

THESIS

OCCUPATIONAL THERAPY AND EQUINE-ASSISTED ACTIVITIES AND THERAPIES:
AN EXPANDED VIEW FOR HIPPO THERAPY WITHIN
OCCUPATIONAL THERAPY

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ABSTRACT

OCCUPATIONAL THERAPY AND EQUINE-ASSISTED ACTIVITIES AND THERAPIES: AN EXPANDED VIEW FOR HIPPO THERAPY WITHIN OCCUPATIONAL THERAPY

Equine-assisted activities and therapies (EAAT) involve the use of a horse to help people across the lifespan with disabling or other adverse conditions. Hippotherapy is the type of EAAT that is reimbursable and recognized for occupational therapy professionals. However hippotherapy is based on a physical therapy model focusing on neuromusculoskeletal function and this may limit the scope of occupational therapy practice. The conceptual framework for this thesis uses the occupational therapy practice framework as a guide to examine and compare the profession of occupational therapy broadly, as well as the use of hippotherapy in occupational therapy more specifically. Within this context client factors, interventions, and outcomes are viewed in both occupational therapy broadly and occupational therapy as applied to hippotherapy. This study had two aims: 1) to describe the current state of knowledge of equine assisted activities and therapies that was of direct relevance to occupational therapy; and two2), guided by this detailed map of current knowledge, to test the hypothesis that an expanded use of the horse and the equine environment in occupational therapy is justified. This hypothesis is driven by theoretical and empirical evidence from the wider field of EAAT that supports broad and holistic practices of equine-facilitated occupational therapy.

This study is part of a larger systematic mapping review study aimed at mapping the topography of current EAAT literature. Our search strategy located 1402 peer-reviewed papers

focused on EAAT that were published in English between 1980 and 2014; these papers were imported into EndNote for data management. After inclusion and exclusion coding, the final database consisted of 234 papers. A sample of 28 of the included papers were used in this study to answer questions for this smaller study, referred to as the equine-facilitated occupational therapy (EFOT) study in this thesis. These included papers used EAAT interventions with adult (18 and older) participants. A data extraction tool (DET) was developed to collect data, and was entered into Microsoft Access; each paper was reliably coded using this tool. This tool was used to gain understanding about specific research questions for the EFOT study. Research questions include: What specific client factors are addressed in diverse EAAT? Secondly, how is the nature of intervention, including supporting theories and the role of the horse, understood in diverse EAAT? Thirdly, what outcomes are evaluated in diverse EAAT? Data were analyzed using information collected from the DET relevant to research questions. These data were queried, using the query tool in Microsoft Access and queries were then copied to Microsoft Excel spreadsheets. Pivot tables in Microsoft Excel were used to develop relationship variables of interest.

Results for question one showed a breadth of client factors consistent with the occupational therapy practice framework in EAAT papers, including participant ages between 18 and 85 years, and a variety of diagnostic factors beyond neuromusculoskeletal conditions. However, only one article addressed client factors of meaningful activities in accord with the participants' values, beliefs, and spirituality.

Results for question two revealed a variety of intervention activities and theories of the horse's contribution to therapy in addition to the horse's therapeutic movement to a rider. While the majority of papers identified the movement of the horse to be therapeutic, there were

additional theories about the benefits of employing horses in therapy. Activities involving the horse were theorized to contribute to well-being including feelings of freedom, pleasure, enjoyment, safety, and being present in the moment. The horse-human relationship was theorized to create feelings of connectedness, reduced anxiety, increased vitality, emotional support, unconditional love, and new hope for building human relationships. Activities involving directing this large, powerful animal were also seen to help build feelings of empowerment such as self-efficacy and autonomy. The equine environment helped to stimulate and integrate multiple sensory systems, and provided a stimulating environment for learning.

Results for question three revealed a combination of outcomes encompassing mind, body, and beyond. The hippotherapy papers focused on a much narrower set of outcomes mainly concerning neuromusculoskeletal functions, but the wider set of EAAT papers in this sample focused on broader outcomes. This wider evidence base can inform occupational therapists interested in helping clients to holistically reach their occupational goals. Linking body function or symptom reduction to increased participation in daily life was rarely addressed and represents an important evidence gap for the occupational therapy profession.

This study illustrated that therapy involving a horse can meet a variety of physical and mental health needs within the scope of occupational therapy. Findings from this study suggest that occupational therapists are in a position to blend research evidence and a variety of horse-related activities into occupational therapy to meet those holistic needs. While few studies linked EAAT with performance and participation, a few papers did provide examples that can inform practice and guide future research.

This study identified valuable characteristics of horses that can contribute to therapy. The horse can be ridden to aid in neuromusculoskeletal improvements such as balance and

coordination. Riding can also contribute to autonomy. Activities involving directing the horse, on the ground, beside, or astride the horse, can build empowerment and self-efficacy.

Relationship-building activities such as grooming and groundwork activities have been associated with building self-awareness and well-being.

Research is needed to further understand the link between improved performance during therapy involving horses and improvement in performance and participation in valued activities outside of the equine environment. This knowledge is vital to inform both providers and consumers of EAAT. There is an opportunity to expand the vision of EFOT in future research. Until then, occupational therapists can draw upon the larger body of evidence to create inspired, holistic, and occupation-centered practice.

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CHAPTER ONE: BACKGROUND TO THE STUDY

The use of equine activities and therapies (EAAT) has expanded dramatically in recent years to address a variety of human health conditions across many healthcare disciplines (Sterba, Rogers, France, & Vokes, 2002). Despite this growth, hippotherapy is the only type of EAAT that is a recognized and reimbursable service that incorporates the use of a horse in occupational therapy. The American Hippotherapy Association (2010a) has defined hippotherapy as a type of therapeutic intervention in which a horse provides three-dimensional movement that helps to improve a passive rider's neuromuscular function. This view of therapy, which was founded on a physical therapy model and stresses the therapeutic action of the horse's movement as it affects a *passive rider's body* (American Hippotherapy Association, 2010a), limits the scope of occupational therapy. Engel (2007) proposed, for example, that hippotherapy as it is currently understood excludes a multitude of occupational performance opportunities that naturally arise in equine contexts and could be therapeutically employed by occupational therapists. Among others, these opportunities include active horse care and maintenance, ground work, and independent riding. Given this narrow view of hippotherapy, Engel (2007) further proposed that there may be outcomes that could be added or enhanced by including other beneficial ways of interacting with the horse.

This thesis is premised on an as yet examined belief that an expanded approach to involving the horse in occupational therapy could allow for more occupation-based interventions and outcomes, promote more holistic treatment strategies, and enlarge the scope of populations who benefit from services. Related to this belief, Chapter One introduces the conceptual framework for the study, the need for the study and its methodology. I begin with an overview

of the broad term of EAAT and hippotherapy's place within the many types of EAAT. The conceptual framework for this thesis encompasses the profession of occupational therapy broadly, as well as the use of hippotherapy in occupational therapy more specifically, which I refer to as *hippotherapy within occupational therapy*. At both these more broad and specific levels, I address client factors, interventions, and outcomes taken into consideration by occupational therapists. When relevant, I draw comparisons to the use of the horse in other disciplines beyond occupational therapy. Lastly, I discuss the significance of a systematic mapping review of EAAT literature for occupational therapists interested in EAAT and propose my specific research questions.

Equine-Assisted Activities and Therapies

Equine-assisted activities and therapies (EAAT) is an umbrella term that encompasses both equine-assisted activities (EAA) and equine-assisted therapies (EAT). EAA includes a variety of horse-related activities in which clients, volunteers, participants, instructors, and equids are involved such as therapeutic riding, interactive vaulting, therapeutic driving, and equine-facilitated learning (The Professional Association of Therapeutic Horsemanship, 2014). All of the following EAA definitions are provided through the Professional Association of Horsemanship (PATH), International (2014). *Therapeutic riding* involves riding activities to contribute to people with special needs' emotional, physical, mental, and sensory well-being. *Interactive vaulting* involves gymnastic-like movements around and atop a horse; movements can be simple to elaborate depending on the needs of the participant. *Therapeutic driving* involves sitting in a carriage seat or wheelchair and directing a horse to pull a carriage. *Equine-facilitated learning* involves personal growth and life skill development opportunities through interactions with horses.

EAT are therapies that incorporate “equine-assisted activities and/or the equine environment. Rehabilitation goals are related to the patient’s needs and the medical professional’s standard of practice” (The Professional Association of Therapeutic Horsemanship, 2014). Two types of EAT are equine-facilitated psychotherapy and hippotherapy. A rehabilitation or mental health professional provides the treatment in EAT, where typically an equine instructor facilitates EAA. For all EAAT activities special training and certifications are required through a governing board to provide these equine services.

This thesis primarily focuses on hippotherapy, which is a type of EAT. *Hippotherapy* means therapy with the help of the horse, from the Greek word, *hippos*, meaning horse. The horse’s movement is incorporated as part of a specific treatment strategy (American Hippotherapy Association, 2010a). Physical therapists, occupational therapists, and speech-language pathologists can become certified by the American Hippotherapy Association (AHA) to provide hippotherapy (American Hippotherapy Association, 2010b). Hippotherapy as it is currently defined is oriented towards clients with neuromusculoskeletal disorders (American Hippotherapy Association, 2010a).

Occupational Therapy

Before I link occupational therapy and hippotherapy together, I would like to describe occupational therapy and the profession’s occupational perspective. Occupational therapy looks at “occupation” as the many different ways that people spend their time from self-care, to enjoyment and leisure, to roles and activities that contribute to the larger community (Dickie, 2014; Schell, Scaffa, Gillen, & Cohn, 2014). For occupational therapists, the focus of interventions and co-created goals are intertwined with the client’s valued occupations. Occupational therapists view the client holistically, acknowledging dimensions of the person’s

mind, body and spirit (Brown, 2014). The therapy can involve helping to make changes related to the person, the person's environment, or the activity for more successful performance (Brown, 2014). In these ways, the occupational therapist helps to support the client's occupations, and those occupations then enhance the person's quality of life (Dickie, 2014; Hasselkus, 2011). For example, occupations that involve physical activity are important for skeletal development, cardiovascular, and psychological health (Hocking, 2014). Physical exercise has also been linked to beneficial emotional affect in people with disabilities (Hocking, 2014). Leisure activities have been linked with reduced stress, depression, anxiety, and greater satisfaction with life (Hocking, 2014). Supporting occupation is additionally beneficial because of the intimate connection occupations have with personal identity (Schell, Scaffa, et al., 2014).

Occupational Perspective

One of the premises fundamental to the profession is the occupational therapist's knowledge of occupation, which "organizes and integrates all other knowledge" (Hooper & Wood, 2014, p. 40). An *occupation-centered* approach means that occupation is a "central organizing framework" (Yerxa, 1998, p. 366), core value, and perspective that guides professional reasoning and actions (Fisher, 2013; Wood, 1998). A key point Fisher (2013) made about an occupation-centered approach is that a client's occupational performance is the therapist's focal point rather than the client factors or body functions. *Occupational performance* is the act of engagement in task performance in areas of occupation, or simply, the state of doing an occupation (Fisher, 2013; Law, 2007).

The concepts, occupation-based and occupation-focused, are also valuable to understanding an occupational perspective. These concepts apply more directly to therapeutic intervention. *Occupation-focused* means that the therapist's "immediate focus is on evaluating

and/or changing a person's quality of occupational performance – the 'here and now' – not on what might occur or develop in the future" (Fisher, 2013, p. 166). *Occupation-based* means that occupational performance is incorporated into the client's evaluation, and meaningful occupation is used in therapeutic intervention (Fisher, 2013). For example, in evaluation, a client who has experienced a stroke is observed tying his shoes so as to assess where the activity demands are exceeding his abilities. During intervention, the client is an active participant, engaging in a meaningful task (either tying his shoes in a different way or performing another activity that helps to develop the needed skills) as a therapeutic medium of achieving greater occupational performance.

Now that I have defined hippotherapy and occupational therapy, I will begin to define and expand on client factors, interventions, and outcomes. My discussion of these essential considerations of professional practice will begin by examining occupational therapy broadly and then progress to examining occupational therapy within hippotherapy. For each dimension, I will conclude by suggesting possibilities for an expanded view of occupational therapy within hippotherapy.

Client Factors

Client factors: Occupational therapy broadly. Client factors as defined by the OTPF III are grouped into values, beliefs, and spirituality; body functions; and body structures (American Occupational Therapy Association, 2014). Values, beliefs, and spirituality give life meaning and can influence a client's motivation and occupational choices. Values are defined as "principles, standards, or qualities considered worthwhile or desirable by the client who holds them" (p. S7) and beliefs are defined as "cognitive content held as true" (American Occupational Therapy Association, 2014, p. S7) Whereas values and beliefs are easier to

conceptualize as part of occupation, more controversy and confusion has surrounded how spirituality can be addressed in occupational therapy (Hasselkus, 2011). Spirituality is defined as “the aspect of humanity that refers to the way individuals seek and express meaning and purpose and the way they experience their connectedness to the moment, to self, to others, to nature, and to the significant or sacred” (Puchalski et al, 2009, as cited in American Occupational Therapy Association, 2014, p. S7). Hasselkus (2011) suggested this relationship: spirituality is a “dimension of living that helps us find coherence and meaning in our lives” (p. 145). Through attention to spirituality, therefore, occupational therapists can help people be more connected to life-affirming activities.

As also noted in the OTPF III (American Occupational Therapy Association, 2014), occupational therapists work with individuals with a wide range of impairments in body structures and functions. The OTPF III cites the World Health Organization when defining body functions typically addressed by occupational therapists. The definition for *body functions* is “the physiological functions of body systems (including psychological functions)” (American Occupational Therapy Association, 2014, p. S22). The OTPF III recognizes the following categories of body functions: mental functions (affective, cognitive, and perceptual); specific mental functions (for example: attention, memory, and sequencing complex movement); global mental functions (for example: temperament and personality, and orientation); sensory functions; neuromusculoskeletal and movement-related functions (for example: movement of joints and bones); muscle functions (muscle power, tone, and endurance); movement functions (such as gait patterns, and control of voluntary movement); cardiovascular, hematological, immunological, and respiratory functions; voice and speech functions; digestive, metabolic, and endocrine

system function; genitourinary and reproductive functions; and skin and related structure functions (p. S 23 – S24).

The OTPF III also cites the World Health Organization when defining *body structures* as “anatomical parts of the body such as organs, limbs, and their components (American Occupational Therapy Association, 2014, p. S7). The OTPF III noted that occupational therapy practitioners have knowledge of body structures and must consider them “when seeking to promote clients’ ability to engage in desired occupations” (p. S7). Altogether, the OTPF III demonstrates the broad scope of client factors that can be addressed with occupational therapy. These factors are not reducible to specific adverse medical conditions and related bodily impairments. Oftentimes, however, impairments in body structures and functions provide the basis for referral to occupational therapy services. While a plethora of body impairments can be indicated as reasons for intervention, occupational therapy, broadly defined, is further concerned with—and can be justified on the basis of—problems in performing everyday occupations where people live each day. Accordingly, occupational therapists are keenly attuned to clients’ particular values and beliefs, as well as their sources of meaning in life. As next discussed, the scope of conditions recognized as appropriate for hippotherapy, or other *client factors* that should be considered in intervention, are comparatively much smaller.

Client factors: Hippotherapy within occupational therapy. To begin, it is important to note that it is difficult to discern what client factors may benefit from hippotherapy within occupational therapy. First, the EAAT terms of hippotherapy, therapeutic riding, and therapeutic horse riding are sometimes used interchangeably (Hubbard, 2007; Silkwood-Sherer & Warmbier, 2007; Uchiyama, Ohtani, & Ohta, 2011; Whalen & Case-Smith, 2012), and often the specifics regarding the type of practitioner and approach to therapy is unclear.

Second, most studies about hippotherapy seem to have a physical therapy focus. Consider, for instance, these titles of two research studies: *Use of hippotherapy in gait training for hemiparetic post-stroke* (Fernanda Beinotti, Correia, Christofolletti, & Borges, 2010) and *Effects of hippotherapy on mobility, strength and balance in elderly* (Araujo, Silva, Costa, & M.M., 2011). Other studies have emphasized the role of hippotherapy for treating motor dysfunction (Chang, Kwon, Lee, & Kim, 2012; Sterba et al., 2002; Whalen & Case-Smith, 2012); balance (Bronson, Brewerton, Ong, Palanca, & Sullivan, 2010; Zadnikar & Kastrin, 2011); and spasticity (Lechner, Kakebeeke, Hegemann, & Baumberger, 2007; McGibbon, Andrade, Widener, & Cintas, 1998).

Third, there is little evidence supporting hippotherapy within occupational therapy for specific populations, medical conditions, or problems in everyday living. For example, from the few published peer-review studies I have found thus far, one pilot study suggested that this combined therapy has a positive influence for children on the autism spectrum (Ajzenman, Standeven, & Shurtleff, 2013). Taylor et al. (2009) used a single-case design to study the impact of hippotherapy on motivation for three children with autism; however the therapist providing hippotherapy was a physical therapist, not an occupational therapist. Millhouse-Flourie (2004) suggested that hippotherapy may be a useful therapy provided by occupational therapists (as well as other professionals) for people with mitochondrial disease. For all these reasons, exactly who can benefit from hippotherapy within occupational therapy and for what reasons remain unclear.

Some guidance, however, is suggested by the AHA (2010a). The AHA has indicated that people who can benefit from hippotherapy—whether provided by an occupational therapist, a physical therapist, or a speech and language pathologist—is largely limited to “children to adults with mild to severe neuromusculoskeletal dysfunction” (American Hippotherapy Association,

2010a). The AHA's webpage offers these further examples of medical conditions that may benefit from hippotherapy: autism spectrum disorder, cerebral palsy, developmental delay, genetic syndromes, learning syndromes, learning disabilities, sensory integration disorders, speech-language disorders, and traumatic brain injury/stroke. The site also lists the following impairments that could benefit from hippotherapy (in general): abnormal muscle tone, impaired balance responses, impaired coordination, impaired communication, impaired sensorimotor function, postural asymmetry, poor postural control, decreased mobility, and limbic system dysfunction related to arousal and attentional skills.

Altogether, when contrasted against the wide range of client factors and expressed link to occupational performance that is addressed in occupational therapy broadly, client factors in hippotherapy within occupational therapy have been much more narrowly conceived and are not generally linked to occupational performance in research literature. Specifically, much like occupational therapy more broadly, adverse medical conditions or body impairments are triggers that initiate referrals to hippotherapy within occupational therapy. However, unlike occupational therapy more broadly, the range of personal factors that are considered salient to address in hippotherapy within occupational therapy are much narrower, and appear to exclude considerations of personal values, beliefs, spirituality and meaning. Yet as next discussed, research evidence from the wider field of equine-assisted activity and therapy suggests that current understandings of client factors deemed appropriate for hippotherapy within occupational therapy can potentially be expanded.

