the extremely impaired range. The Sustained Attention Visual scale showed a decrease of 30 points (Time 2 = 115, Time 4 = 85), which is considered a major significant change between an above-average score at Time 2 and a slightly impaired score at Time 4.

The Full Scale Response Control scale showed a decrease of 27 points (Time 2 = 110, Time 4 = 83), which is considered a moderately significant change. At Time 2, Participant 1’s score was considered to be in the above-average range, whereas her score at Time 4 was in the mildly impaired range. The Response Control Auditory scale showed a decrease of 42 points (Time 2 = 108, Time 4 = 66), a major significant change. Participant 1 had an average score at Time 2, whereas her score at Time 4 was in the severely impaired range. The decrease of 10 points on the Response Control Visual scale was slightly significant (Time 2 = 111, Time 4 = 101). At Time 2, Participant 1’s score was considered to be in the above-average range, moving into the average range at Time 4.

**Time 3 X Time 4.** There were no significant changes between Time 3 and Time 4 on the Response Control Visual scale (Time 3 = 105, Time 4 = 101).
The Full Scale Attention scale score decreased by 34 points (Time 3 = 110, Time 4 = 76), which is considered a major significant change. At Time 3, Participant 1’s score was in the above-average range, but it fell to the mild to moderately impaired range at Time 4. The Attention Auditory scale showed a majorly significant reduction of 48 points (Time 2 = 104, Time 4 = 56). At Time 3, Participant 1’s score was considered to be in the average range, falling to the extremely impaired range at Time 4. The Attention Visual scale showed a decrease of 17 points (Time 2 = 114, Time 4 = 97), which is considered a mildly significant change. At Time 3, Participant 1’s score was considered to be in the above-average range, then was in the average range at Time 4.

There was a majorly significant decrease of 73 points in the score on the Sustained Attention Auditory scale (Time 2 = 108, Time 4 = 35), moving from the average range at Time 3 to the extremely impaired range at Time 4. The Sustained Attention Visual scale showed a similarly majorly significant decrease of 31 points (Time 2 = 116, Time 4 = 85). At Time 3, Participant 1’s score was considered to be in the above-average range, whereas her score at Time 4 was in the slightly impaired range.

The Full Scale Response Control scale showed a decrease of 28 points (Time 2 = 111, Time 4 = 83), another major significant change. At Time 3, Participant 1’s score was considered to be in the above-average range; however, her score at Time 4 was in the mildly impaired range. The Response Control Auditory scale score decreased by 50 points (Time 2 = 116, Time 4 = 66), which is considered a major significant change. At Time 3, Participant 1’s score was considered to be in the above-average range, whereas her score at Time 4 was in the severely impaired range.
Behavioral Assessment Scale for Children – 2nd Edition (French-Canadian Version). For each scale of interest, the two scores obtained during both baselines were averaged and then compared to the scores at Time 3 and Time 4. The classification provided by the BASC-2 was used to interpret the scores. For both the PRS and SRS, a 95% confidence level was used, along with norms based on females with a diagnosis of ADHD.

Self-report of personality: clinical scales. Participant 1’s scores are presented in Table 2. On the Anxiety scale, Participant 1 obtained an average t-score of 55 (Time 1 = 50, Time 2 = 60), which is considered to be in the average range. At Time 3, her t-score was 61, and at Time 4 it was 63, both of which are in the at-risk range.

On the Hyperactivity scale, Participant 1 had an average t-score of 53 (Time 1 = 49, Time 2 = 57), which was in the average range. At Time 3, her t-score was in the at-risk range at 60. Meanwhile, her t-score at Time 4 was 58, falling in the average range.

No changes were observed on the following clinical scales: Locus of Control, Social Stress, Depression, Sense of Inadequacy, Internalizing Problems, Attention Problems, Inattention/Hyperactivity, and Emotional Symptoms Index.
Table 2

*Participant 1’s results on the SRP Clinical Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atypicality</td>
<td>53</td>
<td>66</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Locust of control</td>
<td>46</td>
<td>48</td>
<td>48</td>
<td>46</td>
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<tr>
<td>Social Stress</td>
<td>52</td>
<td>54</td>
<td>57</td>
<td>55</td>
</tr>
<tr>
<td>Anxiety</td>
<td>50</td>
<td>60</td>
<td>61</td>
<td>63</td>
</tr>
<tr>
<td>Depression</td>
<td>45</td>
<td>45</td>
<td>52</td>
<td>45</td>
</tr>
<tr>
<td>Sense of Inadequacy</td>
<td>52</td>
<td>50</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>50</td>
<td>54</td>
<td>55</td>
<td>54</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>43</td>
<td>53</td>
<td>54</td>
<td>56</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>49</td>
<td>57</td>
<td>60</td>
<td>58</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>48</td>
<td>57</td>
<td>59</td>
<td>59</td>
</tr>
<tr>
<td>Emotional Symptoms Index</td>
<td>51</td>
<td>53</td>
<td>57</td>
<td>54</td>
</tr>
</tbody>
</table>

*Note.* Participant 1’s t-scores on the clinical scales of the BASC-2 Self-Report of Personality for the four test days (Reynolds & Kamphaus, 2004).

**Self-report of personality: adaptive scales.** Participant 1’s scores are presented in Table 3. On the *Self-Esteem* scale, Participant 1 obtained an average *t*-score of 38 (Time 1 = 40, Time 2 = 36), which is considered to be in the at-risk range. At Time 3, her *t*-score was 24, and at Time 4 it was 26, and both scores fall in the clinically significant range.
There were no changes on these adaptive scales: *Relationship with Parents*, *Interpersonal Relationships*, *Self-Reliance* and *Personal Adjustment*.

**Participant 1’s parent rating scale: clinical scales.** Scores provided by Participant 1’s mother are presented in Table 4. The average t-score of 54 on the *Attention Problems* scale fell in the average range (Time 1 = 51, Time 2 = 51). At Time 3, the t-score was 45, which is considered to be in the average range. Meanwhile, the t-score at Time 4 was 33, which is in the low range.

The average t-score on the *Hyperactivity* scale was 54 (Time 1 = 53, Time 2 = 54), in the average range, and it remained in the average range at Time 3 (t = 42). However, at Time 4 it fell to 40, which is in the low range.

The average t-score on the *Depression* scale started at 61 (Time 1 = 64, Time 2 = 57), in the at-risk range, before improving to the average range at Time 3 when the t-score was 53. It remained in the average range at Time 4 (t = 48).

Although both the *Aggression* and *Conduct Problems* scales’ t-scores stayed within the average range, a decrease in t-scores was observed over time. More specifically, Participant 1’s average t-score on the *Aggression* scale was 59 (Time 1 = 61, Time 2 = 56), which is considered to be in the average range. At Time 3, her t-score was 51, and at Time 4 it was 46, both of which are in the average range. Similarly, the average t-score on the *Conduct Problems* scale was 59 (Time 1 = 61, Time 2 = 56), which is considered to be in the average range.
Table 3

*Participant 1’s score of the SRP Adaptive Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relations with Parents</td>
<td>48</td>
<td>45</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
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<td>54</td>
<td>49</td>
<td>54</td>
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<tr>
<td>Self-esteem</td>
<td>40</td>
<td>36</td>
<td>24</td>
<td>26</td>
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<tr>
<td>Self-Reliance</td>
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<td>63</td>
<td>58</td>
<td>65</td>
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<tr>
<td>Personal Adjustment</td>
<td>48</td>
<td>48</td>
<td>42</td>
<td>46</td>
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</table>

*Note. Participant 1’s t-scores on the adaptive scales of the BASC-2 Self-Report of Personality for the four test days (Reynolds & Kamphaus, 2004).*
Table 4

*Participant 1’s score of the PRS Clinical Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactivity</td>
<td>54</td>
<td>53</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>Aggression</td>
<td>61</td>
<td>56</td>
<td>51</td>
<td>46</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>61</td>
<td>56</td>
<td>48</td>
<td>46</td>
</tr>
<tr>
<td>Externalizing Problems</td>
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<td>Anxiety</td>
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<td>Depression</td>
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<td>Internalizing Problems</td>
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<td>Atypicality</td>
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<td>Withdrawal</td>
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<td>Attention Problems</td>
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<td>Behavioral Symptoms Index</td>
<td>61</td>
<td>57</td>
<td>51</td>
<td>43</td>
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</table>

*Note.* Participant 1’s t-scores on the clinical scales of the BASC-2 Parent Rating Scale for the four test days (Reynolds & Kamphaus, 2004). Participant 1’s mother completed all of the ratings on the Parent Rating Scale.

At Time 3, her t-score was 48, and at Time 4 it was 46, both of which remain in the average range.

No changes were seen on the following clinical scales: *Internalizing Problems, Externalizing Problems, Behavioral Symptoms Index, Anxiety, and Withdrawal.*
**Participant 1’s parent rating scale: adaptive scales.** Scores provided by Participant 1’s mother are presented in Table 5. The average t-score on the *Adaptability* scale was 39 (Time 1 = 39, Time 2 = 39), falling in the at-risk range. At Time 3, Participant 1’s t-score was 44, which is considered to be in the average range. Meanwhile, her t-score at Time 4 was 52, also is in the average range.

The average t-score on the *Leadership* scale was average at 49 (Time 1 = 52, Time 2 = 45), and it remained in the average range at Time 3 (t = 55). However, her t-score at Time 4 was 65, which is in the high range.

The average t-score on the *Activities of Daily Living* scale was 46 (Time 1 = 46, Time 2 = 46), which is considered to be in the average range. At Time 3, her t-score was 51, remaining in the average range. As on the previous scale, it moved into the high range at Time 4 (t = 63).

Scores on the following adaptive scales did not significantly change: *Functional Communication, Social Skills, and Adaptive Skills*. 
Table 5

*Participant 1’s score of the PRS Adaptive Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability</td>
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<td>Social Skills</td>
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<td>Leadership</td>
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<td>65</td>
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<tr>
<td>Activities of Daily Living</td>
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<td>Functional Communication</td>
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<td>Adaptive Skills</td>
<td>44</td>
<td>43</td>
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<td>56</td>
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</table>

*Note.* Participant 1’s t-scores on the adaptive scales of the BASC-2 Parent Rating Scale for the four test days (Reynolds & Kamphaus, 2004). Participant 1’s mother completed all of the ratings on the Parent Rating Scale.

