

Advancing Research in Equine-Assisted Services

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By Caiti Peters

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The Temple Grandin Equine Center (TGEC) is an initiative at Colorado State University focused on integrating education and research in equine-assisted services (EAS). The TGEC has several ongoing programs of research, all of which aim to advance the scientific development of various areas of EAS: therapy (physical, occupational, speech language pathology, counseling and psychotherapy); learning, and horsemanship, which includes adaptive riding.

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Systematic Mapping Reviews

Dr. Wendy Wood was the Director of Research for TGEC from 2013- 2021, and therefore can be credited for many of TGEC's scientific accomplishments. In 2013, Wood launched TGEC's inaugural study, a systematic mapping review of peer-reviewed literature related to EAS. The study aimed to create a landscape, or map, of the body of literature related to EAS in order to understand the current state of knowledge and identify strengths, gaps and future research directions. Wood and her team have systematically gathered and analyzed more than 200 peer-reviewed research studies and conceptual articles published in English-language journals over the past 40 years. Thus far, this review has resulted in five publications, which review EAS literature related to youth with autism spectrum

disorder (ASD; McDaniel-Peters & Wood, 2017; Peters et al., 2019), older adults with dementia (Wood et al., 2017) and veterans (Kinney et al., 2019). An additional publication mapped the state of knowledge on the use of equine movement as a treatment tool within physical and occupational therapy services, commonly referred to as hippotherapy (Wood & Fields, 2019). This program of research is still ongoing; the team at TGEC will continue to publish targeted reviews that map the current state of scientific knowledge related to various types of EAS. These reviews can guide providers in various areas of EAS, and they have also clarified important gaps and charted future research direction.

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EAS for People Living With Dementia

Guided by the results of the systematic mapping review, Wood



TGEC partnered with Hearts & Horses, Inc. to study its innovative Riding in the Moment™ program for people living with dementia.

launched TGEC's first "on-the-ground" research in 2015, a program of research focused on adaptive riding for people living with dementia. TGEC partnered with Hearts & Horses, Inc., a PATH Intl. Premier Accredited Center in Loveland, CO, to study its innovative Riding in the Moment™ program for people living with dementia. (An article on this program appeared in the Spring 2019 issue of *PATH Intl. Strides*.) In line with TGEC's mission of integrating education and research, this program of research has been primarily led by Drs. Beth Fields and Rebecca Lassell, as they were pursuing their Ph.D. degrees at TGEC. Fields' dissertation research found that Riding in the Moment™ participants were significantly more likely to have positive quality of life experiences during activities involving horses (e.g., petting, grooming, watching, leading and riding horses) in comparison to other activities in their living facility (e.g., meals, music groups, television, etc.; Fields et al., 2018). Fields also interviewed program stakeholders and found that staff at Hearts & Horses, Inc., and the memory care facility evaluated the program favorably (Fields et al., 2019). Fields and her team thus established proof of concept that adaptive riding may benefit people living with dementia and established the program's acceptability to stakeholders.

Building on Fields' findings, Lassell launched two more studies of Riding in the Moment™ for her dissertation research. First, she developed a detailed logic model of the program to support the

program's eventual manualization and replication (Lassell et al., 2019). Next, Lassell compared Riding in the Moment™ to an adaptive gardening program. She discovered that, while both programs were beneficial, participants were more likely to engage in complex activities during Riding in the Moment™. Accordingly, participants were more likely to use and experience the fullest range of their existing cognitive and physical capacities while participating in Riding in the Moment™ (Lassell et al., 2021).

Since completing her dissertation research at TGEC, Fields has gone on to become an assistant professor at University of Wisconsin-Madison, where she continues to conduct research on Riding in the Moment™. In collaboration with Hearts & Horses, Inc., and other community partners, including Beaming Inc., a PATH Intl. Member Center in Neenah, WI, Fields' team has manualized the Riding in the Moment™ program and continues to research its benefits (Fields et al., 2021).

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OT in an Equine Environment for Youth With ASD

Also guided by the results of the systematic mapping review, TGEC's next on-the-ground research program launched in 2017. The mapping review established proof-of-concept that various areas of EAS could improve behavioral regulation and social functioning in youth

with autism spectrum disorder (ASD). Yet, research remained in the early stages of scientific development, marked by a lack of standardized intervention protocols, active control groups and random allocation to treatment groups. Therefore, TGEC launched a program of research on occupational therapy in an equine environment for youth with ASD, again partnering with Hearts & Horses. The long-term goal of this program of research is to establish integrating horses into occupational therapy as an evidence-based practice to improve self-regulation and social functioning in youth with autism. This program of research has been led by Dr. Caiti Peters as she pursued her Ph.D. degree and post-doctoral training at TGEC and now as an assistant professor at TGEC.