Client factors: An enlarged view of hippotherapy within occupational therapy. Of relevance to both hippotherapy within occupational therapy and future practices of equine-assisted occupational therapy, research suggests that the use of horses to help people has the

potential to address a wide variety of client factors defined in the OTPF III including body functions which encompasses mental functions, body structures, and values, beliefs, and spirituality (American Occupational Therapy Association, 2014). Most fundamentally, several authors and researchers have concurred with AHA's depiction of adverse medical conditions and related impairments of body functions and structures that can potentially benefit from hippotherapy (regardless of whether provided by an occupational therapist, physical therapist, or speech and language pathologist), or from other types of EAAT. These adverse congenital or acquired conditions include, among others, autism, brain injury, spinal cord injury, multiple sclerosis, spina bifida, cerebral palsy, cerebral vascular accident (stroke), and developmental and intellectual disabilities including Down syndrome, and language disorders (Fernanda Beinotti et al., 2010; Engel, 2007; Taylor et al., 2009). Impaired neuromuscular, cognitive (including attentional), sensory integrative, visual, vestibular and proprioceptive body functions have also been identified as treatable with hippotherapy and other equine-assisted therapies (Engel, 2007). In addition, impairments of body structures such as scoliosis or kyphosis may respond to equine-assisted therapies (Hubbard, 2007).

Important to note, EAAT may benefit people who struggle with a multitude of everyday living challenges for reasons that go beyond identifiable medical conditions or body impairments. For example Granados and Agís (2011) suggested that therapy using horses can benefit people physically, psychologically, educationally, and socially. Garcia (2010) noted that the horse-human relationship can influence people on spiritual and emotional levels. While the AHA indicates hippotherapy can address client factors on the level of body function and structure, a more holistic range of client factors may also be addressed within the context of equine therapy.

Interventions

Interventions: Occupational therapy broadly. The OTPF III stated that occupational therapy professionals assist people in “achieving health, well-being, and participation in life through engagement in occupation” (American Occupational Therapy Association, 2014, p. S2). As shown in Table 1, there are a wide range of occupational therapy interventions identified in the OTPF III that can be used to accomplish these objectives (American Occupational Therapy Association, 2014; Radomsky & Trombly Latham, 2014). One way of thinking about these interventions are that they are ideally designed to be occupation-based and occupation-focused. As Fisher (2013) stated, “As occupational therapists, we all are challenged to address a mandate: to implement occupation-based and occupation-focused services to the clients we serve” (p. 162). The OTPF III lists numerous ways that occupational therapists can provide these types of interventions (see *occupations* and *activities* in Table 1).

Table 1

<i>Occupational Therapy Interventions in the OTPF III</i>		
Type of Intervention	Subcategories of Intervention types	Description
Occupations and Activities		“Occupations and activities selected as interventions for specific clients and designed to meet therapeutic goals and address the underlying needs of the mind, body, and spirit of the client. To use occupations and activities therapeutically, the practitioner considers activity demands and client factors in relation to the client’s therapeutic goals, contexts, and environments” (p. S 29).
	Occupations	“Client-directed daily life activities that match and support or address identified participation goals” (p. S29).
	Activities	“Actions designed and selected to support the development of performance skills and

		performance patterns to enhance occupational engagement. Activities often are components of occupations and always hold meaning, relevance, and perceived utility for clients at their level of interest and motivation” (p. S29).
Preparatory methods and tasks		“Methods and tasks that prepare the client for occupational performance, used as <i>part of a treatment session</i> in preparation for or concurrently with occupations and activities or provided to a client as a home-based engagement to support daily occupational performance” (p. S29).
	Preparatory methods	“Modalities, devices, and techniques to prepare the client for occupational performance. Often preparatory methods are interventions that are ‘done to’ the client without the client’s active participation” (p. S.29). Splints, assistive technology and environmental modifications, and wheeled mobility are types of preparatory methods (p. S29).
	Preparatory tasks	“Actions selected and provided to the client to target specific client factors or performance skills. Tasks involve active participation of the client and sometimes comprise engagements that use various materials to simulate activities or components of occupations. Preparatory tasks themselves may not hold inherent meaning, relevance, or perceived utility as stand-alone entities” (p. S30).
Education and training	Education	“Imparting of knowledge and information about occupation, health, well-being, and participation that enables the client to acquire helpful behaviors, habits, and routines that may or may not require application at the time of the intervention session” (p. S30).
	Training	“Facilitation of the acquisition of concrete skills for meeting specific goals in a real-life, applied situation. In this case, <i>skills</i> refer to measurable components of function that enable mastery. Training is differentiated from education by its goal of enhanced performance as opposed to enhanced understanding, although these goals often go hand in hand” (p. S30).

Advocacy	“Efforts directed toward promoting occupational justice and empowering clients to seek and obtain resources to fully participate in daily life occupations. The outcomes of advocacy and self-advocacy support health, well-being, and occupational participation at the individual or systems level” (p. S 30).
Advocacy	"Advocacy efforts undertaken by the practitioner" (p. S30).
Self-advocacy	“Advocacy efforts undertaken by the client, which the practitioner can promote and support” (p. S30).
Group Interventions	“Use of distinct knowledge and leadership techniques to facilitate learning and skill acquisition across the lifespan through the dynamics of group and social interaction. Groups may also be used as a method of service delivery” (p. S31).

Interventions: Hippotherapy within occupational therapy. Hippotherapy literally means “treatment with the help of the horse” (American Hippotherapy Association, 2010a, para. 10), and the help that the horse offers is the horse’s multidimensional gait which is “variable, rhythmic, and repetitive. The resultant movement responses in the patient [when on the horse] are similar to [the] human movement patterns of the pelvis while walking” (American Hippotherapy Association, 2010a, para. 7).

Interventions in hippotherapy involve the client passively riding a horse; the therapist and horse handler control the horse’s movement and speed (American Hippotherapy Association, 2010a, para. 10; Riede, 1988). The client then processes movement impulses and makes body responses to the horse (Engel, 2007), which is theorized to help to create new motor schemes (Fernanda Beinotti et al., 2010). The American Hippotherapy Association (2010a) states that for

occupational therapists, the equine's movement is combined with "other standard intervention strategies for working on fine motor control, sensory integration, feeding skills, attentional skills, and functional daily living skills in a progressively challenging manner," (para. 3). The active base of support (the horse) provides a tool for "increasing trunk strength and control, balance, building overall postural strength and endurance, addressing weight bearing, and motor planning" (American Hippotherapy Association, 2010a, para. 7). The difference in hippotherapy interventions involving occupational therapy, physical therapy, and speech-language pathology professionals lie within the professional perspective, theoretical base, and scope of the profession (Splinter-Watkins, 2007), though the therapy may look similar to an outside observer. Occupational therapists must pair the client's limitations, abilities, and goals with the demands of the activity (Splinter-Watkins, 2007).

Splinter-Watkins (2007) observed that hippotherapy can be adapted and made relevant to the OTPF I, an earlier version of the practice framework (American Occupational Therapy Association, 2002). Presumably, Splinter-Watkins (2007) was referring to the focus within hippotherapy on "movement dysfunction" and the client being a passive recipient of the horse's therapeutic movement. In applying her idea to the current OTPF III, hippotherapy, narrowly defined, would fall under the category of *preparatory methods* (Table 1). Fisher (2009) asserted, however, that the use of preparatory methods in occupational therapy must be sparing because the client is a passive recipient, rather than actively engaging in occupation. Another reason Fisher (2009) cautioned against the excessive reliance upon the use of preparatory methods in occupational therapy is because they are not relevant to daily life, ecologically relevant to the client, and there may be little purpose or meaning for the client other than what the therapist imparts. Some listed examples of preparatory activities in the OTPF III that appear relevant to

hippotherapy in occupational therapy are physical agent modalities to prepare muscles for movement, sensory experiences to provide alertness, and “visual imagery and rhythmic breathing to promote rest and relaxation (American Occupational Therapy Association, 2014, p. S29, S30). One could argue that if a hippotherapy session is used only (or for a majority of the therapy session) as a preparatory activity, then this is not truly occupational therapy.

However, Splinter-Watkins (2007) also noted that in the broader definition of hippotherapy, it can be classified as a *purposeful activity* or *occupation-based activity*, though she does not specify how. One could imagine that these types of distinctions in intervention approach depend upon the individual practitioner facilitating intervention. *Purposeful activity* and *occupation-based activity* are terms used in the OTPF I (which is similar to the terms *occupations and activities* in table 1 above). These types of interventions allow “the client to engage in goal-directed behaviors or activities within a therapeutically designed context that lead to an occupation or occupations” and allow “clients to engage in actual occupations that are part of their own context and that match their goals” (American Occupational Therapy Association, 2002, p. 628). Related to Fisher’s (2009) perspective on occupation-focused practices, these types of interventions are more in-line with the philosophy of occupational therapy.

In hippotherapy, *therapeutic use of self* additionally involves the practitioner’s comfort and knowledge within the equine environment (Splinter-Watkins, 2007). *Therapeutic use of self* refers to “a practitioner’s planned use of his or her personality, insights, perceptions, and judgments as part of the therapeutic process” (American Occupational Therapy Association, 2002, p. 628). As part of therapeutic use of self, I believe it is essential that the practitioner also understand the horse’s comfort, affect, engagement, and connection to the activity and the client. Based on my studies with international equine clinician Caroline Rider, doing so provides

enhanced horse-human connection which is important for the safety for all involved parties (personal communication, April 12, 2014). Rothe, Vega, Torres, Soler, and Pazos (2005) stated that an EAAT practitioner (specifically addressing equine-assisted psychotherapy in this article) can benefit from specific training to understand horse sounds, movement, and communication.

Interventions: An enlarged view of hippotherapy within occupational therapy.

Hippotherapy is technically limited to passive riding. Consequently interventions involving active riding, or interventions off of the horse, are not theoretically hippotherapy. Interventions may or may not be occupation-focused or occupation-based depending on how the intervention is provided. Splinter-Watkins (2007) took Engel's suggestion of the term equine-assisted occupational therapy further to say that, "the sum of both hippotherapy and equine-assisted therapy within an occupational therapy session could be described more clearly as equine-assisted occupational therapy" (p. 30). This application of other types of treatment strategies on and off the horse broadens the potential use of OTPF III defined interventions (Table 1), namely occupations and activities. By applying the principles of occupations and activities to EAAT (including activities in the equine environment besides passive riding), a wider range of opportunities become available to meet client goals and develop skills to enhance occupational engagement.

More tangibly, "grooming can provide tactile input, gradation of pressure, range of motion, and spatial relationship; saddling involves cognition skills, strength, and physical coordination; leading facilitates spatial relationship and an acute focus on the horse's reactions" (Engel, 2007, p. 8). Caring for the horse through activities such as grooming, nurturing, and feeding can provide opportunities to attend to another being's needs, something that people with disabilities, especially children, may not have previously experienced (Engel, 2007). Skills

learned while caring for horses and managing a barn could be transferred to self-care and activities of daily living in the home (Bracher, 2000), for example if the person found new meaning, motivation, and skills by performing these tasks in the equine environment.

Occupational therapists are well-equipped to provide these types of therapeutic interventions. In addition, individuals with psychosocial problems and at-risk populations can benefit from interventions focusing on bonding with the horse, such as horse care and maintenance activities, and groundwork prior to mounted activities (Engel, 2007). Activities such as these can build self-efficacy and self-esteem that can be transferred to other life situations and occupational goals. Trombly Latham (2014) supported the idea that “the goal of occupational therapy is the development of competence in the activities and tasks of one’s cherished roles, which promotes a sense of self-efficacy and self-esteem” (p. 8). If the role of a horse rider is valuable to the child, then participation in these other aspects of preparation for riding and horse care are part of that role. Building skills that may contribute to role satisfaction could build self-efficacy and self-esteem that could potentially be transferred to other areas of occupation in life such as school, social participation, self-care, and beyond.

Dewey (1944) proposed the idea that learning a skill in the context of the whole process imbues that activity with more meaning and purpose. Since part of being client-centered in occupational therapy includes occupations that are personally purposeful and meaningful (Fisher, 2009), involving clients in therapeutic activities encompassing the whole process of horse care could lead to more meaningful therapy involving the horse. Engel (2007) also said that, “the horse and its surroundings provide the basis for functional movement, which is necessary for purposeful activity that is the essence of life” (p. 6). Learning can be facilitated through the grading of activities, and activities involving horses provide many opportunities for this (Engel,

2007). Some believe that work with horses creates positive affect for participants, leading to better motivation for therapy and learning (Macauley & Gutierrez, 2004, p. 206).

Outcomes

Outcomes: Occupational therapy broadly. The OTPF II suggested that “supporting health and participation in life through engagement in occupation is the broad outcome of intervention” (American Occupational Therapy Association, 2008, p. 660). The third edition stated that “*Outcomes* are the end result of the occupational therapy process; they describe what clients can achieve through occupational therapy intervention. Outcomes are directly related to the interventions provided and to the occupations, client factors, performance skills, performance patterns, and contexts and environments targeted (American Occupational Therapy Association, 2014, p. S16). The OTPF III provides the following list of occupational therapy outcomes shown in Table 2.

Table 2

Occupational Therapy Outcomes in the OTPF III

Outcomes	Subcategories of outcome types	Description
Occupational performance		The “act of doing and accomplishing a selected action, activity, or occupation and results from the dynamic transaction among the client, the context, and the activity. Improving or enabling skills and patterns in occupational performance leads to engagement in occupations or activities” (American Occupational Therapy Association, 2014, p. S34).
	Improvement	“Outcomes targeted when a performance limitation is present. These outcomes reflect increased occupational performance for the person, group, or population” (p. S34).
	Enhancement	“Outcomes targeted when a performance limitation is not currently present. These outcomes reflect the development of performance skills and performance patterns that augment existing

	performance in life occupations (p. S34).).
Prevention	“Education or health promotion efforts designed to identify, reduce, or prevent the onset and reduce the incidence of unhealthy conditions, risk factors, diseases, or injuries. Occupational therapy promotes a healthy lifestyle at the individual, group, community (societal), and governmental or policy level” (p. S34).
Health and wellness	“Resources for everyday life, not the objective of living. For individuals, <i>health</i> is a state of physical, mental, and social well-being, as well as a positive concept emphasizing social and personal resources and physical capacities. Health for groups and populations includes these individual aspects but also includes social responsibility of members to the group or population as a whole. <i>Wellness</i> is ‘an active process through which individuals [or groups or populations] become aware of and make choices toward a more successful existence’. Wellness is more than a lack of disease symptoms; it is a state of mental and physical balance and fitness” (p. S34).
Quality of life	“Dynamic appraisal of the client’s life satisfaction (perceptions of progress toward goals), hope (real or perceived belief that one can move toward a goal through selected pathways), self-concept (the composite of beliefs and feelings about oneself), health and functioning (e.g., health status, self-care capabilities), and socioeconomic factors (e.g., vocation, education, income” (p. S35).
Participation	“Engagement in desired occupations in ways that are personally satisfying and congruent with expectations within the culture” (p. S35).
Role competence	The “ability to effectively meet the demands of roles in which the client engages” (p. S35).
Well-being	“Contentment with one’s health, self-esteem, sense of belonging, security, and opportunities for self-determination, meaning, roles, and helping others. <i>Well-being</i> is ‘a general term encompassing the total universe of human life domains, including

Occupational justice	physical, mental, and social aspects’ (p. S35). “Access to and participation in the full range of meaningful and enriching occupations afforded to others. Includes opportunities for social inclusion and the resources to participate in occupations to satisfy personal, health, and societal needs” (p. S35).
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With respect to these outcomes, the use of specific outcome measures is suggested. “In addition, outcomes may relate to clients’ subjective impressions regarding goal attainment, such as improved outlook, confidence, hope, playfulness, self-efficacy, sustainability of valued occupations, resilience, and perceived well-being” (American Occupational Therapy Association, 2014, p. S16). Occupational therapy outcomes are usually evaluated in relation to the client’s valued occupations and considered in context of improving occupational performance in a variety of ways.

Outcomes: Hippotherapy within occupational therapy. The American Hippotherapy Association (2010a) states that hippotherapy is a *treatment strategy* using the movement of the horse for *clients with movement dysfunction* to achieve *functional outcomes* (para. 10). Specifics of outcomes are not defined by the AHA, but since hippotherapy is meant to be a treatment strategy used within the context of therapy, outcomes may be more distinctly dictated by the professional’s scope of practice. Overall, it seems that the intention of hippotherapy is for the *movement* of the horse’s *body* to affect the *body* of a person with a *movement dysfunction* to achieve *functional outcomes*. However, in studies including occupational therapists the outcomes could be related more broadly to occupational performance and the outcomes listed in the OTPF.

Though goals and outcomes are not the same thing, “outcomes are the perceived goals, final end point, or desired results of applying the doing process and tools to a problem situation” (Reed & Sanderson, 1999, p. 65). Occupational therapy goals work toward outcomes through interventions. Weisberg (2007) conducted a qualitative study of three occupational therapists doing hippotherapy and noted sensory integration goals, biomechanical goals, and cognitive goals as common themes (p. 14). For sensory integration goals, she gave the following examples: “producing an adaptive response, decreasing gravitational insecurity, decreasing tactile defensiveness, and general sensory integration goals” (p. 15). For biomechanical goals, she gave these examples: “developing independence in seating; increasing trunk control, rotation, and elongation; decreasing tone; improving balance through developmental positional [sic]; improving posture; improving coordination; and increasing ability to weight bear through upper extremities” (p. 14). For cognitive treatment goals, she shared these examples from the study: “increased verbalization, following direction, attention to task, and improving cognitive awareness” (p. 14).

From the two research studies I found specifically employing both occupational therapy and hippotherapy, Taylor et al. (2009) focused on volitional outcomes for three children with autism, because motivation is often attributed as a feature of hippotherapy. Using the Pediatric Volitional Questionnaire (PVQ), three children were measured during standardized play sessions outside of hippotherapy. The measurements occurred before, at the midpoint, and after attending a 16 week hippotherapy session. The children in the study “showed an improvement in their motivation to engage in everyday activities as measured by the PVQ” (p. 198). Ajzenman et al. (2013) conducted a case-study with six children with autism to determine if hippotherapy increased their function and participation. Outcome measures in the study were force plates and

video motion capture to measure changes in postural control; the Vineland Adaptive Behavior Scales-II which is a parent-report item measuring “adaptive behavior and performance of daily activities” (p. 656) in four domains: “communication, daily living skills, socialization, and motor skills” and many subdomains; and the Child Activity Card Sort which is used to measure participation in age-appropriate activities. The authors stated that “postural control, adaptive behaviors, and participation in everyday activities improved” (p. 659) after a 12-week hippotherapy intervention. Important for occupational therapy, the authors also noted that improvements with postural control may provide more opportunities and “willingness to participate in self-care, low demand leisure, and social interactions. Increased engagement in daily activities could potentially lead to improvements in receptive communication and socialization (coping)” (p. 659).