The following section presents comments that were gathered at the end of the program from Participant 1 and her mother, along with a summary of the head coach’s observations. These comments provided not only a first-hand account of how this program was experienced by the participant and her mother, but also offered everyone involved with an opportunity to share any observed changes. More specifically, these comments can illuminate changes experienced throughout the 12-week EFT program that may not have been captured by other measures.

**Comments and observations.** The following comments by Participant 1 and her mother were obtained on the last testing day of this study, once the EFT session and all measures had been completed. This conversation was informal in nature and was intended to provide an opportunity for both Participant 1 and her mother to discuss their reactions to the experience. The comments below are a summary of their responses.
**Participant 1’s comments.**

I learned that I was the boss! I learned how to communicate with the horses and how to use my “riding aids.” I also learned how to take care of my horse, how to trot and do some dressage movements.

She added that she learned the importance of “giving clear commands to my horse.”

“When I didn’t, my horse would not listen and I was not able to connect with him . . . It is a little like when you communicate with people.”

Participant 1 shared how she learned to listen to the horse. She explained that one day she felt that the horse was walking bizarrely, and upon further observation from her coach, they realized the horse was limping, so they had to stop because the horse was uncomfortable and was in pain. Participant 1 added that she learned how to take care of a horse that day.

**Participant 1’s mother.** Participant 1’s mother explained that because Participant 1 was not feeling judged, she was able to develop her self-confidence and appreciate the small steps forward. According to her mother, this increased her sense of self-worth. In addition, because Participant 1 experienced success while riding, she was now able to also experience success outside of the stable, in part because of her more positive attitude toward herself.

Participant 1’s mother also noted an increase in her daughter’s autonomy, maturity level, and general feeling of happiness and well-being. She added that being part of this program allowed them to enjoy some quality mother-daughter time.

Her mother also mentioned that Participant 1 was proud when family members came to see her ride, as she was able to show them what she could do with the horse. According to Participant 1’s mother, her daughter felt valued and, to some extent, like she was the star of the show.
According to Participant 1’s mother, her daughter was very motivated to go to the stable every Saturday and talked about horses all the time.

The mother noted that the only negative aspect of participating in this program was the time commitment required due to the long drive every Saturday to and from the stable.

**Observations from the coach.** At the end of every riding lesson, the treatment team (i.e., coaches) wrote a brief summary of the session. At the end of the 12 sessions, the head coach, Ms. Éliane Trempe, provided a detailed written summary of her observations of Participant 1. These comments describe the progress Participant 1 made during the 12 weeks. They have been translated from French to English:

- Participant 1 was a bit apprehensive when she first arrived at the stable/equestrian center. She was very reserved, shy, and somewhat anxious. She was intimidated by the new surroundings, the horses and the staff members. A gradual approach was taken to increasingly allow her to familiarize herself with the environment and reduce her level of anxiety. Over the course of the 12-week program, we noticed an increase in her self-confidence and an improvement in her self-esteem. Despite the fact that she remained socially distant at all times, she was observed to smile more, and her enjoyment of being around horses was evident.

- During her eighth lesson, she was in contact with college students who were there as part of an academic equine therapy training experience. At Participant 1’s request, the students observed her lesson, applauded her and thanked her for the opportunity to watch her. Participant 1 shed tears of joy.

- It was obvious during the course of the 12-week program that her progress as a rider remained, as expected, modest. However, from the perspective of her capacity for
attention, she never failed in the task, showing an increased ability to concentrate for longer periods. The equine environment suits her perfectly from this standpoint.

(É. Trempe, personal communication, February 27, 2017)

**Participant 2**

**IVA-2 results.** The comparison analysis is provided by the IVA-2 system. The IVA-2 scoring system determines the extent to which the changes in quotient scores are significant (see Tables 1 and 2). The IVA-2 results are presented below (see Table 6 and Figure 2).

It is important to note that according to the IVA-2 system, the results were valid for all administrations of the measure.

*Time 1 X Time 2.* The differences between the two baselines were as follows: no significant changes between Time 1 and Time 2 for the Full Scale Attention scale (Time 1 = 113, Time 2 = 109), Attention Auditory scale (Time 1 = 107, Time 2 = 106) and Attention Visual scale (Time 1 = 118, Time 2 = 111). Participant 2’s scores on these Attention scales remained within the average/above-average range during both Time 1 and Time 2.

The Full Scale Response Control scale (Time 1 = 93, Time 2 = 86) and Response Control Auditory scale (Time 1 = 94, Time 2 = 92) also showed no significant changes between the two testing days. Participant 2’s scores on the Response Control scales remained within the average/slightly impaired range during both Time 1 and Time 2.

However, the Sustained Attention Auditory scale showed a decrease of 11 points (Time 1 = 114, Time 2 = 103), a mildly significant change. At Time 1, Participant 2’s score was considered to be in the above-average range, whereas scores were in the average range at Time 2.
### Table 6

**Quotient Scores on IVA-CPT-2 Scales Participant 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>FSA</th>
<th>AAS</th>
<th>AVS</th>
<th>SAAS</th>
<th>SAVS</th>
<th>FSRC</th>
<th>RCAS</th>
<th>RCVS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>113</td>
<td>107</td>
<td>118</td>
<td>114</td>
<td>121</td>
<td>93</td>
<td>94</td>
<td>92</td>
</tr>
<tr>
<td>T-scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
<td>109</td>
<td>106</td>
<td>111</td>
<td>103</td>
<td>106</td>
<td>86</td>
<td>92</td>
<td>81</td>
</tr>
<tr>
<td>T-scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 3</td>
<td>84</td>
<td>71</td>
<td>97</td>
<td>50</td>
<td>98</td>
<td>66</td>
<td>76</td>
<td>61</td>
</tr>
<tr>
<td>T-scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 4</td>
<td>91</td>
<td>82</td>
<td>101</td>
<td>81</td>
<td>100</td>
<td>89</td>
<td>92</td>
<td>87</td>
</tr>
<tr>
<td>T-scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. Bar graph depicting Participant 2’s quotient scores on the IVA-CPT-2 scales for each test day (BrainTrain, 2015). FSA= Full Scale Attention, AAS= Attention Auditory Scale, AVS= Attention Visual Scale, SAAS= Sustained Attention Auditory Scale, SAVS= Sustained Attention Visual Scale, FSRC= Full Scale Response Control, RCAS= Response Control Auditory Scale, RCVS= Response Control Visual Scale.

The Sustained Attention Visual scale also showed a decrease of 15 points (Time 1 = 121, Time 2 = 106), another mildly significant change. At Time 1, Participant 2’s score was considered to be in the superior range, falling into the average range at Time 2. The Response Control Visual scale showed a decrease of 11 points (Time 1 = 92, Time 2 = 81), which is a mildly significant change. At Time 1, Participant 2’s score was considered to be in the average range, moving into the slightly impaired range at Time 2.

**Time 1 X Time 3.** The Full Scale Attention scale showed a decrease of 29 points (Time 1 = 113, Time 3 = 84), which is considered a major significant change. At Time 1, Participant 2’s score was considered to be in the above-average range, falling into the mildly impaired range at Time 3. The Attention Auditory scale showed a majorly significant decrease of 36 points (Time...
1 = 107, Time 3 = 71). At Time 1, Participant 2’s score was considered to be in the average range, but it declined into the moderately impaired range at Time 3. The Attention Visual scale showed a decrease of 21 points (Time 1 = 118, Time 3 = 97), which is considered a moderately significant change. At Time 1, Participant 2’s score was considered to be in the above-average range, shifting to the average range at Time 3.

The Sustained Attention Auditory scale score decreased by 64 points (Time 1 = 114, Time 3 = 50), a major significant change. At Time 1, Participant 2’s score was considered to be in the above-average range, whereas her score at Time 3 was in the extremely impaired range. The Sustained Attention Visual scale also showed a decrease of 23 points (Time 1 = 121, Time 3 = 98), which is considered a moderately significant change. At Time 1, Participant 2’s score was considered to be in the superior range, and it was in the average range at Time 3.

The Full Scale Response Control scale score fell by 27 points (Time 1 = 93, Time 3 = 66), which is a major significant change. At Time 1, Participant 2’s score was considered to be in the average range, but it was in the severely impaired range at Time 3. The Response Control Auditory Scale decreased mildly significantly by 18 points (Time 1 = 94, Time 3 = 76). At Time 1, Participant 2’s score was considered to be in the average range, then it declined to the mildly to moderately impaired range at Time 3. The Response Control Visual scale showed a decrease of 31 points (Time 1 = 92, Time 3 = 61), which is a major significant change. At Time 1, Participant 2’s score was considered to be in the average range, and it was in the severely impaired range at Time 3.

**Time 1 X Time 4.** No significant changes between Time 1 and Time 4 were observed for the Full Scale Response Control scale (Time 1 = 93, Time 4 = 89), Response Control Auditory scale (Time 1 = 94, Time 4 = 92) and the Response Control Visual scale (Time 1 = 92, Time 4 =
Participant 2’s scores on the Response Control scales remained within the slightly impaired/average range between Time 1 and Time 4.

However, the Full Scale Attention scale did show a decrease of 22 points (Time 1 = 113, Time 4 = 91), which is considered a moderately significant change. At Time 1, Participant 2’s score was considered to be in the above-average range, and it was in the average range at Time 4. The Attention Auditory scale showed a moderately significant decrease of 25 points (Time 1 = 107, Time 4 = 82). At Time 1, Participant 2’s score was in the average range, but it moved toward the mildly impaired range at Time 4. The Attention Visual scale showed a decrease of 17 points (Time 1 = 118, Time 4 = 101), a mildly significant change from Participant 2’s above-average score at Time 1 to her average score at Time 4. The Sustained Attention Auditory scale showed a decrease of 33 points (Time 1 = 114, Time 4 = 81), which is considered a majorly significant change. At Time 1, Participant 2’s score was considered to be in the above-average range, although it was in the mildly impaired range at Time 4. The Sustained Attention Visual scale score also decreased by 21 points (Time 1 = 121, Time 4 = 100), which is considered a moderately significant change. At Time 1, Participant 2’s score was considered to be in the superior range, but it was only in the average range at Time 4.