Peters and her team have followed a phased research approach put forth by the National Institute of Mental Health for how interventions for youth with ASD are best empirically developed and evaluated (Smith et al., 2007). The first study, representing phase 1 of intervention development, created an intervention and assessment protocol for occupational therapy in an equine environment (OTEE). This study also provided preliminary evidence that OTEE could improve participants' self-regulation, social functioning and goal attainment (Peters et al., 2020) and was acceptable to parents (Kalmbach et al., 2020).

Peters and her team next developed an intervention manual in order to standardize the intervention for both practice

and research. The team named the intervention "Occupational Therapy in an Equine Environment: Harnessing Occupation for Self-regulation, Social Communication, and Play" (OTEE HORSPLAY).

The second study, representing phase 2 of intervention development, found that OTEE HORSPLAY was feasible to implement and acceptable to parents and providers (Peters, Wood, Hepburn & Merritt, 2021). This study also provided preliminary evidence of efficacy. In particular, participants were more likely to meet or exceed their occupational therapy goals when a horse was integrated into the intervention, in comparison to a no-horse control group (Peters, Wood, Hepburn & Moody, 2021). This phase 2 study also revealed areas for improvement in the intervention manual and the need to develop a standardized, feasible control group.

Therefore, Peters and her team are in the midst of a second phase 2 study, focused on refining the OTEE HORSPLAY manual and creating a control group. The team created an intervention manual for an occupational therapy intervention delivered in a clinic (OT Clinic) that controls for all of the non-animal elements of OTEE HORSPLAY. Preliminary results of the ongoing study suggest the refined intervention and control protocols are feasible to implement and acceptable to youth, parents and providers.

The team is now writing a grant application to fund a phase 3 randomized controlled trial of occupational therapy in an

equine environment compared to occupational therapy in a clinic. If funded, this study would quantify the unique benefits of integrating horses in occupational therapy for youth with ASD.

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Standardized Assessments in EAS

TGEC aims for its research to be relevant to providers of EAS. A newly launched program of research on standardized assessments in EAS may have more immediate impact for providers. In 2020, Peters worked with occupational therapists and physical therapists at TGEC to incorporate a standard battery of assessments into their practices. Occupational therapists and physical therapists at TGEC are currently assessing their clients' motor skills, functional skills and goal attainment every six months to generate practice-based evidence for occupational therapy and physical therapy incorporating equine movement for a variety of populations. As this program of research continues and more data is gathered, TGEC aims to identify standardized assessments that are sensitive to change in therapy services that incorporate horses, in order to recommend their use by occupational therapists and physical therapists interested in measuring the effects of their services.

More recently, TGEC has partnered with PATH Intl. to identify standardized assessments that can be used to quantify

the benefits of adaptive riding for a variety of populations. While there is a plethora of anecdotal evidence that adaptive riding improves participants' quality of life, PATH Intl. Certified Therapeutic Riding Instructors (CTRIs) often lack a means to measure outcomes and communicate benefits to stakeholders. Therefore, TGEC and PATH Intl. launched a working group in 2021 focused on outcome measurement in adaptive riding. The working group will begin by gathering input from key stakeholders such as PATH Intl. CTRIs, center staff and participants. Based on stakeholder input, the working group will identify outcomes assessment(s) they believe can be feasibly implemented and are likely to capture participant improvements. Finally, the group will pilot the use of the chosen assessment(s), to determine if they are feasibly implemented, acceptable to stakeholders and sensitive to change. Overall, the working group aims to elevate the ability of EAS centers to communicate the benefits of adaptive riding to their participants, stakeholders and the public-at-large.

TGEC is involved in research in many different areas of EAS. In addition to the primary programs of research reviewed here, TGEC has also been involved in other industry initiatives. For example, Wood participated in a consensus-building process that proposed optimal terminology in EAS (Wood et al., 2020). As another example, Peters and Fields

are involved in a project aimed at characterizing the practice and safety patterns of hippotherapy as a treatment within occupational therapy, physical therapy and speech-language therapy (Peters, Fields et al., 2020). Through these diverse programs of research, TGEC aims to advance the science of various areas of EAS, in order to empirically demonstrate the unique value horses contribute to services that benefit people.

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TGEC, in partnership with Hearts & Horses, Inc., is researching the evidence for integrating horses into occupational therapy to improve self-regulation and social functioning in youth with autism spectrum disorder.



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