Outcomes: An enlarged view of hippotherapy within occupational therapy. Other EAAT researchers have suggested that additional goals can be addressed by therapies involving a horse. “Hippotherapy is used in a variety of ways that affect the physical and psychological well-being of a person with movement disorders” (All, Loving, & Crane, 1999, p. 52). This definition by these authors is expanded from the AHA (2010a) definition, expressly including psychological well-being, however there is again an emphasis on movement disorders.

There seems to be an assumption that hippotherapy is only appropriate to address cognitively related occupational treatment goals within the larger context of movement dysfunction. Yet literature involving other types of EAAT suggest that work with horses can produce more holistic outcomes. The involvement of horses in therapy can help promote social skills (Granados & Agís, 2011; Ward, Whalon, Rusnak, Wendell, & Paschall, 2013); it can also provide a context for spiritual connection, offering opportunities for experiencing grace,

emotional well-being, and a sense of connection to something larger than oneself (Dell et al., 2011; Garcia, 2010).

These authors thus acknowledge the potential for a range of outcomes considering the whole person beyond and including the functional outcomes suggested by the AHA. For instance, the OTPF III outcomes of health and wellness, quality of life, and well-being could also be addressed, affecting a broader spectrum of client factors considered in occupational therapy. These could include mental functions (affective, cognitive, and perceptual) and sensory functions that are accompanied—or not—by movement dysfunction, while additionally touching upon the client factors of beliefs, values, and spirituality. In addition, if intervention and research included a more occupation-centered perspective, there is potential to focus attention more on outcomes of occupational performance in addition to or rather than body impairments.

Aims of this Study

This study has two aims: 1) to describe the current state of knowledge of equine- assisted activities and therapies that either directly includes or is of direct relevance to occupational therapy; and two2), guided by this detailed map of current knowledge, to test the hypothesis that an expanded use of the horse and the equine environment in occupational therapy is justified. This hypothesis is driven by theoretical and empirical evidence from the wider field of EAAT that supports broad and holistic practices of equine-facilitated occupational therapy. Such practices, by definition, would go beyond traditional understandings of hippotherapy by embracing occupational therapy's holistic philosophical and ethical foundations, as well as its broad contemporary scope of practice pertaining to client factors, and occupation-focused interventions and outcomes. Therefore, consistent with these aims, and including hippotherapy within occupational therapy, these research questions will be answered:

1. What specific client factors are addressed in diverse EAAT?
2. How is the nature of intervention, including supporting theories and the role of the horse, understood in diverse EAAT?
3. What outcomes are evaluated in diverse EAAT?

The Need for a Systematic Mapping Review

According to Campbell et al. (2000), the first phases in developing research of increasing evidence involves exploring “relevant theory” and identifying “the components of the intervention and underlying mechanism by which they will influence outcomes” (p. 695). To date, however, there is little research of hippotherapy within occupational therapy and no peer-reviewed research about equine-assisted occupational therapy. However, there is a body of literature on EAAT in related fields. Therefore, the state of the research in the overall field of EAAT calls for a systematic mapping review as the next logical step in the development of an evidence-base for EAAT. Systematic mapping reviews are carried out by gathering literature on a broad topic, including all types of papers: opinion-based, descriptive, and evaluative (Hammick, 2005). Thus, the review produces a ‘map’ of the field that describes, categorizes, and evaluates the current topography of literature about that particular topic (Hooper, King, Wood, Bilics, & Gupta, 2013). The primary concern of a mapping review is not to evaluate the efficacy of any specific intervention, but rather to understand what subtopics have been addressed and what empirical methods were used (Kitchenham, Budgen, & Pearl Brereton, 2011). This type of review will paint a broad picture about the context of the field as a whole, identify gaps in existing research literature, and provide a sound basis for developing hypotheses, theories, and more focused research questions that have implications for practice (Grant & Booth, 2009; Hammick, 2005).

Beginning with a map of the literature before embarking on a specific research agenda is in line with the *preclinical* and *modeling* phases written by Campbell et al. (2000), who identified a continuum of increasing evidence for developing research for complex interventions. They suggested in the *preclinical or theoretical phase* that reviewing previous studies and the theories behind interventions may lead to changes in hypotheses and improve identification of methods of action (p. 695). In *phase I – modeling*, various techniques including the use of focus groups can help improve understanding of research components. Noted in this phase also is the need to identify intervention components, the mechanisms of action, and effects on outcomes to provide more information about those relationships. This information is then used to make suggestions for future research and study designs (Campbell et al., 2000).

CHAPTER TWO: METHODS

In this section, I first describe the larger study, or the *parent study*, upon which my focused thesis research on *equine-facilitated occupational therapy* (EFOT) study is based. The methods are the same for both studies with the exception of inclusion and exclusion criteria and some variations in data analytic strategies. The research team to which I refer includes the principal investigator of the parent study; one Ph.D. student research assistant; and four master's level graduate research assistants (including myself).

Research Approach

The design chosen for both the parent study and the EFOT study is a systematic mapping review. The aim of a systematic mapping review is to provide recommendations for further study and primary research (Grant & Booth, 2009), while a scoping review can help to determine if a full systematic review is merited or feasible (Arksey & O'Malley, 2005; Grant & Booth, 2009). A scoping review also limits the search to research literature only (Grant & Booth, 2009). For these reasons, a systematic mapping review better served the research purposes of both the parent study and the EFOT study.

Data Collection

Database Searches and Data Management

The data collection process of the parent study began with database searches (figure 1). Specifically, our team consulted with the Health and Human Sciences Librarian in order to construct comprehensive searches to execute in selected abstracting and indexing databases. The construction of a primary search strategy was an iterative process, whereby an initial search strategy was revised several times in order to accommodate vocabulary additions and

eliminations that we identified as relevant through our concurrent review of relevant literature. The librarian executed the revised search strategy in the following resources, adapting the strategy only as needed to account for each database's unique characteristics: CAB Abstracts (EBSCO), CINAHL (EBSCO), PsycINFO (EBSCO), PubMed (NCBI), Social Sciences Abstracts (EBSCO), Social Services Abstracts (ProQuest), Social Work Abstracts (EBSCO), SPORTDiscus (EBSCO), and Web of Science (Thomson Reuters). The search strategy was crafted and adapted so as to restrict retrieval, wherever possible, to records documenting English language articles published in peer-reviewed journals between 1980 and 2014. Appendix A contains all search terms. A total of 1,536 sources were identified through this systematic searching and aggregated in an EndNote library for data management. EndNote allows for simple organization and coding of references for inclusion and exclusion, a process described in detail by King, Hooper, and Wood (2011). After removing duplicates, 1,400 unique sources remained. See figure 1.

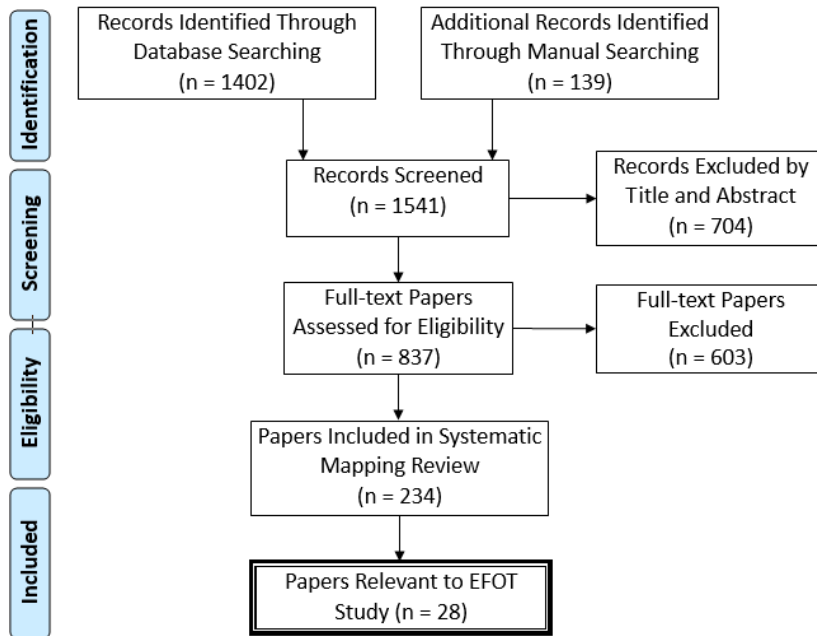


Figure 1. Data collection process.

Inclusion and Exclusion Criteria: Parent Study

Inclusion and exclusion criteria were initially developed by jointly reviewing approximately 20 articles. Multiple iterations and group discussions between research team members informed this process through reviewing and discussing EAAT literature. Three researchers then blindly coded articles for inclusion and exclusion criteria, discussed discrepancies in coding, and fine-tuned inclusion and exclusion criteria for clarification. This process continued until inclusion and exclusion criteria were comprehensive and precise. Table 3 presents the final criteria.

Table 3

Inclusion and Exclusion Criteria for Parent Study

Inclusion	Exclusion
All included papers must be: <ul style="list-style-type: none"> • Peer-reviewed; • Primary source • Written in English; AND • Be published between 1980 – 2014 Paper must be directly relevant to EAAT by meeting one of the following: <ul style="list-style-type: none"> • Primary focus of the paper is one or more kinds of EAAT; • Primary focus of the paper is on simulated horse studies (i.e. mechanical horse studies) of relevance to EAAT; OR • Primary focus of the paper is on the welfare, training, maintenance or any other issue affecting horses involved in EAAT 	Papers are excluded that: <ul style="list-style-type: none"> • Focus on animal-assisted therapy or human-animal bond, connection or interaction that is either unrelated to EAAT or that includes EAAT only as a minor focus • Provide only a synopsis of a paper about EAAT that has been published elsewhere • Provides horse related information not related to EAAT; OR • Have no obvious relevance to EAAT or human-animal bond

After inclusion and exclusion criteria were finalized, the research team blindly coded 280 articles and achieved interrater reliability of 95%. After interrater reliability was achieved, the remaining articles were independently coded for inclusion or exclusion, with team input given when oddities arose. Next, the reference lists of included sources were manually searched for articles not captured by the database search: 139 additional articles were manually included. The final number of sources included in the parent study was 234.

Inclusion and Exclusion Criteria: EFOT Study

After the parent study's inclusion and exclusion process, all literature in the included database went through a further inclusion and exclusion process for the EFOT study in order to meet the latter study's aims and hypothesis (Table 4). Due to time restrictions to finish this thesis by the semester's end, my thesis committee recommended a sample of intervention studies only to best test my hypothesis. To further narrow the sample, my thesis chair made the

following recommendations seen below in Table 4. There were 28 articles included with these criteria.

Table 4

Additional Inclusion and Exclusion Criteria for EFOT Study

Inclusion	Exclusion
All included papers must be: <ul style="list-style-type: none"> • Included in parent study; • Intervention studies; and • Include participants ≥ 18 years old 	Papers are excluded that: <ul style="list-style-type: none"> • PDF copies not retrieved by 3/25/15; • Systematic reviews; and • Intervention studies that are published without results (in-process studies) • Mechanical horse interventions

Data Extraction

In order to extract and record details from each article, the standard protocol is to develop a data extraction tool (Hammick, Dornan, & Steinert, 2010). The data extraction tool (DET) for this study was developed through review of EAAT literature in a manner consistent with the established research questions. In order to classify outcomes, the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, (DSM-IV) (American Psychiatric Association, 2000) and the International Classification of Functioning, Disability, and Health (ICF) (World Health Organization, 2002) were both used to capture the outcomes that EAAT would likely produce. We utilized the ICF categories of *body functions and body structures*; the ICF categories of *activity and participation* outcomes were merged within one category. The ICF defined *activity* as “the execution of a task or action by an individual,” while *participation* is defined as “involvement in a life situation” (World Health Organization, 2002, p. 10). Participation or activity involvement measured or experienced outside of the EAAT context was coded within this category. ICF subcategory definitions were incorporated from Schell, Gillen, Scaffa, and Cohn (2014). For example, one ICF category of body functions is *Global mental*

functions; one ICF subcategory of mental functions is *energy and drive*. Energy and drive was described as “energy level, motivation, impulse control, and appetite” (Schell, Gillen, et al., 2014, p. 222). See Appendix B for the full DET.

An initial draft of the data extraction tool was reviewed with members of Colorado State University’s Equine Science Advisory Committee, including experts from equine science, social work, and veterinary science: these experts helped make decisions surrounding what data were relevant to extract. The final tool extracted information about EAAT recipients, practitioners, horses, facilities, interventions, and outcomes.

The interrater reliability standard for the DET was set at 90%, and all six members of the research team coded 10 articles to ensure that the standard was met. Kappa coefficient was also calculated to determine interrater reliability between two team members at a time; kappa ranged from 0.65 - 0.74, which is considered substantial agreement (Cyr & Francis, 1992). Following these initial articles, each article was coded individually with weekly meetings to discuss coding questions and challenges. Interrater reliability checks were performed on every 22nd article to control for intrarater drift.

Data Analysis: EFOT Study

The DET was entered into Microsoft Access by a consultant. Items from the DET relevant to research questions were then queried, using the query tool in Microsoft Access to analyze each article in the database. These queries were then copied to Microsoft Excel spreadsheets. Pivot tables in Microsoft Excel were used to develop relationship variables of interest. For example, to learn more about diagnoses: I queried *author, title, EAAT type, recipient diagnosis, and other descriptors of recipients* (information related to diagnosis or population). I ran this query in Access, copied that data to Excel, and created a pivot table to

learn how many articles identified diagnoses, what diagnoses or populations were identified, and how they were distributed across different types of EAAT.

CHAPTER THREE: RESULTS

Broad Descriptors of Papers

Overall the results support the hypothesis that empirical evidence from the wider field of EAAT supports the broad and holistic practice of equine-facilitated occupational therapy. First I will present some broad descriptors of papers. Then I will display findings in the context of my individual research questions.

The final database of this EFOT study consisted of 28 papers distributed across three types of EAAT: therapeutic riding, hippotherapy, and equine-assisted mental health (see figure 2).

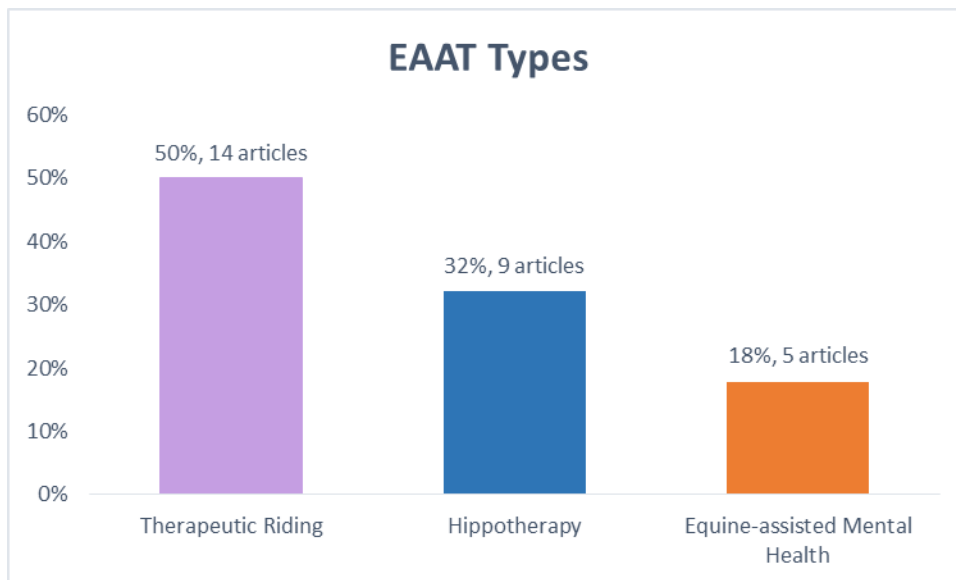


Figure 2. This figure shows totals of papers grouped by EAAT types.

There were 14 papers categorized as providing therapeutic riding and described interventions that were consistent with PATH, International’s definition of therapeutic riding (2014). For example, one paper studied “horse trekking” (Matsuura et al., 2011), defining it as

an experience of riding on and off paths, meadows, and around the horse grounds with a horse leader (not a therapist), i.e., activities that can be performed within the purview of therapeutic riding. Similarly, though Borioni et al. (2012) investigated hippotherapy as part of their intervention, it was couched within a larger *equine therapy* intervention, with the larger portion of the intervention being more aligned with therapeutic riding (including competitive riding and vaulting).

Papers in the hippotherapy category explicitly named the use of hippotherapy in the intervention, used practitioners certified in hippotherapy, or both. For example, Fernanda Beinotti et al. (2010) identified hippotherapy was used but did not describe what type of therapeutic provider incorporated hippotherapy in the intervention. Notably, only one hippotherapy paper included occupational therapy. This paper reported on a single subject design involving a 76-year-old woman whose daily activities had been impacted by her fear of falling (Wehofer, Goodson, & Shurtleff, 2013). Consistent with more traditional views of hippotherapy, measured outcomes emphasized neuromusculoskeletal function, specifically balance and postural sway. At the same time, the study also linked the intervention to outcomes at the level of activity and participation in everyday life. Researchers related the participant's improved balance to her interest in participating in 12 more life activities than before the intervention.

The five papers that I categorized as equine-assisted mental health (EAMH) encompassed four different types of EAAT: riding therapy, equine-assisted learning (found in two articles), equine-assisted experimental learning, and equine-facilitated psychotherapy. These articles examined outcomes from a mental health perspective, identified a mental health professional as the provider, researcher, or both. For example, while Burgon (2003) used a physiotherapist as

the interventionist, the paper’s purpose was to “examine the psychotherapeutic effect of *riding therapy* on a group of adult users of a social services mental health team” (p. 263).

Figure 3 summarizes information provided about service providers across the 28 papers. Physical therapists, the most frequently recognized providers, were associated with all three types of EAAT studies. Service providers were identified in 50% (14) of the papers.