**Time 2 X Time 3.** The Full Scale Attention scale score fell by 25 points (Time 2 = 109, Time 3 = 84), which is considered a moderately significant change. At Time 2, Participant 2’s score was in the average range, and it was in the mildly impaired range at Time 3. There was a majorly significant reduction in score of 35 points on the Attention Auditory scale (Time 2 = 106, Time 3 = 71). At Time 2, Participant 2’s score was considered to be in the average range, while it was in the moderately impaired range at Time 3. The Attention Visual scale showed a decrease of 14 points (Time 2 = 111, Time 3 = 97), a mildly significant change. At Time 2,
Participant 2’s score was considered to be in the above-average range, and it slid slightly into the average range at Time 3.

Scores on the Sustained Attention Auditory scale showed a decrease of 53 points (Time 2 = 103, Time 3 = 50), which is considered a major significant change from the average range at Time 2 to the extremely impaired range at Time 3. The Sustained Attention Visual scale showed a decrease of 8 points (Time 2 = 106, Time 3 = 98), a slightly significant change. At Time 2, Participant 2’s score was considered to be in the average range, then it remained in the average range at Time 3.

There was a moderately significant change of 20 points in the Full Scale Response Control scale scores (Time 2 = 86, Time 3 = 66). At Time 2, Participant 2’s score was considered to be in the slightly impaired range, dropping to the severely impaired range at Time 3. The Response Control Auditory Scale showed a decrease of 16 points (Time 2 = 92, Time 3 = 76), a mildly significant change. At Time 2, Participant 2’s score was considered to be in the average range, changing to the mildly to moderately impaired range at Time 3. The Response Control Visual scale score decreased by 20 points (Time 2 = 81, Time 3 = 61), which is a moderately significant change. At Time 2, Participant 2’s score was considered to be in the mildly impaired range, and it was in the severely impaired range at Time 3.

**Time 2 X Time 4.** The Full Scale Attention scale showed a mildly significant decrease of 18 points (Time 2 = 109, Time 4 = 91). At both Time 2 and Time 4, Participant 2’s score was considered to be in the average range. The Attention Auditory scale showed a decrease of 24 points (Time 2 = 106, Time 4 = 82), a moderately significant change. At Time 2, Participant 2’s score was considered to be in the average range, falling to the mildly impaired range at Time 4. The Attention Visual scale showed a slightly significant decrease of 10 points (Time 2 = 111,
At Time 2, Participant 2’s score was considered to be in the above-average range, although it dropped to the average range at Time 4.

The Sustained Attention Auditory scale showed a decrease of 22 points (Time 2 = 103, Time 4 = 81), a moderately significant change. At Time 2, Participant 2’s score was considered to be in the average range, whereas her score at Time 4 was in the mildly impaired range.

However, on the Sustained Attention Visual Scale (Time 2 = 106, Time 4 = 100) and the Response Control Auditory Scale (Time 2 = 92, Time 4 = 92), no significant changes were noted. In addition, the Full Scale Response Control scale (Time 2 = 86, Time 4 = 89) and the Response Control Visual scale (Time 2 = 81, Time 4 = 87) also showed no significant changes in scores.

**Time 3 X Time 4.** No significant changes were found between Time 3 and Time 4 on the Full Scale Attention scale (Time 3 = 84, Time 4 = 91) and the Attention Visual Scale (Time 3 = 97, Time 4 = 101). In addition, no significant changes were noted on the Sustained Attention Visual Scale (Time 3 = 98, Time 4 = 100) between the two testing days.

The Attention Auditory scale showed a mildly significant increase of 11 points (Time 3 = 71, Time 4 = 82). At Time 3, Participant 2’s score was considered to be in the moderately impaired range, and it improved slightly to the mildly impaired range at Time 4. The Sustained Attention Auditory scale rose by 31 points (Time 3 = 50, Time 4 = 81), which is considered a majorly significant change. At Time 3, Participant 2’s score was considered to be in the extremely impaired range, and it was in the mildly impaired range at Time 4.

The Full Scale Response Control scale showed an increase of 23 points (Time 3 = 66, Time 4 = 89), a moderately significant change. At Time 3, Participant 2’s score was considered to be in the severely impaired range, moving to the slightly impaired range at Time 4. The
Response Control Auditory Scale increased by 16 points (Time 3 = 76, Time 4 = 92), which is a mildly significant change. At Time 3, Participant 2’s score was considered to be in the mildly to moderately impaired range, but increased into the average range at Time 4. There was a moderately significant increase of 20 points on the Response Control Visual scale (Time 3 = 61, Time 4 = 87). At Time 3, Participant 2’s score was considered to be in the severely impaired range, with only slight improvement to the slightly impaired range at Time 4.

**Behavioral Assessment Scale for Children – 2nd Edition (French-Canadian Version).** For each scale of interest, the two scores obtained during both baselines will be averaged and then compared to the scores from Time 3 and Time 4. The classification provided by the BASC-2 will be used to interpret the scores. For both the PRS and SRS, a 95% confidence level was used, along with norms based on females with a diagnosis of ADHD.

**Self-report of personality: clinical scales.** Participant 2’s scores are presented in Table 7. On the Attention Problems scale, Participant 2 obtained an average $t$-score of 61 (Time 1 = 58, Time 2 = 64), which is considered to be in the at-risk range. At Time 3, her $t$-score was 58, and at Time 4 it was 53, both of which are in the average range.

On the Hyperactivity scale, Participant 2’s average $t$-score of 60 was in the at-risk range (Time 1 = 55, Time 2 = 64). At Time 3, her $t$-score was 53, and at Time 4 it was 55, both of which are in the average range.

On the Inattention/Hyperactivity scale, Participant 2 obtained an average $t$-score of 63 (Time 1 = 59, Time 2 = 66), which is considered to be in the at-risk range. Her scores rose into the average range at Time 3 ($t = 58$) and at Time 4 ($t = 56$).
### Table 7

**Participant 2’s results on the SRP Clinical Scales of the BASC-2**

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atypicality</td>
<td>40</td>
<td>38</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Locus of control</td>
<td>52</td>
<td>52</td>
<td>48</td>
<td>46</td>
</tr>
<tr>
<td>Social Stress</td>
<td>49</td>
<td>42</td>
<td>40</td>
<td>39</td>
</tr>
<tr>
<td>Anxiety</td>
<td>55</td>
<td>55</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Depression</td>
<td>46</td>
<td>45</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Sense of Inadequacy</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>43</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>49</td>
<td>47</td>
<td>46</td>
<td>44</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>58</td>
<td>64</td>
<td>58</td>
<td>53</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>55</td>
<td>64</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>59</td>
<td>66</td>
<td>58</td>
<td>56</td>
</tr>
<tr>
<td>Emotional Symptoms Index</td>
<td>49</td>
<td>48</td>
<td>44</td>
<td>44</td>
</tr>
</tbody>
</table>

*Note.* Participant 2’s t-scores on the clinical scales of the BASC-2 Self-Report of Personality for the four test days (Reynolds & Kamphaus, 2004).

On the *Social Stress* scale, Participant 2 obtained an average t-score of 46 (Time 1 = 49, Time 2 = 42), which is in the average range. These fell into the low range at Time 3 (t = 40) and Time 4 (t = 39).

No changes were observed on the following clinical scales: *Locus of Control, Anxiety, Depression, Sense of Inadequacy, Internalizing Problems* and *Emotional Symptoms Index.*
Self-report of personality: adaptive scales. Participant 2’s scores are presented in Table 8. On the Interpersonal Relations scale, Participant 2 obtained an average t-score of 59 (Time 1 = 59, Time 2 = 59), which is in the average range. At Time 3, her t-score was 56, which is also considered to be in the average range. Meanwhile, her t score at Time 4 was 61, in the high range.

No changes were observed on the following adaptive scales: Relationship with Parents, Self-Esteem, Self-Reliance and Personal Adjustment.

Participant 2’s parent rating scale: clinical scales. Scores provided by Participant 2’s mother are presented in Table 9. The average t-score on the Attention Problems scale was 45 (Time 1 = 48, Time 2 = 42), falling in the average range. It remained average at Time 3, (t = 42). However, the t-score at Time 4 was 30, which is in the very low range.

Turning to the Anxiety scale, the average t-score was 65 (Time 1 = 52, Time 2 = 68), which is considered to be in the at-risk range, and it remained there at Time 3 with a t-score of 68. There was a shift into the average range at Time 4 (t = 46).

The average t-score on the Withdrawal scale was 46 (Time 1 = 46, Time 2 = 46), which is considered to be in the average range. Scores dropped into the low range at Time 3, with a t-score of 39, and at Time 4, with a t-score of 37.
Table 8

*Participant 2’s score of the SRP Adaptive Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relations with Parents</td>
<td>48</td>
<td>39</td>
<td>50</td>
<td>54</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>59</td>
<td>59</td>
<td>56</td>
<td>61</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>47</td>
<td>50</td>
<td>57</td>
<td>52</td>
</tr>
<tr>
<td>Self-Reliance</td>
<td>61</td>
<td>58</td>
<td>63</td>
<td>61</td>
</tr>
<tr>
<td>Personal Adjustment</td>
<td>53</td>
<td>50</td>
<td>57</td>
<td>57</td>
</tr>
</tbody>
</table>

*Note.* Participant 2’s t-scores on the adaptive scales of the BASC-2 Self-Report of Personality for each test days (Reynolds & Kamphaus, 2004).
Table 9

*Participant 2’s score of the PRS Clinical Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactivity</td>
<td>40</td>
<td>37</td>
<td>40</td>
<td>37</td>
</tr>
<tr>
<td>Aggression</td>
<td>56</td>
<td>51</td>
<td>50</td>
<td>46</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>37</td>
<td>39</td>
<td>37</td>
<td>33</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>46</td>
<td>44</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Anxiety</td>
<td>62</td>
<td>68</td>
<td>68</td>
<td>46</td>
</tr>
<tr>
<td>Depression</td>
<td>54</td>
<td>52</td>
<td>52</td>
<td>42</td>
</tr>
<tr>
<td>Somatization</td>
<td>57</td>
<td>45</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>59</td>
<td>56</td>
<td>56</td>
<td>40</td>
</tr>
<tr>
<td>Atypicality</td>
<td>41</td>
<td>37</td>
<td>39</td>
<td>35</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>46</td>
<td>46</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>48</td>
<td>42</td>
<td>42</td>
<td>30</td>
</tr>
<tr>
<td>Behavioral Symptoms Index</td>
<td>49</td>
<td>44</td>
<td>44</td>
<td>36</td>
</tr>
</tbody>
</table>

*Note.* Participant 2’s t-scores on the clinical scales of the BASC-2 Parent Rating Scale for each test days (Reynolds & Kamphaus, 2004). Participant 2’s mother completed all of the ratings on the Parent Rating Scale.