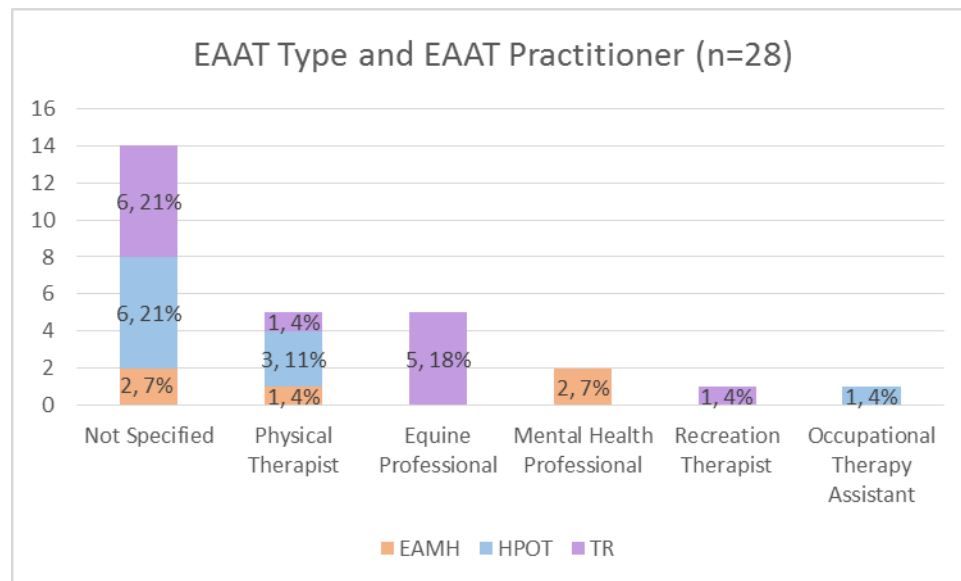


Figure 3. EAAT type compared with EAAT provider and percentage of papers within 28-paper sample. Abbreviations: EAAT = equine-assisted activities and therapies; EAMH = equine-facilitated mental health; HPOT = hippotherapy; TR = therapeutic riding.

Research Question One: What client factors were addressed in selected EAAT papers?

There was partial support of my hypothesis for an expanded view of client factors found in selected EAAT papers. In support of my hypothesis, the systematic mapping review provided evidence of a breadth of client factors, beyond ICF body functions pertaining to movement and musculoskeletal-related challenges, which are consistent with occupational therapy’s scope of practice (American Occupational Therapy Association, 2014). Participant ages ranged from 18 to 85 years old and were provided in 25 (89%) of the papers. One or more diagnosis or population descriptor was identified in 24 (86%) of studies. Some studies included persons or

populations with more than one diagnosis. The most commonly represented diagnostic categories were cerebrovascular accident (five papers, 18%), multiple sclerosis (MS) (four papers, 14%), schizophrenia (four papers, 14%), cerebral palsy (two papers, 7%), fall risk (two papers, 7%), and veterans with post-traumatic stress (two papers, 7%).

To demonstrate the breadth of diagnoses and population descriptors, the following were also represented. Therapeutic riding papers included participants with: arthritis, eating disorders, epilepsy, Friedreich's Ataxia, head trauma, intellectual disability, orthopedic impairment, physical disability (general), sexual abuse/trauma, and visual impairment. Hippotherapy papers included participants with spinal cord injury and traumatic brain injury. EAMH papers included participants who experienced abuse, Alzheimer's Disease, dementia, and depression. It is apparent that all diagnoses and population descriptors extend far beyond physical impairments. These are all serious conditions that impact daily life, and fit within the scope of occupational therapy practice (American Occupational Therapy Association, 2014).

However diagnoses are not equivalent to client factors. Occupational therapy addresses where body function or structure impairments create functional challenges for a person's meaningful life activities. The database did not, with exception of the one article with an occupational therapy provider, address meaningful activities to participants outside of the EAAT context. My hypothesis was not supported in providing a breadth of client factor information in terms of meaningful activities in accord with the participants' values, beliefs, and spirituality.

Research Question Two: How is the Nature of Intervention, Including Supporting Theories and the Role of the Horse, Understood in Diverse EAAT?

In support of my hypothesis, a diverse set of descriptions of interventions and proposed explanations of the benefits of EAAT, termed *theory*, were found. All 28 papers (100%) in the

database described specific theoretical premises, and 25 papers (89%) described the intervention provided. While *riding or otherwise being astride the horse* was, by far, the most frequently described intervention detail, many intervention descriptions not involving riding were also found.

The top three identified theories included *movement of the horse* (17 articles, 61%), meaning that the movement of the horse produced synergistic movements in participants who were sitting astride the horse that, in turn, helped to strengthen their core muscles and provide a more stable base of support for functional activities. *Exercise* benefits of riding the horse (eight articles, 29%) were also posed as theoretical explanations. These benefits were often connected to riding when participants had body function or structure conditions that limited independent mobility. *The horse and human interaction (relationship and bond)* was found as a benefit of EAAT in five articles (18%), described as emotional benefits resulting from bonding with a nonjudgmental being (participant with the horse). Specific findings related to interventions and theory are next elaborated upon within the three EAAT categories used in this study.

Therapeutic Riding: Interventions and Theories

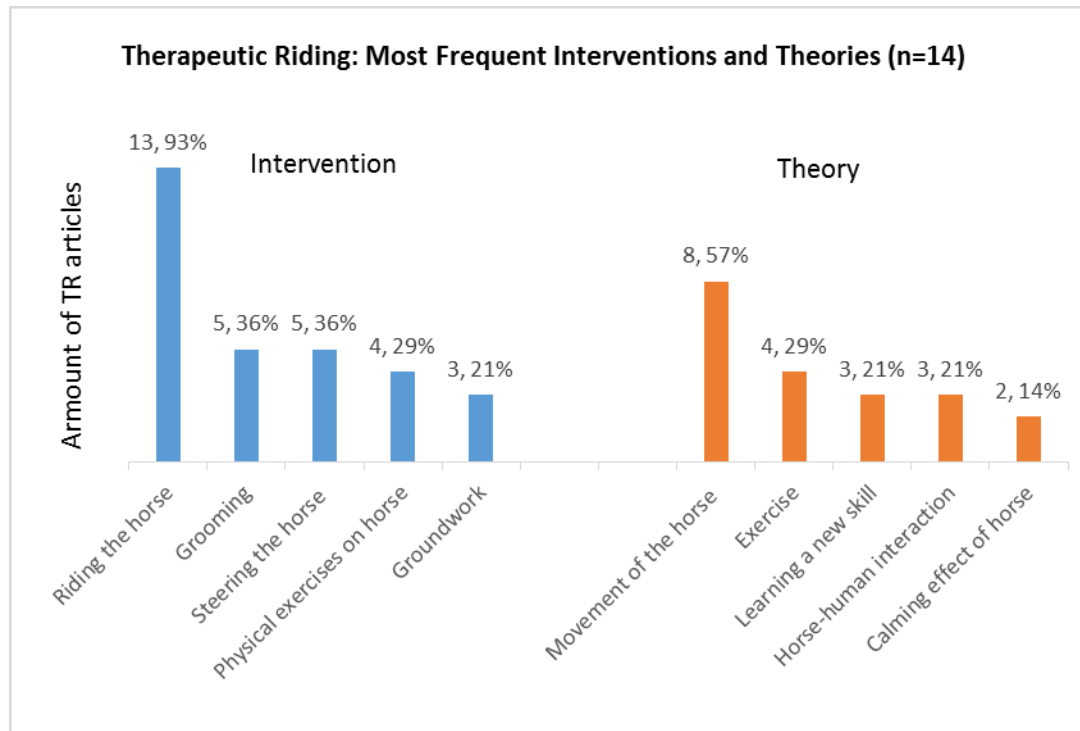


Figure 4. The most frequent theories and interventions in therapeutic riding (TR) papers. Percentages based on sample of 14 TR papers. EAAT = equine-assisted activities and therapies.

Figure 4 displays interventions and theories most frequently found in therapeutic riding papers. Interventions included both riding and non-riding activities. These categories are not mutually exclusive as more than one theory or intervention could be shared within one article. Groundwork refers to non-riding activities with the horse (e.g. leading the horse or moving an untethered horse in a round-shaped pen). Other activities included riding horses on trails (outside of a riding arena), educational sessions about horse-related topics, and tacking the horse (putting items such as saddle and bridle on the horse). Of all therapeutic riding papers, Lutter and Smith-Osborne (2011) provided the richest description of intervention activities by providing a table of 32 activity titles, for example, “trust trail ride, leading exercise, ground driving, tack renewal, horse spa day, and ‘if I were a horse’” (p. 50).

Therapeutic riding exhibited a multitude of theories (figure 4). *The therapeutic movement of the horse to a rider was theorized to provide neuromusculoskeletal improvements* such as improved posture by providing “righting and equilibrium reactions through the passive displacement of the rider’s center of gravity” (Mackay-Lyons, Conway, & Roberts, 1988, p. 105). The “complex oscillation” (p. 73) of a real horse’s movement cannot be completely mimicked by a riding simulator, Matsuura et al. (2011) stated, when theorizing why improvements in heart rate and anxiety levels occurred. *Exercise benefits of riding* were linked to participants with limited mobility such as persons at high risk for falling (Homnick, Henning, Swain, & Homnick, 2013), and veterans with combat injuries affecting mobility (Lanning & Krennek, 2013). Benefits of riding were also theorized for persons with eating disorders to be a safe way to provide the benefits of exercise without eliciting the effects of exercise abuse (over-exercising to control weight) (Lutter & Smith-Osborne, 2011).

Other theories were linked to both riding and non-riding equine activities influencing empowerment. Two papers (14%) *associated riding with autonomy* for persons with motor impairments, experiencing an “expanded world” (Lanning & Krennek, 2013, p. xi) and the ability to “control one’s destiny” (Brock, 1988, p. 34). Four papers (29%) implied or explicitly linked *horse-related activities with building self-efficacy or confidence*. For example, Borioni et al. (2012) explained, “equine therapy influences the patient’s confidence and feeling of pleasure by touching, stroking, grooming and giving verbal commands to the horse/donkey” (p. 280). F. Beinotti, Christofolletti, Correia, and Borges (2013) stated that the psychosocial benefits of “self-confidence, sense of achievement, and self-esteem” (p. 227) are found when participants are “learning a new skill, socializing with new people, and having the responsibility of taking care of and handling the horse” (p. 227). Three papers associated riding with building self-esteem for

patients with schizophrenia (Cerino, Cirulli, Chiarotti, & Seripa, 2011; D. Corring, Lundberg, & Rudnick, 2013; D. J. Corring, Johnston, & Rudnick, 2010). In these examples, riding and activities with the horse increased empowerment, including autonomy, a sense of achievement, self-confidence, and self-esteem.

Six papers (43%) theorized that *activities involving the horse created experiences of well-being*, for example the statement above from Borioni et al. (2012) related activities like touching the horse with the experience of pleasure. One paper found a statistical significant difference in anxiety levels and vitality when comparing a real horse to a mechanical horse; this was theorized, in part, to be due to the interaction with a real horse (Matsuura et al., 2011). F. Beinotti et al. (2013) provided the theory, ‘body image restoration’ (p. 231) to explain that riding can bring a feeling of physical and emotional freedom for persons with impaired movement. Two papers theorized that for persons experiencing anhedonia, “a diminished capacity to experience pleasant emotions that can be a negative symptom of schizophrenia” (D. J. Corring et al., 2010, p. 41) that therapeutic riding would create enjoyment (D. Corring et al., 2013). In both papers this theory was qualitatively corroborated by participants. In a paper with combat veteran participants, Lanning and Krennek (2013) stated that “psychological crisis can challenge a person’s fundamental assumptions about his or her world, including benevolence, predictability, controllability of the world, safety, identity, and the future. The environment is a key element to this rebuilding process and the ‘barn’ environment appeared to provide that safe haven” (p. x). Veterans remarked upon feeling the safe and nonjudgmental qualities of the horse and staff. In this paragraph activities involving the horse were associated with well-being, specifically physical and emotional freedom, pleasure, enjoyment, and safety.

Lastly, four papers (29%) addressed theories related the *relationship and bond with the horse creating an emotional connection*. Lanning and Krennek (2013) shared participant experiences of the veterans' bond with the horse, for example, "they don't want to give you advice... they're just there for you" (p. xi). D. J. Corring et al. (2010) relayed a poignant quote describing the potential of a horse-human bond transferring to other relationships, "that power of having that relationship with an animal that is that big. That's a real power trip...and if you can have a relationship with a kind of animal having a relationship with a person must be a piece of cake..." (p. 44). D. Corring et al. (2013) also shared another touching example of being moved by the horse-human bond, "some kind of magic happens...when you are the horse are one" (p. 123). The horse-human bond helped create feelings of companionship, reduced anxiety, increased vitality, deep connection, and new hope for building relationships with other people.

The theories most frequently provided were related to physical benefits of riding the horse from the *movement of the horse*, and *exercise*. Papers also provided a wide variety of explanations for why riding and non-riding activities in the horse influenced *empowerment*, *well-being*, and *emotional connectedness*.

Hippotherapy: Interventions and Theories

Interventions and theories in hippotherapy that were exclusively related to riding the horse, in contrast with therapeutic riding papers. The most frequent hippotherapy intervention descriptions and theories are shown below in figure 5. Only two papers (22%) investigated the horse's role outside of providing therapeutic movement. Hammer et al. (2005) stated that riding can lead to the learning of a new skill, providing motivation to participate in therapy; Lechner et al. (2007) mentioned that the horse-human interaction may have influenced well-being and motivation. Those two papers (22%) may be outliers because they were executed in Europe,

where the definition of hippotherapy is different from the American Hippotherapy Association (Hammer et al., 2005).

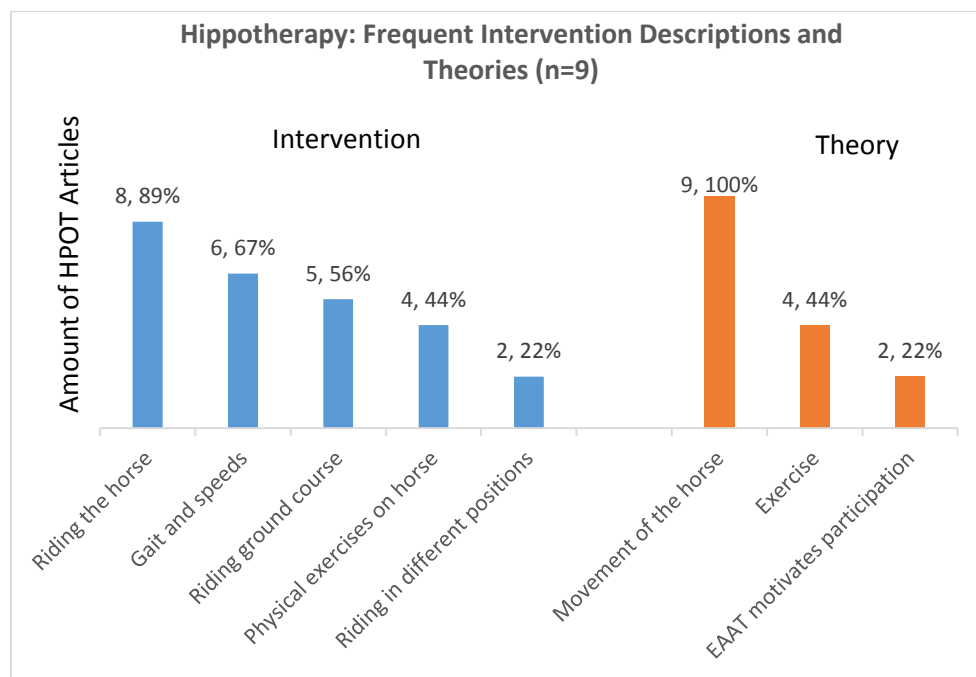


Figure 5. The most frequent theories and intervention descriptions within hippotherapy (HPOT) literature. Percentages based on sample of nine HPOT. Abbreviations: EAAT = equine-assisted activities and therapies; HPOT = hippotherapy.

As seen in figure 5, most papers theorized *benefits from riding* including the movement of the horse and exercise. Five hippotherapy papers (56%) theorized *other benefits achieved while riding the horse*. For example, neuromuscular reeducation is achieved through riding the horse (Fernanda Beinotti et al., 2010), and sensory integration benefits (Silkwood-Sherer & Warmbier, 2007), including “vestibular, tactile, visual, and postural senses” (Sunwoo et al., 2012, p. 757). A “task-oriented multisystem approach” (Silkwood-Sherer & Warmbier, 2007, p. p. 77) was employed to assist in developing “effective sensory and motor strategies to maintain postural control while practicing under different functional conditions and with progressive degrees of difficulty” (p. 77). Hammer et al. (2005) stated persons with MS need to keep motivated to maintain their health, and therapy including riding may be more motivating

than traditional physical therapy. Lechner et al. (2007) theorized that the connection with the horse through riding lead to the well-being outcomes for persons with spinal cord injury.

Equine-assisted Mental Health: Interventions and Theories

Within the five EAMH articles, three articles (60%) provided very little to no information about the intervention. Interventions included non-riding and riding activities. Only one paper (20%) included riding the horse as part of the intervention, though this was the non-traditional mental health study (Burgon, 2003). Other interventions included non-riding activities such as grooming the horse (two papers, 40%), tacking the horse (two papers, 40%), verbal and non-verbal communication techniques, and family participation (one paper, 20%).

Most EAMH theories all involved the relationship between the participant and the horse and equine environment. Many theories related to the *relationships in the EAAT environment (including the horse) contributing to well-being*. For example three papers (60%) theorized that people and horses created a safe and non-judgmental environment (Burgon, 2003; Duncan, Critchley, & Marland, 2014; Meinersmann, Bradberry, & Roberts, 2008). Being with the horse was also theorized to diminish symptoms associated of depression and post-traumatic stress (PTS) and instead be present in the moment (Duncan et al., 2014). Two papers (40%) theorized the archetype of the horse can influence psychological well-being. For example feeling her “inner horse” helped bring strength (Burgon, 2003); another participant talked about how symbols of horses came in to her dreams during difficult times, “I’m on the horse and I’m above everything and able to see it and can walk through it” (Meinersmann et al., 2008, p. 41). The Burgon (2003) paper also attributed the human-horse bond to the experience of unconditional love, perhaps inspiring hope for finding this in other relationships. To summarize, intervention building upon the relationship with the horse was theorized to contribute to feelings of well-

being including the feeling of safety, being present in the moment and a reduction in depression and anxiety, emotional support, and unconditional love.

The relationship with the horse was also attributed to providing self-awareness. For example, three papers (60%) theorized that horses mirror people's emotions, providing self-awareness opportunities (Burgon, 2003; Klontz, Bivens, Leinart, & Klontz, 2007; Meinersmann et al., 2008). Burgon (2003) stated that mirroring is enhanced when participants are free to pick their own horse partner because they are drawn to horses with similar issues. The relationship with the horse also built self-awareness because it is easier to process transference and projection issues with a horse than directly between the client and therapist (Klontz et al., 2007).

Beyond relationships with the people and horses in EAMH papers, one study theorized *the whole equine environment may have had a therapeutic impact* (Dabelko-Schoeny et al., 2014). The "enriched environment," including the barn and natural setting "was complex, facilitated learning, and was socially stimulating, and therefore was not reliant on a single factor such as the horse, but rather a combination and interaction of several factors that appeared to stimulate change" (p. 151). This concept is related to environmental theories influencing occupational therapy. Occupational therapists consider aspects of the environment that can help or hinder the client's goals (Brown, 2014)

In summary, across therapeutic riding and EAMH papers, a variety of riding and non-riding intervention activities were found. In contrast, hippotherapy papers only described interventions activities that involved riding the horse. Theories in therapeutic riding and EAMH papers related to both non-riding and riding activities and viewed the role of the horse as integral to providing physical, mental, and emotional benefits. Most papers theorized physical benefits including exercise attributed the movement of the horse. Activities involving the horse were

theorized to contribute to well-being including feelings of freedom, pleasure, enjoyment, safety, and being present in the moment. The horse-human relationship was theorized to create feelings of connectedness, reduced anxiety, increased vitality, emotional support, unconditional love, and new hope for building human relationships. Activities involving directing this large, powerful animal were also seen to help build feelings of empowerment such as self-efficacy and autonomy. The equine environment helped to stimulate and integrate multiple sensory systems, and provided a stimulating environment for learning. Theories in hippotherapy papers the movement of the horse producing primarily a variety of mainly physical benefits to the rider-participant. Lastly, seven therapeutic riding papers (50%) and four EAMH papers (80%) described group sessions, whereas only one (11%) European hippotherapy paper described a group session (Hammer et al., 2005). Group sessions could include opportunities for social engagement that individual sessions do not.

Theories within therapeutic riding literature were more widely distributed but were found less frequently than in hippotherapy literature. The therapeutic riding papers also represented the largest sample (n=14). Theories in hippotherapy papers may have been arranged mainly around the therapeutic benefits of the movement of the horse because of the link to the American Hippotherapy Association and its definition of the horse's contribution (American Hippotherapy Association, 2010a). The EAMH literature provided many theories about positive mental and emotional changes stemming from the relationship with the horse. The broad range of theories in this sample of papers may also stem from the broad base of participants with a wide range of diagnoses. This rich sampling of theories provide numerous therapeutic possibilities and applications for implementing the horse into occupational therapy interventions for a wide variety of clientele.

Research Question Three: What Outcomes Are Evaluated in Diverse EAAT?

In support of my hypothesis, the papers provided a more diverse set of outcome descriptions beyond ICF-body functions related to physical health. Across all papers, 22 papers (79%) examined changes related to ICF-body functions, zero papers addressed ICF body structures, and five papers (18%) addressed ICF activity/participation. Seven papers (25%) addressed changes in diagnoses found in the DSM-IV. Outcomes coded in the *other outcomes* area included quantitative and qualitative outcomes that did not fit neatly into any of the above categories such as somatization (Mackay-Lyons et al., 1988) and well-being (Klontz et al., 2007). Sixteen papers (57%) included outcomes in this category. Results illustrated in figures 6, 7, and 8 are exhaustive yet non-mutually exclusive as most papers examined multiple types of outcomes.

Therapeutic Riding Outcomes

Figure 6 illustrates therapeutic riding outcomes. Outcomes from therapeutic riding studies were primarily found in the ICF body functions category. The most frequently measured ICF body functions subcategories were physical in nature, including control of voluntary movement (related to coordination and balance) (five papers, 36%) and gait patterns (four papers, 29%). Three papers (21%) also addressed energy and drive, which I categorized as a mental outcome. DSM-IV symptom reduction was investigated for depression (three papers, 21%), eating disorders, schizophrenia, and anxiety. Only one article was coded within ICF activity/participation, measuring self-care (Munoz-Lasa et al., 2011).

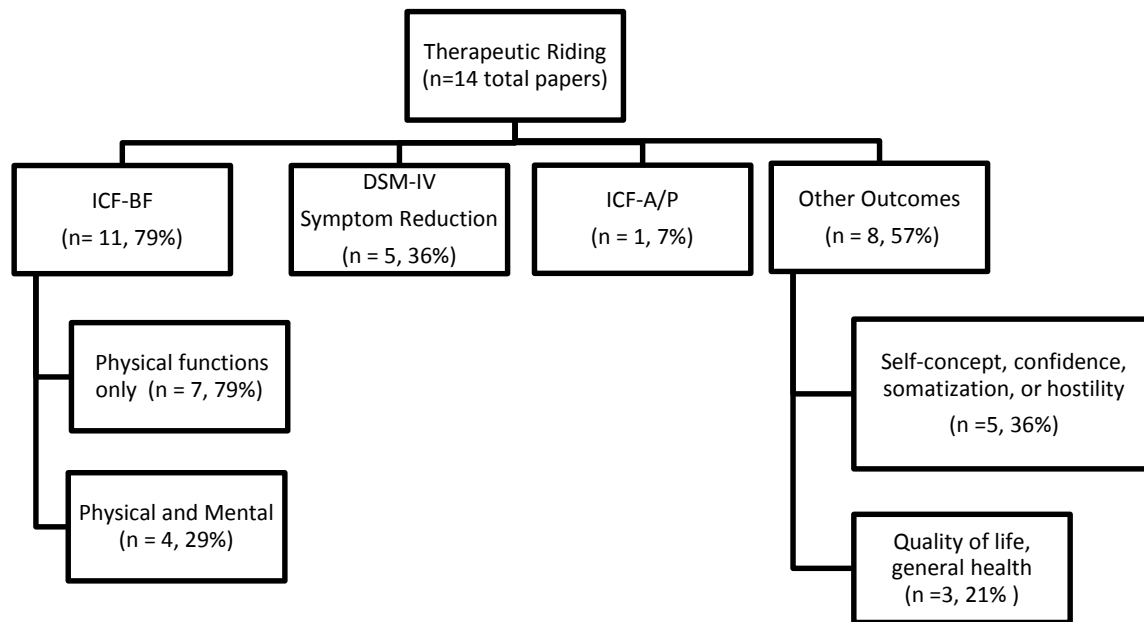


Figure 6. Outcomes measured in therapeutic riding papers as distributed by DET classification systems. Abbreviations: A/P = activity/participation; BF = body functions; DSM-IV = Diagnostic and Statistical Manual, version IV; EAMH = equine assisted mental health; ICF = International classification of functioning, disability, and health.

Some of the ‘other outcomes’ investigated were quality of life (three articles, 21%) and self-concept. A few qualitative themes related to a positive bonding experience with the horse, experiencing enjoyment, and building confidence and self-esteem (D. Corring et al., 2013; D. J. Corring et al., 2010), and “discovery of patients learning potential by staff” (D. Corring et al., 2013, p. 124). Lastly, Lanning and Krenek (2013) also noted qualitative outcomes for veteran participants, including “increased sociability,” “reduction in isolation,” and increased trust in others (p. vii, ix).

Therapeutic riding papers explored the following outcomes: physical health only (three papers, 21%), mental and emotional health only (three papers, 21%), and physical and mental and emotional health (eight, 57%). Only one article minimally addressed the activity and participation dimension. Positive statistical significant findings were found in seven papers

(50%). There were four statistical significant outcomes found in more than one paper: general health (2 papers, 14%), balance (2, 14%), gait (2, 14%), and depression (2 papers, 14%). One paper (17%) found statistically significant outcomes in physical health only, three papers (21%) in only a mental health outcome, and three papers (21%) found statistically significant findings for both physical and mental and emotional health outcomes. No outcome measures were used in more than one paper, though versions of the Medical Outcomes Study 36-item Short-Form Health Survey (SF-36), which measures general health, were found in two papers (14%) (F. Beinotti et al., 2013; Lutter & Smith-Osborne, 2011).

Hippotherapy Outcomes

All nine (100%) hippotherapy articles also measured at least one outcome within the ICF body functions category, eight of these measured only physical functions only, while one paper examined physical and mental functions (Hammer et al., 2005) (See figure 7). Within the ICF body functions, movement-related function outcomes were found most frequently. Seven articles (78%) measured control of voluntary movement such as coordination and balance, four articles (44%) examined gait-related outcomes, and two articles (22%) examined muscle tone.

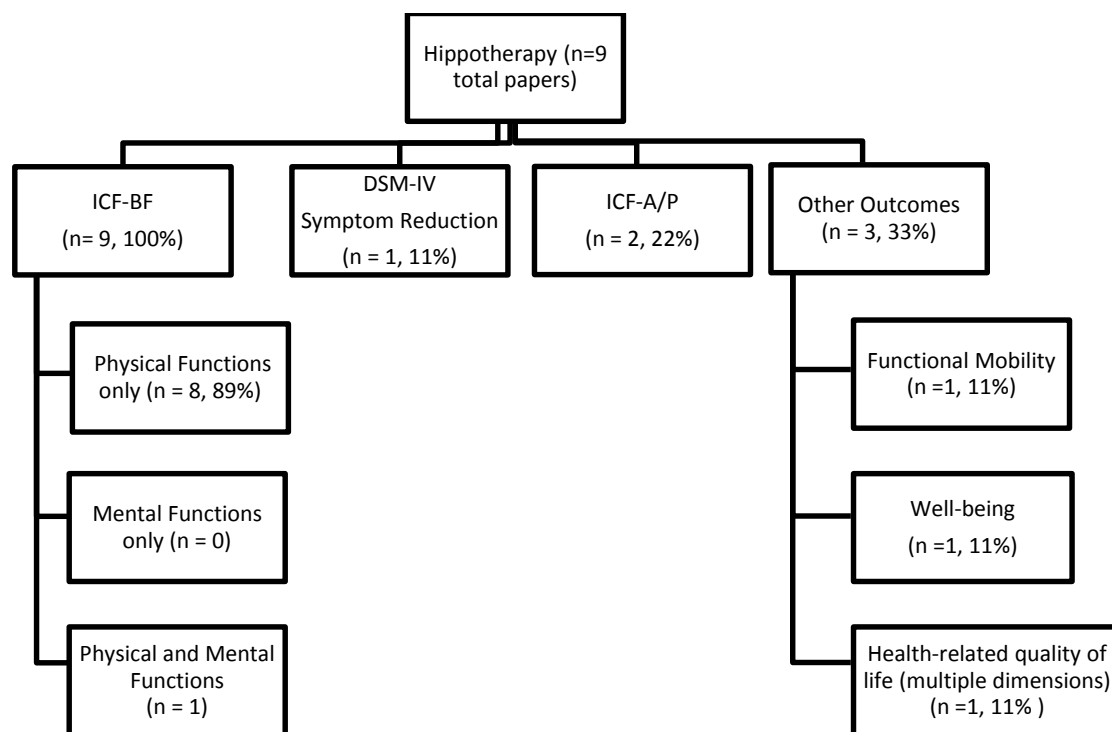


Figure 7. Outcomes measured in hippotherapy papers as distributed by DET classification systems. Abbreviations: A/P = activity/participation; BF = body functions; DSM-IV = Diagnostic and Statistical Manual, version IV; EAMH = equine assisted mental health; ICF = International classification of functioning, disability, and health.

There were fewer outcomes found in other DET classification systems. One paper explored diagnostic symptom reduction included in the DSM-IV: depression (Sunwoo et al., 2012). Activity and participation was explored in the subarea of general tasks, where participants were asked to pick two daily tasks that were challenging to rate before and after intervention (Hammer et al., 2005). The only paper in this study that employed an occupational therapy approach examined the effect of balance, fear and falling, on occupational performance in daily life (Wehofer et al., 2013). Due to increased “balance, postural stability, and greater dynamic head and trunk control” (p. 71) and decreased fear of falling, the participant became interested in participating in more community, domestic life, and recreation and leisure activities. Other outcomes measured were functional mobility (de Araujo et al., 2013), well-being (Lechner et al., 2007), and health-related quality of life (Hammer et al., 2005).

Overall, hippotherapy papers explored physical function outcomes more than mental and emotional outcomes. Two papers (22%) addressed the activity and participation dimension (Hammer et al., 2005; Wehofer et al., 2013). Statistical significance was found in seven papers (78%). Five papers (56%) found statistical significance with balance outcomes; four (44%) of those papers used a version of the Berg Balance Scale (one used the Korean version, Sunwoo et al., 2012). Two papers found statistical significant outcomes for the participants' gait using different outcome measures. There were no other repeated outcome measures used in more than one paper. Four papers found statistically significant outcomes related to physical health; one paper found statistical significant outcomes in both well-being and physical health (spasticity) (Lechner et al., 2007).

EAMH Outcomes

For EAMH studies, there were a variety of outcomes across DET classification systems illustrated in figure 8. All papers measured some dimension of mental and emotional health, but two papers also examined physical health outcomes, including muscle strength (Burgon, 2003) and cortisol levels (Dabelko-Schoeny et al., 2014).

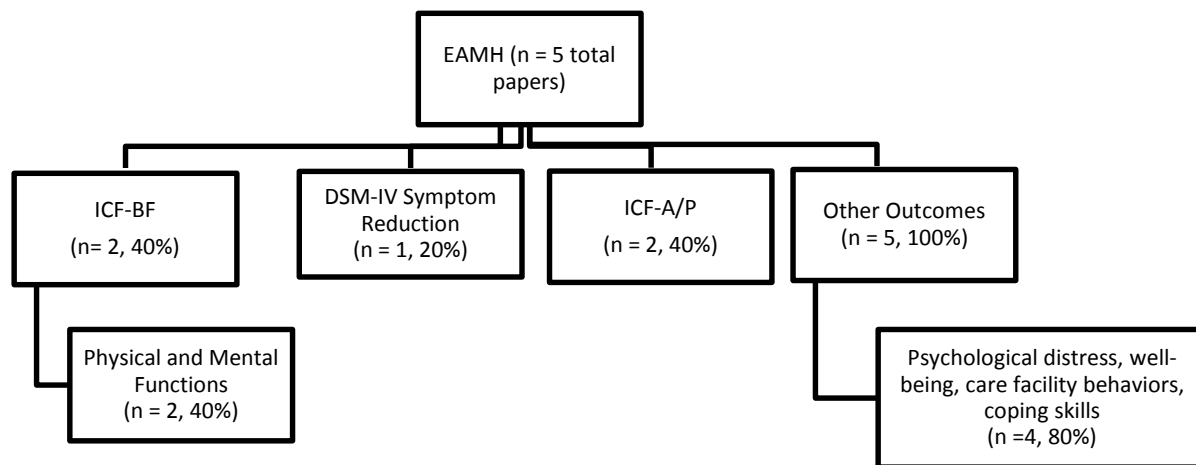


Figure 8. Outcomes measured across EAMH papers as distributed by DET classification systems. Abbreviations: A/P = activity/participation; BF = body functions; DSM-IV = Diagnostic and Statistical Manual, version IV; EAMH = equine assisted mental health; ICF = International classification of functioning, disability, and health.

The following ICF body function dimensions were measured: psychosocial skills, attention, and emotional functions. DSM-IV changes were examined within diagnoses of post-traumatic stress disorder. In other outcomes, psychological distress, well-being (Klontz et al., 2007), behavioral problems found in care facilities (Dabelko-Schoeny et al., 2014), and coping skills (Duncan et al., 2014) were measured.

Qualitative outcomes also provided indicators of mental and emotional health improvement. For example, “I can have power” (p. 39) was an especially meaningful outcome for women survivors of abuse, since the word “power” had been associated with abuse (Meinersmann et al., 2008). “I was moving him [the horse] all over the stall...It was like this light bulb. It was like, I can have power” (p. 39). Burgon (2003) found that women with a variety of mental and physical health challenges built confidence over the course of the intervention that carried over into everyday life.

ICF activity/participation outcomes were found within the two qualitative articles. A woman with hemiparesis (post-stroke) who had lost interest in activities outside of the home said she could “see the point” (p. 267) to exercising when cleaning horse stalls and riding” (Burgon, 2003). She later found the confidence to volunteer at the stables, which eventually turned into a paid, administrative position. Another article exhibited a theme of “turned my life around” (p. 41), which often related to participation in daily life. For example one woman stated, “I went from being sort of really unable to do anything, to going back to work” (Meinersmann et al., 2008, p. 41). Another woman said she was “no longer suicidal...I’m wanting to live. I want a future. I’m going to start brushing my teeth again because I might need them” (Meinersmann et al., 2008, p. 41). Similar stories related to re-emergent interests in community participation (coming to the barn each week) and confidence to do shopping and socialize in public again (Burgon, 2003).

Overall, EAMH papers investigated primarily mental health outcomes, which is not surprising considering the focus of these papers was mental health. Two papers (40%) addressed the activity/participation dimension. ICF activity and participation outcomes were only explored in the two qualitative articles (20%). A statistically significant outcome was found in one paper for "problematic behaviors commonly experienced by individuals with dementia" (p. 151) measured by the Modified Nursing Behavior Problem Scale (Dabelko-Schoeny et al., 2014).

To summarize, the large sample of papers examining these three global EAAT areas addressed a combination of outcomes encompassing mind, body, and beyond. The hippotherapy papers, contrasted with the therapeutic riding and EAMH papers, focused on a much narrower set of outcomes mainly concerned with ICF body functions related to movement. This wider evidence base can inform occupational therapists interested in helping clients to holistically

reach their occupational goals. Linking body function or symptom reduction to increased participation in daily life was rarely addressed and represents an important evidence gap for the occupational therapy profession.

CHAPTER FOUR: DISCUSSION

This study aimed to describe the current state of knowledge of EAAT that either directly included or was of direct relevance to occupational therapy. Findings supported a broad approach to occupational therapy that incorporates the horse and equine environment yet remain within the profession's scope of practice. These findings also provide support for the hypothesis that an expanded use of the horse and the equine environment in occupational therapy is justified to include activities involving the horse in addition to riding.

Guided by occupational therapy's practice framework (American Occupational Therapy Association, 2014), I propose practice guidelines for EFOT that take into consideration client factors, interventions and theory, and outcomes. These guidelines could help occupational therapists address all ages across the lifespan, not limited to diagnostic category. Interventions can address the whole person including physical health; mental and emotional health; values, beliefs, and spirituality. These health outcomes will be directly linked to outcomes in performance and participation in everyday life contexts.