The average t-score on the *Behavioral Symptoms Index* scale was 47 and in the average range (Time 1 = 49, Time 2 = 44). At Time 3, the t-score was 44, also considered to be in the average range. Again, there was a change in the t-score at Time 4 to 36, which is in the low range.
The *Externalizing Problems* scale’s average t-score was 45 (Time 1 = 46, Time 2 = 44), which is in the average range, and it remained there at Time 3 (t = 44). Meanwhile, the t-score at Time 4 was 40, which is in the low range.

This pattern continued with the *Internalizing Problems* scale, whose average t-score was 58 and in the average range (Time 1 = 59, Time 2 = 56), continuing on at Time 3, where the t-score was 56, also in the average range. As before, the score dropped at Time 4 to 40, which is in the low range.

No changes were observed on the following clinical scales: *Hyperactivity, Aggression, Conduct Problems,* and *Depression.*

**Participant 2’s parent rating scale: adaptive scales.** Scores provided by Participant 2’s mother are presented in Table 10. The average t-score on the *Functional Communication* scale was 55 (Time 1 = 54, Time 2 = 56), which is considered to be in the average range. Unlike with other scales, here the Time 3 score (t = 69) rose into the high range, then fell at Time 4 in to the average range (t = 57).

No changes were observed on the following adaptive scales: *Adaptability, Social Skills, Adaptive Skills* and *Leadership.*

The following section will present comments that were elicited at the conclusion of the program from Participant 2 and her mother, as well as the head coach’s observations.
Table 10

*Participant 2’s score of the PRS Adaptive Scales of the BASC-2*

<table>
<thead>
<tr>
<th>Scales</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
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</thead>
<tbody>
<tr>
<td>Adaptability</td>
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<td>56</td>
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<td>Social Skills</td>
<td>48</td>
<td>44</td>
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<tr>
<td>Leadership</td>
<td>47</td>
<td>55</td>
<td>57</td>
<td>55</td>
</tr>
<tr>
<td>Activities of Daily Living</td>
<td>61</td>
<td>63</td>
<td>68</td>
<td>61</td>
</tr>
<tr>
<td>Functional Communication</td>
<td>54</td>
<td>56</td>
<td>69</td>
<td>57</td>
</tr>
<tr>
<td>Adaptive Skills</td>
<td>50</td>
<td>51</td>
<td>55</td>
<td>52</td>
</tr>
</tbody>
</table>

*Note.* Participant 2’s t-scores on the adaptive scales of the BASC-2 Parent Rating Scale for each test days (Reynolds & Kamphaus, 2004). Participant 2’s mother completed all of the ratings on the Parent Rating Scale.

**Comments and observations.** The following comments by Participant 2 and her mother were obtained on the last testing day of this study, once the EFT session and all measures had been completed. This conversation was informal in nature and was intended to provide an opportunity for both Participant 2 and her mother to discuss how they felt about the experience. The comments below summarize their responses.

**Participant 2’s comments.** “I really liked this [experience], especially when I was trotting. I am very happy to have had the opportunity to participate in this research project.”

“I learned how to communicate with the horse, and he understood me.” Participant 2 also noted that her concentration improved while riding the horse, and she stated that over the 12-week program she felt calmer and more consistent and confident in her riding. She added that she also gained a new friendship (the horse) and discovered a passion for riding.
Participant 2 noted one negative incident: One day the horse bit her. She explained that she was initially taken aback and surprised, and then became sad and worried that this meant the horse no longer liked her. However, she discussed the incident with her coach, who explained to her that the horse had been frightened and had reacted in response to her sudden and abrupt movements.

**Comments from Participant 2’s mother.** Participant 2’s mother noted that her daughter’s participation in this program helped decrease her anxiety and improve her self-confidence, attention, and self-assurance. She also felt her daughter had become increasingly autonomous, particularly during the last few classes. In addition, she believed that her daughter had become more resilient, more able to persevere when faced with daily challenges, and more resourceful, displaying a willingness to try again in order to succeed. Over the 12-week program, she found that her daughter was able to handle the horse with more assurance and take a leadership role while riding.

She continued, sharing that her daughter was in better control of her emotions and had increased awareness of how her horse was interacting with her and its environment. She added that her daughter also improved her physical stamina over the 12-week program. According to Participant 2’s mother, there were no negative aspects of participating in this program.

**Observations from the coach.** At the end of every riding lesson, the treatment team (i.e., coaches) wrote a brief summary of the session. At the end of the 12 sessions, the head coach, Ms. Éliane Trempe, provided a detailed written summary of her observations on Participant 2. These comments describe the progress Participant 2 made during the 12 weeks and have been translated from French to English:

Participant 2 arrived for her first lesson with a high level of excitement and energy. She
was obviously delighted to be around horses and was thrilled by the prospect of finally being able to begin her riding lessons. It was initially very important to channel her energy in order for her to understand and integrate the basic riding notions, and in particular to understand the rules and regulations pertaining to safety and security. Participant 2 had an excellent capacity to quickly absorb and integrate new information.

At no time did Participant 2 show signs of anxiety, nor did she express any concerns or fear. Initially, it was essential for us to be watchful and attentive to her lack of focus; we frequently had to return her attention to her riding tasks. As the weeks went on, our need to refocus her attention diminished as Participant 2 gained self-confidence and learned breathing exercises, which helped her better manage her energy and increase her awareness and appreciation of her performance.

During her first lessons, Participant 2 would receive only one task at a time. As the weeks went on, she was able to receive, follow, and perform two, and eventually, three consecutive tasks. The tasks given to Participant 2 had to be clear, concise and simple. Participant 2 obviously took great pleasure being on horseback, which contributed greatly to facilitating this exercise (É. Trempe, personal communication, February 27, 2017).

**Discussion**

The purpose of this study was to examine the potential impact of equine-facilitated therapy (EFT) as an adjunct treatment for a small sample of pre-adolescent girls diagnosed with attention-deficit hyperactivity disorder (ADHD). While medications are effective in alleviating some of the symptoms of ADHD, they do not provide the child with alternatives for managing behavioral symptoms (Travell & Visser, 2006). The literature on equine therapy suggests that its
use may yield a variety of psychotherapeutic benefits, such as enhanced self-confidence, self-concept, communication, trust, perspective, reduction of anxiety, decreased isolation, self-acceptance, impulse modulation, assertiveness and boundaries (Bass et al., 2009; Cumella, 2003; Ewing et al., 2007; Trotter et al., 2008). The act of controlling a horse, which weighs around 1,000 pounds, requires concentration, resourcefulness and confidence (Kersten & Thomas, 2004). If a child is successful in controlling a horse, this may improve their self-esteem, self-confidence, communication skills, trust and boundaries (Kersten & Thomas, 2004).

According to Trotter et al. (2008), it appears that the more challenging a client is in traditional psychotherapy, the more likely it is that the client will do well in therapies involving horses. Therefore, the objective of this research study was to examine the potential benefits of EFT as an adjunct treatment for symptoms associated with ADHD. More specifically, the hypothesis for this study was that an increase in scores associated with social behaviors and communication would be observed and reported by both parents and participants following treatment, and that both parents and children would report a decrease in externalizing and internalizing behaviors. It is important to note that these constructs are not targeted by ADHD medications. An increase in attentional control scores, and a decrease in impulsivity scores once the treatment was completed, were also anticipated. Although these symptoms are the main target of ADHD medication, it was hypothesized that EFT can be a beneficial adjunct treatment to medication.

**Participant 1**

In the case of Participant 1, on the IVA-CPT-2, a continuous performance test that measures both auditory and visual attention and impulsivity, it appears that most of the changes that occurred between the first three test days were generally in the mild range. There were
greater changes (i.e., increases in quotient scores) when comparing scores between Time 1 and Time 3 than between Time 2 and Time 3. Some slight to mild changes were observed on many of the scales between the two baselines (i.e., Time 1 and Time 2), which may explain the discrepancy between the two comparisons. However, the scores on the Attention Auditory and Response Control Auditory scales between Time 1 and Time 2 did not significantly change in either direction. It therefore appears that these two scales may have been more consistent across time for Participant 1. The Attention Auditory scale scores were not observed to change significantly when comparing Time 2 and Time 3. Therefore, it appears that scores on Auditory Attention (i.e., the ability to sustain and maintain attention to auditory stimulus and respond appropriately) were not influenced by the equine therapy program. Participant 1’s vigilance or ability to appropriately attend to auditory stimulus, such as verbal commands, and respond to these verbal commands did not improve significantly during the first half of the program.

Conversely, it would appear that Participant 1 saw some improvement in her ability to not respond impulsively to a stimulus presented auditorily, as suggested by the significant increase in her score on the Response Control Auditory scale between both Time 1 and Time 3 and Time 2 and Time 3. Participant 1 appeared to be less impulsive in responding to verbal commands and therefore less likely to make mistakes.

Her ability to focus and regulate her response and respond appropriately to test stimuli significantly decreased at Time 4. This decrease in performance affected almost all scales of the IVA-CPT-2. This may be explained by the fact that Participant 1 was visibly distraught and agitated because the program was ending. She was observed to be crying and voicing her sadness in saying goodbye to her coach and horse. Per observations, she was less focused while completing all the measures. For example, she played with the computer mouse and constantly
shifted in her chair during the test administration.

The results for the first three test dates suggest that Participant 1 experienced some improvement in her ability to attend to her environment and the task at hand, along with a decrease in her impulsivity—more specifically, her inability to control her response to auditory stimulus (e.g., verbal commands). The decrease observed at Time 4 on almost all scales can be explained by her emotional reaction to the end of the program. The results between the two baselines and Time 3 would provide some support for the hypothesis that EFT may be helpful in increasing attentional control and decreasing impulsivity. However, the potential gains were minimal across time for this participant.