First I will discuss the reason behind the choosing the term EFOT rather than the term *equine-assisted* occupational therapy as Engel (2007) suggested. Then I will discuss practice guidelines for EFOT. Next I will address limitations, next steps, and finally conclusions for this study.

Equine-Facilitated Occupational Therapy

The concept of *equine-facilitated occupational therapy* as occupational therapy that incorporates the use of the horse and equine environment blends aspects found in therapeutic riding, hippotherapy, and equine-assisted mental health papers. Engel (2007) proposed the

concept and term of equine-*assisted* occupational therapy to encompass hippotherapy in addition to other therapeutic opportunities in the equine context. There are many occupation-based activities that can be used in therapy beyond the passive riding of a horse, as this study has demonstrated. In fact it appears that some authors choose to research therapeutic riding or therapeutic riding principles instead of, or in addition to, hippotherapy because of the wider variety of therapeutic activities that therapeutic riding encompasses (Borioni et al., 2012; Homnick et al., 2013).

One problem with using therapeutic riding in lieu of hippotherapy is that hippotherapy providers are therapists (OTs, PTs, SLPs), whereas providers of therapeutic riding are riding instructors, not therapists. Within the concept of EFOT, there is an opportunity to bring the expertise of a therapist to a broad clientele base, incorporating a wide variety of occupation-based, intervention activities including the horse and equine environment into therapy, and more comprehensive set of holistic outcomes that affect performance and participation in valued occupations. To provide evidence-based practice, an occupational therapist can draw upon hippotherapy, therapeutic riding, and equine-facilitated mental health research.

Equine-facilitated occupational therapy as a term was chosen for the following reasons. Both *facilitated* and *assisted* can mean *to help* bring about an outcome. Both words have, however, been branded with distinct governing boards. *Facilitated* is associated with PATH, International who governs types of EAAT including therapeutic riding, equine-*facilitated* psychotherapy, and equine-*facilitated* learning (The Professional Association of Therapeutic Horsemanship, 2014). Equine-*assisted* psychotherapy and equine-*assisted* learning are terms used by the Equine Assisted Growth and Learning Association (EAGALA), which provides courses for mental health professionals only (Equine Assisted Growth and Learning Association,

2010b). I suggest the term *facilitated* instead of *assisted* simply to align more with PATH, International, which provides a variety of services for people with a range of disabilities, rather than only mental-health services and treatment. The former aligns more with occupational therapy's intention to address a wide-range of clientele. For this reason, *equine-facilitated occupational therapy* as a term may be a more appropriate than equine-assisted occupational therapy.

Client Factors

EFOT has the potential to address the full range of client factors that the OTPF III suggests: body functions and structures as well as values, beliefs, and spirituality. As evidenced in this paper, participants with a wide variety of impairments of body function and structure impacting mental, emotional and physical capacities can benefit from EAAT. With hippotherapy papers addressing mainly movement functions, and only one paper in the entire sample including occupational therapy, an occupational therapist may be lead to believe that clients with movement function impairments and related occupational goals are only appropriate for therapy involving a horse.

However any occupational performance goals related to any client factor could be appropriate for EFOT, including mental function impairments alone. The following portrays a potential scenario. For example, a veteran experiencing depression, post-traumatic stress, isolation, and limited participation in occupations outside of the home, demonstrates an occupational need. This person could benefit from group EFOT with other veterans. The goal of this type of therapy would be to incorporate activities with the horse to build a just-right challenge in order to build self-efficacy and enjoyment. Stress reduction activities could be employed while doing activities with the horse to mirror the participant's emotional state.

Activities can be graded to increase difficulty, and strategies built each week to link skills to everyday life challenges. Therapy could also provide activities that include bonding with a horse to provide a safe and calming environment to build trust, enjoyment, and social relatedness. This is one example of the expanded view of EFOT to address a client factors beyond movement function impairments.

My hypothesis was not supported was in terms of client factors of values, beliefs, and spirituality. As suggested by OTPF III, this omission represents a gap that occupational therapists can address by how they individualize treatment to the particular occupational needs and wants of each client. For example, EFOT could help someone find new hope and meaning in daily life as one woman described after EAAT helped her to no longer feel suicidal: “I’m going to start brushing my teeth again because I might need them” (Meinersmann et al., 2008, p. 41). Another moving example from this paper also addressed a dimension of spirituality: “Breathing is a big thing. I have a horrible time breathing...I would breathe with him [the horse] ... it just made me feel bliss” (Meinersmann et al., 2008, p. 40). Including the horse as part of interventions may help to reignite meaning in everyday life, spark new occupational interests, or even provide a connection with inner-peace that provides the hope and strength needed to move toward other occupational goals.

Intervention and Theory

Interventions in EFOT would include the use of the horse and equine-environment congruent with client-centered goals and the clinical rationale of the therapist. The horse and equine environment are part of the rich therapeutic context and therapeutic tools available in this practice setting. Interventions could incorporate any aspect of horse care or activities that happen in an equine facility, including activities of daily living such as eating, cleaning, and

grooming. EFOT would be occupation-based (Fisher, 2013) incorporating activities meaningful to the client to achieve their occupational goals for everyday life.

Theories for the use of the horse as a tool, beyond the movement of the horse, have not been widely substantiated in the literature. One theory that may support incorporating the horse in this way is Self-Determination Theory (SDT). SDT is based upon the importance of addressing a person's "competence, autonomy, and relatedness" (p. 68) to enhance a person's motivation (Ryan & Deci, 2000). The horse could become a vital part of an intervention strategy to increase a person's feeling of relatedness, for example, for a client who was experiencing isolation and reduced participation in social occupations (Meinersmann et al., 2008). For people with movement impairments, riding was theorized to increase autonomy (Brock, 1988; Lanning & Krennek, 2013). Riding also provides opportunities for choice-making afforded through riding a horse, such as changes in direction, speed, and location. Competence was related to learning new skills that involved leadership with a large, powerful animal (F. Beinotti et al., 2013; Borioni et al., 2012; Cerino et al., 2011; D. Corring et al., 2013; D. J. Corring et al., 2010). SDT thus is related to many of the benefits theorized to be linked with EAAT. Increasing self-determination may lead to improved quality and satisfaction with occupational performance.

Silkwood-Sherer and Warmbier (2007) briefly mentioned a task-oriented approach; this model is suggested in recent literature to support people with motor-based goals to improve occupational performance (Gillen, 2014). This theory can help occupational therapists stay aligned with occupation-based intervention plans in meeting occupational performance goals for persons with neuromusculoskeletal impairments.

The Person, Occupation, and Environment (PEO) model can be used as frame of reference to remember that occupational performance occurs at the intersection of where the

environment and occupation meet the person's abilities (Brown, 2014). The equine environment can be part of an environment of acceptance and safety (Lanning & Krenek, 2013) and provides enriching, stimulating activities (Dabelko-Schoeny et al., 2014). The equine environment is replete with unique opportunities that may be therapeutic without feeling clinical. This model may serve as a helpful reference to incorporate a wide view when employing therapy involving horse.

Outcomes

Baum (2011) stated that changes in body function do not always translate to participation in valued activities. The vast majority of EAAT papers in this sample did not link body function improvements with participation in life activities. Participation and performance in a person's occupational goals need to be explicitly linked to intervention plans in EFOT. If it is not clear to the therapist and client (and involved family or caregivers) how the therapy relates to everyday life goals, then the therapy is focused too much on experiencing novel activities with a horse and not enough on the benefits of therapy. Activities involving horses can be classified as leisure or work occupations, and occupational performance goals may directly related to therapy in this way. Increased well-being, happiness (decreased depression), and other benefits may transfer to other life activities, however, this needs to be tracked through both subjective and objective measurements. The Canadian Occupational Performance Measure (Carswell et al., 2004) is one suggestion for identifying and tracking goals and outcomes related to EFOT.

Next Steps

Future literature in EFOT can incorporate use of the horse and equine environment in occupational therapy related to holistic outcomes. Research is needed to bridge the gap linking client factors of values, beliefs, and spirituality related to EFOT. Future research may choose to

incorporate qualitative methodology to capture this personal dimension of client factors, such as phenomenology to understand participants lived experience (Creswell, 2012). Research in EAAT is desperately needed to relate client factors of body function and structure impairments to occupational performance goals in everyday life contexts. Since only one intervention study was found involving EAAT, adults, and occupational therapy, there is also an obvious need for studies that involving adult participants with occupational therapy interventions with the help of a horse.

Future intervention research can provide much greater detail of intervention strategies, the clinical reasoning behind intervention choices, and the theories that guide them to inform practice. Theories informing interventions may include SDT self-determination and its subcomponents: competence, autonomy, and relatedness (Ryan & Deci, 2000) to inform the use of the horse in therapy to assist in building these skills. The task-oriented approach may supply theory to support occupation-based interventions. The PEO model may serve as a basis for a model incorporating the use of the horse beyond mounted activities and the whole equine setting.

Outcomes explored in future EFOT literature can address a range of holistic client factors related to performance and participation goals. Baum (2011) firmly suggested that rehabilitation research should link body function and structure limitations to participation in valued life activities. This link has only minimally been made, and evidence is needed to justify the use of the horse in therapy. Outcome measures can include changes in symptoms or body functioning, but must also be related to occupational goals. This may be best done through mixed method studies that include a qualitative element of client report. The COPM is a standardized measure that can provide satisfaction and progress toward client-centered goals (Carswell et al., 2004).

Limitations

The nature of conducting a systematic mapping review inherently involves certain limitations. First, a systematic mapping review does not include a formal quality assessment (Grant & Booth, 2009); therefore, while the present study determined the frequency of statistically-significant outcomes, it was not the intention of the study to evaluate the efficacy of EAAT interventions. Additionally, retrieval was restricted to only English articles; therefore, certain EAAT interventions, theories, and outcomes published in international literature may not be represented here.

In categorizing outcomes, the research team decided to combine ICF activity and ICF participation into one category. This decision was made due to the similarity in definitions: activity is defined as “execution of a task or action” and participation is defined as “involvement in a life situation” (World Health Organization, 2002, p.10). Studies often did not provide enough information about the specific outcome and how it was measured in order to distinguish between the two. It is our general impression that more outcomes were measured at the level of activity than participation, and therefore the findings presented here may be biased toward participation; it may seem as if there are more outcomes at the level of participation than the literature actually presents.

Finally, within the field of EAAT as a whole, there is ambiguity in terminology. For instance, the terms “hippotherapy” and “therapeutic riding” have historically been used interchangeably, despite the current understanding in the United States that these are two distinct treatment strategies, thus causing difficulty in understanding and interpreting the literature (Silkwood-Sherer & Warmbier, 2007; J. Tiley, personal communication, May 4, 2015). Further, the current definitions of certain terms still vary internationally. For example, in the United

States the treatment strategy performed by a rehabilitation therapist is termed “hippotherapy,” whereas this type of treatment is called “therapeutic riding” in Sweden (Hammer et al., 2005). Due to this ambiguity, I made decisions to put articles into three different categories to provide a basis of organization and comparison. While this may have provided certain insights, there were also limitations. For example within the EAMH category, there were five papers with four different EAAT methods. While there were some consistencies, there were also many disparities between these articles.

Limitations of this study also include the sample of articles used to answer these research questions. A large majority of EAAT intervention studies involve participants with children and/or adolescents, which I was not able to include due to time constraints. Using all EAAT intervention studies with all ages may have yielded different results. I also did not include non-intervention studies, and this could be seen as a limitation. Another limitation of this sample is that it included adults with all diagnoses. Because it was not limited to certain diagnoses, the findings are broad rather than specific.

CHAPTER FIVE: CONCLUSION

This study illustrated that therapy involving a horse can meet a variety of physical and mental health needs within the scope of occupational therapy. Findings from this study suggest that occupational therapists are in a position to blend research evidence and a variety of horse-related activities into occupational therapy to meet those holistic needs. While few studies linked EAAT with performance and participation, a few papers did provide examples that can inform practice and guide future research.

The horse can be a valuable therapeutic partner. This study identified valuable characteristics of horses that can contribute to therapy. The horse can be ridden to aid in neuromusculoskeletal improvements such as balance and coordination. Riding can also contribute to autonomy for persons with movement impairments. Activities involving directing the horse, on the ground beside or astride the horse, can build empowerment and self-efficacy. Relationship-building activities such as grooming and groundwork activities have been associated with building self-awareness and well-being.

Information is needed about the link between improved performance during therapy involving horses and improvement in performance and participation in valued activities outside of the equine environment. This knowledge is vital to inform both providers and consumers of EAAT. There is an opportunity to expand the vision of EFOT in future research. Until then, occupational therapists can draw upon the larger body of evidence to create inspired, holistic, and occupation-centered practice.

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APPENDIX A: DATABASE SEARCHES

Key

-(search text) and is flush left: search was tested but ultimately not run due to zero or 100% irrelevant results

-(R#): number of results (K indicates thousands, e.g., 41K=41,000)

-(S): search saved; a search that shows only S and not S and E is usually combined with another search that is then E(exported)

-(NS): search not saved

-(E): results exported to EndNote

-SEE: insertion in alphabetical order that points to a later search

Searches

Each search is numbered for individual identification/re-retrieval in my EBSCO account; the numbering doesn't indicate any more than that.

SEE #28/29 "activities of daily living"

(adaptive riding)

1 "animal assisted" (R257; S)

(animal based)

2 "animal facilitated" (R7; S)

(animal related)

("donkey assisted")

("donkey based")

("donkey facilitated")

SEE #13 "donkey therapy"

("donkey related")

SEE #14 "equestrian therapy)

3 "equine assisted" (R21; S; E)

("equine based")

4 "equine facilitated" (R11; S; E)

SEE #20 "equine program*"

5 "equine related" (R1; S; E)

SEE #15 "equine therapy"

SEE #16 "equine psychotherapy"

(equitherap*)

SEE #12 hippotherapy

("horse assisted")

("horse based")

("horse facilitated")

("horse related")

6 horse* OR equine* (R881; S)

7 donkey*(R29; S)

8 1 AND 6 (R34; S; E)

9 2 AND 6 (R1; S; E)

10 1 AND 7 (R0; NS)

11 2 AND 7 (R0; NS)

12 hippotherapy (R18; S; E)

- 13 "donkey therapy" (R1; S; E)
- 14 "equestrian therapy" (R1; S; E)
- 15 "equine therapy" (R3; S; E)
- 16 "equine psychotherapy (R2; S; E)
- SEE #19 onotherapy
- SEE #24/25 rehab*
- SEE #21 "riding therapy"
- 17 "therapeutic riding" (R14; S; E)
- 18 "therapeutic horse*" (also accounts for "therapeutic horseback riding"; R26; S; E)
- 19 onotherapy (R1; S; E)
- 20 "equine program*" (R1; S; E)
- 21 "riding therapy" (R4; S; E)
- 22 therap* (R221K+; S)
- 23 6 AND 22 (R178; S; E)
- 24 rehab* (R41K+; S)
- 25 6 AND 24 (R19; S; E)
- 26 disab* OR handicap* (R83K+; S)
- 27 6 AND 26 (R50; S; E)
- 28 "activities of daily living"
- 29 6 AND 28 (R1; NS)
- 30 psycho* OR "psycho social" OR psychiatr* OR biopsyocho* (R484K+; S)
- 31 6 AND 30 (R216: NS because relevant results overlap with other results and remainder appear irrelevant)

APPENDIX B: DATA EXTRACTION TOOL

Section I. Broad Descriptors of Papers

(i) Who are the Authors of the Paper?

Guideline: Write authors here:

(ii) What is the Title of the Paper?

Guideline: Write title here:

(iii) What Year was the Paper Published?

Guideline: Write year here:

(iv) In What Issue of What Journal Was the Paper Published?

Guideline: Write journal and journal issue here:

(v) What is the impact factor of this journal?

(vi) Are Funding Sources Specified in the Article?

Guideline: Look in the Acknowledgements or fine print of the article. Funding sources refers here to anyone who pays for this research.

(vii) Is the Purpose or Aim of the Paper Stated?

Guideline: Aim or purpose must be explicit to check yes.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------

What Is the Paper's Stated Purpose or Aim?

Guideline: If yes is checked above, then describe purpose/aim exactly.

(viii) Is this Paper a Research Report?

Guideline: Check yes if the primary focus of this paper is a research report and there is a systematic and apriori approach to data collection and analysis related to a purpose/aim. If yes, continue through the rest of the tool, being sure to complete the entire tool.

Guideline: In order to qualify as research, the paper must follow a traditional research format and have clearly stated headings: purpose/hypothesis, literature review, methods, results, and discussion sections.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------

If not research, then what type of paper is this?

Guideline: If no, then choose one of the categories below that best describes this paper:

<input type="checkbox"/> Case report (non-research based)	<input type="checkbox"/> Historical pieces
<input type="checkbox"/> Conceptual/theoretical	<input type="checkbox"/> Non-research literature review
<input type="checkbox"/> Editorial	<input type="checkbox"/> Other

What Type of Paper Is Meant by "Other"?

If not research, does the paper merit further analysis?

Guideline: If the article gives useful information on any of the main section headings (i.e. Descriptors of Participants; Practitioners and Horses; Interventions; or Outcomes) then check yes below.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------

Guideline: If yes, skip C and D, then continue through rest of tool, completing only the portions pertinent to the article. If no, answer C and D, then discontinue use of tool.

Explain the main message of the paper

Explain why this paper was chosen to exclude from analysis

☐ Incongruence between article and DET

☐ Other

(ix) *Does this study primarily focus on Horses, Mechanical Horses, or People?*

☐ Horse

☐ Mechanical Horse

☐ People

Section II. Research Approaches

Guideline: This section is filled out ONLY if the paper was categorized as having met the criteria for a research report (checked yes to #6). If section is used, must check yes to either 10, 12, or 14.

Does the Study Explicitly Specify a Research Approach/Design?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, write-in what the authors stated as the research design, and answer qualitative and quantitative questions below.

Did this Study Investigate a Specific Intervention?

Guideline: Only check yes if it is research.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Did the Reported Study Use Only Qualitative Research Approaches?

Guideline: Check yes if qualitative methods were solely used. Do NOT check yes if both quantitative and qualitative methods were used. If no, skip to the next section.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Qualitative Research Approaches Were Used in the Reported Study?

Guideline: Only answer if Question #10 has been answered, "Yes."

<input type="checkbox"/> Action research	<input type="checkbox"/> Phenomenology
<input type="checkbox"/> Ethnography	<input type="checkbox"/> Qualitative Case Study
<input type="checkbox"/> Grounded theory	<input type="checkbox"/> No apparent approach
<input type="checkbox"/> Narrative	<input type="checkbox"/> Other

What other approach was used?