Participant 1 did not report many improvements over the span of this research. She did not endorse any increase in her ability to attend and be less hyperactive. Although the results for Participant 1 would not support the expected increase in attentional control and a reduction in hyperactivity after the EFT program, it is important to note that Participant 1’s scores on the self-report measures were, for the most part, within the average range throughout the study.

Interestingly, on the self-report questionnaire, she disclosed being more anxious, nervous and overwhelmed by problems, and she also reported a decrease in her self-esteem, which is defined as having self-respect and self-acceptance and being self-assured (Reynolds & Kamphaus, 2004). This finding is contrary both to what was initially expected and to results found in previous research (Bass et al., 2009; Cumella, 2003; Ewing et al., 2007; Kaiser, Spence, Lavergne, & Vanden Bosch, 2004; Trotter et al., 2008). Typically, there is an increase in self-esteem and a decrease in symptoms associated with anxiety. Participant 1’s mother did not report any change on the anxiety scale, whereas her daughter reported an increase in anxiety over time. These discrepancies could be explained by the fact that Participant 1’s mother may have
unconsciously wanted to please me (as the researcher) or may have noticed changes that were specific to a situational factor (e.g., the home environment). They may also be due to the fact that this mother was more attuned or predisposed to look for any positive changes that were occurring in her daughter, or that Participant 1’s scores were influenced by an outside variable, such as school or family problems. Another potential explanation may be that this participant was anxious while completing the measures to evaluate the treatment efficacy and may have been apprehensive regarding the conclusion of the program.

Participant 1’s mother had a different point of view than her daughter regarding what occurred over the duration of the program. She noted that her daughter was better able to maintain her focus, have more self-control, be more comfortable with changes in her routine, and be more resourceful and assertive. She also reported a decrease in symptoms associated with depression. These results offer some support for the hypothesis that, according to parents’ reports, EFT may be beneficial for attentional control and decreasing hyperactivity in this sample of pre-adolescent girls. Such results also confirm the hypothesis that parents’ reports would suggest a decrease in depression scores on the BASC-2 following the EFT program. This is in line with previous findings that EFT can potentially help alleviate symptoms associated with depression (Cumella, 2003; Kemp et al., 2014; Signal, Taylor, Botros, Prentice, & Lazarus, 2013).

**Participant 2**

In the case of Participant 2, there are some discrepancies in her results on the BASC-2 and IVA-CPT-2. The BASC-2 is a self-report questionnaire that measures an individual’s perceived behavioral and emotional symptoms associated with ADHD. Included in this measure are scales focusing on internalizing (e.g., anxiety, depression) and externalizing (e.g., conduct)
problems, hyperactivity, attention problems and communication with others. The IVA-CPT-2 provides a more objective overview of an individual’s ability to appropriately attend to both auditory and visual stimuli and inhibit unwanted responses (i.e., ability to not be impulsive). On one hand, there was a decrease in Participant 2’s scores regarding her ability to control her impulsivity and her focus on the IVA-CPT-2 across time. On the other, during the informal conversation, Participant 2, her mother and her coach reported that Participant 2 seemed more attentive to the task in front of her and that she was more self-aware and less impulsive. Participant 2’s mother also noted on the BASC-2 an increase in her daughter’s ability to attend. These results on the BASC-2 and the information gathered during the informal conversation offer some support for the hypothesis that participants’ and parents’ reports would suggest a decrease in attentional problems and hyperactivity. However, the results on the IVA-CPT-2 do not support an increase in attentional control ability. This discrepancy between the two measures (IVA-CPT-2 and BASC-2) may be explained in part by the fact that the two baselines were administered in the morning, while at Time 3 and Time 4, the test was administered during the afternoon, immediately after the riding lesson. It could be hypothesized that Participant 2 was feeling more tired and was less focused after her lesson, which may have influenced her scores. In addition, Participant 2 may have been more attuned to her progress throughout the program and noticed small changes in her overall behavior.

Participant 2 also reported having fewer social tensions or interpersonal problems and seeing noticeable improvements in her friendships. This was also observed by Participant 2’s mother, who reported an improvement in her daughter’s ability to express herself and communicate with others. It appears that throughout the study, Participant 2’s ability to clearly express herself may have helped her experience fewer interpersonal tensions with friends and
family. The results on the BASC-2 and the information gathered during the informal conversation offer some support for the hypothesis that participants’ and parents’ reports would suggest an increase in more positive interpersonal relationships. These results are similar to the findings of previous research findings (Bass et al., 2009; Hameury et al., 2010; Karol, 2007; Kemp et al., 2014).

Overall, it appears that there is a fair amount of variance between what is subjectively reported on the BASC-2 and through informal conversations and what is measured by the IVA-CPT-2, which is a more objective measure. Although the objective measure did not support an increase in the participants’ ability to attend and be in control of their responses to both visual and auditory stimuli, both participants, their mothers, and their coach subjectively reported improvements in various areas.

Both participants concluded that they learned the need for clear communication with their horse and how this parallels communication with their human peers. In addition, they emphasized that this experience taught them the importance of listening to the horse and responding to its feedback. These comments by both participants offer evidence for the hypothesis that EFT may be beneficial in developing self-awareness, communicating more effectively, and being more attuned to others’ reactions in social situations, and are congruent with previous findings on the potential benefits of EFT on communication and self-awareness (Bass et al., 2009; Ewing et al., 2007; Hameury et al., 2010; Karol, 2007; Kemp et al., 2014). It was also noted that the participants felt more self-assured and assertive and saw themselves as leaders in their relationship with the horse. One noted that she felt that she was better able to concentrate and could do so for longer periods of time over the course of the program.

Both participants and their mothers reported having enjoyed their experience. Everyone
noted that it had been a positive and valuable experience, and both mothers shared that their
daughter appeared to be more self-confident and self-assured when interacting with the horses.
These findings are similar to previous research outcomes (Bass et al., 2009; Cumella, 2003;
Ewing et al., 2007; Kaiser et al., 2004; Trotter et al., 2008). In addition, both mothers reported an
improvement in their daughters’ ability to communicate effectively with the horses and to be
increasingly aware of the feedback provided by the horses. As both participants interacted more
with their horse, they learned how to better communicate with it and became attuned to what
their horse was conveying to them. The hope is that the participants’ increased awareness of how
to successfully communicate with horses will translate to improvements in how they
communicate with people and develop better relationships.

According to the coach, both participants were increasingly able to focus on the task at
hand for longer periods of time. There was also a sense of accomplishment when participants
were able to demonstrate their abilities to other people, which increased their self-confidence.

It appears that everyone involved in the program concurred that the two participants were
better able to attend to their tasks and were able to focus for longer periods of time. Another
observation made was that both participants appeared to become more self-aware and
communicate more effectively with both their human and equine peers. It was also noted that
both participants appeared to exude more self-confidence and be more assertive in their role as a
leader in the human-horse relationship. These observations provide some support to the
hypothesis that EFT is perceived to be helpful in developing a better ability to focus and to be
less impulsive in how one responds to one’s environment. The comments also support the
hypothesis that EFT may be beneficial in developing a better sense of self-awareness and more
effective communication.
Many of the reported improvements perceived by the instructor, parents and participants were related to executive functioning. Executive function is a term that encompasses different cognitive processes, such as: working memory, response inhibition, and ability to shift attention, plan, organize and monitor. In other words, it is the ability to self-regulate and work toward achieving a goal (Doyle, 2006). As both measures (i.e., BASC-2 and IVA-CPT-2) used in this study do not measure executive function, it was difficult to assess whether there were improvements in this domain. Below is a discussion of how EFT may have had an impact on the executive functioning of both participants.

When riding a horse, the rider uses many executive functions in order to successfully complete each movement. For example, the therapist may ask the participant to do a 20-meter circle. The participant must inhibit the response of wanting to engage immediately in the action and first assess her environment. When assessing her environment, the participant needs to ask herself, “Where can I do my 20-meter circle?” (i.e., planning). If the participant were to perform the 20-meter circle right away, she might find herself in front of an obstacle or something else blocking her way. This would affect the participant’s ability to perform this dressage figure properly. In this case, the therapist would ask the participant to explain why the movement was unsuccessful and what could be done differently to achieve the desired result. This would help the participant think about how to plan, problem-solve, and be aware of her environment.

In the case of this research, the equine therapist mentioned that both participants were able to receive and perform more consecutive tasks as the program progressed. For example, the therapist could instruct the participant to start trotting in the corner, then do a 20-meter circle and, once back on the track, bring her horse to a walk. These instructions would be given at the same time and would require the participant to remember the sequence of each action (i.e.,
working memory). Each action was a different movement and required the participant to shift her attention to complete the next movement. The participant has to shift her attention and focus on different aspects of her riding, such as being aware of her horse, of her position on the horse, her environment and her instructor’s directions. Lastly, while riding and performing dressage movements, the participant needed to monitor how she was doing in order to successfully complete her figure.

**Limitations**

There were certain methodological limitations associated with this research. One such limitation was the inability to establish a clear baseline. According to Morgan and Morgan (2009), baseline observations and measurements should continue long enough to determine that there are not significant upward or downward trends. However, this was not done because of the response set error possibility. Another limitation was the lack of long-term follow-up assessments, which would help determine the extent of the effects of the EFT program on its participants, if any, over the long term. In addition, the results have limited external validity, as this study only focused on two single cases.

One other potential limitation of this research is that the measures used to assess the changes in the dependent variables of interest, such as attentional control and hyperactivity, may not have been the most suitable for this research. More specifically, the scores on the IVA-CPT-2 were very inconsistent between the two baselines for both participants, which makes it difficult to discern any potential benefits of EFT. This may suggest that the construct measured by these scales may not be consistent across time and may be easily influenced by situational factors. This may also be due in part to the fact that the measures were administered in the morning for the two baselines and in the afternoon after the EFT sessions for the intervention.
phase of the study (i.e., Time 3 and Time 4). It may be argued that the participants were more
tired in the afternoon after engaging in physical activity, compared to how they felt earlier in the
day.