Did The Reported Study Use Only Quantitative Research Approaches?

Guideline: Check yes if quantitative methods are solely used. Do NOT check yes if both quantitative and qualitative methods were used.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Quantitative Research Approaches Were Used in the Reported Study?

Guideline: Only answer if Question #12 has been answered, "Yes."

<input type="checkbox"/> Descriptive	<input type="checkbox"/> Single group quasi-experimental
<input type="checkbox"/> Correlational	<input type="checkbox"/> Single subject design
<input type="checkbox"/> Group comparison (non-randomized)	<input type="checkbox"/> Quantitative Case Study
<input type="checkbox"/> Group comparison (randomized)	<input type="checkbox"/> No apparent approach
	<input type="checkbox"/> Other

Did The Reported Study Use Both Quantitative And Qualitative Methods?

Guideline: Check yes if both quantitative and qualitative methods were used, regardless of which method may have been dominant.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Was a Formal Mixed Methods Design Employed?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If a Formal Mixed Methods Design Was Used, What Was It?

Section III. Descriptors of EAAT Recipients and/or Research Participants

Guideline: Yes may be checked for the following questions for both research and non-research papers as long as the paper describes EAAT recipients, practitioners, or significant others. For non-research papers if ANY descriptors of participants are provided, check yes, even if it is very broad information or very specific information about one person.

Guideline: Data about Horses should NOT be coded here, but in Section IV.

Guideline: If research, all of the following questions pertain only to research participants and rely solely on description provided in methods section.

If a group comparison design, the following questions pertain only to the experimental group, not the control group. If non-research, questions pertain to the most pertinent EAAT participants described in the article.

Does this Paper Describe recipients of EAAT, significant others of recipients, or practitioners of EAAT?

Guideline: If no description is provided, skip to Section IV.

Guideline: For conceptual articles, check Yes if articles if describes recipients of EAAT. For research, check Yes and categorize research participants.

Guideline: If research participant is a practitioner, all other information should be coded in the practitioner section (skip questions 16-19).

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, check all that apply

<input type="checkbox"/> EAAT Recipient	<input type="checkbox"/> Family or Significant Others of EAAT recipients	<input type="checkbox"/> Practitioner	<input type="checkbox"/> Other
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If other, describe. Additionally, if family or significant other, please describe.

(Write-In Box in Access)

Guideline: The following questions apply only to participants specified in this question.

Were Ages Specified?

Guideline: To check yes, ages must be explicitly stated OR some reference to developmental stages must be evident (e.g., young children, adolescence, young adults, older adults, geriatric etc.).

Guideline: For non-research papers specify the general age groups, if apparent, but not specific age ranges (leave specific ages for intervention studies).

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Age Ranges Were Specified?

Guideline: If yes is checked and exact ages are given, then check off all age groups that apply in the box below. Do NOT check any boxes below if only descriptions of age groups without exact ages were given.

<input type="checkbox"/> 0 – 5 years	<input type="checkbox"/> 41 – 50 years
<input type="checkbox"/> 5 – 10 years	<input type="checkbox"/> 51 – 60 years
<input type="checkbox"/> 11 - 15 years	<input type="checkbox"/> 61 – 70 years
<input type="checkbox"/> 16 – 21 years	<input type="checkbox"/> 71 – 80 years
<input type="checkbox"/> 21 – 30 years	<input type="checkbox"/> 81- 90 years
<input type="checkbox"/> 31 – 40 years	<input type="checkbox"/> > 90 years

If Exact Age Ranges Were not Specified, Then What Age Groups were Specified?

Guideline: If yes is checked and exact ages are NOT given, then check off all appropriate age descriptors in the box below. ONLY use the box below if exact ages have NOT been stated in the paper. Only check “adults (not specified further)” if the age groups of adults are not further specified.

<input type="checkbox"/> Young children	<input type="checkbox"/> Older adults
<input type="checkbox"/> Adolescents	<input type="checkbox"/> Oldest old (geriatric)
<input type="checkbox"/> Adults (not specified further)	<input type="checkbox"/> All ages
<input type="checkbox"/> Young adults	<input type="checkbox"/> Other
<input type="checkbox"/> Middle aged adults	

What Other Age Descriptors Were Used?

Guideline: If other is checked above, then write other age descriptor using the author’s language.

Was Gender Specified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, specify in the box below. Check all that apply.

<input type="checkbox"/> Female	<input type="checkbox"/> Transgender
<input type="checkbox"/> Male	

Were Race And/Or Ethnicity Specified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, specify in box below

(write-in box in Access)

Were Diagnoses or Populations Were Specified?

Guideline: This can include populations such as prison inmates, war veterans. Use DSM IV language when applicable for diagnoses.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Additional Diagnoses Were Specified?

Guideline: If yes, then list any diagnoses used to describe participants.

Were Any Other Descriptors Used?

Guideline: Check yes if descriptors not captured in any of the above categories were used. Exclude outcome measures. For example, "spastic" would go here in relation to diagnosis of Cerebral Palsy above.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Additional Descriptors of Participants Were Specified?

Guideline: If yes, then describe any additional descriptors using the language of the authors that may not have been captured in any of the above categories.

What was total participant population initially enrolled in study (N=?).

Guideline: Include number of all participants in all groups.

(write-in box in Access for numbers)

Explain any oddities about sample (drop-outs, etc.)

Were There Assessment Measures Used to Describe EAAT Participants?

Guideline: To be standardized, the assessment must be referenced in peer-reviewed literature. Do not include outcome measures used in pre-post research designs.

Guideline: Do not code assessments here that are also used as outcome measures in pre-post research designs. Assessments measures to describe participants are mutually exclusive with outcome measures.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, fill out table below.

Name of Tool	Standardized?	What Does the Tool Measure?
	<input type="checkbox"/> Standardized	
	<input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized	
	<input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized	
	<input type="checkbox"/> Customized	

	<input type="checkbox"/> Standardized	
	<input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized	
	<input type="checkbox"/> Customized	

Were inclusion criteria specified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Guideline: Inclusion criteria do not have to be explicit but do not over-interpret, but must be fairly obvious. Do not confuse with sampling strategies. Use author's original groupings (i.e. if authors stated "no previous experience on a horse" as inclusion criteria, code as inclusion criteria).

If Yes, Write in Below.

Were exclusion criteria specified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Guideline: Exclusion criteria do not have to be explicit but do not over-interpret, but must be fairly obvious. Do not confuse with sampling strategies. Use author's original groupings (i.e. if authors stated "no previous experience on a horse" as inclusion criteria, code as inclusion criteria, not exclusion).

If Yes, Write in Below.

Section IV. Practitioners, Horses, and Facilities Involved in EAAT

Guideline: Any information about horses should be provided in this section, including if horses were described as research 'participants' or if data was gathered about the horse.

Guideline: Yes may be checked for the following questions for both research and non-research papers.

Was Any Information Provided About Practitioners?

Guideline: Check yes if one or more practitioners are described with detail further than just "instructor".

Guideline: If an intervention study, this question applies only to the practitioner involved in the intervention (not side-walkers, horse leaders, etc)

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Check all that apply

<input type="checkbox"/> Equine Professional	<input type="checkbox"/> Social Worker
<input type="checkbox"/> Occupational Therapist	<input type="checkbox"/> Mental health professional not otherwise specified
<input type="checkbox"/> Physical Therapist	<input type="checkbox"/> Speech/Language Pathologist
<input type="checkbox"/> Psychologist	<input type="checkbox"/> Therapeutic Riding Instructor
<input type="checkbox"/> Recreational therapist	<input type="checkbox"/> Other certifications or backgrounds

If checked other, describe other practitioners.

Were Other Certifications, Backgrounds, or Trainings Identified? (E.g. NARHA, PATH, drug-alcohol certification, Intervention-Specific Training)

Guideline: This question applies only to practitioners described in question 25 (not side-walkers, horse leaders, etc.). This is a broad question that can include any information given, even if it is vague.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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(Write-in in Access)

Was Any Information Provided about Horses or Horse-Specific Equipment Involved in the Intervention?

Guideline: Check yes if any type of information at all about the horses is provided, including but not limited to horse qualities (age, size, breed, temperament, selection criteria), how horses were obtained (e.g., donated, purchased), horses' backgrounds or histories, how horses are cared for or maintained, training of horses for EAAT, frequency of usages in EAAT, how horses move, etc.

Guideline: This is only about the qualities of the horse that stand apart from the intervention (e.g. matching horse to participant is not coded here).

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Specific Information about the horses or horse-specific equipment was provided?

Guideline: If yes is checked above, then describe in detail information provided in the paper about the horse(s).

Were There Assessment Measures Used to Describe Horses?

Guideline: To be standardized, the assessment must be referenced in peer-reviewed literature. Do not include outcome measures used in pre-post research designs.

Guideline: When article refers to aspects of the horse for matching them to participant, code this information in Section V: Descriptors of EAAT Interventions (Were details of EAAT-related Interventions Provided?).

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, fill out table below.

Name of Tool	Standardized?	What Does the Tool Measure?
	<input type="checkbox"/> Standardized	
	<input type="checkbox"/> Customized	

	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	
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Was the Name of the Facility or Program Provided?

Guideline: Location of the facility is coded here. If the facility name is not given, then code location under Key Impressions.

<input type="checkbox"/> Yes <input type="checkbox"/> No
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(write-in)

Was Any Information Provided about the Facility or Program in which the Intervention Occurred?

Guideline: Check yes if any type of information at all about the facility or facilities is provided above and beyond just the name of the facility or program, including but not limited to considerations of tax status (e.g., not for profit), insurance or certifications specific to provision of EAAT

<input type="checkbox"/> Yes <input type="checkbox"/> No
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What Information about the Facility or Facilities was Provided?

Guideline: If yes is checked, then describe in detail information in the paper on the facility or facilities:

Section V. Descriptors of EAAT Interventions

Guideline: If research article, Information in this section should come exclusively from the Methods section.

Guideline: If group-comparison research, the questions below pertain only to the experimental group, not the control group.

Guideline: Must check Yes to only 30 or 32 (Not both).

Guideline: Yes may be checked for the following questions for both research and non-research papers as long as the paper describes interventions.

Does this Paper Predominantly Focus on One Primary Type of Equine Assisted Activity (EAA) OR Therapy (EAT)?

Guideline: Check yes if one type of EAAT is clearly the predominant focus of the paper even if other types of EAAT are also addressed. To check yes, consider BOTH equine-assisted activities AND therapies. If check yes continue to #31. If check no skip #31.

☐ Yes ☐ No

What primary type of equine assisted **ACTIVITY** is the focus of this paper?

*Guideline: If yes is checked above AND the primary type of EAAT involves equine assisted activity, then classify according to the exhaustive and mutually exclusive categories below. Use definitions in document for 30a (definitions in quotations are from Path International.) Check only **one** box. Check 'none' if the type of EAAT involves equine assisted therapies. Check "other" if the intervention is described by authors in ways that significantly differ from the definitions below.*

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Therapeutic Horseback Riding/Therapeutic Riding |
| <input type="checkbox"/> Equine-Assisted Activities (EAA) (unspecified) | <input type="checkbox"/> Therapeutic Vaulting |
| <input type="checkbox"/> Equine-Assisted/Facilitated Learning (EAL/EFL) | <input type="checkbox"/> Other |
| <input type="checkbox"/> Therapeutic Driving | |
| <input type="checkbox"/> Therapeutic Horsemanship (unspecified) | |

i. How do the authors differently describe the primary EAA that they focused on?

Guideline: If different from the definitions of the above categories or if 'other' is checked, then describe how the authors differently described the primary equine assisted activity that they focused on here.

What primary type of equine assisted **THERAPY** is the focus of this paper?

*Guideline: If yes is checked above AND the primary type of EAAT involves equine assisted therapy then, then classify according to the exhaustive and mutually exclusive categories below. Use definitions in document for 30b (definitions in quotations are from Path International.) Check only **one** box. Check 'none' if the type of EAAT involves equine assisted activities. Check "other" if the intervention is described by authors in ways that significantly differ from the definitions below.*

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> None | <input type="checkbox"/> Hippotherapy |
| <input type="checkbox"/> Equine-Assisted Therapy – Not Otherwise Specified | <input type="checkbox"/> Onotherapy |
| <input type="checkbox"/> Equine-Assisted/Facilitated Psychotherapy (EAP/EFP) | <input type="checkbox"/> Other |

ii. How do the authors differently describe the primary EAT that they focused on?

Guideline: If different from the definitions of the above categories or if 'other' is checked, then describe how the authors differently described the primary equine assisted therapy that they focused on here.

Does the Paper Additionally Focus on Another Type or Types of EAAT?

Guideline: Only address this question if check yes to #30. Check yes if, in addition to the paper's primary type of EAAT, another type or types of EAAT are also addressed.

☐ Yes ☐ No

What Type or Types of EAA Does this Paper Additionally Address?

Guideline: If yes is checked, check which types of EAA are addressed. Do not check a box corresponding with the primary focus of the paper as this should be indicated in 30a. Since secondary types of EAA are not exhaustive and mutually exclusive, check all boxes that apply.

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Therapeutic Horseback Riding/Therapeutic Riding |
| <input type="checkbox"/> Equine-Assisted/Facilitated Learning (EAL/EFL) | <input type="checkbox"/> Therapeutic Vaulting |
| <input type="checkbox"/> Therapeutic Driving | <input type="checkbox"/> Other |
| <input type="checkbox"/> Therapeutic Horsemanship (unspecified) | |

ii. What Secondary type or Types of EAA is meant by "other"?

Guideline: If different from the definitions of the above categories or if 'other' is checked, then describe how the authors differently described the primary equine assisted activity that they focused on.

What Type or Types of EAT Does this Paper Additionally Address?

Guideline: If yes is checked, check which types of EAT are additionally addressed. Do not check a box corresponding with the primary focus of the paper as this should be indicated in 30b. Since secondary types of EAT are not exhaustive and mutually exclusive, check all boxes that apply.

<input type="checkbox"/> None	<input type="checkbox"/> Hippotherapy
<input type="checkbox"/> Equine-Assisted Therapy – Not Otherwise Specified	<input type="checkbox"/> Onotherapy
<input type="checkbox"/> Equine-Assisted/Facilitated Psychotherapy (EAP/EFP)	<input type="checkbox"/> Other

ii. What Secondary type or Types of EAT is meant by “other”?

Guideline: If different from the definitions of the above categories or if ‘other’ is checked, then how do the authors differently describe the primary equine assisted therapy that they focused on.

Does the Paper Focus on Two or More Types of Equine Assisted Activity or Therapy, None of Which are Primary?

Guideline: This question is mutually exclusive with #30. If checked no at #30, check yes here. Paper should address 2 or more types of EAAT none of which are primary.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Type or Types of EAA Does this Paper Address?

Guideline: If yes is checked, check all types of EAA are addressed.

<input type="checkbox"/> None	<input type="checkbox"/> Therapeutic Horseback Riding/Therapeutic Riding
<input type="checkbox"/> Equine-Assisted/Facilitated Learning (EAL/EFL)	<input type="checkbox"/> Therapeutic Vaulting
<input type="checkbox"/> Therapeutic Driving	<input type="checkbox"/> Other
<input type="checkbox"/> Therapeutic Horsemanship (unspecified)	

iii. What Secondary type or Types of EAA is meant by “other”?

Guideline: If different from the definitions of the above categories or if ‘other’ is checked, then describe how the authors differently described the primary equine assisted activity that they focused on.

What Type or Types of EAT Does this Paper Address?

Guideline: If yes is checked, check all types of EAAT that are addressed.

<input type="checkbox"/> None	<input type="checkbox"/> Hippotherapy
<input type="checkbox"/> Equine-Assisted Therapy – Not Otherwise Specified	<input type="checkbox"/> Onotherapy
<input type="checkbox"/> Equine-Assisted/Facilitated Psychotherapy (EAP/EFP)	<input type="checkbox"/> Other

iii. What Secondary type or Types of EAT is meant by “other”?

Guideline: If different from the definitions of the above categories or if ‘other’ is checked, then how do the authors differently describe the primary equine assisted therapy that they focused on.

Were Theorized or Hypothesized Influences On Positive EAAT Outcomes Described?

*Guideline: Check yes if there is any clear theorized or hypothesized explanation of what influences or causes (e.g., independent variable, mechanism of action) positive changes resulting from EAAT. This is regarding to theory about **WHY** EAAT may work, and must directly relate to how the intervention is developed and outcomes are achieved. Click yes if theory is presented anywhere in the article.*

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Favorable Influences Upon or Causes of Positive EAAT Outcomes Were Discussed or Specified?

Guideline: Check all that apply.

<input type="checkbox"/> Benefits of other therapeutic practices (e.g. CBT, SLP)	<input type="checkbox"/> Physical exercise
<input type="checkbox"/> Cerebellar stimulation	<input type="checkbox"/> Qualities of the barn/stable/outdoor environment (context)
<input type="checkbox"/> Connection with nature/spiritual connection	<input type="checkbox"/> Recreation or leisure benefits
<input type="checkbox"/> EAAT inherently motivates participation	<input type="checkbox"/> Responsibility of taking care of a horse
<input type="checkbox"/> Exposure therapy	<input type="checkbox"/> Sensory activities while on the horse
<input type="checkbox"/> Group reflection of equine experience	<input type="checkbox"/> Size and power of the horse
<input type="checkbox"/> Handling the horse	<input type="checkbox"/> Social interactions/skills

<input type="checkbox"/> Horse-human interaction (relationship, bond) <input type="checkbox"/> Interaction with involved practitioners/helpers/volunteers <input type="checkbox"/> Learning a new skill <input type="checkbox"/> Movement of the horse (pelvic movement, proprioceptive input from movement)	<input type="checkbox"/> Strength-based (capitalize on participants' strengths and abilities) <input type="checkbox"/> Task-related behaviors (problem solving tasks, sequencing tasks) <input type="checkbox"/> Temperature of the horse
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What Other Explanations of Positive EAAT-related Outcomes were Given?

Guideline: If other was checked, then provide a written description of the explanation.

Were Details of EAAT-related Interventions Provided?

Guideline: Check yes if any explanation of what actually occurred during the intervention was provided. If no, skip to question 35.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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What Therapeutic Interventions During Sessions Were Described?

Guideline: If yes above, then check all that apply.

<input type="checkbox"/> Activities on the horse (put ball in basket, ring on cone, etc.) <input type="checkbox"/> Application of experience to daily life <input type="checkbox"/> Barn activities and maintenance (mucking stalls, playing in the hay, etc.) <input type="checkbox"/> Being with the horse (as in "in the moment") <input type="checkbox"/> Body language communication <input type="checkbox"/> Cognitive tasks <input type="checkbox"/> Family Participation <input type="checkbox"/> Following verbal commands <input type="checkbox"/> Gait and speeds (walk, trot, canter) <input type="checkbox"/> Getting to know the horse <input type="checkbox"/> Grooming the horse <input type="checkbox"/> Groundwork <input type="checkbox"/> Group Session <input type="checkbox"/> Holding the reins <input type="checkbox"/> Integration of other therapeutic practices (CBT, SLP, play-therapy, etc) <input type="checkbox"/> Individual Session <input type="checkbox"/> Matching the horse to the participant for the intervention	<input type="checkbox"/> Memory skills <input type="checkbox"/> Perceptual / spatial skills <input type="checkbox"/> Riding ground course (Obstacles used like ground poles, cones, barrels, hills; or figures like serpentine, figure 8) <input type="checkbox"/> Riding the horse <input type="checkbox"/> Riding the horse in different positions (prone, backwards, sideways, standing, etc.) <input type="checkbox"/> Safety behaviors <input type="checkbox"/> Sensory activities (touch the hay, smell the horse, etc.) <input type="checkbox"/> Speech and Language Activities <input type="checkbox"/> Social Activities <input type="checkbox"/> Steering the horse (as opposed to the therapist/instructor steering) <input type="checkbox"/> Stretching/strengthening/exercise activities (not on the horse—before or after) <input type="checkbox"/> Stretching/strengthening/exercise activities (while on the horse) <input type="checkbox"/> Tacking the horse <input type="checkbox"/> Vaulting (on the horse) <input type="checkbox"/> Other
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iv. What other interventions were described?

Guideline: If other was checked, then provide a written description of the explanation.

Were Numbers or Durations of Intervention Sessions Stated?

Guideline: Check yes if any explanations were provided of how many individual sessions occurred, of how long each session was, or of 'dosages'.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Described Stated Durations of EAAT Sessions

Guideline: Provide written description of durations. These can be durations of individual sessions and/or #s of sessions in a designated program.

Were any Other Treatments or Therapies in Addition to EAAT Provided to the Experimental Group as Part of the Research Design?

Guideline: If off-the horse processing/reflection that builds upon the horse experience occurs, it does not qualify as other treatment. Check no.

Section VI. Intervention Outcomes

Guideline: Only complete this section in reference to people (not horses or mechanical horses).

Guideline: If research, Rely solely on information given in the outcomes section. It is up to the researcher's judgment whether to code the outcome given by the entirety of an outcome measure, or to code outcomes given by individual subscales.

Guideline: Yes may be checked for the following questions for both research and non-research papers as long as the paper describes or claims specific outcomes.

Guideline: If non-research, outcomes coded here should be specific to EAAT interventions only.

Were There Assessment Measures for Outcomes?

Guideline: To be standardized, the assessment must be referenced in peer-reviewed literature.

Guideline: The intent of this question is to gather the method(s) the author used to measure outcomes, therefore skilled observation, interview, focus group, as well as standardized assessments should all be coded here.

Guideline: When adding assessments to the dropdown list, spell out entire name of assessment first, with abbreviations in parentheses afterwards.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Name of Tool	Standardized?	What Does the Tool Measure?
	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	
	<input type="checkbox"/> Standardized <input type="checkbox"/> Customized	

Were EAAT Outcomes Identified Using DSM-IV Diagnostic Criteria or Language?

Guideline: If any DSM-IV categories were used to describe outcomes of EAAT, describe below in writing. Language and terminology used in the DSM-IV must be explicitly used in article. Use DSM-IV guidelines to make this determination. If no, skip to 39..

Guideline on Levels of Significance: Check statistically-significant ("SS") ONLY if it is a research report, and statistics were provided demonstrating a significant change. Check "other important finding" if authors claim there was a clinically-important or somehow other important finding in quantitative studies, qualitative studies, or for outcomes claimed by conceptual articles. "Other important finding" can also be used if the statistics did not show significance but the authors elaborated that results trended in a positive direction, and some benefits were achieved despite not being statistically significant. Check "no finding" if item was measured but no outcome was found.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Were DSM-IV Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence that were identified and classify the significance of the findings.

<input type="checkbox"/> Attention-deficit and disruptive behavior disorders	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Communication disorders	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Feeding and eating disorders of infancy or early childhood	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

<input type="checkbox"/> Learning disorders	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Mental retardation	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Motor skill disorders (developmental coordination disorder)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other disorders of infancy, childhood, or adolescence (Separation anxiety, Selective mutism, Reactive attachment disorder, Stereotypic movement disorder)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> PDD – Asperger’s disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> PDD - Autistic disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> PDD – Childhood disintegrative disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> PDD - NOS	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> PDD – Rett’s disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Pervasive developmental disorders		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Tic disorders		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Article does not specify		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were DSM-IV Delirium, Dementia, and Amnestic and other Cognitive Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Cognitive Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Dementia – Alzheimer’s type with early onset	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Alzheimer’s type with late onset	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to Creutzfeldt-Jakob disease	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to head trauma	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to HIV disease	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to Huntington’s disease	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to multiple etiologies	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to Parkinson’s disease	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Due to Pick’s disease	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – NOS	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – Vascular dementia	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dementia – article does not specify	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	

		<input type="checkbox"/> finding <input type="checkbox"/> Other important finding	
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Were DSM-IV Substance Related Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Substance Related Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Alcohol use disorders – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Amphetamine use disorders – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Cannabis use disorders - dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Cocaine use disorders – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Hallucinogen use disorders – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Inhalant use disorder – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Opioid use disorder – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Phencyclidine use disorder – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Polysubstance-related disorder – dependence	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Sedative, hypnotic, or anxiolytic use disorder – dependence or abuse	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Substance related disorder – article does not specify	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	

Were DSM-IV Schizophrenia Spectrum or Other Psychotic Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Psychotic Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> None	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizophrenia - Catatonic type	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizophrenia - Disorganized type	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizophrenia - Paranoid type	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizophrenia - Residual type	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizophrenia - Undifferentiated type	<input type="checkbox"/> SS	<input type="checkbox"/> finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizophrenia – article does not specify	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	
		<input type="checkbox"/> Other important finding	

		finding	
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Were DSM-IV Mood Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Mood Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Depressive disorder - Major depressive disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Depressive disorder - Dysthymic disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Depressive disorder – NOS	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Depressive disorder – article does not specify	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Bipolar disorder - Bipolar 1 disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Bipolar disorder - Bipolar 2 disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Bipolar disorder - Cyclothymic disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Bipolar – article does not specify	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were DSM-IV Anxiety Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Anxiety Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Agoraphobia without history of panic disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Generalized anxiety disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Obsessive-compulsive disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Panic disorder with agoraphobia	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Panic disorder without agoraphobia	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Post-traumatic stress disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Social phobia	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Specific phobia	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Anxiety disorder – article does not specify	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
		<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were DMS-IV Somatoform Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Somatoform Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Body dysmorphic disorder <input type="checkbox"/> Hypochondriasis <input type="checkbox"/> Pain disorder <input type="checkbox"/> Somatoform disorder NOS <input type="checkbox"/> Somatoform disorder – article does not specify	<input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS	<input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding
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Were DSM-IV Dissociative Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Dissociative Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Dissociative amnesia <input type="checkbox"/> Dissociative Fugue <input type="checkbox"/> Dissociative identify disorder <input type="checkbox"/> Depersonalization disorder <input type="checkbox"/> Dissociative disorder NOS <input type="checkbox"/> Dissociative disorder - article does not specify	<input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS	<input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding
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Were DSM-IV Eating Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Eating Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Anorexia nervosa <input type="checkbox"/> Bulimia nervosa <input type="checkbox"/> Eating disorder NOS <input type="checkbox"/> Eating disorder - article does not specify	<input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS	<input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding
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Were DSM-IV Sleep Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Sleep Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Dysomnias <input type="checkbox"/> Parasomnias <input type="checkbox"/> Sleep disorder - article does not specify	<input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS	<input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding
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Were DSM-IV Impulse-Control Disorders Not Elsewhere Classified Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Impulse-Control Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Intermittent explosive disorder <input type="checkbox"/> Kleptomania <input type="checkbox"/> Pyromania <input type="checkbox"/> Pathological gambling <input type="checkbox"/> Trichotillomania <input type="checkbox"/> Impulse-control disorder NOS <input type="checkbox"/> Impulse-control disorder - article does not specify	<input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS	<input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding
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Were DSM-IV Adjustment Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Adjustment Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Adjustment disorder – with depressed mood <input type="checkbox"/> Adjustment disorder – with anxiety <input type="checkbox"/> Adjustment disorder – with mixed anxiety and depressed mood <input type="checkbox"/> Adjustment disorder – with disturbance of conduct <input type="checkbox"/> Adjustment disorder – with mixed disturbance of emotions and conduct <input type="checkbox"/> Adjustment disorder – unspecified <input type="checkbox"/> Adjustment disorder - article does not specify	<input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS <input type="checkbox"/> SS	<input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding <input type="checkbox"/> No finding
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		<input type="checkbox"/> finding <input type="checkbox"/> Other important finding <input type="checkbox"/> Other important finding <input type="checkbox"/> finding	
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Were DSM-IV Personality Disorders Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Personality Disorders that were identified and classify the significance of the findings.

<input type="checkbox"/> Antisocial personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Avoidant personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Borderline personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Dependent personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Histrionic personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Narcissistic personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Obsessive-compulsive personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Paranoid personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizotypal personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Schizoid personality disorder	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Personality disorder NOS	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were DSM-IV Other Conditions that may be a Focus of Clinical Attention Specified as Outcomes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Other Conditions that were identified and classify the significance of the findings.

<input type="checkbox"/> Problems of abuse or neglect – child physical abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Problems of abuse or neglect – sexual abuse of child	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Problems of abuse or neglect – neglect of child	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Problems of abuse or neglect – adult physical abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Problems of abuse or neglect – adult sexual abuse	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Problems of abuse or neglect - article does not specify			<input type="checkbox"/> No finding

Were EAAT Outcomes Identified Related to ICF Bodily Functions?

Guideline: Check yes if any explanation of outcomes that relate to bodily functions as defined by the ICF were provided. Author does not need to use explicit ICF language, it is up to the clinical rational of the researcher to map onto the ICF framework. If there is a direct link to the subdomains listed in the ICF (in boxes below), then interpretation is appropriate. If yes is checked, proceed to the following questions, being certain to check level of significance.

Guideline: For research reports, yes is checked ONLY if identified outcomes were integrated into the research approach (data must be gathered and analyzed, cannot be reported as a subjective sidenote)

Guideline on Levels of Significance: Check "SS" ONLY if it is a research report, and statistics were provided demonstrating a significant change. Check "other important finding" if authors claim there was a clinically-important or somehow other important finding in quantitative studies, qualitative studies, or for outcomes claimed by conceptual articles. Check "no finding" if item was measured but no outcome was found.

Guideline: The following outcome measures can be coded under ICF BF: Timed-Up and Go Test (TUG) is coded as control of voluntary movement AND gait patterns.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Were Outcomes Pertaining to Global Mental Functions Identified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Global Mental Functions that were identified and classify the significance of the findings.

<input type="checkbox"/> Consciousness	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Energy and Drive (motivation, appetite, impulse control)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Intellectual	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Orientation (time, place, person)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Psychosocial (interpersonal skills, social interactions)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Temperament and Personality	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Sleep	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were ICF Outcomes of Specific Mental Functions Identified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Specific Mental Functions that were identified and classify the significance of the findings.

<input type="checkbox"/> Attention	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Calculation	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Emotional Functions	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Higher level cognitive functions (volition, organization)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Language	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Memory	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Perception	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Psychomotor (appropriate affect, response time, excitement)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Sensory Processing	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Sequencing Complex Movement (praxis)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Thought	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were ICF Outcomes Pertaining to Sensory Functions or Pain Identified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to Sensory Functions that were identified and classify the significance of the findings.

<input type="checkbox"/> Auditory	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Pain	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Proprioception	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Smell	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Taste	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Touch	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Temperature	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Vestibular	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Visual	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were ICF Outcomes of Voice and Speech Functions Identified?

☐ Yes ☐ No

If Yes, Classify Findings. Check All that Apply.

☐ SS ☐ Other Important Finding ☐ No Finding

If provided, specify in detail outcomes related to Speech Functions that were identified and classify the significance of the findings

<input type="checkbox"/> Alternative vocalization	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Articulation	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Fluency and rhythm of speech	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Voice	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were ICF Outcomes of Hematological, Immunological and Respiratory Systems Identified?

☐ Yes ☐ No

If Yes, Classify Findings. Check All that Apply.

☐ SS ☐ Other Important Finding ☐ No Finding

If provided, specify in detail outcomes related to Hematological, Immunological and Respiratory System Functions that were identified and classify the significance of the findings

<input type="checkbox"/> Cardiovascular (heart rate)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Haematological (blood pressure)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Immunological	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Respiratory system (breathing)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were ICF Outcomes Related to Digestive, Metabolic and Endocrine Systems Identified?

☐ Yes ☐ No

If Yes, Classify Findings. Check All that Apply.

☐ SS ☐ Other Important Finding ☐ No Finding

If provided, specify in detail outcomes related to Digestive, Metabolic and Endocrine System Functions that were identified and classify the significance of the findings.

<input type="checkbox"/> Related to digestive system	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Related to endocrine system	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Related to metabolism	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Were Outcomes of Musculoskeletal and Movement-related Functions Identified?

☐ Yes ☐ No

If Yes, Classify Findings. Check All that Apply.

☐ SS ☐ Other Important Finding ☐ No Finding

If provided, specify in detail outcomes related to Musculoskeletal and Movement-related Functions that were identified and classify the significance of the findings.

Joints and Bones			
<input type="checkbox"/> Mobility of joint	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Mobility of bone	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Stability of joint	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
Muscle			
<input type="checkbox"/> Muscle endurance	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Muscle power	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Muscle tone	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
Movement			
<input type="checkbox"/> Control of voluntary movement	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Gait patterns	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Involuntary movement	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Motor reflex	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Sensations related to muscle and movement	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Other	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding
			<input type="checkbox"/> No finding

Were EAAT Outcomes Identified Related to ICF Bodily Structures?

Guideline: Check yes if any explanation of outcomes that relate to bodily structures as defined by the ICF were provided. If yes, proceed to the following questions, being certain to check if statistically SS were identified. In order for a finding to be identified as statistically significant, the paper must report on a specific research study, meeting all criteria for research.

Guideline: Author does not need to use explicit ICF language, it is up to the clinical rational of the researcher to map onto the ICF framework. If there is a direct link to the subdomains listed in the ICF (in boxes below), then interpretation is appropriate.

☐ Yes ☐ No

If Yes, What Bodily Structure Outcomes were Described?

Were EAAT Outcomes Identified Related to Activity/Participation in the ICF?

Guideline: Author does not need to use explicit ICF language, it is up to the clinical rational of the researcher to map onto the ICF framework. If there is a direct link to the subdomains listed in the ICF (in boxes below), then interpretation is appropriate.

Guideline: Refer to ICF definitions of Activity and Participation when considering where to code outcomes. "Activity is the execution of a task or action by an individual. Participation is involvement in a life situation" (WHO, 2002, p. 10).

Guideline: In order to code as activity/participation the outcome must be related to task behavior that occurs in any context.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If Yes, Classify Findings. Check All that Apply.

<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
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If provided, specify in detail outcomes related to activity/participation that were identified and classify the significance of the findings.

<input type="checkbox"/> Carrying and Handling Objects	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Civic Participation	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Communication (reception and production)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Community Participation	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Domestic life (household tasks)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Education	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> General tasks and demands (single task, routines)	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Interpersonal interactions and relationships	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Learning and applying knowledge	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Play	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Recreation and Leisure	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Religion and Spirituality	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Self-care	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Walking and Moving	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Work	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding
<input type="checkbox"/> Any other activity	<input type="checkbox"/> SS	<input type="checkbox"/> Other important finding	<input type="checkbox"/> No finding

Where Were Outcomes Measured?

<input type="checkbox"/> Community
<input type="checkbox"/> Contrived health care or research setting
<input type="checkbox"/> EAAT Context
<input type="checkbox"/> Home
<input type="checkbox"/> School
<input type="checkbox"/> Work
<input type="checkbox"/> Other*

*(write- in for other)

Were Any Other Additional Quantitative Outcomes Identified?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, write-In additional outcomes and classify their significance

Guideline: Include all quantitative finding not captured elsewhere in the tool, including personal factors.

Guideline: Mutually exclusive significance, only check one level of significance for each outcome.

Guideline: Any outcomes related to the horse should be coded as "horse – _____" (horse as a prefix) to differentiate between people and horse outcomes.

Guideline: Horse outcomes related to horse height, wither height, or hands high, can be coded as the outcome "height of withers."

	<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
	<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
	<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding

	<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
	<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding
	<input type="checkbox"/> SS	<input type="checkbox"/> Other Important Finding	<input type="checkbox"/> No Finding

Were Any Additional Qualitative Findings or Outcomes Identified?

Guideline: If themes were provided list major themes with brief description. Remain close to author's language and quote when possible.

<input type="checkbox"/> Yes <input type="checkbox"/> No
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VII. Levels of Effectiveness, Appropriateness & Feasibility

Guideline: This section should only be completed for papers classified as research.

Does this Paper Provide Empirical Evidence of Effectiveness or Ineffectiveness Regarding the Intervention?

Guideline: Effectiveness relates to “whether the intervention achieves intended outcomes and so is concerned with issues such as: Does the intervention work? What are the benefits and harm? Who will benefit from its use?” (Evans, 2003, p. 80).

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, explain the nature of the evidence

(Write-In Access)

Does this Paper Provide Empirical Evidence of Appropriateness or Inappropriateness Regarding the Intervention?

Guideline: Appropriateness addresses “the impact of the intervention from the perspective of its recipient. It is concerned with the psychosocial aspects of care reflected in questions like: What is the experience of the consumer? What health issues are important to the consumer? Does the consumer view the outcomes as beneficial?” (Evans, 2003, p. 81).

Guideline: Only check yes if information is given from the viewpoint of people coded as participants in section III. The data must explicitly represent the participants' perspectives.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, explain the nature of the evidence

(Write-In Access)

Does this Paper Provide Empirical Evidence of Feasibility or Lack of Feasibility Regarding the Intervention?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If yes, explain the nature of the evidence

Section VIII. Key Impressions

Write key impressions about this article below.