Conclusion

The participants, their mothers and the coach observed and reported perceived positive
outcomes in the participants’ ability to be more attentive, more resourceful and develop
increased self-awareness over the 12-week EFT program. However, these benefits appeared to
vary greatly depending on the individual and their perception. That is, the observations made by
the mothers and coach indicate that they noticed a decrease in internalized (i.e., depression and
anxiety) and externalized (i.e., aggression, hyperactivity and conduct) problems along with an
increase in the participants’ ability to be more attentive. Both mothers and coach reported that
the two participants appeared to be able to focus for longer periods of time as the program
unfolded, as well as be more confident in leading the horse and asserting themselves. The parents
and coach both observed progress in the participants’ ability to be more self-aware, and
communicate with their horse, as well as improve their relationships with their peers, at school,
and with family members. Although the participants reported some overall gains, the results
suggest that they did not perceive and/or observe as many improvements over the 12-week
program as their mothers did. Furthermore, their scores on the IVA-CPT-2 regarding their ability
to focus and be less impulsive did not indicate an improvement in these abilities. Therefore, their
ability to be less impulsive and be more attentive to their environment appears to not have
improved as much as was first hypothesized over the duration of the EFT program. It appears
that the mothers and coach were more attuned to and aware of small overall improvements made
over the 12-week program compared to the participants.
Future Research

One of the mothers may have best described how EFT can be a beneficial adjunct treatment for ADHD. She noted that it appears that, having experienced success while riding, her daughter was now able to also experience it outside of the stable, in part because of her more positive attitude toward herself. This statement may also provide some directions for future research on EFT. It may be interesting to explore how EFT can be used to increase self-efficacy in children with ADHD, and whether this would help them achieve success in other areas of their lives. According to the literature on ADHD and its effects on a child’s self-perception, children with ADHD often have a lower self-efficacy and are therefore less likely to engage in new behaviors (Bandura, 1977; Hamilton & Astramovich, 2014; Travell & Visser, 2006). As both mothers noted during this study, they observed their daughters becoming more resourceful and increasing their ability to devise solutions to challenges they were facing. EFT has also demonstrated some usefulness in increasing self-efficacy (Bizub & Davidson, 2003; Cumella, 2003). This may be explained by the fact that in the practice of EFT, the participant is encouraged to try again when she/he does not succeed at first. Therefore, this experience encouraged the participant to engage in new and creative behaviors and to develop problem-solving skills.
References


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Footnotes

1 The Integrated Visual and Auditory Continuous Performance Test – 2nd Edition (IVA-CPT-2) could not be reproduced in the appendix section of this dissertation, as it is a computer software and is copyrighted.

2 The Behavior Assessment System for Children – 2nd Edition, Version pour francophones du Canada (BASC-2 CDN-F), could not be reproduced in the appendix section of this dissertation, as it is copyrighted.

3 In French, this measure is known as the Système d’évaluation du comportement de l’enfant–Deuxième édition–Version pour francophones du Canada (BASC-2 CDN-F).

4 These students were present at the stable as part of their training to become certified equine therapists. Their training was scheduled before this participant’s lesson. When this participant arrived at the stable to prepare her horse for the lesson, these students were in the process of leaving. The participant was the one who asked them to stay to watch her lesson.
Appendix A: Consent Form English

INFORMED CONSENT

Antioch University New England – Department of Clinical Psychology

Student Investigator: Maya Michel, M.Sc., Doctoral Candidate, Clinical Psychology

This study focuses on the use of Equine-Facilitated Therapy for girls diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). This study is led by Maya Michel and is a requirement for the degree of doctorate in clinical psychology. Dr. Theodore Ellenhorn, Professor at Antioch University New England, supervises this research. The Psychology Human Subjects Institutional Review Board has approved this study *date of approval*.

Purpose of the study: This research project focuses on potential effects of equine-facilitated therapy on girls who have received a diagnosis of Attention Deficit Hyperactivity Disorder.

Description and duration of study: Your child will participate in a 12-week equine therapy program at Les Amis de Joey in Sorel, Quebec. As the parent of the child, you will be asked to fill out a paper questionnaire twice before the start of the lessons. You will also be asked to fill out the same questionnaire twice after two riding lessons (dates will be provided to you). This questionnaire will take 10 to 20 minutes to fill out. Your daughter will also be asked to fill out a paper questionnaire four times during the 12-weeks session. It will take her 10 to 15 minutes to fill it out. She will also take a test of attention on a computer three times during the 12-weeks session. This should take no more than 15 minutes.
**Participation:** Your child’s participation in this study is voluntary. There will be no consequences if you refuse to participate. There will be no consequences if you decide to end your participation at any time. If you withdraw from this study, you will not be asked to complete additional questionnaires. Your child will not be allowed to continue in the free program if your child misses more than two sessions. Any information already collected about your child will be destroyed.

**Risks of participating in this study:** There are no risks involved in participating in this study other than those that exist being around horses. The horses used at Les Amis de Joey are calm and trained to be ridden by children. However, there are still some risks associated with riding. A fall could occur, which could potentially result in physical and/or emotional harm. The child could develop a fear of horses, or feel uncomfortable around them. In this case, the therapist will stop the activity and the session. The therapist has the right to stop the lesson if she believes that it is best for the child to dismount. Horses have personalities and it could happen that some of them might not be a good fit for your child. The therapist also has the right to change the horse pairing if she believes that there may be a better match for your child. Lastly, you have signed an exoneration of civil liability with the stable Les Amis de Joey and understand the possible dangers of being around horses. The researcher will not be held liable for any injuries related to being at the stable.

**Benefits of participating in this study:** You and your child will not be paid to have your child participate in this study. However, the lessons will be provided to your child for free. You may benefit from knowing that you have contributed to research in the area of equine therapy.
Therapy can be helpful in improving some behavioral and emotional difficulties. Participating in this study may help your child cope with some of these difficulties. The goal of EFT is to provide a positive experience. Research suggests that children can learn new skills and increase their self-confidence. Research suggests that leadership roles to children with ADHD could increase their self-esteem. The horse will react to the child’s behavior. This interaction could help your child understand how to control their behavior. You and your daughter may benefit from gaining new skills and be able to share your experience.

Confidentiality: Your daughter’s name will never be used and will not appear on the paper questionnaire or on the computer. On all questionnaires, we will replace her name by using codes such as “Participant A”, or “Participant B”. Therefore, any information will be de-identified, and only the researcher will have access to the codes linked to your daughter’s names. It is important to note that the coach and volunteers at the stable will know your name.

Printed research results and material will be kept in a locked file cabinet in my home, and only I will have access to the records while I work on this project. If you would like, I will inform you of the results of this research when the study is completed and I have analyzed the data. The data will be destroyed after the research project is completed.

Contact and questions:

If you have any questions, please feel free to contact me:

Maya Michel

Email:

Phone:
You may also contact my faculty advisor, Dr. Theodore Ellenhorn:

Dr. Theodore Ellenhorn
Dissertation Chair
Email: tellenhorn@antioch.edu
Phone: (603)-283-2184.

If you have any questions about your rights as a research participant or as a parent of the participant, you can contact:

Dr. Kevin Lyness
Chair of the Antioch University New England IRB
Email: klynness@antioch.edu
Phone: 603-283-2149

You can also contact:

Dr. Melinda Treadwell
Vice President for Academic Affairs
Email: mtreadwell@antioch.edu
Phone: 603-283-2444

**Consent Statement:** I have read and understood the information above. The researcher has answered all the questions I had to my satisfaction. They gave me a copy of this form. I consent to have my child take part in the equine facilitated study on ADHD. My signature indicates that I
have read and understood the above information and that I agree to my daughter’s participation in this study.

___________________________
Name of Child

___________________________
Name of Parent or Legal guardian

___________________________    _____________
Signature                  Date
Appendix B: Consent Form French

Formulaire d’information et de consentement

Antioch University New England – Department of Clinical Psychology

Chercheuse : Maya Michel, M.Sc., Candidate au doctorat en psychologie clinique

Cette recherche est réalisée dans le cadre du projet de doctorat de Maya Michel, dirigé par Dr. Theodore Ellenhorn du Département de Psychologie Clinique de Antioch University New England au New Hampshire. Pour votre information, cette étude a reçu l’approbation du Comité d’éthique de recherche d’Antioch University New England le 30 Juin, 2016.

Vous êtes invité(e) à participer à un projet de recherche. Le présent document vous renseigne sur les modalités de ce projet de recherche. S’il y a des mots ou des paragraphes que vous ne comprenez pas, n’hésitez pas à poser des questions. Pour participer à ce projet de recherche, vous devez signer le consentement à la fin de ce document et nous vous en remettrons une copie signée et datée.

Objectifs du projet:

Cette étude portera sur les bienfaits potentiels de l’équitation thérapeutique sur les adolescentes âgées entre 10 et 14 ans qui ont été diagnostiquées avec un TDAH.

Description et déroulement du projet:

Votre enfant participera à un programme de thérapie équine d’une durée de 12 semaines chez Les Amis de Joey à Sorel, Québec. L’étude se déroulera sur une période de 14 semaines. En tant que parent de l’enfant, vous devrez, à deux reprises, remplir un questionnaire par écrit, avant le début des leçons. Vous devrez, de plus, remplir le même questionnaire deux fois après deux leçons d’équitation (les dates vous seront transmises). Ce questionnaire prendra 10 à 20 minutes
à remplir. Votre fille devra aussi remplir un questionnaire par écrit à deux reprises, avant le début des leçons. De plus, elle devra remplir le même questionnaire deux fois après deux leçons d’équitation (les dates vous seront transmises). Ce questionnaire prendra 10 à 15 minutes à remplir. Elle complètera aussi un test d’attention à l’ordinateur d’environ quinze minutes, 4 fois durant cette période.

**Participation:**

La participation de votre enfant à cette étude est volontaire. Votre refus d’y participer serait sans conséquences. Si vous vous retirez de cette étude, vous n’aurez pas à remplir d’autres questionnaires. Il ne sera pas permis à votre enfant de rester gratuitement dans le programme s’il manquait plus de deux sessions ou si vous vous retirez de cette étude. Toutes les informations recueillies seront alors détruites.

**Inconvénients et risques pouvant découler de la participation:**

Il n’y a pas de risque à participer à cette étude autre que ceux qui sont reliés à la compagnie des chevaux. Les chevaux utilisés chez Les Amis de Joey sont calmes et entraînés pour être montés par des enfants. Il y a cependant des risques liés à l’équitation. Une chute éventuelle pourrait causer des problèmes physiques et émotifs. L’enfant pourrait contracter une peur des chevaux ou se sentir inconfortable en leur présence. Dans ce cas, l’instructeur mettra fin à l’activité et à la session. L’instructeur a le droit de mettre fin à une session s’il croit qu’il vaut mieux pour l’enfant de mettre pied à terre. Les chevaux ont une personnalité et il peut arriver que certains ne conviennent pas à votre enfant. L’instructeur se réserve le droit, au besoin, de changer la monture pour une qui serait plus appropriée pour votre enfant. Finalement, vous aurez à signer une exonération de responsabilité civile avec l’écurie Les Amis de Joey et comprenez les dangers
liés à la présence des chevaux. La chercheuse ne sera pas tenue responsable de toute blessure reliée à la présence dans l’écurie et à cette étude.

**Avantages pouvant découler de la participation:**

Vous et votre enfant ne serez pas rémunérés pour votre participation à cette étude. Les leçons seront cependant données gratuitement à votre enfant. Vous pourrez être fiers d’avoir contribué à la recherche dans le domaine de la thérapie équine. Cette thérapie peut aider à la solution de problèmes émotionnels et de comportement. En y participant, votre enfant pourrait plus facilement faire face à ses problèmes. Le but de la participation à cette étude est de fournir une expérience positive. Les recherches démontrent que les enfants peuvent y acquérir de nouvelles compétences et augmenter leur confiance en soi. Les recherches démontrent aussi que des rôles d’autorité confiés aux enfants peuvent augmenter leur estime de soi. Le cheval réagit au comportement de l’enfant. Cette interaction pourrait aider votre enfant à comprendre comment contrôler son propre comportement. Vous et votre fille pouvez bénéficier de l’acquisition de nouvelles habiletés et partager votre expérience.

**Confidentialité, partage, surveillance et publication:**

Le nom de votre fille ne paraîtra dans aucun rapport, ni questionnaire ou logiciel utilisés durant cette étude. Le nom de votre fille sera remplacé par un code, par exemple « Participante A » ou « Participante B ». Toutes les données et informations recueillies seront dépersonnalisées et seule la chercheuse aura accès au code relié au nom de votre enfant. Il est cependant important de noter que l’instructeur et le personnel bénévole de l’écurie connaîtront le nom de votre fille.

Durant la période de recherche, les données et résultats seront conservés en lieu sûr, dans un classeur barré sous clé et seule la chercheuse y aura accès. Ces données seront conservées jusqu’au moment où elles auront été analysées et l’étude complétée. Toutes les données seront
ensuite détruites au moment où le projet sera complété. Si vous le désirez, la chercheuse vous communiquera les résultats de sa recherche, une fois l’étude complétée et rédigée.

**Renseignements supplémentaires et contacts:**

Si vous avez des questions, n’hésitez pas à me contacter :

Maya Michel

Email:

Téléphone:

Vous pouvez aussi contacter mon directeur de thèse:

Dr. Theodore Ellenhorn

Directeur de thèse

Email: tellenhorn@antioch.edu

Téléphone: (603)-283-2184.

Si vous avez des questions concernant vos droits en tant que participant ou comme parents de la participante, vous pouvez communiquer avec:

Dr. Kevin Lyness

Directeur, Comité d’éthique de la recherche, Antioch University New England

Email: klyness@antioch.edu

Téléphone: 603-283-2149

Vous pouvez aussi contacter:

Dr. Melinda Treadwell

Vice Présidente, Affaires Académiques

Email: mtreadwell@antioch.edu
Consentement libre et éclairé:

Je ________________________________________________ (nom en caractère d’imprimerie)
déclare avoir lu et/ou compris le présent formulaire et j’en ai reçu un exemplaire. Je comprends la nature et le motif de la participation de ma fille et j’ai eu l’occasion de poser des questions auxquelles on a répondu, à ma satisfaction.

Par la présente, j’accepte librement que ma fille participe à ce projet:

__________________________________

Nom de la Participante

__________________________________

Nom du parent ou du tuteur légal

__________________________________  __________

Signature  Date
Appendix C: Assent Form English

Child ASSENT

Participant’s Name ________________________________

RESEARCH STUDY ON Equine Facilitated Therapy and Attention Deficit Hyperactivity Disorder

I am interested in learning about how horses can help young girls with ADHD. I am asking you and others to work with me and the team at Les Amis de Joey to find out about it.

If you agree to do this, I will ask you to fill out a questionnaire and a computer test. I will ask you to attend riding lessons at Les Amis de Joey. Most children think this is fun to do.

These are not tests and questionnaires like those you usually have in school. All you have to do is try as best as you can to do the things I ask, and you will do fine. You should also listen to the riding instructor when you are riding the horse.

Your parents, the instructor and the other children will not know how you do. This will be just between you and me and the people I work with.

Of course, you don’t have to do this if you don’t want to, even if your parents have given their permission. If you do not want to participate just tell me. It is OK with me if you don’t want to be in the study.

Do you have any questions? Do not be shy to ask me anything. There are no wrong questions. Again, this will not affect you in any way even if you choose not to be in the study. If you agree to do this, I would like you to sign this paper.
The study on horseback riding has been explained to me and any questions I had have been answered. I would like to take part in the study.

____________________________  
Signature

__________  
Date
Appendix D: Assent Form French

Formulaire d’assentiment de l’enfant

Nom de la particiante ____________________________

ÉTUDE DE RECHERCHE sur l’équitation thérapeutique et le trouble du déﬁcit de l’attention avec ou sans hyperactivité (TDAH)

Je m’intéresse à la façon dont les chevaux peuvent aider les jeunes filles avec un TDAH. Pour en apprendre plus sur le sujet, je t’invite et j’invite d’autres jeunes filles à travailler avec moi et Les Amis de Joey.

Si tu acceptes, je vais te demander de remplir un questionnaire et de faire une activité à l’ordinateur. Je vais aussi te demander d’assister à des cours d’équitation à l’écurie Les Amis de Joey. La plupart des jeunes trouvent ça bien amusant.

Ce ne sont pas des questionnaires et des activités comme ceux que tu dois faire à l’école. Tu n’as qu’à essayer de faire les choses que je te demande du mieux que tu peux et tu vas bien t’en sortir. Tu dois aussi écouter le moniteur d’équitation lorsque tu montes à cheval.

Tes parents, le moniteur et les autres jeunes ne connaîtront pas tes réponses aux questionnaires et aux activités. Tout ça restera entre toi et moi et les personnes avec qui je travaille.

Bien sûr, tu n’es pas obligée de participer à l’étude si tu ne veux pas, même si tes parents ont donné leur autorisation. Si tu ne veux pas y participer, tu n’as qu’à me le dire, ce n’est pas un problème.
As-tu des questions? Ne te gêne pas, tu peux tout me demander. Il n’y a pas de mauvaises questions. Encore une fois, ça ne t’affectera pas du tout si tu choisis de ne pas participer à l’étude.

Si tu acceptes, j’aimerais que tu signes ce document.

L’étude sur l’équitation m’a été expliquée et toutes mes questions ont été répondues. Je voudrais participer à l’étude.

____________________________  ____________
Signature                  Date
Appendix E: Permission Letter

May 30, 2016

Antioch University New England,
Department of Clinical Psychology
Institutional Review Board (IRB)
40 Avon Street
Keene, New Hampshire 03431
U.S.A.

Subject: Permission Letter to conduct a study on Equine Facilitated Therapy at Les Amis de Joey, Sorel, Quebec.

Dear Members of the IRB Committee,

On behalf of Les Amis de Joey, a Canadian Therapeutic Riding Association (CanTRA) certified equine-facilitated therapy stable, I am writing to you to formally indicate my awareness and confirm our support of the doctoral research study which will be conducted by Maya Michel and which is entitled: Equine-Facilitated Therapy: An Adjunct Treatment for Adolescent Girls with ADHD.

Short definition of project: The study will examine the potential impact of Equine-Facilitated Therapy (EFT) as an adjunct treatment for adolescent girls diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). The study will use purposeful sampling in order to answer specific questions regarding adolescent girls with a confirmed diagnosis of ADHD. Thus, four or five (4 or 5) adolescent girls between the ages of 10 and 14 will be recruited and will participate in weekly equine-therapy sessions taking place over a period of 12 weeks at Les Amis de Joey, an equine-facilitated stable located in Sorel, Quebec.

Ms. Michel has offered to provide Les Amis de Joey with a copy of the IRB-approved informed consent document at our request and should it be required.

The Investigator, Ms. Michel, will not be required to contact or recruit any employees or volunteers as Les Amis de Joey is an established equine-therapy facility which works in close collaboration with a number of accredited equine assisted therapists and volunteers. We do however hereby grant permission to Ms. Michel to conduct her research and collect data at our facility.
Furthermore, we understand that Ms. Michel has secured the necessary funding from a private charitable foundation which will be remitted to Les Amis de Joey and which will cover the expenses related to the use of our facilities, lessons, horses and volunteers. This will allow the four or five (4 or 5) participants to take part in a 12-week equine-facilitated program at no cost to them. Les Amis de Joey will receive a copy of the aggregate results should these be requested. In addition, Les Amis de Joey acknowledge, that they may also benefit from the results of this study, therefore furthering their knowledge of the potential benefits of equine-facilitated therapy.

It is still early to assess if publication is intended however it is understood that the results of this study can be made available to Les Amis de Joey as well as to all CanTRA members. The study could also potentially be presented during futures conferences on equine-facilitated therapy.

The name of the stable and its owner will be mentioned and acknowledged in the dissertation. However, the names of the participants and volunteers will not appear on any published materials.

The study is expected to start in early September and will be conducted over a 12-week period however there are no specific time restrictions as some participants may begin the EFT program at a later date.

We are happy to participate in this study and contribute to furthering research in the area of equine-facilitated therapy.

If you have any questions or concerns, please feel free to contact me at
Appendix F: Research Ethical Board Discussion

The *Tri-Council Policy Statement: Ethical Conduct For Research Involving Humans* (2010), details a joint policy of Canada’s three federal research agencies: the Canadian Institute of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC). This document “has been informed, in part, by leading international ethics norms, all of which may help, in some measure, to guide Canadian researchers, in Canada and abroad, in the conduct of research involving humans” (p. 3).

As required by the IRB, the REB also asks for an informed consent form, which must state that consent is voluntary and that the participant can withdraw at any time. Incentive, in the form of paid lessons, is being used for this research. However, this should not be considered coercion, as the participants and parents are made aware of the risks and the potential benefits of equine therapy. Furthermore, participants have the right to decline the invitation to participate in this study. In addition, this incentive also reduces financial discrimination, as it ensures that all have equal access to participating in this study regardless of their financial status. Lastly, the informed consent form clearly states that the participants can withdraw at any time without any penalty to them.

The REB also concerns itself with the proper inclusion and exclusion criteria in order to avoid discrimination. This study specifically focused on adolescent girls with ADHD. Although there is one existing study on boys with ADHD, there is no known research that looks specifically at adolescent girls and ADHD. Furthermore, in order to observe the effects of equine therapy on ADHD, I excluded any participants who have a comorbid disorder. Lastly, individuals with a physical disability would not be able to participate in this study as the stable is
not set up to accommodate them and ensure their safety, in addition to the fact that this could potentially also interfere with the main research question (i.e., Can equine therapy improve attentional control in girls with ADHD?) and influence the results.

The REB asks that researchers also maintain participants’ confidentiality. Hence, for this research, names and other traceable personal information will not be divulged to the public without the consent of the participants. The REB asks that the researcher safeguard the participants’ information by creating a key that links participants’ names to a code. The participants should be made aware of how the data will be handled if they wish to withdraw from the study. Also, participants should be made aware of how long the data will be kept and under what conditions. These points are explained and have been addressed in the confidentiality section of the informed consent form.

Reference:

Appendix G: Recruitment Letter for Agencies

Email/Mail cover for Medical professionals and Agencies

To Whom It May Concern:

I am a fourth-year student in the Department of Clinical Psychology at Antioch University New England, conducting a study under the supervision of Professor Theodore Ellenhorn on the use and effects of equine-facilitated therapy for young girls diagnosed with ADHD. I am contacting you today at the suggestion of Éliane Trempe of the equine-therapy stable Les Amis de Joey. I am currently searching for adolescent girls aged 10 to 13 with a diagnosis of ADHD, without any other comorbid disorders or physical disabilities, who would be interested in participating in this study by taking part in 12 free equine-therapy sessions, which will be held in both fall and winter 2016 at Les Amis de Joey.

Participation in this study involves attending 12 equine-facilitated sessions at the Les Amis de Joey stable, located in Sorel-Tracy, Quebec, over a 14-week period. The parents and their children will be asked to fill out response forms four times over the course of these 14 weeks. These should not take more than 20 minutes to complete. The children will also be asked to do an activity on a computer four times, each of which should take approximately 20 minutes. The first two weeks of the study, the parents and children will only be required to be present at the stable to fill out the forms and do the activity on the computer. Starting in week 3, the child will begin her weekly one-hour riding lessons, which will run for 12 weeks. The 12 equine-therapy sessions, which would normally cost $650, will be offered free of charge to the participants. I would like to assure you that the study has been reviewed by and received ethics approval from Antioch University New England’s Institutional Review Board.
I would greatly appreciate your help in recruiting participants for my study by informing your patients and/or clients of this opportunity. I have attached to this email a recruitment letter for potential participants to read, which will provide additional information on the study.

If you have any questions or would like further information, please feel free to write to me at email or call me on my cellphone at phone number.

Thank you for your help!

Sincerely,

Maya Michel
Appendix H: Recruitment Letter for Parents

June 11, 2016

To whom it may concern;

I am a fourth-year student in the Department of Clinical Psychology at Antioch University New England, conducting research under the supervision of Professor Theodore Ellenhorn on the use of equine-facilitated therapy for young girls diagnosed with ADHD.

Equine therapy has been shown to help improve a variety of mental-health difficulties. However, little is known about the effects of equine therapy on young girls with ADHD. Therefore, I would be very pleased if you and your daughter could participate in my study. I plan to conduct this research at the stable Les Amis de Joey, located in Sorel-Tracy, Quebec, from September X to December X (or during other sessions running from January/February to March/April). This study will span a period of 14 weeks, during which time you and your daughter will be asked to fill out a form on four occasions. Your daughter will also be asked to do an activity on a computer on four occasions. During the first two weeks of the study, you will only be required to fill out the forms and do the activity on the computer. Filling out the form and completing the computer activity should take a maximum of 20 minutes each. Starting in week 3, your daughter will begin her weekly one-hour riding lessons, which will run for a period of 12 weeks. The cost of these equine-therapy sessions is usually $650; however, if you decide to participate in this study, they will be free of charge to you. All information you and your daughter provide will be confidential, and you will not be identified by name in any dissertation, report or publication resulting from this study. The data collected will be kept for a period of one year in my computer and will be password protected.
In order to be eligible to participate in this study, your daughter must have received a diagnosis of ADHD. However, she must not have been diagnosed with any other mental health disorders or have any physical disabilities. Additionally, she should not have participated in another equine-therapy program before, and should not be afraid of horses.

If after receiving this information you have any additional questions about this research, or would like to participate in this study, please feel free to contact me, Maya Michel, at phone number.

I would like to assure you that this study has been reviewed by and received ethics clearance from Antioch New England University’s Institutional Review Board. However, the decision to participate is entirely yours. Should you have comments or concerns about your participation in this study, please feel free to contact Dr. Kevin Lyness, Chair of the Institutional Review Board at Antioch University New England, at 1-603-283-2149, or klynness@antioch.edu.

Thank you in advance for your interest in this project.

Yours sincerely,

Maya Michel
Antioch University New England
Doctoral Candidate Student
Bonjour,


La participation à l’étude comprend 12 séances d’équitation thérapeutique sur une période de 14 semaines à l’écurie Les Amis de Joey, à Sorel-Tracy. Les parents et leurs enfants devront remplir des formulaires à quatre reprises au cours de ces 14 semaines. Cette tâche ne devrait pas prendre plus de 20 minutes. Les enfants devront également compléter une activité d’environ 20 minutes sur ordinateur quatre fois au cours de ces semaines. Pendant les deux premières semaines de l’étude, les parents et enfants n’auront qu’à se présenter à l’écurie afin de remplir les formulaires et compléter l’activité sur ordinateur. À compter de la troisième semaine, l’enfant commencera sa leçon d’équitation hebdomadaire d’une heure qui s’échelonnera sur 12 semaines. Les 12 séances d’équitation thérapeutique – qui coûtent normalement 720 $ – seront offertes gratuitement aux participantes. Je voudrais en outre vous assurer que cette étude a été
passée en revue et a reçu l’approbation du Comité d’éthique de la recherche avec des êtres humains d’Antioch University New England.

Je serais fort reconnaissante si vous pouviez m’aider dans le recrutement de participantes pour mon étude en informant vos patients ou vos clients de cette belle occasion. Vous trouverez ci-joint une lettre de recrutement pour les participantes éventuelles, laquelle fournit des renseignements supplémentaires sur l’étude.

Si vous avez des questions ou désirez de plus amples informations, n’hésitez pas à m’écrire à adresse courrielle ou à m’appeler sur mon téléphone cellulaire.

Je vous remercie pour votre aide!

Cordialement,

Maya Michel

Candidate au doctorat en psychologie clinique

Antioch University New England
Madame,
Monsieur,

Je suis une étudiante de quatrième année au doctorat au département de psychologie clinique à Antioch University New England et je mène une étude sous la supervision du professeur Theodore Ellenhorn sur l’emploi et les effets de l’équitation thérapeutique sur les jeunes filles diagnostiquées d’un TDAH.

Il a été démontré que l’équitation thérapeutique aide à améliorer divers troubles de santé mentale. Cependant, on sait peu des effets de l’équitation thérapeutique sur les jeunes filles atteintes d’un TDAH. Je serais donc très reconnaissante si vous et votre fille pouviez participer à mon étude. Je compte mener l’étude à l’écurie Les Amis de Joey, située à Sorel-Tracy, de la mi-septembre à la mi-décembre. Votre fille devra également compléter une activité sur ordinateur quatre fois au cours de ces semaines. Pendant les deux premières semaines de l’étude, vous et votre fille n’aurez qu’à vous présenter à l’écurie pour remplir les formulaires et compléter l’activité sur ordinateur. Ces deux tâches ne devraient pas prendre plus de 20 minutes chacune. À compter de la troisième semaine, votre fille commencera sa leçon d’équitation hebdomadaire d’une heure qui s’échelonnera sur 12 semaines. Les 12 séances d’équitation thérapeutique coûtent normalement 720$, mais elles vous seront offertes gratuitement dans le cadre de cette étude. Toutes les informations fournies par vous et votre fille resteront confidentielles et vous ne serez pas identifié(e)s par nom dans toute dissertation, tout rapport ou toute publication résultant
de l’étude. Les données collectées seront conservées pendant un an sur mon ordinateur et protégées par mot de passe.

Pour être admissible à l’étude, votre fille doit être âgée entre 10 et 14 ans et avoir été diagnostiquée d’un TDAH. Cependant, elle ne doit pas avoir reçu d’autres diagnostics de troubles de santé mentale ni présenter une déficience physique. En outre, elle ne devrait pas avoir participé à un programme d’équitation dans le passé, et ne doit pas avoir peur des chevaux.

Si vous avez des questions ou désirez de plus amples informations sur l’étude ou que vous aimeriez y participer, n’hésitez pas à me joindre, Maya Michel, au numéro de téléphone ou par courriel.

Je voudrais vous assurer que cette étude a été passée en revue et a reçu l’approbation du Comité d’éthique de recherche d’Antioch University New England. La décision de participer demeure entièrement la vôtre. Si vous avez des commentaires ou des préoccupations au sujet de votre participation à l’étude, veuillez s’il vous plaît communiquer avec Dr Kevin Lyness, président du Comité de protection des personnes d’Antioch University New England, par téléphone au 1-603-283-2149 ou par courriel à klynness@antioch.edu.

En vous remerciant pour votre intérêt, je vous prie de recevoir mes meilleures salutations.

Maya Michel
Antioch University New England
Appendix K: Medication Survey—English Version

Medication Survey

Name of Participant: ______________________________

Name of medication: ______________________________

When did you start taking this medication: ______________________________
(Only for the first administration of this survey)

Dosage: ______________________________

When was the last time you took this medication: ______________________________
Médication

Nom de la participante: _________________________

Nom du médicament: __________________________

Quand avez-vous commencé à prendre ce médicament?: _________________________

Posologie: _________________________________

À quand remonte la dernière prise de ce médicament?: _________________________